

WESTERN ELECTRIC COMPANY



TELEPHONIC
APPARATUS

AND
SUPPLIES



WESTERN ELECTRIC COMPANY

ATLANTA—

230 LEE STREET,
ATLANTA, GEORGIA.

NEW YORK—

463 WEST STREET,
NEW YORK.

CHICAGO—

259 SO. CLINTON STREET,
CHICAGO, ILLINOIS.

OMAHA—

802 FARNUM STREET,
OMAHA, NEBRASKA.

CINCINNATI—

113 WEST THIRD STREET,
CINCINNATI, OHIO.

PHILADELPHIA—

11TH AND YORK STREETS,
PHILADELPHIA, PENNA.

DALLAS—

DALLAS,
TEXAS.

PITTSBURG—

910 RIVER AVENUE,
ALLEGHENY, PENNA.

DENVER—

1516 CURTIS STREET,
DENVER, COLORADO.

SAINT LOUIS—

810 SPRUCE STREET,
ST. LOUIS, MISSOURI.

DES MOINES—

COR. THIRD AND DEPOT STREETS,
DES MOINES, IOWA.

SAINT PAUL—

235-237 EAST 6TH STREET,
ST. PAUL, MINN.

INDIANAPOLIS—

MAJESTIC BUILDING,
INDIANAPOLIS, INDIANA.

SALT LAKE CITY—

445 SOUTH THIRD WEST STREET,
SALT LAKE CITY, UTAH.

KANSAS CITY—

611-613 WYANDOTTE STREET,
KANSAS CITY, MISSOURI.

SAN FRANCISCO—

642 FOLSOM STREET,
SAN FRANCISCO, CAL.

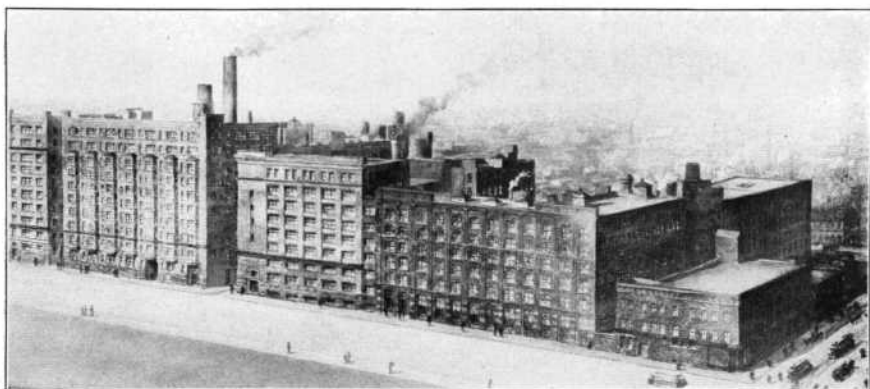
LOS ANGELES—

117 EAST SEVENTH STREET,
LOS ANGELES, CALIFORNIA.

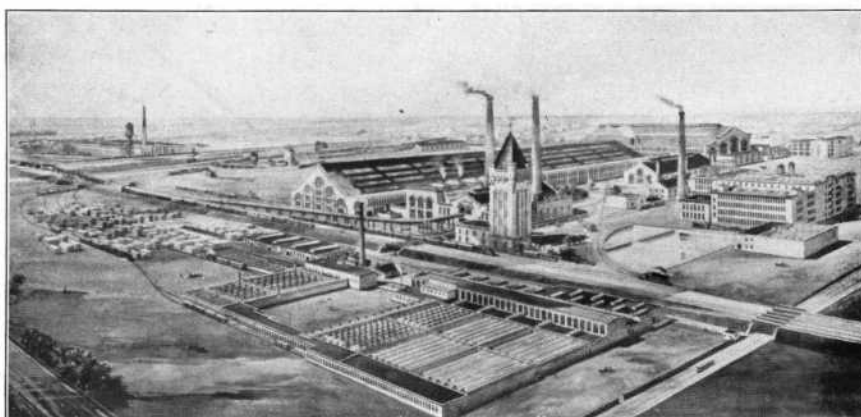
SEATTLE—

1518 FIRST AVENUE, SOUTH,
SEATTLE, WASHINGTON.

NORTHERN ELECTRIC & MANUFACTURING COMPANY, Limited,
MONTREAL. WINNIPEG.



CHICAGO



HAWTHORNE



NEW YORK



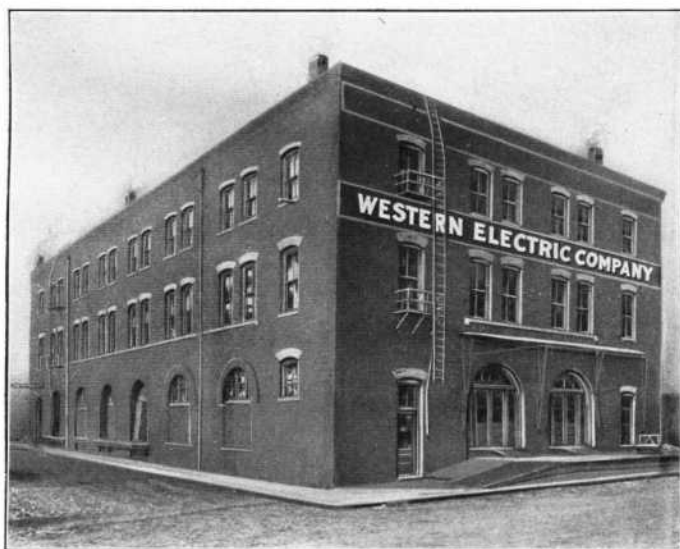
St. Louis



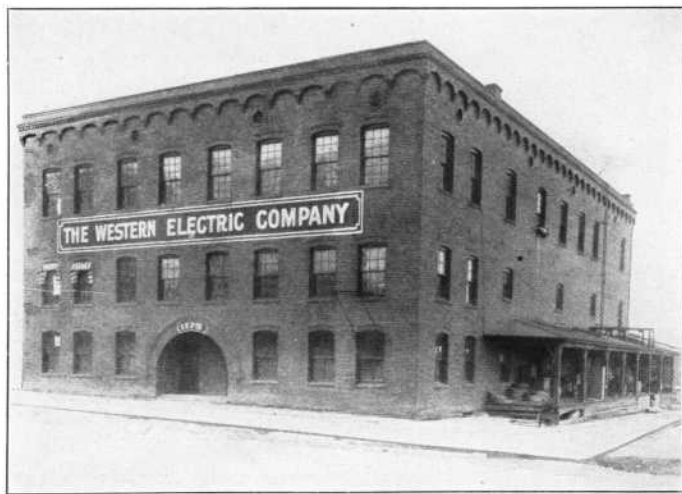
INDIANAPOLIS



LOS ANGELES



DES MOINES



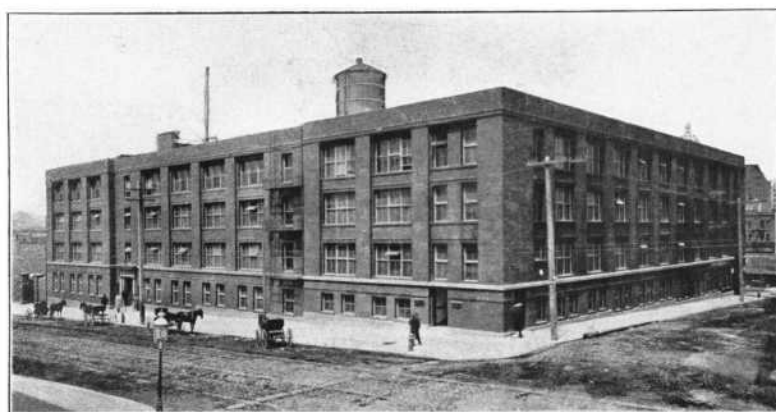
DENVER



OMAHA



ST. PAUL



SAN FRANCISCO



SEATTLE



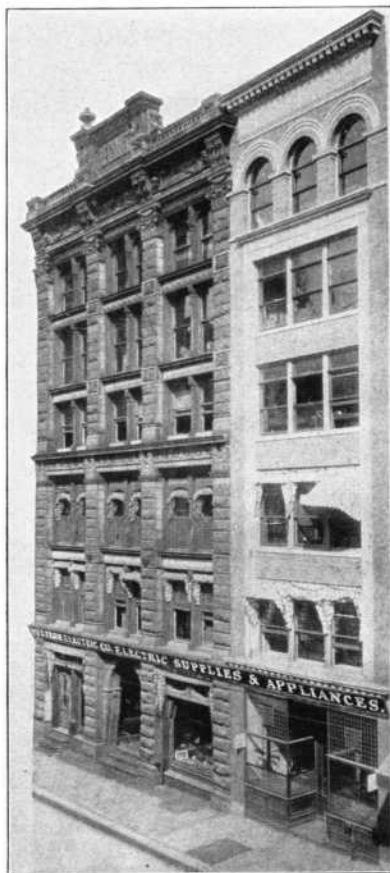
PHILADELPHIA



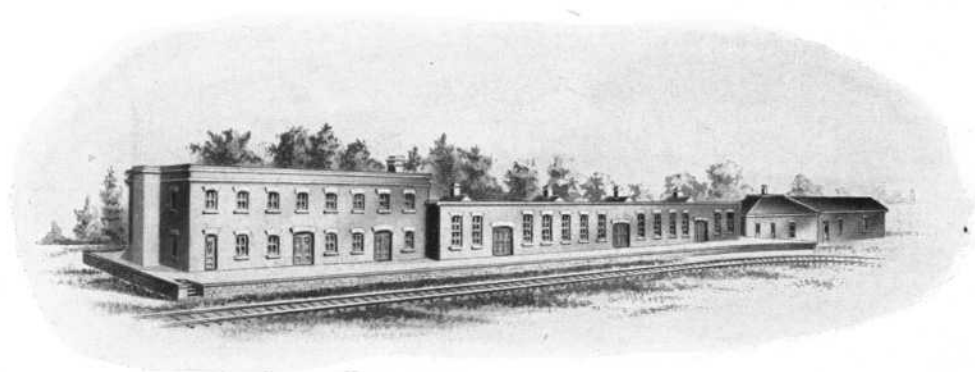
CINCINNATI



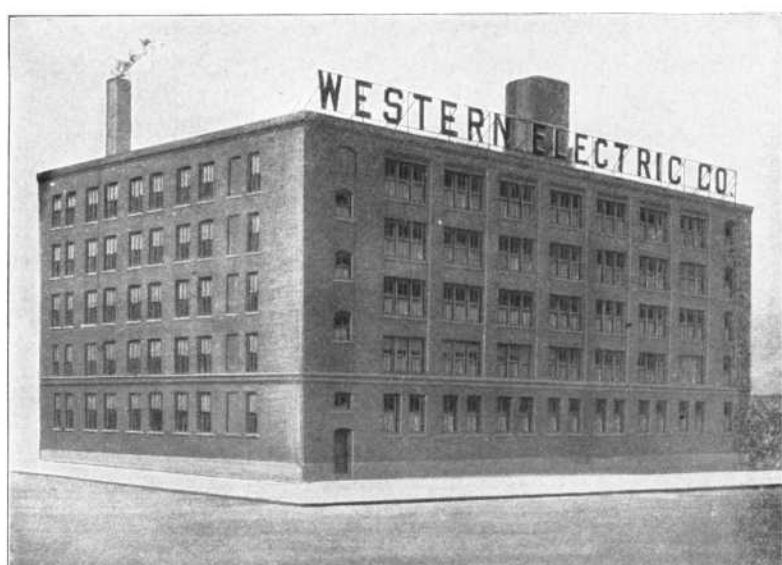
ATLANTA



KANSAS CITY



SALT LAKE CITY



PITTSBURG

INTRODUCTION

This catalogue has been prepared for the assistance and guidance of purchasers of telephone apparatus and supplies. It lists only the types of apparatus and supplies which are in common use. Material for which there is very little demand or which is furnished only with complex exchange equipments is not included in this catalogue.

The common uses of the apparatus are given so far as possible for the guidance of the purchaser and it should be understood that the apparatus is not necessarily restricted to these uses.

All parts are interchangeable and we are prepared to furnish renewals and additions to existing equipments at any time. If the code number is not known when ordering it is advisable to send us the old parts to insure prompt and proper filling of the order.

We carry at all our houses a complete line of apparatus and supplies in general use. At every house are experts who will be glad to furnish any desired information or advice, if you will write stating your requirements.

WESTERN ELECTRIC COMPANY

TELEGRAPH CODE

To accommodate our largely increased correspondence we have arranged a code of carefully compiled words, each representing a business phrase, and customers are requested to make use of these words when ordering goods, requesting quotation, or seeking information relative to the shipment of orders by telegraph. A little ingenuity in arranging a message in code will result in a comprehensive order being placed or a request for information being transmitted at a comparatively small cost.

ORDERS

Leaking	Add to our order of.	Lease	Ship immediately.
Leaky	Cancel our order of.	Leased	Ship as soon as possible.
Lean	Change our order of.	Leasehold	Ship by express.
Leaned	Hurry forward goods on our order of.	Leaseholder	Ship by fast freight.
Leaning	Have you shipped goods on our order? If not when will you?	Leash	Ship quickest route.
Leanness	Enter order if you can ship in.	Leaven	Ship cheapest route.
Leaped	Hold for instructions our order of.	Leavened	Send tracer immediately for shipment of.
Leaping	If you cannot ship in time named, advise by telegraph.	Leavening	Wait receipt of letter before proceeding with order.
Learn	Instructions by mail.	Lecture	Change order for.
Learned	Prepay freight.	Legacy	Hold subject to our order.
Lectured	Send C. O. D. by express.	Legal	Hold until further orders.
Lecturing	What quantity can you ship per day?	Legalize	Send us immediately.
Ledge	Do not delay.	Legally	This is very important.
Leeward	Duplicate our order.	Legate	Send tracer on shipment—goods not here.
Leeway	Can you furnish?		
Learning	Shipping instructions will be sent you.		

ANSWERS

Legislature	Please specify quantities and trade number.	Lent	Have entered order and will ship.
Legitimate	Unable to give better price.	Leonard	Have sent tracer as requested.
Legitimately	We quote.	Leonire	Have suspended work as requested.
Legitimist	We quote for immediate acceptance.	Leonora	Too late to cancel order.
Legless	We quote in reply to your inquiry of.	Leopard	Unable to ship goods at time promised.
Leisure	We quote shipment from stock.	Leopold's	We ship you to-day.
Leisurely	We quote shipment in.	Leper	We expect to ship.
Leming	We cannot accept at the price.	Leprosy	We will complete your order.
Lemon	We will accept your order.	Leprous	We will ship.
Lemonade	We do not make the article.	Lessen	We have shipped.
Lender	Can ship at once from stock if advised immediately.	Lessened	We have completed your order and shipped same.
Lending	Can ship at once on receipt of order.	Lessening	We have entered order.
Lengthen	Can ship in.	Lethargy	Telegraph shipping instructions for your order of.
Lengthened	Can begin shipping at once, and complete in.	Lettuce	Can deliver part of your order at once. Shall we ship portion, or hold till we can make one complete shipment?
Lengthening	Can ship within one week from receipt of order if advised at once.	Levant	Do not understand your order. Send duplicate with full details.
Lengthily	Can ship within two weeks from receipt of order if advised at once.	Levelness	Send us official order confirming your telegram.
Leniency	Have none in stock.		
Lenient	First shipment will be made.		

CODE IN GENERAL

Lapwing	Answer by mail.	Latent	Will greatly accommodate us if you will.
Larboard	Referring to our letter of.	Latently	According to contract.
Larceny	Referring to your letter of.	Lateral	Not according to contract.
Larch	We write you fully to-day.	Lather	To which add the cost of.
Largeness	We have no letter from you.	Lathered	In addition to.
Largess	Will write you fully in a day or so.	Lathering	How did you address?
Lariat	Write giving full particulars.	Latin	Was addressed to.
Lark	Answer by telegraph—day message.	Latinize	Please note an advance of.
Larva	Answer by telegraph—night message.	Latitude	Would you advise?
Larynx	Referring to our telegram of.	Latterally	Would advise you to.
Lascar	Referring to your telegram of.	Latterly	Would not advise you to.
Lash	Telegraph immediately.	Lattice	Unless otherwise advised will assume that.
Lashed	Telegraph reply soon as possible.	Laud	Will you agree to?
Lashing	We have no telegram from you.	Laudable	Will agree to.
Lass	Why do you not telegraph?	Laudably	Must have answer by.
Lasting	Shall we?	Laudation	Will be in.
Latch	Will you?	Laudative	Will be here.
Laugh	Utmost care must be used.	Lawrence	What have you done about?
Laughable	Cash on delivery.	Lax	Will deposit sight draft on you to-day, unless advised to the contrary, for dollars.
Laughed	Cash in 30 days.	Laxative	Please accept our draft for dollars.
Laughter	Will not allow any commission.	Laxity	Send duplicate copy of invoice dated.
Laughing	Commission will be allowed.	Laxness	Have examined very carefully and find.
Launch	Your financial standing being unknown, we will send goods C. O. D. unless otherwise instructed.	Laymen	Expenses to be paid by.
Launched	Kindly send us references as to your financial standing, or shall we ship via freight with draft attached to bill of lading?	Lazily	Do not fail to.
Laundress	Will you agree to the conditions?	Laziness	Have figured as close as possible.
Laundry	Contract awarded.	Lazy	Freight must be prepaid.
Laura	Contract will be awarded.	Leach	Freight rate per hundred pounds to destination.
Laurate	Will you extend credit?	Leaden	What is freight rate per hundred pounds?
Laurel	Have you decided?	Leader	Guarantee the account.
Lava	Have not decided.	Leading	Hold subject to your order.
Lavation	Have decided.	Leafage	Does not include.
Lavatory	Will guarantee delivery by the.	Leafing	Must be included.
Lavender	Cannot guarantee delivery before the.	Leafless	Will keep you fully informed.
Lawfully	The diameter is.	Leafy	Insist upon.
Lawfulness	Will do the best we possibly can.	League	Await instructions.
Lawgiver	Do the best you possibly can.	Leagued	Letter in transit with full particulars.
Lawgiving	Shall we do so?	Leak	Shall we deliver goods on verbal order of your Mr.?
Lawless	Do so.	Leakage	Advisable for you to place order at once, prices tending to advance.
Lawn	Can do nothing until.		
Lateen	Will you accept?		
Lateness	Wire at once if accepted or not.		

QUESTIONS

Legatee	At what price could you furnish?	Legibly	Can you ship immediately?
Legation	Quote us by telegraph.	Legion	Can you ship in?
Legend	Quote us by next mail.	Legislate	Have you in stock?
Legendary	Quote lowest price by telegraph F. O. B. New York.	Legislated	Have you in stock? If not how soon can ship?
Legging	Quote lowest prices by mail F. O. B. New York.	Legislating	How soon can you ship?
Legible	Telegraph lowest price, F. O. B. New York, and how soon can ship.	Legislative	How soon can you make first shipment and how fast remainder?
		Legislator	What substitution can you make?

TERMS

Terms are thirty days net. All bills are due on the 15th of the following month. Payments may be made by bank draft, post office or express money order or registered letter. We are not responsible for remittances lost in the mails.

REFERENCES

New customers, unless satisfactorily rated by the commercial agencies, should send references with their first order and brief statement of their financial condition. This will enable us to ship promptly.

C. O. D. SHIPMENTS

To avoid the slight delay necessarily occasioned by our taking time to make the usual inquiries of references, we are always glad to ship by express C. O. D. if a remittance sufficient to pay express charges both ways accompanies the order, or by freight subject to sight draft against bill-of-lading.

PRICES

The prices as given in this catalogue are f.o.b. warehouse unless otherwise specified, and are subject to change without notice. Net prices quoted upon request. Please state quantities desired.

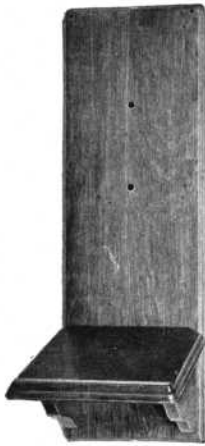
SHIPMENTS

We request customers to give shipping directions with their orders, but if not given will use our best judgment in making selection of route. As experienced packers are employed we are not responsible for breakages after having obtained "in good order" receipt from the transportation company. Goods ordered to be shipped by mail will be sent only at purchaser's risk.

TELEPHONE APPARATUS



No. 111-C



No. 132-A



No. 133-A



No. 134-A



No. 138-A



No. 136-B

APPARATUS BLANKS

A complete line of apparatus blanks is manufactured. These are suitable for covering the drillings for any of our apparatus which is not provided.

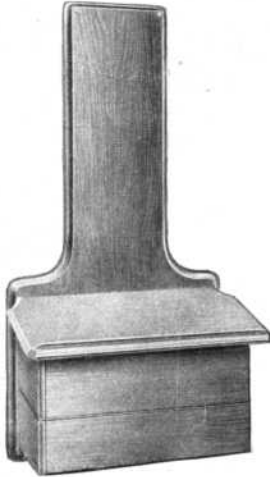
BACKBOARDS

Regularly furnished in oak or walnut

Code No.	Style	Used with	Dimensions inches	List Price each
111-C	Battery Box for 3 dry cells	Nos. 1240-A and 1240-E telephone sets. Included as part of set	33½x8½x7½	
		Walnut.....		\$1.60
		Oak.....		1.50
132-A	Writing Shelf	Nos. 1293-A, 1293-Y and 1296-A telephone sets.....	22½x7½x7½	1.05
133-A	Plain	No. 1293-J telephone set. Included as part of set.....	21x7½	.53
133-B	Plain	Special No. 1293-J telephone set when No. 7-E coin collector is used.....	24½x7½	.57
134-A	Plain	Nos. 1293-A and 1293-Y telephone sets.....	9½x6½	.24
136-B	Battery Box for 3 dry cells	No. 1293-Y telephone set	26x8½x7½	
		Walnut.....		1.50
		Oak.....		1.45
138-A	Battery Box for 3 dry cells	No. 1298-A telephone set. Included as part of set	30½x8½x7½	
		Walnut.....		1.60
		Oak.....		1.50

WRITE FOR LIBERAL DISCOUNTS

Backboards—Continued



No. S-7296

Code No.	Style	Used with	Dimensions inches	List Price each
S-7296	Battery Box for 3 wet cells	Not drilled but suit- able for Nos. 1240, 1293 and 1298 telephone sets.	35x16x8	\$2.70

BATTERY BOXES

Made of sheet steel, with black japan finish and lined with pressboard.



No. 1-A

Code No.	Used for	Dimensions inches	List Price each
1-A	3 standard size dry cells	8 $\frac{1}{2}$ x3 $\frac{1}{2}$ x7 $\frac{1}{4}$	\$0.75

PRIMARY BATTERIES

GRAVITY BATTERY



No. 10255

Code Word	List No.	5x7
Deerfield	10250	Cell, complete
Defiance	10251	Jar, glass 5x7
Delanco	10252	Zinc
Deland	10253	Copper
		6x8
Delano	10255	Cell, complete
Delaware	10256	Jar, glass 6x8
Delevan	10257	Zinc
Delhi	10258	Copper



No. 10130

STANDARD FULLER BATTERY

Colville	10130	Cell, complete
Comanche	10126	Jar, glass, 6x8
Comillah	10132	Cover for jar
Comines	10133	Carbon
Como	10134	Porous cup
Compton	10135	Zinc

WRITE FOR LIBERAL DISCOUNTS

Primary Batteries—Continued



No. 10000

LECLANCHE BATTERY

Code Word	List No.	
Ceredo	10000	Cell, complete
Ceretto	10002	Porous cup
Ceylon	10003	Jar
Ceylones	10004	Zinc, amalgamated
Chase	10005	Sal-ammoniac, package

GLADSTONE-LALANDE BATTERIES

Model G-10 Vitrified Porcelain Jar and Cover

Size over all, $4\frac{1}{2}$ inches x $6\frac{3}{4}$ inches

Capacity, 100 ampere hours

Code Word	List No.	
Kniedicht	G-10	Complete battery with charge

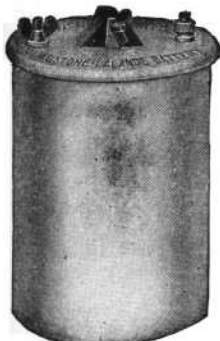
Renewal Charges

Kniedicht	G-11	Complete renewal
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Separate Renewal Parts

Kniefall	G-12	One oxide plate
Kniefalles	G-13	One double zinc plate
Kniegurt	G-14	One can caustic soda
Kniegurtes	G-15	One bottle paraffine oil

These renewal charges can also be used in Lalande cells, types BB and Z.



G-20 with Jar

Model G-20 Vitrified Porcelain Jar and Cover

Size over all, $5\frac{3}{4}$ inches x $8\frac{3}{4}$ inches

Capacity, 150 ampere hours

Code Word	List No.	
Kniefalles	G-20	Complete battery with charge

Renewal Charges

Kniefalles	G-21	Complete renewal
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Separate Renewal Parts

Kniefalles	G-22	One oxide plate
Kniefaltes	G-23	Two zinc plates
Kniefaltes	G-24	One can caustic soda
Kniefaltes	G-25	One bottle paraffine oil

These renewal charges can also be used in Lalande cells, type Q.



G-20 without Jar

Primary Batteries—Continued

Model G-50 Vitrified Porcelain Jar and Cover

Size over all, 7 $\frac{3}{4}$ inches x 10 $\frac{1}{2}$ inches

Capacity, 300 ampere hours

These batteries are largely used for central station telephone transmitter work and in operating inter-rupers for subscribers' ringing.

Code Word	List No.	
Knievormig	G-50	Complete battery with charge
		Renewal Charges
Kniewele	G-51	Complete renewal
		Separate Renewal Parts
Knoflook	G-52	One oxide plate
Kniffes	G-53	Two zinc plates
Knokkels	G-54	One can caustic soda
Knolkool	G-55	One bottle paraffine oil

These renewal charges can also be used in Lalande cells, types R and RR.

Permanent Parts of Gladstone-Lalande Batteries

Orsippas	G-110	Porcelain jar for G-10 cell
Orsodagna	G-120	Porcelain jar for G-20 cell
Ortalidi	G-150	Porcelain jar for G-50 cell
Orthodoxal	G-111	Porcelain jar for G-10 cell
Orthodoxe	G-121	Porcelain jar for G-20 cell
Orthogamy	G-151	Porcelain jar for G-50 cell
Orthogonos	G-112	Copper hanger with clamp and nuts for G-10 cells
Orthogonun	G-122	Copper hanger with clamp and nuts for G-20 cells
Orthonyx	G-152	Copper hanger with clamp and nuts for G-50 cells
Orthosias	G-155	Double threaded screw with two wing nuts and one jam nut for holding zincs in G-20 and G-50 cells

Code Word	List No.	
Orthostade	G-113	Hard rubber insulators for G-10 cells
Orthostyle	G-123	Hard rubber insulators for G-20 cells
Orthotone	G-153	Hard rubber insulators for G-50 cells
Ortigaban	G-154	Wire connections for all sizes of cells



No. 100028

DRY BATTERIES

BLUE BELL

The Blue Bell dry battery has been developed to meet the exacting requirements of telephone work. Comparative tests have been applied to the different dry cells now on sale, and show conclusively that the Blue Bell is the best dry cell on the market for light service, such as would be required of a primary battery for use in connection with a high resistance transmitter at local battery telephone sets. Size 2 $\frac{3}{8}$ in. x 6 $\frac{7}{8}$ in. Packed in barrels containing 125 each.

Code Word	List No.
Maststueck	100028

LIBERTY

It is especially adapted to telephone work, and is highly efficient. It has a voltage of 1.5 and is one of the best dry batteries for intermittent service.

Code Word	List No.
Originally	23939



No. 23939

PRICES ON REQUEST

Dry Batteries—Continued



No. 100029

COLUMBIA

This battery has been found satisfactory for telephonic work as well as for general use.

Code Word	List No.	
Mastuerzo	100029	No. 6 cell



No. 4129

1900

This battery is manufactured expressly for telephone service.

Code Word	List No.	
Ossiforme	4129	Standard, 2½ in. x 6 in.
Foolish	4449	Type C, 2 in. x 5 in.
Foolcracy	4450	Type B, 1¾ in. x 4½ in.



No. 10135



No. 10004



No. 10453



No. 10252

BATTERY SUPPLIES

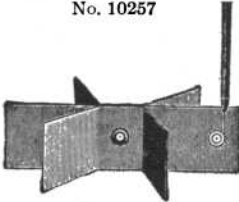
ZINCS

Code Word	List No.	
Ceylones	10004	Leclanche Square, amalgamated
Devereux	10453	Leclanche Round, amalgamated
Compton	10135	Standard Fuller Weight, 1½ lbs.
Delanco	10252	Crowfoot for 5x7 jar Weight, 1¾ lbs.

PRICES ON REQUEST



No. 10257



No. 10253



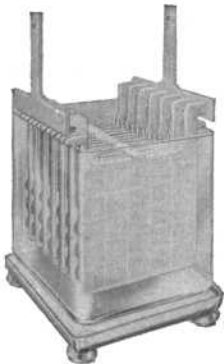
No. 10490



No. 10497



No. 10498



Type "E"

Battery Supplies—Continued

ZINCS

Code Word
Delevan

List No.

10257 Crowfoot for 6x8 jar, weight, 3 lbs.

COPPERS

Deland
Delhi

10253 For 5x7 jar

10258 For 6x8 jar

SAL-AMMONIAC

Dundee

10500 Imported over 99% pure

BLUE VITRIOL

Dunellen

10502

BATTERY UTENSILS

Code Word

List No.

Dumont

10490 Battery syringe No. 6, solid piston

Duncan

10497 Battery brush

Duncannon

10498 Battery knife

STORAGE BATTERIES

ELEMENT OF TYPE "E"

Size of Plates, $7\frac{3}{4}$ inches by $7\frac{3}{4}$ inches
"Chloride Accumulator"

Number of plates.....		5	7	9	11	13	15
	For						
Discharge in amperes.....	8 hours.....	10	15	20	25	30	35
	5 hours.....	14	21	28	35	42	49
	3 hours.....	20	30	40	50	60	70
	1 hour.....	40	60	80	100	120	140
Normal charge rate.....		10	15	20	25	30	35
Outside measurement of glass jar, in inches:	Length.....	$5\frac{1}{2}$	$6\frac{1}{2}$	8	$8\frac{5}{8}$	11	11
	Width.....	$9\frac{1}{8}$	$9\frac{1}{8}$	$9\frac{1}{8}$	$9\frac{1}{8}$	$9\frac{1}{8}$	$9\frac{1}{8}$
	Height.....	$11\frac{1}{8}$	$11\frac{1}{8}$	$11\frac{1}{8}$	$11\frac{1}{8}$	$11\frac{1}{8}$	$11\frac{1}{8}$
Outside measurement of rubber jar, in inches:	Length.....	$2\frac{7}{8}$	$3\frac{7}{8}$	5	$6\frac{1}{8}$	$8\frac{1}{8}$	$8\frac{1}{8}$
	Width.....	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$
	Height.....	11	11	11	11	11	11
Outside measurement of all metal tanks, in inches:	Length.....	$8\frac{1}{2}$	$9\frac{1}{2}$	$11\frac{1}{8}$	$12\frac{1}{8}$	$13\frac{1}{8}$	$15\frac{1}{8}$
	Width.....	11	11	11	11	11	11
	Height.....	$12\frac{1}{4}$	$12\frac{1}{4}$	$12\frac{1}{4}$	$12\frac{1}{4}$	$12\frac{1}{4}$	$12\frac{1}{4}$
Weight of electrolyte, in pounds:	In glass.....	$18\frac{1}{2}$	20	$24\frac{1}{2}$	26	35	34
	In rubber....	$5\frac{1}{2}$	8	$10\frac{1}{2}$	12	17	$18\frac{1}{2}$
	In all metal tanks.....	$27\frac{1}{2}$	$31\frac{1}{2}$	36	40	$44\frac{1}{2}$	49
Weight of cell complete with electrolyte, in pounds:	In glass.....	49	60	74	$86\frac{1}{2}$	104	112
	In rubber....	$29\frac{1}{2}$	$40\frac{1}{2}$	52	63	77	87
	In all metal tanks.....	85	104	124	136	161	180

PRICES ON REQUEST

Elements of Type "E"—Continued

Size of Plates, $7\frac{3}{4}$ inches by $7\frac{3}{4}$ inches

"Chloride Accumulator"

Number of plates.....	5	7	9	11	13	15
Height of cell to top of lug, in inches:	In glass..... 20	20	20	20	20	20
	In rubber.... 12½	12½	12½	12½	12½	12½
	In all metal tanks..... 16	16	16	16	16	16
List Price, element only.....	\$ 8.25	\$11.75	\$15.25	\$18.75	\$22.25	\$25.75
List Price, glass jar, extra.....	1.50	1.70	1.85	2.05	2.90	2.90
List Price, rubber jar and cover, extra.....	2.90	3.25	3.75	5.05	5.75	6.10
List Price, all metal tank, extra.....	10.30	11.35	12.40	13.45	14.50	15.55

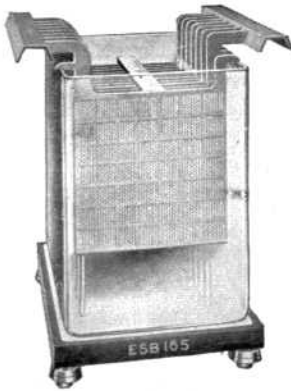
N. B.—In ordering Elements, or parts thereof, specify whether intended for glass or rubber jars or tanks.

ELEMENTS OF TYPE "F"

Size of Plates, 11 inches by $10\frac{1}{2}$ inches

"Chloride Accumulator"

Number of plates.....	9	11	13	15	17	19	21	23	25	27
Discharge in amperes:	For 8 hours.... 40	50	60	70	80	90	100	110	120	130
	5 hours.... 56	70	84	98	112	126	140	154	168	182
	3 hours.... 80	100	120	140	160	180	200	220	240	260
	1 hour.... 160	200	240	280	320	360	400	440	480	520
Normal charge rate.....	40	50	60	70	80	90	100	110	120	130
Outside measurements of glass jar, in inches:	Length.... 9	10½	10½	12	Old type jars 15½ inches high can be furnished for renewals					
	Width.... 12½	12½	12½	12½						
	Height.... 17	17	17	17						
Outside measurements of glass tanks, in inches:	Length.... 14½	14½	14½	17½	17½	20½	20½	20½	20½	20½
	Width.... 13½	13½	13½	13½	13½	13½	13½	13½	13½	13½
	Height.... 18½	18½	18½	18½	18½	18½	18½	18½	18½	18½
Clearance between glass tanks, 2½ and 3½ inches	Length.... 13½	14½	16½	18½	19½	21½	23½	24½	26½	28½
Outside measurements of all metal tanks, in inches:	Width.... 15	15	15	15	15	15	15	15	15	15
	Height.... 17½	17½	17½	17½	17½	17½	17½	17½	17½	17½
Clearance between metal tanks, 2 inches	Length.... 13½	15½	16½	18½	20	21½	23½	25	26½	28½
Outside measurements of lead-lined wood tanks, in inches:	Width.... 15	15	15	15	15	15	15	15	15	15
	Height.... 20½	20½	20½	20½	20½	20½	20½	20½	20½	20½
Clearance between wood tanks, 2 inches	Length.... 13½	15½	16½	18½	20	21½	23½	25	26½	28½
Weight of electrolyte, in lbs.:	In glass jars... 63	69	67	79	.....	.....	.....	.....	.....	.....
	In glass tanks..... 97	.....	97	.....	121	.....	143	.....	.....	.....
	In all metal tanks..... 95	108	121	134	146	160	172	185	198	212
	In wood tanks..... 86	99	111	123	133	145	156	168	180	191
Weight of cell complete with electrolyte, in lbs.:	In glass jars... 174½	206	227	260	.....	.....	.....	.....	.....	.....
	In glass tanks..... 279	.....	352	.....	422	.....	.....	.....	.....	.....
	In all metal tanks..... 256	297	337	377	416	457	497	537	577	618
	In wood tanks..... 250	292	332	372	411	452	492	532	573	615



Type "F"

Height of cell, in glass jars, from bottom of insulator to top of lug, in inches:	29½	29½	29½	29½	.....	.....	.....	.....	.....	.....
Height of cell, in glass tanks, from bottom of insulators to top of bus bar, in inches:	.....	23½	.....	23½	.....	23½	.....	23½	.....	.....
Height of cell, in all metal tanks, from floor to top of bus bar, double insulation, in inches:	33½	33½	33½	33½	33½	33½	33½	33½	33½	33½
Height of cell, in wood tanks, from floor to top of bus bar, double insulation, in inches:	33½	33½	33½	33½	33½	33½	33½	33½	33½	33½
Number of plates.....	9	11	13	15	17	19	21	23	25	27
List Price, element only.....	\$30.00	37.50	45.00	52.50	60.00	67.50	75.00	82.50	90.00	97.50
List Price, glass jar, extra.....	4.40	5.05	5.05	6.25	.....	.....	.....	.....	.....	.....
List Price, glass tank, extra.....	.....	.....	6.75	.....	7.75	.....	11.50	.....	.....	.....
List Price, all metal tank, extra.....	15.55	16.70	17.85	19.00	20.15	21.30	22.45	23.60	24.75	25.90
List Price, lead-lined wood tank, extra.....	13.00	13.85	14.70	15.55	16.40	17.25	18.10	18.95	19.80	20.65

N. B.—In ordering Elements, or parts thereof, specify whether intended for glass jars, glass tanks, all metal tanks, or wood tanks.

WRITE FOR LIBERAL DISCOUNTS

ELEMENTS OF TYPE "G"

Sizes of Plates, $15\frac{5}{16}$ inches by $15\frac{5}{16}$ inches. Clearance between tanks, 2 inches

"Chloride Accumulator"

Number of plates.....	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43
For																	
Discharge in amperes:																	
8 hours.....	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420
5 hours.....	140	168	196	224	252	280	308	336	364	392	420	448	476	504	532	560	588
3 hours.....	200	240	280	320	360	400	440	480	520	560	600	640	680	720	760	800	840
1 hour.....	400	480	560	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520	1600	1680
Normal charge rate.....	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420
Length.....	15½	16½	18½	20	22½	24½	26	27½	29½	31	32½	34½	36	37½	39½	40½	42½
Outside measurement of tank in in.																	
Width.....	19½	19½	19½	19½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½	20½
Height.....	26	26	26	26	26½	26½	26½	26½	26½	26½	26½	26½	26½	26½	26½	27½	27½
Weight of electrolyte, in pounds.....	188	210	231	253	274	296	317	338	360	381	403	424	446	467	489	510	532
Weight of cell, complete, with electrolyte, in lead-lined wood tank, in pounds:	568	645	719	798	925	1006	1085	1165	1266	1347	1427	1507	1588	1668	1748	1841	1922
Height of cell from floor to top of bus-bar, for double insulation, in inches:	38½	38½	38½	38½	40½	40½	40½	40½	40½	40½	40½	40½	40½	40½	40½	41½	41½
List Price, element only.....	\$ 75 00	90 00	105 00	120 00	135 00	150 00	165 00	180 00	195 00	210 00	225 00	240 00	255 00	270 00	285 00	300 00	315 00
List Price, lead-lined wood tank, extra.....	\$ 18 70	19 55	20 40	21 25	22 85	25 00	26 15	27 30	28 45	29 60	30 75	31 90	33 05	34 20	35 35	36 50	37 65

Number of plates.....	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75
For																
Discharge in amperes:																
8 hours.....	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720	740
5 hours.....	616	644	672	700	728	756	784	812	840	868	896	924	952	980	1008	1036
3 hours.....	880	920	960	1000	1040	1080	1120	1160	1200	1240	1280	1320	1360	1400	1440	1480
1 hour.....	1760	1840	1920	2000	2080	2160	2240	2320	2400	2480	2560	2640	2720	2800	2880	2960
Normal charge rate.....	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720	740
Length.....	44½	45½	47½	49½	51½	53½	54½	56½	58½	59½	61½	63½	64½	66½	68½	69½
Outside measurement of tank in inches:																
Width.....	20½	20½	20½	20½	21½	21½	21½	21½	21½	21½	21½	21½	21½	21½	21½	21½
Height.....	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½
Weight of electrolyte, in pounds.....	553	575	596	618	639	661	682	704	725	747	768	790	811	833	854	876
Weight of cell, complete, with electrolyte, in lead-lined wood tank, in pounds:	2005	2086	2165	2249	2393	2475	2557	2641	2724	2805	2889	2971	3053	3135	3217	3300
Height of cell from floor to top of bus-bar, for double insulation, in inches:	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½
List Price, element only.....	\$ 330 00	345 00	360 00	375 00	390 00	405 00	420 00	435 00	450 00	465 00	480 00	495 00	510 00	525 00	540 00	555 00
List Price, lead-lined wood tank, extra.....	\$ 38 80	39 95	41 10	42 25	45 70	46 85	48 00	49 15	50 30	51 45	52 60	53 75	54 90	56 05	57 20	58 35

WRITE FOR LIBERAL DISCOUNTS

COUNTER ELECTRO-MOTIVE FORCE CELLS

These are similar to the regular storage cells, except that the plates are merely grids without the filling. Two are used in the primary circuit of the battery driven ringing machines when 4-party selective ringing is given.

	List Price Elements Only each
Type E-5: Same size as the regular E-5 cell, used with 75-watt battery driven ringing machines	\$ 4.125
Type E-7: Same size as the regular E-7 cell, used with 150-watt battery driven ringing machines	5.875
Type E-11: Same size as the regular E-11 cell, used with 300-watt battery driven ringing machines.....	7.625

STORAGE BATTERY ACCESSORIES

	List Price
Acid	See Electrolyte
Battery Covers	Glass plates about $\frac{3}{16}$ in. thick used for covering the individual storage battery cells of Electric Storage Battery Company's manufacture. Made for types "E," "F" and "G" cells. Orders should specify the type of cell, and whether the bus bars are plain or have terminal cups..... On request
Bolt Connectors	For bolting together the connecting straps of type "E" or type "F" elements in glass jars, each..... \$ 0.20
Bus Bars	Two types are made, plain and reinforced. The plain bars are for joining together the elements of two adjacent cells. The reinforced bars are for the last cell in a row and the orders for them should state the number of cups on each, together with the size of wire for which each cup is to be drilled..... On request
Displacing Tanks	Used in the pilot cell of batteries of types "F" and "G" cells to fill vacant space of partially equipped tank so that the variation of density of electrolyte between charge and discharge will be a maximum. In ordering the displacing tanks it is necessary to state the type of tank and the number of plates which it is intended to displace..... On request






Bolt Connectors



Reinforced Bus Bar
and Terminal Cups.

WRITE FOR LIBERAL DISCOUNTS

Storage Battery Accessories—Continued

		List Price
	Electrolyte	Sulphuric acid having a specific gravity of 1.200. Delivered in carboys which are charged for, but which are credited when returned in good order. Per hundred pounds \$3.00
	Hydrometer	Type "E" for type "E" cells, each 1.50 Type "H" for types "F" and "G" cells, each 1.50
Type "E"		
	Hydrometer (Compensating)	For the pilot cell of batteries composed of types "F" and "G" cells, each 6.00
Compensating		
	Insulators	These are made of glass. Type "F" is used under sand trays. Type "G" is used under type "F" and "G" tanks and under stringers used in connection with tanks up to and including type G-17. Type "H" glass insulators are used under stringers for tanks larger than G-17. Type "F," each ..... .04 Type "G," each ..... .225 Type "H," each ..... .26
	Sand Trays	Wooden trays intended to be filled with sand, on which glass jars are placed. In ordering specify size of jar. On request
	Terminal Cups	To be specified with the reinforced bus bars. For 1,000,000 circular mil cable, each \$2.93 For 750,000 circular mil cable, each 2.55 For 500,000 circular mil cable, each 2.06 For No. 0000 B. & S. gauge cable, each 1.76
	Terminal Lugs	For connecting power wires to types "E" or "F" elements in glass jars. Type "E" has $\frac{1}{2}$ in. hole for wire. Special type "F" has three holes drilled for the sizes of wire specified in the order. Type "E," each ..... .85 Special type "F," each 1.50
		
Type "E"		
	Vitrified Bricks	Used under battery racks and stands, size $8\frac{1}{2}$ in. x $2\frac{1}{2}$ in., each ..... .045

WRITE FOR LIBERAL DISCOUNTS

BELLS

FOR DIRECT CURRENT

Skeleton Bell

Code Word	List No.	Standard Sizes of Gong inches
Orbiana	90535	3
Orbical	90536	4
Orbicello	90537	5
Orbicles	90538	6
Orbicular	90539	7
Orbiculato	90540	8
Orbiculina	90541	10
Orbiculos	90542	12

Iron Box Bell

Orbificabo	23590	2½
Orbificata	23591	3
Orbificavi	23592	4

Wood Box Bell

Orbitatem	23596	2½
Orbitatis	23597	3
Orbitele	23598	4

The Eco Bell

No adjustment screws to be displaced. Will operate equally well on one or ten cells of battery. Contact points are platinized.

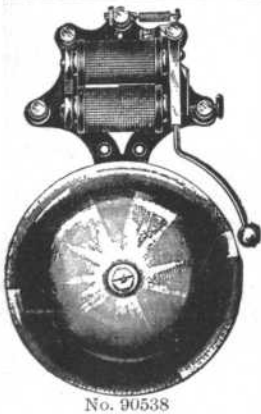
Hammer rod and armature in one piece. Is practically dust and insect proof.

Gongs are stamped brass heavily nicked.

Code Word	List No.	Standard Sizes of Gong inches
Factive	2460	1
Annawan	9275	1½
Anniston	9276	2
Annville	9277	2½
Anserated	9279	3
Anserine	9280	4

No. 2460 is nickel plated. Other sizes are japanned.

PRICES ON REQUEST



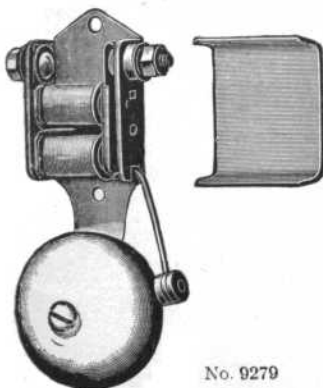
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No. 23590

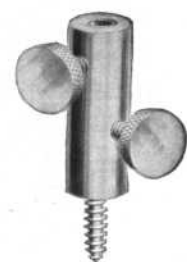


No. 23596



No. 9279

BINDING POSTS



No. 1-A



No. 1-B



No. 2-A



No. 2-D



No. 2-E



No. 3-A



No. 3-E



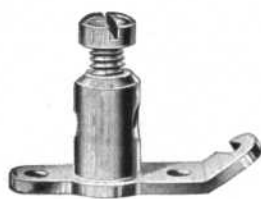
No. 9-A



No. 9-B



No. 16-A



No. 20-C

Code No.	Finish	List Price each
1-A	Brass.....	\$0.15
1-B	Brass.....	.12
2-A	Nickel plate.....	.06
2-D	Nickel plate.....	.06
2-E	Brass.....	.075
3-A	Nickel plate.....	.09
3-E	Nickel plate.....	.105
9-A	Brass.....	.2025
9-B	Brass.....	.225
16-A	Nickel plate.....	.0425
20-C	Nickel dip.....	.0825

WRITE FOR LIBERAL DISCOUNTS

BUZZERS**FOR ALTERNATING CURRENT**

No. 1-A

The No. 1 type is made from a standard ringer, the gongs, gong posts and clapper wire being omitted.

The No. 2 type has an armature spring and screw adjustment.

Code No.	Resistance ohms	Used in	List Price each
1-A	1000	Telephone sets.....	\$ 1.35
1-B	2500	Telephone sets.....	1.55



No. 2-A

2-A	100	Nos. 1006-A, 1006-C, 1006-D, 1006-E test sets.....	.70
2 B	250	No. 1006-B test set.....	.70



No. 2-D

2-C	1000	.....	.90
2-D	100	No. 1017-A test set.....	.70

FOR DIRECT CURRENT**The Eco Buzzer**

Needs no adjusting. Will operate equally well on one or ten cells of battery. There are no adjustment screws to be displaced. Contact points are platinized. The ribbed edges over the cover spring tightly over the base, making this buzzer absolutely dust and insect proof.



No. 2633

Code Word	List No.	Size inches
Ashcraft	9344	1½ x ¾
Falcon	2632	2 x 1
Falconette	2633	2½ x 1½
Falconer	2634	2¾ x 1¾
Falcones	2635	3¼ x 1¾

No. 9344 is full nickeled. Other sizes japanned.

WRITE FOR LIBERAL DISCOUNTS

CABLES FOR SWITCHBOARDS

The cables listed in the following tables are adapted for interior use; but should not be used where there is excessive dampness, since they are not provided with waterproof covering.

The conductors are provided with double silk and single cotton insulation which is colored in such a way that each pair and each single wire can be identified. The cable is protected from injury by a layer of lead tape and a heavy braiding which enclose the conductors. The cable is given a heavy coat of gray fireproofing paint.

The sizes of conductors are given in Brown and Sharpe gauge. No. 19 gauge wire in cables is used for the central office wiring of toll talking circuits, and No. 14 or No. 16 wire for supplying battery current to cord circuits, operator positions, lamp signals, etc.

The conductors in excess of the numbers mentioned in the columns for pairs and singles are provided as spares to be used in case some of the regular wires in the cable are accidentally cut.



No. 16



No. 84

Cable with Dry Core							List Price Per Foot
Code No.	Number of Conductors	Number of Pairs	Number of Singles	Size Inches	Shape		
16	64	20-No. 22	20-No. 22	$\frac{25}{32} \times \frac{7}{16}$	Oval		\$ 0.22
24	43	20-No. 22		$\frac{11}{16} \times \frac{1}{4}$	Oval		.15
35	53	25-No. 22		$\frac{3}{4} \times \frac{1}{4}$	Oval		.19
50	34	10-No. 22	10-No. 22	$\frac{19}{32} \times \frac{1}{4}$	Oval		.13
59	71	34-No. 22		$\frac{19}{32} \times \frac{1}{4}$	Oval		.24
60	75	36-No. 22		$\frac{19}{32} \times \frac{1}{4}$	Oval		.25
62	63	30-No. 22		$\frac{19}{32} \times \frac{1}{4}$	Oval		.22
63	105	51-No. 22		$\frac{19}{32} \times \frac{1}{4}$	Round		.34
65	53	25-No. 19		$\frac{7}{8} \times \frac{7}{16}$	Oval		.235
66	103	50-No. 22		$\frac{19}{32} \times \frac{1}{4}$	Round		.34
70	83	40-No. 22		$\frac{19}{32} \times \frac{1}{4}$	Oval		.28
72	11		10-No. 19	$\frac{1}{4} \times \frac{1}{4}$	Round		.07
74	21		20-No. 22	$\frac{1}{4} \times \frac{3}{8}$	Round		.085
79	23	10-No. 22		$\frac{1}{4} \times \frac{5}{16}$	Oval		.09
81	13	6-No. 22		$\frac{1}{4} \times \frac{9}{32}$	Oval		.06
84	64	20-No. 22	20-No. 22	$1 \frac{5}{16} \times \frac{5}{16}$	Oval		.265
87	35	16-No. 22		$\frac{19}{32} \times \frac{1}{4}$	Oval		.135
96	100	32-No. 22	32-No. 22	$\frac{1}{4} \times 1$	Oval		.325
97	132	64-No. 22		$\frac{5}{8} \times 1 \frac{1}{8}$	Oval		.42
98	166	64-No. 22	32-No. 22	$\frac{1}{4} \times 1 \frac{1}{4}$	Oval		.525
100	84	40-No. 24		$\frac{9}{16} \times \frac{1}{4}$	Oval		.24
105	64	20-No. 24	20-No. 24	$\frac{1}{2} \times \frac{11}{16}$	Oval		.19
106	103	40-No. 22	20-No. 22	$1 \times \frac{1}{4}$	Oval		.33
107	102	39-No. 22	19-No. 22 } 4-No. 16 }	$1 \frac{1}{8} \times \frac{9}{16}$	Oval		.36
108	94	36-No. 22	19-No. 22	$1 \times \frac{1}{4}$	Oval		.31
115	64	20-No. 19	20-No. 22	$\frac{1}{2} \times \frac{7}{16}$	Oval		.285
116	43	20-No. 19		$\frac{7}{8} \times \frac{3}{8}$	Oval		.225
117	83	20-No. 19 } 20-No. 22 }		$\frac{21}{32} \times \frac{1}{2}$	Oval		.345
119	103	50-No. 19		$\frac{3}{4} \times 1 \frac{1}{16}$	Oval		.52
120	64	20-No. 24	20-No. 24	$\frac{3}{4} \times \frac{3}{4}$	Oval		.19
121	53	10-No. 19 } 10-No. 22 }	10-No. 22	$\frac{7}{16} \times \frac{3}{4}$	Oval		.22
122	25	10-No. 22 } 1-No. 14 }		$\frac{7}{16}$	Round		.12
123	45	20-No. 22 } 1-No. 14 }		$\frac{17}{32}$	Round		.19
124	65	30-No. 22 } 1-No. 14 }		$\frac{5}{8}$	Round		.25
125	23	10-No. 19		$\frac{11}{32} \times \frac{9}{16}$	Oval		.13
126	43	10-No. 19 } 10-No. 22 }		$\frac{3}{8} \times \frac{3}{4}$	Oval		.19
127	33	10-No. 19	10-No. 22	$\frac{3}{8} \times \frac{21}{32}$	Oval		.16
Cable with Beeswaxed Core							
39	35	16-No. 22		$\frac{13}{32} \times \frac{11}{32}$	Oval		.135
118	154	20-No. 19 } 40-No. 22 }	28-No. 22	$\frac{11}{16} \times \frac{1}{8}$	Oval		.60

WRITE FOR LIBERAL DISCOUNTS

CABLES**LEAD COVERED**

Cable having conductors insulated with a single paper wrapping is standard for aerial and underground construction, but double wrapping can be furnished if desired. These have a lead sheath with 3% tin in preference to one of pure lead, on account of its greater strength and durability. A pure lead sheath can be furnished if desired at a somewhat lower cost.

For interior construction, cable having its conductors insulated with double wool, or silk and cotton is generally used. These are seldom employed for outside construction on account of their high cost. The former have a pure lead sheath, but one of composition can be furnished if desired.

TYPE "A" CABLE**For Aerial or Underground Use**

Conductors No. 22 B. & S. gauge, single paper insulation, covering on pair colored red and white.

Characteristics per mile of cable,

Average electrostatic capacity..... .069 microfarads

Insulation resistance..... 500 megohms

Composition lead sheath with 3% tin.

Code No.	Number of Pairs	Thickness of Sheath inches	Maximum Length per Reel feet	Code No.	Number of Pairs	Thickness of Sheath inches	Maximum Length per Reel feet
A-5	5	$\frac{1}{16}$	3000	A-125	125	$\frac{3}{32}$	1500
A-10	10	$\frac{1}{16}$	3000	A-150	150	$\frac{3}{32}$	1250
A-15	15	$\frac{1}{16}$	3000	A-175	175	$\frac{3}{32}$	1000
A-20	20	$\frac{1}{16}$	2500	A-180	180	$\frac{3}{32}$	1000
A-25	25	$\frac{1}{16}$	2500	A-200	200	$\frac{1}{8}$	1000
A-30	30	$\frac{1}{16}$	2500	A-225	225	$\frac{1}{8}$	1000
A-40	40	$\frac{1}{16}$	2250	A-240	240	$\frac{1}{8}$	900
A-50	50	$\frac{1}{16}$	2000	A-250	250	$\frac{1}{8}$	900
A-60	60	$\frac{1}{16}$	2000	A-275	275	$\frac{1}{8}$	850
A-75	75	$\frac{1}{16}$	1750	A-300	300	$\frac{1}{8}$	800
A-90	90	$\frac{1}{16}$	1500	A-350	350	$\frac{1}{8}$	750
A-100	100	$\frac{3}{32}$	1500	A-375	375	$\frac{1}{8}$	725
A-120	120	$\frac{3}{32}$	1500	A-400	400	$\frac{1}{8}$	700

TYPE "B" CABLE**For Aerial or Underground Use**

Conductors No. 19 B. & S. gauge, single paper insulation, covering on pair colored red and white.

Characteristics per mile of cable,

Average electrostatic capacity..... .054 microfarads

Insulation resistance..... 500 megohms

Composition lead sheath with 3% tin.

Code No.	Number of Pairs	Thickness of Sheath inches	Maximum Length per Reel feet	Code No.	Number of Pairs	Thickness of Sheath inches	Maximum Length per Reel feet
B-5	5	$\frac{1}{16}$	3000	B-50	50	$\frac{3}{32}$	1500
B-10	10	$\frac{1}{16}$	2500	B-60	60	$\frac{3}{32}$	1500
B-15	15	$\frac{1}{16}$	2000	B-75	75	$\frac{3}{32}$	1000
B-20	20	$\frac{1}{16}$	2000	B-100	100	$\frac{1}{8}$	1000
B-25	25	$\frac{1}{16}$	2000	B-120	120	$\frac{1}{8}$	900
B-30	30	$\frac{1}{16}$	1800	B-150	150	$\frac{1}{8}$	800
B-40	40	$\frac{1}{16}$	1600				

TYPE "C" CABLE**For Aerial or Underground Use**

Conductors No. 19 B. & S. gauge, single paper insulation, covering on pair colored red and white.

Characteristics per mile of cable,

Average electrostatic capacity..... .080 microfarads

Insulation resistance..... 500 megohms

Composition lead sheath with 3% tin.

Code No.	Number of Pairs	Thickness of Sheath inches	Maximum Length per Reel feet	Code No.	Number of Pairs	Thickness of Sheath inches	Maximum Length per Reel feet
C-5	5	$\frac{1}{16}$	3000	C-75	75	$\frac{3}{32}$	1000
C-10	10	$\frac{1}{16}$	2500	C-100	100	$\frac{1}{8}$	1000
C-15	15	$\frac{1}{16}$	2000	C-120	120	$\frac{1}{8}$	900
C-20	20	$\frac{1}{16}$	2000	C-150	150	$\frac{1}{8}$	800
C-25	25	$\frac{1}{16}$	2000	C-180	180	$\frac{1}{8}$	800
C-30	30	$\frac{1}{16}$	1800	C-200	200	$\frac{1}{8}$	750
C-50	50	$\frac{3}{32}$	1500	C-240	240	$\frac{1}{8}$	700
C-60	60	$\frac{3}{32}$	1500	C-300	300	$\frac{1}{8}$	700

PRICES ON REQUEST

Cables—Continued

TYPE "D" CABLE

For Inside Construction

Conductors No. 22 B. & S. gauge, double wool insulation, covering on pair colored white and red white.
 Characteristics per mile of cable,
 Insulation resistance.....100 megohms.
 Sheath of pure lead.

Code No.	Number of Pairs	Thickness of Sheath inches	Code No.	Number of Pairs	Thickness of Sheath inches
D-5	5	$\frac{1}{16}$	D-140	140	$\frac{3}{32}$
D-10	10	$\frac{1}{16}$	D-150	150	$\frac{3}{32}$
D-15	15	$\frac{1}{16}$	D-180	180	$\frac{3}{32}$
D-20	20	$\frac{1}{16}$	D-200	200	$\frac{3}{32}$
D-25	25	$\frac{1}{16}$	D-220	220	$\frac{3}{32}$
D-30	30	$\frac{1}{16}$	D-225	225	$\frac{3}{32}$
D-50	50	$\frac{1}{16}$	D-240	240	$\frac{3}{32}$
D-60	60	$\frac{1}{16}$	D-250	250	$\frac{3}{32}$
D-75	75	$\frac{1}{16}$	D-300	300	$\frac{3}{32}$
D-100	100	$\frac{3}{32}$	D-360	360	$\frac{3}{32}$
D-110	110	$\frac{3}{32}$	D-400	400	$\frac{3}{32}$
D-120	120	$\frac{3}{32}$	D-480	480	$\frac{1}{8}$
D-125	125	$\frac{3}{32}$			

TYPE "E" CABLE

For Inside Construction

Conductors No. 19 B. & S. gauge, double wool insulation, covering on pair colored white and red white.
 Characteristics per mile of cable,
 Insulation resistance.....100 megohms
 Sheath of pure lead.

Code No.	Number of Pairs	Thickness of Sheath inches	Code No.	Number of Pairs	Thickness of Sheath inches
E-10	10	$\frac{1}{16}$	E-120	120	$\frac{3}{32}$
E-15	15	$\frac{1}{16}$	E-125	125	$\frac{3}{32}$
E-20	20	$\frac{1}{16}$	E-150	150	$\frac{3}{32}$
E-25	25	$\frac{1}{16}$	E-160	160	$\frac{3}{32}$
E-30	30	$\frac{1}{16}$	E-180	180	$\frac{3}{32}$
E-40	40	$\frac{1}{16}$	E-200	200	$\frac{3}{32}$
E-50	50	$\frac{3}{32}$	E-225	225	$\frac{1}{8}$
E-60	60	$\frac{3}{32}$	E-240	240	$\frac{1}{8}$
E-70	70	$\frac{3}{32}$	E-250	250	$\frac{1}{8}$
E-75	75	$\frac{3}{32}$	E-300	300	$\frac{1}{8}$
E-100	100	$\frac{3}{32}$	E-325	325	$\frac{1}{8}$

TYPE "F" CABLE

For Interior Construction

Conductors No. 22 B. & S. gauge, double silk and single cotton insulation, covering on pair colored white and red white.

Characteristics per mile of cable,
 Insulation resistance.....100 megohms
 Composition lead sheath with 3% tin.

Code No.	Number of Pairs	Thickness of Sheath inches	Code No.	Number of Pairs	Thickness of Sheath inches
F-5	5	$\frac{3}{64}$	F-60	60	$\frac{1}{16}$
F-10	10	$\frac{3}{64}$	F-75	75	$\frac{1}{16}$
F-15	15	$\frac{3}{64}$	F-100	100	$\frac{1}{16}$
F-20	20	$\frac{3}{64}$	F-120	120	$\frac{1}{16}$
F-25	25	$\frac{3}{64}$	F-150	150	$\frac{1}{16}$
F-30	30	$\frac{3}{64}$	F-200	200	$\frac{1}{16}$
F-40	40	$\frac{3}{64}$	F-240	240	$\frac{1}{16}$
F-50	50	$\frac{1}{16}$			

PRICES ON REQUEST

CABLE TERMINALS

These are for open wire distribution from lead covered aerial cable and are arranged for attaching to poles. No arrangement is made for protective devices. The code number does not include a cable stub, but it is recommended that they be ordered with 6 ft. of No. 22 B. & S. gauge cable attached.

Prices are f. o. b. New York

Code No.	Capacity pairs	Height of Hood inches	Diameter of Hood inches	Number in Standard package	Approx. Weight of Standard Package lbs.	List Price each with 6 ft. No. 22 B. & S. cable attached
8-A	10	14½	6¼	10	250	\$ 3.75
8-B	16	14½	6¼	10	250	4.20
8-C	26	19	6¼	10	280	5.85
8-D	31	19	6¼	10	280	6.75
8-E	51	28	6¼	8	350	9.60
8-F	61	28	6¼	8	385	11.25



No. 8—Open

These are for open wire distribution from lead covered aerial cable and are intended to be mounted on poles or buildings. No arrangement is made for protective devices. The code number does not include a cable stub, but it is recommended that they be ordered with 6 ft. of No. 22 B. & S. gauge cable attached.

Prices are f. o. b. New York

Code No.	Capacity pairs	Height of Cover inches	Width of Cover inches	Number in Standard package	Approx. Weight of Standard Package lbs.	List Price each with 6 ft. No. 22 B. & S. cable attached
14-A	10	7½	7½	8	210	\$ 4.40
14-B	11	7½	7½	8	210	4.45
14-C	16	9⅞	7½	8	230	5.50
14-D	26	14½	7½	8	300	8.05
14-E	21	12⅞	7½	8	280	7.15



No. 14—Open



No. 14 closed

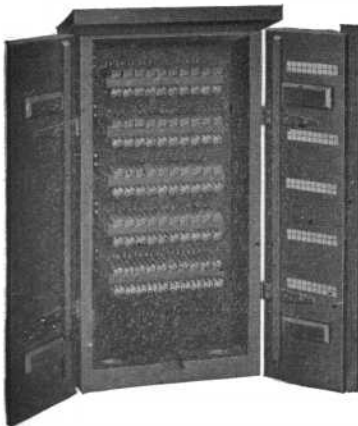
These are for joining aerial and underground cables. No. 77-A protectors, consisting of 6 ampere fuses, 40 per strip, can be mounted in them, but are not furnished unless ordered. No provision is made for open space cutouts.

They are for mounting on poles and are not conspicuous on account of their narrow width.

Prices are f. o. b. New York

Code No.	Capacity pairs	Dimensions inches Height Width Depth	Approx. Weight of one box crated lbs.	List Price each without protectors
15-A	100	38 20 9⅝	70	\$ 8.25
15-B	200	63 22 9⅝	113	11.25

In ordering specify the code number and number of pairs (in groups of 20) of protectors desired.



No. 15—Open, with Protectors



No. 15—Closed

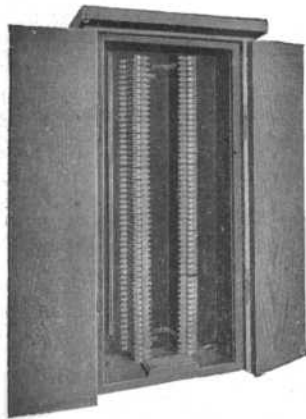
WRITE FOR LIBERAL DISCOUNTS

Cable Terminals—Continued

Prices are f. o. b. New York

These are for joining aerial and underground cables or for open wire distribution. No. 7-A protectors consisting of 6 ampere fuses or No. 61-A protectors consisting of 6 ampere fuses and carbon open-space cutouts can be mounted in them, but are not furnished unless ordered.

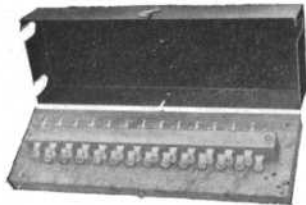
Boxes up to 100 pairs are arranged to mount the protectors in two strips; larger ones are arranged for four strips. They are for mounting on poles.



SH 5108—Open, with
Protectors

Code No.	Dimensions inches			Approx. Weight of one box crated lbs.	List Price each without protectors
	Height	Width	Depth		
SH-5108 for 25 pairs	25½	20¾	8¾	38	\$ 6.75
SH-5108 for 30 pairs	29	20¾	8¾	46	6.90
SH-5108 for 50 pairs	42½	20¾	8¾	55	7.20
SH-5108 for 55 pairs	46	20¾	8¾	59	7.35
SH-5108 for 60 pairs	49½	20¾	8¾	67	7.35
SH-5108 for 100 pairs	77	20¾	8¾	94	8.80
SH-5109 for 110 pairs	46	37½	9	97	9.45
SH-5109 for 120 pairs	49½	37½	9	104	9.45
SH-5109 for 150 pairs	60½	37½	9	122	9.90
SH-5109 for 200 pairs	77	37½	9	145	10.50

In ordering specify code number and capacity of box, together with number of pairs and kind of protector desired.



No. 12-A

These are provided with a cover and are convenient in cross-connecting cables for inter-communicating systems.

Code No.	Capacity pairs	Length	Dimensions inches		Depth	List Price each
			Width			
12-A	10	12	4		1¾	\$ 1.00
12-B	20	12	4		2¾	1.30
12-C	30	12	4		3¾	1.65

CALCULAGRAPH

The calculagraph is the most convenient and accurate means of recording a telephone conversation. It is furnished suitable for mounting either directly in the keyboard of the switchboard, or on a pedestal which may be placed beside the operator. It may be furnished with or without a visible dial. The instrument has two handles, one of which is pulled for recording the beginning of the conversation and the other for ending. It records the time at which the conversation is begun and computes the elapsed time in minutes and quarter minutes.



No. 52041

Code Word	List No.		List Price each
Hygram	52041	Model No. 6.....	\$ 100.00

Has visible dial and is arranged for mounting in keyshelf.



CHAIRS

For telephone switchboard operators. The chairs are furnished in birch with a mahogany finish. They can be furnished with leather over cane, and with castors or rubber tips.

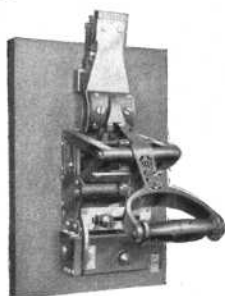
The first measurement indicates the distance of seat from the floor when the seat is in its lowest position while the second indicates the highest.

Code Word	List No.	Height inches
Hygeist	52032	18 to 22
Hygia	52033	24 to 31
Hygicam	52034	28 to 35

Prices on request.

CIRCUIT BREAKERS

Cutter overload circuit breaker with auxiliary shunt tripping coil for 30 volts, for use with our No. 154 type relay to protect the storage battery and charging generators from excessive or reverse currents.



Type NX

Type	Capacity Amperes	Calibration Volts	List Price each
EL	30	25 to 45	\$ 41.00
EL	60	45 to 90	45.00
EL	100	75 to 150	48.00
EL	200	150 to 300	52.00
EL	300	225 to 450	55.00
NX	400	300 to 600	92.00
NX	600	450 to 900	100.00
NX	800	600 to 1200	110.00
NX	1000	800 to 1500	125.00

Order should read:—1 Cutter . . . ampere overload circuit breaker type . . . with auxiliary shunt tripping coil for 30 volts, with terminal lugs drilled for . . . circular mil cable.

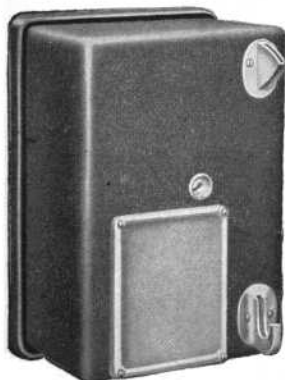
CUTTER UNDERLOAD CIRCUIT BREAKER

Type	Capacity Amperes	Calibration Volts	List Price each
EL	30	25 to 45	\$ 28.00
EL	60	45 to 90	32.00
EL	100	75 to 150	35.00
EL	200	150 to 300	39.00
EL	300	225 to 450	42.00

Orders should read:—1 Cutter . . . ampere underload circuit breaker, type EL with lugs drilled for . . . circular mil cable.

COIN COLLECTORS

FOR CENTRAL BATTERY TELEPHONES



No. 7-A.

These are arranged so that a coin placed in the coin chute remains under control of the central office operator, who may refund or deposit it into the coin box. The coin collector is ordinarily connected to the telephone line so that it is necessary to drop a coin of the proper denomination into the box to signal central office. This saves considerable time on the part of the operator. It may be wired so that the coin need not be deposited until the operator requests it.

All electrical circuits are insulated from the case. The case has a heavy black japanned finish.

On the front of each of these coin collectors is mounted a small metal frame which holds an instruction card. Over the card is placed a piece of glass for protecting the card from dirt and injury.

Code No.	Arranged for	Length	Dimensions inches Width	Depth	List Price each
7-A	Nickels	7 $\frac{1}{2}$	5 $\frac{1}{2}$	3 $\frac{3}{4}$	\$ 5.25
7-C	Dimes	7 $\frac{1}{2}$	5 $\frac{1}{2}$	3 $\frac{3}{4}$	5.55

WRITE FOR LIBERAL DISCOUNTS

Coin Collectors—Continued



No. 7-E

Code No.	Arranged for	Length	Dimensions inches Width	Depth	List Price each
7-E	Nickels	11½	5¼	3½	\$ 6.40

The No. 7-E has a larger coin box than the No. 7-A.



No. 13-A

FOR CENTRAL BATTERY OR MAGNETO TELEPHONES

This is arranged so that any coin dropped into the chute falls directly into the coin box when the lever is rotated. It has but a single coin slot into which may be inserted, one at a time, nickels, dimes or quarters. It is necessary for the operator to listen on the line while the coins are being deposited, since the signal is given on a gong, a nickel giving one, a dime two and a quarter three strokes.

Code No.	Arranged for	Length	Dimensions inches Width	Depth	List Price each
13-A	Nickels, dimes and quarters	9½	4¼	4	\$ 9.75

CONDENSERS

These are of small size and made of selected material. Except as noted in the list, they are designed to withstand a potential of 500 volts direct current, and are rated at the minimum capacity.

They may be mounted in any desired position by means of a condenser strap (P-43065) and two wood screws. The No. 21-E is usually mounted by means of strap WM-2381.



No. 21-D

Code No.	Capacity micro-farads	Style of terminal	Size of case inches	Use	List Price each
21-D	2	Bent	4½ x 1½ x 1½	For telephone sets	\$ 1.15
21-E	2	Straight	4½ x 1½ x 1½	For switchboards and for general use	1.15
21-F	.1	Bent	4½ x 1½ x 1½	For telephone sets	.70
21-H	0.1	Bent	4½ x 1½ x 1½	For No. 84 type interrupter—designed to stand 1000 volts alternating current	.60

WRITE FOR LIBERAL DISCOUNTS

Condensers—Continued



No. 21-J



No. 21-U



No. 27-B



No. 28-B



No. 33-A

Code No.	Capacity micro-farads	Style of terminal	Size of case inches	Use	List Price each
21-J	0.3				
	0.3	Straight	$4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$	Designed to stand 750 volts direct current—3 terminals	\$ 0.75
21-K	1	Straight	$4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$	For general use	.70
21-L	2	Straight	$4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$	For mounting on coil racks	1.15
21-M	1	Straight	$4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$	For mounting on coil racks	.70
21-N	1.0				
	0.5	Straight	$4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$	For mounting on coil racks—3 terminals.....	1.05
21-R	0.1	Straight	$4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$	For general use.....	.40
21-S	0.125				
	0.250				
	0.500	Straight	$4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$	For telegraph work—4 terminals.....	1.05
21-U	.05	Bent	$4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$	For railway composite telephone set, designed to stand 1200 volts alternating current.....	.45
31-A	.05				
	.05	Wire	$4\frac{1}{2} \times 1\frac{1}{8} \times 1\frac{1}{8}$	For general use—4 terminals	.75

These are used in connection with telegraph and telephone stations on railway composite systems.

Code No.	Capacity micro-farads	Size of case inches	Use	List Price each
23-A	1	$8\frac{3}{4} \times 6\frac{1}{4} \times 1\frac{1}{8}$	For railway composite system; designed to stand 1000 volts alternating current.....	\$ 3.75
27-B	1	$10\frac{7}{8} \times 7\frac{1}{8} \times 2\frac{3}{8}$	For intermediate telegraph stations on railway composite system; a No. 23-A condenser on a maple base; designed to stand 1000 volts alternating current.....	4.35
28-B	1	$10\frac{3}{4} \times 11 \times 8\frac{7}{8}$	For terminal telephone stations on railway composite system; comprises 1 No. 23-A condenser and 1 No. 5-L retardation coil mounted in a maple box; designed to stand 1000 volts alternating current.....	16.95

These are designed for mounting on the coil rack, either on the same shelves with the repeating coils, or grouped on shelves by themselves, and consist of No. 21 type condensers mounted on a wood base $10\frac{3}{4}$ in. long by $1\frac{7}{8}$ in. wide.

Code No.	Condensers Used	Capacity of each No. 21 Type Condenser microfarads	List Price each
33-A	2 No. 21-L	2	\$ 2.50
33-B	1 No. 21-L	2	1.35
33-C	2 No. 21-M	1	1.60
33-D	1 No. 21-M	1	.90
33-E	2 No. 21-N	1.0	2.35
		0.5	

WRITE FOR LIBERAL DISCOUNTS



No. 1-A—Connecting Block



No. 6-D—Connecting Block



No. 7-A—Connecting Block



No. 8-A—Connecting Block

CONDENSER STRAPS

Code No.

List Price
each

WM-2381 Bent iron strap for use with No. 21-E condenser. Dimensions over all $5\frac{3}{8}$ in. x $1\frac{7}{8}$ in. x $\frac{9}{16}$ in., inside $4\frac{9}{16}$ in. x $1\frac{3}{8}$ in.

\$ 0.045

P-43065 Straight iron strap for use with No. 21 type condensers. Dimensions $4\frac{1}{16}$ in. x $\frac{1}{2}$ in.

.012

CONNECTING BLOCKS

Code No.	Number of Binding Posts	Style	Size inches	Base	List Price each
1-A	3	Lock nut....	$2\frac{1}{8}$ x $\frac{3}{16}$	Electrose.....	\$ 0.12
6-A	7 pairs	Lock nut....	$5\frac{5}{8}$ x $1\frac{1}{8}$	Electrose.....	.53
6-B	11 pairs	Lock nut....	$8\frac{5}{8}$ x $1\frac{1}{8}$	Electrose.....	.71
6-C	16 pairs	Lock nut....	$12\frac{3}{8}$ x $1\frac{1}{8}$	Electrose.....	.98
6-D	21 pairs	Lock nut....	$16\frac{1}{8}$ x $1\frac{1}{8}$	Electrose.....	1.35
6-E	26 pairs	Lock nut....	$19\frac{1}{8}$ x $1\frac{1}{8}$	Electrose.....	1.65
7-A	2	Lock nut.... with cover.	$2\frac{1}{8}$ x 1	Electrose.....	.14
8-A	6	For cord tip	5x1	Ebonized Wood...	.23
8-B	3	For cord tip	$2\frac{3}{4}$ x 1	Ebonized Wood...	.15
9-A	3	Lock nut.... with cover.	$2\frac{1}{8}$ x $1\frac{5}{8}$	Electrose.....	.15

CORDS

FOR CENTRAL OFFICES

It is customary to use 4 ft. switchboard and 6 ft. operator's telephone cords on small magneto and private exchanges and 6 ft. switchboard and operator's telephone cords on other boards.

These lengths are carried in stock but others will be furnished on request. The switchboard cords, Nos. 152, 155, 156, 236, 244, and 249 are regularly made in three colors, red, white and green. The white cords are furnished unless the color is specified. The steel cords are more substantial than the tinsel but have a higher resistance. It is accordingly customary to use steel cords for local positions and tinsel for toll.

In ordering specify the code number, length, color, and, if plugs are to be attached, give the code number of the plugs. No extra charge is made for attaching plugs to cords.

Code No.	Description	Used with	Standard Length feet	List Price each
10	2 conductor tinsel cord, green silk covering.	Operator's head telephone when connected to binding posts.....	6	\$ 0.31
26	Single conductor stranded copper and tinsel cord, green silk covering.	Suspended switchboard transmitter and No 7 transmitter arm.....	6	.12
30	2 conductor tinsel cord, green silk covering.	Operator's head telephone when connected to No. 85 plug.....	6	.36
87	4 conductor tinsel cord, green silk covering.	Operator's head telephone and chest transmitter when attached to No. 103 or 112 plug	6	.75
129	4 conductor stranded copper cord, green glazed cotton covering.	Neither end equipped with tips, but there may be connected to one end a No. 124, 128 or 132 plug, for testing on protectors or terminal strips...	10	.765

WRITE FOR LIBERAL DISCOUNTS

Cords—Continued

No. 152

Code No.	Description	Used with	Standard Length	List Price each
152	3 conductor steel switchboard cord, glazed cotton covering.	No. 110 plug.....	6 ft.	\$ 0.75
153	4 conductor stranded copper cord, green glazed cotton covering.	No. 124, 128 or 132 plug....	10 ft.	.78
155	3 conductor steel switchboard cord, glazed cotton covering.	No. 109 plug.....	6 ft.	.75
156	2 conductor steel switchboard cord, glazed cotton covering.	No. 47 plug.....	4 ft. 6 ft.	.425 .53
236	2 conductor tinsel switchboard cord, glazed cotton covering.	No. 47 plug.....	4 ft. 6 ft.	.29 .38
244	3 conductor tinsel switchboard cord, glazed cotton covering.	No. 109 plug.....	6 ft.	.60
249	3 conductor tinsel switchboard cord, glazed cotton covering.	No. 110 plug.....	6 ft.	.53
254	2 conductor tinsel cord, green silk covering.	Operator's head telephone, when connected to No. 103 plug	6 ft.	.36

Code No.	Description	Used with		
264	2 conductor stranded copper cord, green glazed cotton covering.	One end equipped with spring clips for testing on terminal strips.....	6 ft.	.66
265	Single conductor tinsel switchboard cord, glazed cotton covering.	No. 116 plug.....	4 ft.	.24
338	Single conductor stranded copper cord, rubber covered.	For connecting dry cells.....	4 in.	.0375

FOR TELEPHONE SETS

Note:—The length of all cords, except combination cords, should be specified on the order.

10	2 conductor tinsel cord, green silk covering.	Receiver on wall set.....	3 ft.	.195
15	2 conductor stranded copper cord, red worsted covering.	Receiver on No. 1006 test set (included with No. 125-W receiver)	3 ft.	.225
92	2 conductor tinsel cord, red and blue worsted covering.	Receiver on wall set.....	3 ft.	.13
175	4 conductor tinsel cord, green silk covering.	Desk stand as extension cord.....	6 ft.	.57
178	2 conductor tinsel cord, green silk covering.	Receiver on desk stand or transmitter arm.....	2½ ft. 3 ft.	.18125 .20
179	Single conductor tinsel cord, green silk and cotton covering.	Transmitter on desk stand or transmitter arm.....	5½ in. 8 in. 9½ in. 12 in.	.045
180	3 conductor tinsel cord, green silk covering.	Desk stand or transmitter arm as extension cord.....	6 ft.	.45
196	2 conductor tinsel cord, green silk covering.	Receiver on metal wall box and part of No. 293 cord.	3 ft.	.20
202	3 conductor tinsel cord, green silk covering.	Metal wall box as extension cord....	6 ft.	.45
231	4 conductor tinsel cord, green silk covering.	Desk stand as extension cord.....	6 ft.	.57
232	Combination of 6 ft. 231; 3 ft. 178; 8 in. 179.	No. 1020-F desk stands.....		.81
234	Combination of 6 ft. 180; 3 ft. 178; 9½ in. 179.	Nos. 1020-B, 1020-M and 1020-S desk stands.....		.69
242	4 conductor steel cord, glazed cotton covering.	No. 1278 telephone set.....	18 in.	.50
243	Single conductor tinsel cord, green silk and cotton covering.	Nos. 1278 and 1280 telephone sets....	8 in.	.04125

WRITE FOR LIBERAL DISCOUNTS

Cords—Continued

Code No.	Description	Used with	Standard Length	List Price each
247	Single conductor copper cord, green cotton covering.	No. 250-W transmitters.....	10 $\frac{3}{16}$ in.	\$ 0.045
267	Single conductor stranded steel cord, blue linen covering.	No. 1314 telephone set to connect rail clamp	10 ft.	.3875
268	Single conductor stranded steel cord, blue linen covering.	No. 1314 telephone set to connect set to line.....	104 ft.	1.50
285	3 conductor steel cord, glazed cotton covering.	No. 1280 telephone set.....	18 in.	.39
287	6 conductor tinsel cord, green silk covering.	No. 1020-H desk stand.....	6 ft.	.87
289	Combination of 6 ft. 287; 3 ft. 196; 9 $\frac{1}{2}$ in. 179.	No. 1020-H desk stand.....		1.11
293	Combination of 6 ft. 175; 3 ft. 196; 12 in. 179.	No. 1020-C desk stand.....		.83
308	Combination of 6 ft. 313; 2 $\frac{1}{2}$ ft. 178; 8 in. 179.	No. 1040 transmitter arm.....		.67
309	3 conductor steel cord, beeswaxed cotton covering.	Nos. 1280-A and 1302-A telephone sets to No. 126 plug.....	15 ft.	1.02
310	Combination of 8 $\frac{1}{2}$ ft. 180; 2 $\frac{1}{2}$ ft. 178; 11 in. 179.	No. 1020-A transmitter arm.....		.84
311	2 conductor steel cord, glazed cotton covering.	Receiver on Nos. 1302-A and 1314-A telephone sets.....	3 ft.	.34
313	3 conductor tinsel cord, green silk covering.	Transmitter arm as extension cord.. Part of No. 308 cord.	6 ft.	.45
317	Single conductor tinsel cord, green silk and cotton covering.	No. 1002-A hand set..... Part of No. 319 cord.	9 $\frac{1}{2}$ in.	.06
318	3 conductor tinsel cord, green silk covering.	No. 1002-A hand set..... Part of No. 319 cord.	4 $\frac{1}{2}$ ft.	.39
319	Combination of 4 $\frac{1}{2}$ in. 336; 9 $\frac{1}{2}$ in. 317; 4 $\frac{1}{2}$ ft. 318.	No. 1002-A hand set.....		.50
325	5 conductor tinsel cord, green silk covering.	No. 1020-F desk stand..... Part of No. 326 cord.	6 ft.	.69
326	Combination of 6 ft. 325; 3 ft. 178; 8 in. 179.	No. 1020-F desk stand.....		.93
329	Single conductor tinsel cord, green silk and cotton covering.	Telephone sets..... No. 1020-P desk stand.....	5 $\frac{1}{2}$ in. 9 in.	.045 .045
330	Single conductor tinsel cord, green silk and cotton covering.	No. 1020-P desk stand.....	9 $\frac{1}{2}$ in.	.045
331	Combination of 3 ft. 178; 6 ft. 180; 9 in. 329; 9 $\frac{1}{2}$ in. 330.	No. 1020-P desk stand.....		.74
336	Single conductor tinsel cord, green silk and cotton covering.	No. 1002-A hand set.....	4 $\frac{1}{2}$ in.	.06
337	2 conductor steel cord, glazed cotton covering.	No. 1017-A test set for receiver...	24 in.	.32
338	Single conductor cord, rubber covering.	Dry cells for connecting batteries...	4 in.	.0375
348	2 conductor with testing clips.	No. 1001 hand set.....	3 ft.	.7875

CORD FASTENERS



No. 9

Code No.	List Price each
9	Used on cord shelves with all types of switchboard cords..... \$ 0.03

WRITE FOR LIBERAL DISCOUNTS



No. 3—Cord Hook



No. 7—Cord Hook

CORD HOOKS

The two types of cord hooks shown will meet all requirements. The No. 3 is the screw hook type, and can be mounted in any desired location. The No. 7 is designed for placing on the rear edge of cordshelves, and consists of a flat strip of brass $\frac{1}{8}$ in. thick by $\frac{3}{4}$ in. wide, the hooks being punched out at various spacings as listed in the following table. Hooks of this type are strong and efficient, present a neat appearance and occupy a minimum amount of space.

Code No.	Number per Strip	Spacing inches	Length inches	List Price each
3	single			\$ 0.375 per gross
7-A	9	$\frac{27}{32}$	$7\frac{17}{32}$	.27
7-B	10	$\frac{1}{2}$	$4\frac{15}{16}$	.24
7-C	10	$\frac{3}{4}$	$7\frac{7}{16}$	.29
7-D	18	$\frac{13}{32}$	$7\frac{5}{16}$	.27
7-E	11	$\frac{5}{8}$	$6\frac{7}{8}$	.27
7-F	18	$\frac{7}{16}$	$7\frac{7}{8}$	.29
7-G	19	$\frac{17}{32}$	10	.30
7-H	8	$1\frac{1}{8}$	9	.27
7-J	10	$\frac{3}{8}$	$3\frac{3}{4}$	.23
7-K	7	$\frac{3}{4}$	$5\frac{1}{4}$	.23
7-L	3	$\frac{3}{4}$	$2\frac{9}{16}$	.14



No. 103



No. 105



No. 106



No. 111

CORD PULLEYS

These have brass wheels about $\frac{9}{32}$ in. wide and are for use with our standard switchboard or telephone cords as the case may require.

Code No.	Width inches	List Price each
103	$\frac{19}{32}$	\$ 0.24
105	$\frac{9}{16}$	.21
106	$1\frac{3}{16}$	.15
111	$\frac{5}{8}$	.41

WRITE FOR LIBERAL DISCOUNTS



No. 103



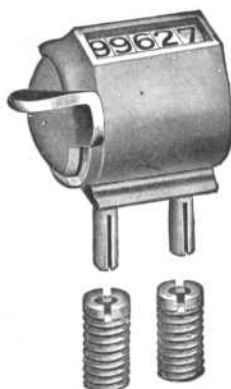
No. 108

CORD WEIGHTS

Code No.	Style	Used with	List Price each
103	Brass 14 oz.	Suspended transmitter and No. 7 transmitter arm.....	\$ 0.60
108	Lead 28 oz.	Switchboard cords when cord pulley is used.....	.55
111	Lead 10 oz.	Switchboard cords on No. 49 jack switchboard and magneto switchboards except No. 105.....	.25
112	Lead 8 oz.	Switchboard cords on No. 92 jack switchboard and No. 105 switchboard.....	.25



No. 111



No. 18880

COUNTER

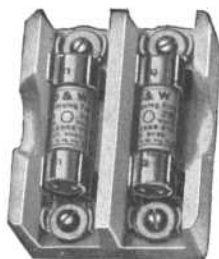
For counting the number of telephone calls handled at an operator's position; the sockets are permanently placed, and the counter may be mounted or removed at will.

Code Word	List No.
Placando	18880

CUT-OUTS

Made in single, double and triple pole styles, for D. & W. fuses, 3 to 60 amperes, 250 volts.

Orders should state number of poles, voltage and capacity of fuses which will be used.



D. & W. Cut-out

DESIGNATION STRIPS

These consist of a wooden mounting with a No. 8 type designation strip mounted on the face, and are for use in designating outgoing trunk jacks, etc.

The No. 6-B and No. 6-F are the same as the No. 6-A and No. 6-E, respectively, except that they mount flush with the face of the jack mountings, while the No. 6-A and No. 6-B project slightly.



No. 1-A

Code No.	Width inches	Finish	Used with Switchboard	List Price each
1-A	$\frac{1}{8}$	Nickel plate	No. 49 jack, No. 1	\$ 0.23
1-B	$\frac{1}{8}$	Nickel plate	No. 49 jack, No. 1	.23
1-C	$\frac{1}{8}$	Black	No. 49 jack, No. 1	.23
1-D	$\frac{1}{8}$	Black	No. 49 jack, No. 1	.23
6-A	$\frac{1}{8}$	Nickel plate	No. 92 jack, No. 1	.23
6-B	$\frac{1}{8}$	Nickel plate	No. 92 jack, No. 1	.23
6-E	$\frac{1}{8}$	Black	No. 92 jack, No. 1	.23
6-F	$\frac{1}{8}$	Black	No. 92 jack, No. 1	.23
10-B	$\frac{1}{8}$	Nickel plate	No. 9	.23
10-C	$\frac{1}{8}$	Nickel plate	No. 9	.23

WRITE FOR LIBERAL DISCOUNTS

Designation Strips—Continued

These are of the same type as the No. 1, except that in place of a No. 8 type designation strip a hard rubber face milled out and drilled for 20 No. 4 or No. 31 number plates is used.



No. 2-C

Code No.	Width inches	Finish	Used with Switchboard	List Price each
2-C	$\frac{7}{16}$	Black	No. 49 jack, No. 1	\$ 0.90
50-A	$\frac{7}{16}$	Black	No. 10	.98



No. 7-A

These are of the same type as the No. 1, except that in place of a card holder a strip of printed figures is held in place by a transparent celluloid face fastened to the base by nickel plated screws.

Code No.	Width inches	Finish	Used with Switchboard	List Price each
7-A	$\frac{7}{16}$	Celluloid face	No. 49 jack, No. 1	\$ 0.20
7-B	$\frac{1}{4}$	Celluloid face	No. 49 jack, No. 1	.20
7-D	$\frac{3}{8}$	Celluloid face	No. 49 jack, No. 1	.20
13-A	$\frac{3}{8}$	Celluloid face	No. 92 jack, No. 1	.20
48-A	$\frac{7}{16}$	Celluloid face	No. 10	.23



No. 8

These consist of a metal card holder and a thin transparent celluloid strip for protecting a strip of printed paper.

Code No.	Width inches	Length inches	Finish	Used for	List Price per foot
8-A	$\frac{7}{16}$	As specified	Nickel plate	Keyshelf and miscellaneous numbering	\$ 0.18
8-B	$\frac{3}{8}$	As specified	Nickel plate	Keyshelf and miscellaneous numbering . . . . .	.18
8-D	$\frac{1}{4}$	As specified	Nickel plate	Keyshelf and miscellaneous numbering . . . . .	.18
8-E	$\frac{1}{4}$	As specified	Black	Keyshelf and miscellaneous numbering . . . . .	.18
43-A	$\frac{7}{16}$	$1\frac{1}{2}$	Black	Test boards . . . . .	.09 each
43-B	$\frac{3}{8}$	$1\frac{1}{2}$	Black	Test boards . . . . .	.075 each
43-C	$\frac{3}{8}$	$1\frac{1}{4}$	Black	Test boards . . . . .	.075 each

DESK STANDS

WITH TRANSMITTERS, RECEIVERS AND CORDS

The No. 122-W receiver and standard high resistance transmitter are furnished with these desk stands, as specified below. Others will be furnished if ordered.



No. 1020-B

Code Co.	Description	Finish	List Price each
1020-B	For regular local battery bridging or central battery service. Includes: 1 No. 20-B desk stand. 1 No. 229-W transmitter. 1 No. 122-W receiver. 1 No. 234 cord.	Nickel plate	\$ 6.90
1020-C	For operator's telephone set with cordless private exchange. Includes: 1 No. 20-C desk stand. 1 No. 229-W transmitter. 1 No. 122-W receiver. 1 No. 293 cord	Nickel plate	7.15

WRITE FOR LIBERAL DISCOUNTS

Desk Stands—Continued

Code No.	Description	Finish	List Price each
1020-F	For central battery service, used with No. 7 type coin collector. Includes: 1 No. 20-F desk stand. 1 No. 229-W transmitter. 1 No. 122-W receiver. 1 No. 232 cord.	Nickel plate	\$ 7.05
1020-H	For intercommunicating service. Includes: 1 No. 20-H desk stand. 1 No. 229-W transmitter. 1 No. 122-W receiver. 1 No. 289 cord.	Nickel plate	7.60
1020-J	For operator's telephone set, using No. 128-W receiver. No switchhook. Includes: 1 No. 20-J desk stand. 1 No. 229-W transmitter. 1 No. 128-W receiver. 1 6 ft. No. 178 cord. 1 6 ft. No. 10 cord. 1 9 in. No. 179 cord.	Nickel plate	6.90
1020-M	For central battery service using transmitter cutout button. Includes: 1 No. 20-M desk stand. 1 No. 229-W transmitter. 1 No. 122-W receiver. 1 No. 234 cord.	Nickel plate	7.15
1020-P	For local battery bridging or central battery service, using insulated transmitter. Includes: 1 No. 20-P desk stand. 1 No. 271-W transmitter. 1 No. 122-W receiver. 1 No. 331 cord.	Nickel plate	7.05
1020-S	For regular local battery bridging or central battery service. Includes: 1 No. 20-S desk stand. 1 No. 229-W transmitter. 1 No. 122-W receiver. 1 No. 234 cord.	Black enamel	6.90



No. 1020-M

WITHOUT TRANSMITTERS, RECEIVERS OR CORDS

These are similar to those listed above except that the transmitters, receivers and cords are omitted

Code No.	Service	Finish	List Price each
20-B	Regular local battery bridging, or central battery	Nickel plate	\$ 2.25
20-C	Operator's telephone set, cordless private exchange	Nickel plate	2.35
20-F	Central battery for use with No. 7 coin collector	Nickel plate	2.55
20-H	Intercommunicating systems	Nickel plate	2.50
20-J	Operator's telephone set without switch hook	Nickel plate	1.75
20-M	Central battery with transmitter cut-out button	Nickel plate	2.50
20-P	Local battery bridging or central battery for insulated transmitter	Nickel plate	2.35
20-S	Regular local battery bridging, or central battery	Black enamel	2.25



No. 1



No. 3

DISTRIBUTING RINGS

These are made from a steel rod covered with vulcanized rubber tubing which is very substantial.

Code No.	Inside Diameter inches	Used for	List Price each
1	$2\frac{1}{8}$	Main and intermediate distributing frames.....	\$ 0.27
3	3	Intermediate distributing frame No. 10 switchboard.....	.27

WRITE FOR LIBERAL DISCOUNTS

DROPS

In the following list the Nos. 3 and 4 types of drops are equipped with two electro-magnet spools each. The Nos. 19, 22, 35, 56 and 57 are single spool drops with tubular iron shells and are cross-talk proof. The No. 19 type is employed especially on long bridging lines, toll lines, cord circuits, etc.

All drops are equipped with night bell contacts. The contact of the No. 19-F is made only while the drop is energized by the ringing current. In all the other drops listed below, the night bell contact remains closed until the drop is restored.

All drops except the No. 57-A will operate on alternating ringing current. The No. 57-A is used particularly for selective central office signalling on rural lines and will operate only on pulsating or direct current.

The No. 22 type drop is equipped with an extra winding for restoring the shutter when the call is answered.

The No. 35 type drop is equipped with two windings, one front and one back, and is adapted for selective central office signalling by grounding the middle of the winding and one side of the calling generator.

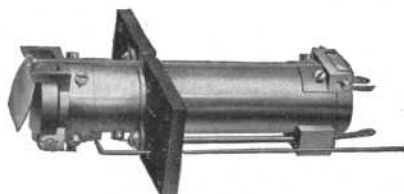
The Nos. 55 and 56 drops are similar to the No. 19, except that they are arranged to mount on $1\frac{1}{2}$ and 1 in. centers respectively instead of $1\frac{3}{8}$ in.



No. 4-A



No. 19-A



No. 22-A



No. 57-A



No. 58

Code No.	Total Resistance ohms	List Price each
3-A	80	\$ 1.05
3-B	500	1.15
3-C	1,000	1.20
4-A	80	.85
4-B	100	.90
4-C	1,000	1.20
4-D	500	1.05
19-A	525	1.45
19-B	600	1.50
19-C	1,000	1.65
19-D	800	1.60
19-E	10	1.30
19-F	500	1.65
35-A	300-300	1.75
35-B	500-500	1.80
55-B	600	1.50
56-A	500	1.45
56-B	600	1.50
56-C	1,000	1.65
22-A	Line 600, restoring 45	3.70
22-B	Line 1,000, restoring 450	4.05
22-D	Line 1,000, restoring 45	3.90
57-A	1,750	3.70

DROP MOUNTINGS

Code No.	Number per Strip	Centers inches	Size of Plate inches	For Drops number	Used on Switchboards number	List Price each
2	10	$1\frac{3}{8}$	15 x 1	4, 19, 35	101, 102, 1006, 1010, 1011	\$0.60
54	3	$1\frac{3}{8}$	$4\frac{1}{2}$ x 1	19	Cordless private exchange	.18
56	20	$1\frac{1}{2}$	$24\frac{9}{16}$ x 1	55, 56	9	1.20
57	15	$1\frac{3}{8}$	$24\frac{9}{16}$ x 1	4, 19, 35	1102	.90
58	15	$1\frac{3}{8}$	$21\frac{3}{4}$ x 1	4, 19, 35	105, 1005	.85
59	12	$1\frac{3}{8}$	$21\frac{3}{4}$ x 1	4, 19, 35	105, 1005	.75
64	5	$1\frac{1}{2}$	$8\frac{1}{8}$ x 1	4, 19, 35	106	.40
65	5	$1\frac{1}{2}$	$8\frac{1}{8}$ x $1\frac{1}{2}$	4, 19, 35, 57	106, 1101	.40
69	10	1	$11\frac{3}{8}$ x 1	56	10	1.30

WRITE FOR LIBERAL DISCOUNTS

FUSES



No. 46-A



No. 24-A

These will blow on 50 per cent. increase in current above rating. In ordering specify the code number and ampere rating.

PLAIN MICA FUSES

Will Mount on 1 Inch Centers



No. 7-A



No. 11-C

Code No.	Carrying Capacity amperes	Slotted for Screws number	List Price per hundred	Code No.	Carrying Capacity amperes	Slotted for Screws number	List Price per hundred
24-A	1½	10	\$ 1.15	24-B	3	6	\$ 1.15
24-B	1½	6	1.15	24-B	4	6	1.15
24-B	1½	6	1.15	24-B	5	6	1.15
24-B	2	6	1.15	24-C	2	10	1.15

ALARM FUSES

Will Mount on 1¼ in. Centers

These have a spring which makes contact with an auxiliary bus bar and gives a signal when the fuse blows.



No. 12-A



No. 47-A

Code No.	Carrying Capacity amperes	Slotted for Screws number	List Price per 100	Code No.	Carrying Capacity amperes	Slotted for Screws number	List Price per 100
45-A	1½	10	\$ 3.90	45-B	4	6	\$ 3.90
45-B	1½	6	3.90	45-B	5	6	3.90
45-B	2	6	3.90	45-C	2	10	3.90
45-B	3	6	3.90				

INDICATOR ALARM FUSES

Will Mount on 1¼ in. Centers

These are similar to the alarm type but in addition have a bead which gives a prominent visual signal when a fuse operates.



D. & W. Ferrule

Code No.	Carrying Capacity amperes	Slotted for Screws number	List Price per hundred	Code No.	Carrying Capacity amperes	Slotted for Screws number	List Price per hundred
46-A	1½	10	\$ 5.25	46-B	4	6	\$ 5.25
46-B	1½	6	5.25	46-B	5	6	5.25
46-B	2	6	5.25	46-C	2	10	5.25
46-B	3	6	5.25				

TUBULAR FUSES

With Fibre Shell

These are made in 1, 2, 3, 4, 5, 6, 7, and 8 amperes capacity.

The No. 7 fuse is furnished in 6 amperes capacity, and the No. 11 fuse and No. 12 fuse in 7 amperes capacity, unless otherwise specified. The No. 12 fuse contains a heat coil.



D. & W. Knife Blade

Code No.	Used with Protectors number	List Price each
7 -A	7-A, 7-D, 61-A, 77-A	\$ 0.09
11-C	58-A, 58-B, 59-A, 79-A	.135
12-A	12-A	.30

TUBULAR FUSES

With Porcelain Shell

D. & W. Type A
Contact

Code No.	Capacity amperes	Used	List Price each
47-A	7	At telephone stations as an outside fuse in connection with No. 60-A protector.....	\$ 0.105
47-B	14	At telephone stations as an outside fuse in connection with No. 79-A protector.....	.105

FUSES D. & W.

For power panels; the ferrule and knife blade contacts conform to the rules of the National Board of Fire Underwriters; the type "A" or screw clamp type of contact is used only on battery panels. The fuses are made for two voltages, 250 and 600.

Orders must state the capacity in amperes, the voltage and style of contact.

D. & W. Type A
Middle Contact

Style of Contact	For Fuses amperes
Ferrule	3 to 60
Knife blade	61 to 600
Type "A" contact	4 to 125
Type "A" middle contact	126 to 500

WRITE FOR LIBERAL DISCOUNTS

FUSE POSTS

These are furnished with two sizes of fuse screw. The larger screw is furnished with small capacity fuses and the smaller screw for those of large capacity. This is to guard against using a fuse of high capacity in a circuit designed for one of low capacity. The only exception to this rule is in the case of the No. 24-C, No. 45-C and No. 46-C fuses (2 amperes), which with the No. 5-B post are to be used only in the service meter circuits. To further guard against using the wrong fuse, the post and fuse terminal designed for $1\frac{1}{2}$ ampere capacity circuits are nickel plated and tinned respectively, while those for circuits above $1\frac{1}{2}$ ampere capacity are copper plated.

In replacing a fuse it should therefore be noted that the finish of the fuse terminals and post is similar.



No. 2



No. 7-B



No. 5-A



No. 11



No. 94013



No. 94016



No. 94027



No. 94023

Code No.	Finish	Screw number	Used with Fuse number	List Price each
2	Nickel plate	10	24-A	\$ 0.105
3	Brass plate	6	24-B	.105
5-A	Nickel plate	10	24-A, 45-A, 46-A	.085
5-B	Copper plate	10	24-C, 45-C, 46-C	.085
6	Copper plate	6	24-B, 45-B, 46-B	.085
7-B	Nickel plate	10	46-A, No. 10 switchboard	.07
7-C	Copper plate	6	46-B, No. 10 switchboard	.07

For mounting fuses on power panels.

For D. & W. Fuses with Screw Clamp Contact—(Type A)

Code No.	Capacity amperes	Volts	Stud	List Price each
8	3 to 15	250	No. 10-32.....	\$ 0.375
9	18 to 30	250	$\frac{5}{16}$ in.-24.....	.45
	or			
	3 to 25	500		
10	35 to 60	250	$\frac{5}{16}$ in.-24.....	.525
	or			
	30 to 50	500		
11	65 to 125	250	$\frac{1}{2}$ in.-18.....	.75
12	150 to 300	250	$\frac{1}{2}$ in.-18.....	1.45
13	150 to 300	250	$\frac{3}{4}$ in.-18.....	2.10
14	350 to 500	250	$\frac{3}{4}$ in.-18.....	2.80
15	500 to 600	250	$\frac{7}{8}$ in.-14.....	4.20

For D. & W. Fuses, National Electrical Code Standard

94022	3 to 30	250	No. 12-24.....
94023	31 to 60	250	$\frac{5}{16}$ in.-24.....
	or		
	3 to 30	600	
94024	31 to 60	600	$\frac{5}{16}$ in.-24.....
94025	61 to 100	0 to 600	$\frac{1}{2}$ in.-18.....
94026	101 to 200	0 to 600	$\frac{3}{4}$ in.-18.....
94027	201 to 400	0 to 600	1 in.-14.....
94028	201 to 600	0 to 600	1 $\frac{1}{4}$ in.-14.....

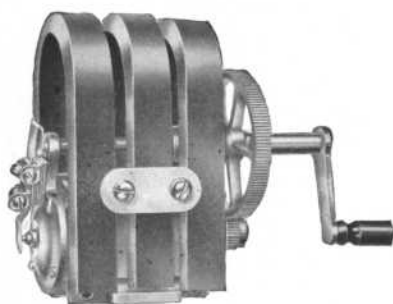
FUSE CLIPS

For use with D. & W. fuses; for mounting on bus bars; they conform to the rules of the National Board of Fire Underwriters.

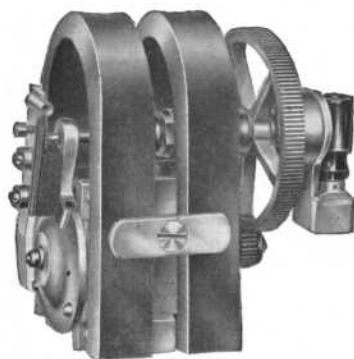
Code No.	Amperes	Volts
94013	3 to 30	250
94015	31 to 60	250
	or	
	3 to 30	600
94016	31 to 60	600
94018	61 to 100	0 to 600
94019	101 to 200	0 to 600
94020	201 to 400	0 to 600
94021	401 to 600	250

WRITE FOR LIBERAL DISCOUNTS

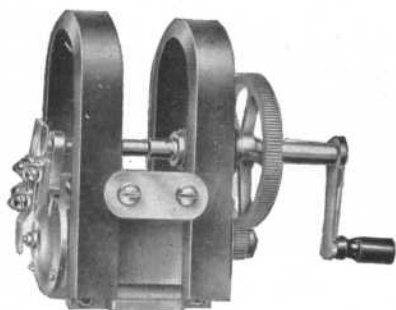
HAND GENERATORS



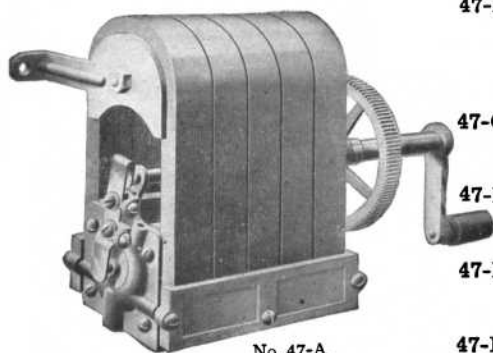
No. 22-A



No. 29-A



No. 22-E



No. 47-A

Code Number	No. of Bars	Current	Open or Closed Circuit	Used in	List Price each
22-A	3	Alternating	Open	Magneto telephone sets and switchboards.....	\$ 3.15
22-B	3	Alternating	Closed	1006-D and 1006-E test sets.....	3.15
22-D	3	Pulsating	Open or Closed	Magneto telephone sets and switchboards.....	3.15
22-K	3	Alternating	Closed	90510 and 90530 test sets.....	3.15
22-N	3	Alternating	Closed	90511 and 90512 test sets.....	3.15
43-B	3	Alternating	Open	1302-A telephone set.....	4.50
29-A	2	Alternating	Open	1006-A, 1006-B, 1006-C and 1017-A test sets	3.00
22-E	2	Alternating	Open	Magneto telephone sets.....	3.15
20-B	5	Alternating	Open	1280-A telephone set.....	5.65
47-A	5	Alternating	Open	Magneto telephone sets and switchboards 1101, 1102, 1006.....	6.00
47-B	5	Pulsating and alternating	Open	Magneto telephone sets and switchboards 1101, 1102, 1006.....	7.00
47-C	5	Alternating	Open	Switchboards 1005 1010, 1011.....	6.00
47-D	5	Pulsating and alternating	Open	Switchboards 105, 1005.....	7.00
47-E	5	Pulsating and alternating	Open	Switchboard 106	7.00
47-F	5	Alternating	Open	Switchboard 1012	6.00

WRITE FOR LIBERAL DISCOUNTS



No. 1



No. 3



No. 6



No. 10



No. 16

GONGS

FOR RINGERS

The Nos. 1 and 16 may be placed on the regular ringers without any change in the mounting. The others, however, require different gong mountings and gong nuts, as listed under Gong Mountings.

Code No.	Description	Diameter inches	Height inches	Finish	List Price each
1	Telephone set gong.	2½	5¼	Nickel plate.....	\$ 0.07
3	Cow gong.	2x1½	1½	Nickel plate.....	.21
6	Large sleigh gong.	1¼	1½	Nickel plate.....	.30
10	Large tea gong.	2½	1½	Nickel plate.....	.45
16	Standard telephone set gong.	2½	2½	Nickel plate.....	.07

GONG MOUNTINGS

Each of the code numbers in the following list includes a pair of gong mountings and No. 2 includes also the necessary screws for fastening the gongs to the mountings. The gong nuts listed below must be ordered separately, for example:

- 1—No. 3 gong mounting
- 2—P-19097 gong nuts

Code No.	Length of Post inches	Used with Gongs	Gong Nuts	Finish	List Price each
2	2½	No. 6.		Nickel plate.....	\$ 0.15
3	1½	Nos. 3 and 10.	P-19097	Nickel plate.....	.165

GONG NUTS

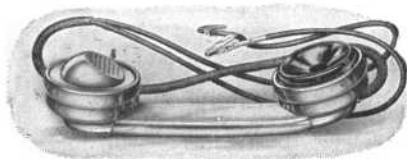
P-19097

\$ 0.0275



No. 3

HAND SETS



No. 1001

Code No.	Description	List Price each
1001	Includes No. 1 hand set handle, No. 244-W transmitter, No. 131-W receiver and 3 ft. two conductor cord, code No. 348 which has two spring clips for lineman's testing.....	\$ 7.50

WRITE FOR LIBERAL DISCOUNTS

Hand Sets—Continued



No. 1002-A

Code No.	Description	List Price each
1002-A	For use in place of a regular local battery bridging or central battery desk stand or transmitter arm. Includes No. 141-W receiver, No. 267-W transmitter and No. 319 cord	\$ 6.35

HAND SET HANDLES



No. 1

Code No.	Description	List Price each
1	For use with street railway telephone sets and line-man's hand set No. 1001. It is suitable for the No. 244-W transmitter and No. 131-W receiver.....	\$ 1.50

HEAT COILS



No. 4-A

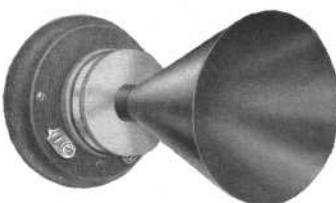
Code No.	Description	Used with Protectors numbers	List Price each
4-A	Black shell for magneto equipments.	4-A, 65-A, 78-A, 84-A	\$ 0.105
41	Red shell for central battery equipments.	4-C 65-B, 78-B, 84-B	.105



No. 66

66	Brass dummy.	4-A, 4-C, 65-A, 65-B, 78-A, 78-B, 84-A, 84-B	.0075
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HOWLER



No. 1-A

Used in place of a bell for railway composite systems when signalling is accomplished by means of a high frequency interrupter.

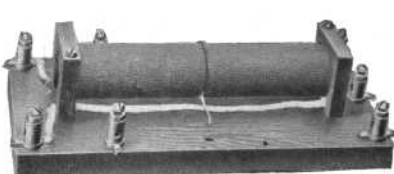
Code No.	Description	List Price each
1-A	Mounted on wood base for use with No. 1312-A telephone set	\$ 9.40
1-B	With iron bracket for mounting in No. 1314-A telephone set	9.10

INDUCTION COILS



No. 5

The Nos. 10, 23 and 24 induction coils are mounted on wooden bases, the others are unmounted, unless otherwise specified.



No. 10

Code No.	Size inches	Used with	List Price each
5	4 3/4 x 1 1/2	Nos. 1312-A and 1314-A railway composite telephone sets	\$ 1.50
10	8 1/2 x 3 1/2	Operator's telephone sets in the following switchboards: Nos. 105, 1005, 1006, 1010, 1011, 1101, 1102.....	2.00



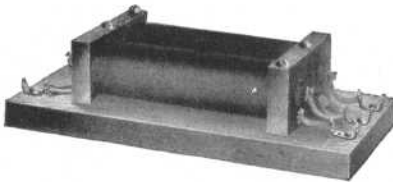
No. 13



No. 20



No. 23

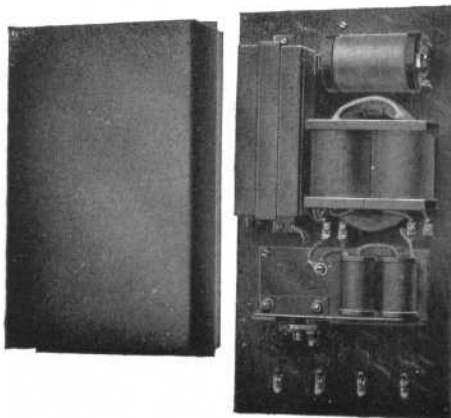


No. 24

Induction Coils—Continued

Code No.	Size inches	Used with	List Price each
13	3½x1	Magneto telephone sets.....	\$ 0.47
20	4½x1½	Central battery telephone sets	.70
23	6½x2	Operator's telephone sets in the following switchboards: Nos. 9, 10, 106, 1012, and in Nos. 4, 101, 102 private exchanges.....	1.10
24	6½x3½	Operator's telephone sets in No. 1 switchboards.....	1.50

INTERRUPTERS



No. 100-A

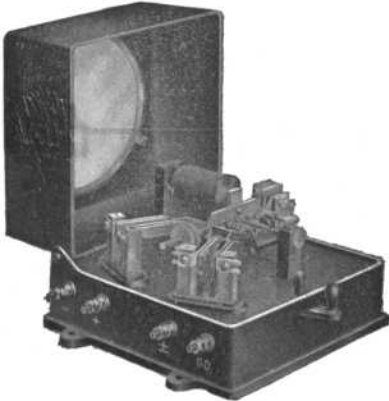
Code No.	Description and Use	List Price each
65-A	A wooden box containing: 1 vibrating sending relay, 100 ohms, 1 No. 21-E condenser, 1 No. 8 repeating coil, 1 resistance, 20,000 ohms. ... Base is 10 ³ / ₁₆ in. x 5 ³ / ₄ in. Used with the ringing set for composite telephone lines.	\$ 18.40
100-A	Same as No. 65-A, except base is 10 ³ / ₄ in. x 5 ³ / ₄ in., and is designed for mounting on a rack.....	18.40

WRITE FOR LIBERAL DISCOUNTS

Interrupters—Continued



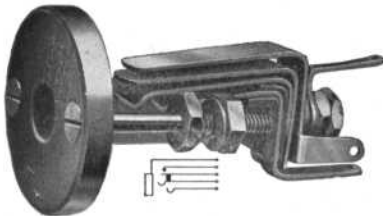
No. 84-A, closed



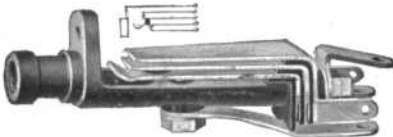
No. 84-A, open



No. 3



No. 77



No. 91



No. 99

Code No.
84-A

Description and Use

An electrically operated pole changer producing alternating and positive and negative pulsating currents from a source of direct electro-motive force. Operating coil wound for current from a 24-volt battery. Ringing current taken from a battery of dry cells. Used for supplying ringing current in small exchanges. Dry cells are not included. Size of base, 8 in. x 8 in.

List Price
each

\$ 24.70

84-B

Same as No. 84-A, except the operating coil is wound for current from two primary cells in series (Gladstone-Lalande batteries usually used). Cells are not included.

24.00

We make a variety of interrupter attachments which are for mounting on ringing machines and which are intended to interrupt battery current supply and ringing current supply in various circuits. Interrupters can be supplied to meet any requirements as to frequency of interruptions for such uses as tone test, howler, busy back and machine ringing.

WARNER POLE CHANGER

Operated by One Cell of Closed Circuit Battery

Code Word	List No.	Description
Hygiome	52039	Standard
Hygiologie	52040	Selective





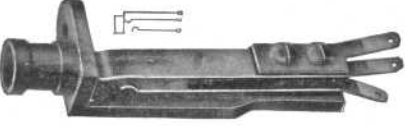
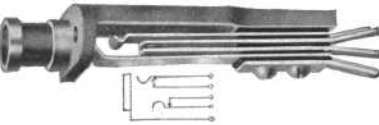


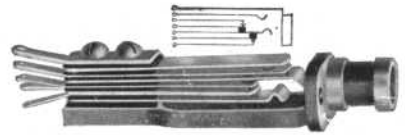
JACKS

The jacks designed for mountings must be ordered in connection with them. See note under JACK MOUNTINGS.

Code No.	Contact Points	Used with Plugs number	Used with Jack Mountings number	List Price each
3	Not platinum	47,116	Singly.....	\$ 0.17
49	None	110	1, 2, 3, 114... 5 per strip	.71
			10 per strip	.48
			20 per strip	.38
77	Platinum	85	Singly.....	.83
81	Platinum	110	6, 7..... 10 per strip	.68
			20 per strip	.53
91	Platinum make contact	47, 103 or 112	Singly and 30, 78, 80 jack mounting.... singly	.48
	Break contact not platinum	for two	mounted	.78
92	None	109	18, 19, 113... 10 per strip	.48
			20 per strip	.38
99	None	47, 103 or 112 for two	Singly and 30, 78, 80 jack mounting.... singly	.20
			mounted	.50

WRITE FOR LIBERAL DISCOUNTS

Jacks—Continued

	Code No.	Contact Points	Used with Plugs number	Used with Jack Mountings number	List Price each
 No. 102	102	Not Platinum	47	Singly.....	\$ 0.42
	103	Platinum	47	Singly.....	.36
 No. 103	107	Platinum	47	Singly.....	.54
	108	Platinum	47	Singly.....	.39
 No. 107	117	None	110	Singly.....	.20
	118	Platinum	110	Singly.....	.38
 No. 108	124	Platinum	47	Singly.....	.60
	132	None	126	Singly.....	3.38
 No. 117	140	Platinum	110	Singly.....	.45
	141	Platinum	110	108, 109, 110, 112, 10 per strip .....	.68
				20 per strip.....	.53
 No. 118					
 No. 124					
 No. 132					
 No. 140					

WRITE FOR LIBERAL DISCOUNTS

JACK FASTENERS



No. 4

No. 16

These are for holding the jack and lamp socket mountings in place.

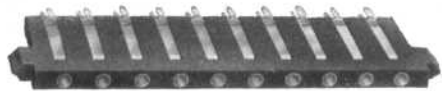
Code No.	Used with Jack number	List Price each
4	49, 81	\$ 0.06
16	92, 141	.045

JACK MOUNTINGS

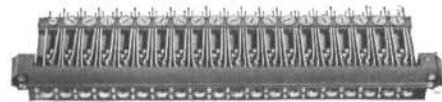
For central battery exchanges the multiple jack strips in each panel are separated into groups of five by thin white holly strips. Each group consists of one hundred jacks numbered 0 to 99. Each strip is divided into four parts, each having five jacks, by a distinctive mark so that an operator may readily choose the proper ones. It is also usual to furnish these jack mountings with a groove on the lower edge for marking the jacks for various purposes such as signifying that several adjoining jacks are connected to one private exchange.

In ordering specify the number of jacks and the code number, the code number of the mounting with the number per strip together with the numbering desired. If holly strips are to be attached to the lower edge of any, the order should specify which ones. The proper number of jacks should be ordered to fully equip the mountings.

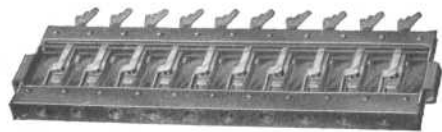
Not Arranged for Number Plates



No. 1



No. 7



No. 18



No. 80



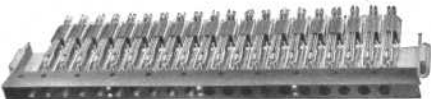
No. 108

Code No.	Used with Jack number	Number per Strip	Used with	List Price
1	49	10	No. 49 jack, No. 1 switchboard.	The price of the jack mounting is included in the price of the jack.
3	49	20	No. 49 jack, No. 1 switchboard.	
6	81	10	No. 9 switchboard.	
7	81	20	No. 9 switchboard	
18	92	10	No. 92 jack, No. 1 switchboard.	
30	91, 99	4	All switchboards for operator's telephone jacks.	
78	91, 99	6	No. 1 switchboard for operator's and supervisor's telephone jacks.	
80	91, 99	2	All switchboards for operator's telephone jacks.	
108	141	20	No. 10 switchboard.	

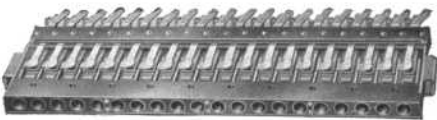
Jack Mountings—Continued



No. 109



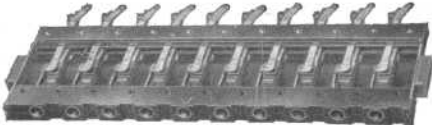
No. 112



No. 113



No. 114



No. 19



No. 110

Code No.	Used with Jack number	Number per Strip	Used with	List Price
109	141	10	No. 10 switchboard.	The price of the jack mounting is included in the price of the jack.
112	141	20	No. 10 switchboard.	
113	92	20	No. 92 jack, No. 1 switchboard.	
114	49	20	No. 49 jack, No. 1 switchboard.	

Arranged for Number Plates

These are not numbered. In ordering specify the number of jacks and the code number, the code number of the mounting with the number per strip. The proper number of jacks should be ordered to fully equip the mountings.

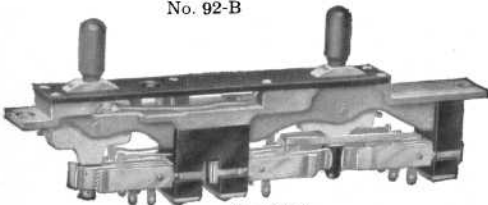
Code No.	Used with Jack number	Number per Strip	For Number Plates	Used with	List Price
2	49	10	4, 31, 109	No. 49 jack, No. 1 switchboard.	The price of the jack mounting is included in the price of the jacks.
19	92	10	6, 30, 108	No. 92 jack, No. 1 switchboard.	
110	141	10	5-A	No. 10 switchboard.	

KEYS

These represent a few of the commonly used types which we manufacture. We have a very complete line of standard keys, from which can be selected those which, we believe, will fulfil any requirements. All contacts used in the talking circuit are made of platinum.



No. 92-B

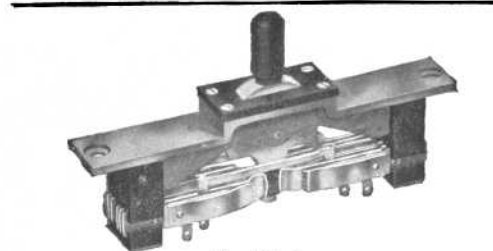


No. 102-A

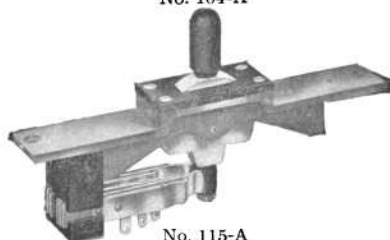
Code No.	Description	List Price each
69-A	Push button type, mounted in strips; used in order wire circuits.....	\$ 0.60
242-A	Push button type, mounted in strips; used in order wire circuits where local contact is necessary.....	1.00
92-B	Single brass listening key; locks when operated.....	.75

WRITE FOR LIBERAL DISCOUNTS

Keys—Continued



No. 104-A



No. 115-A



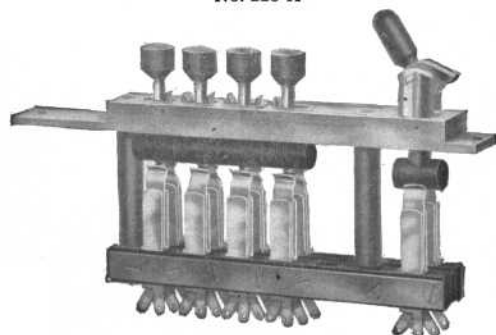
No. 121-A



No. 128-A



No. 223-A

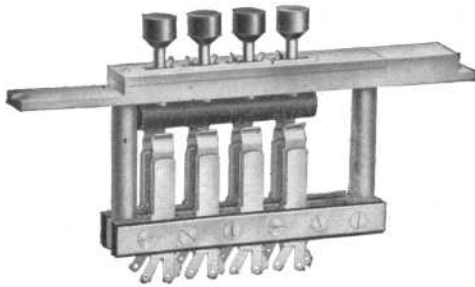


No. 227-A

Code No.	Description	List Price each
102-A	Listening and two-party ringing key with indicator.....	\$ 3.15
110-A	Listening and two-party ringing key with indicator; has local contact springs on listening end.	3.30
124-A	Double listening key.....	2.80
156-A	Listening and two-party ringing key without indicator; has local contact springs on listening end.....	2.85
104-A	Listening and single ringing key....	1.75
116-A	Listening and single ringing key; has local contact springs on listening end.....	1.90
184-A	Listening and single ringing key....	1.80
115-A	Single ringing key.....	1.20
155-A	Single listening key.....	1.45
121-A	Single listening key.....	1.60
123-A	Single ringing key	1.35
128-A	Four party ringing switching key...	6.00
223-A	Single service meter key .....	.55
227-A	Four party ringing and listening key with indicator.....	6.00

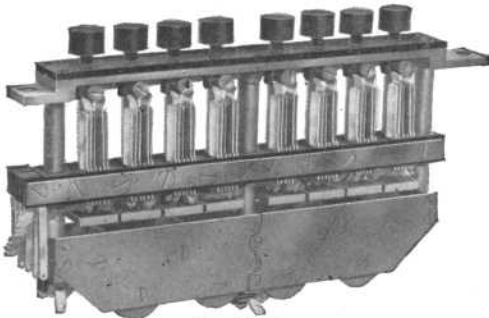
WRITE FOR LIBERAL DISCOUNTS

Keys—Continued



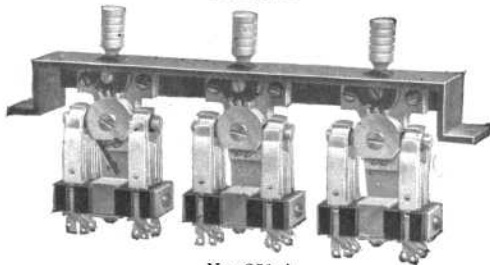
No. 228-B

Code No.	Description	List Price each
228-B	Four party ringing key with indicator	\$ 4.90



No. 237-A

237-A	Double four party machine ringing key; button is held depressed until party answers.....	14.25
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No. 251-A

251-A	Ring and listening key; used on cordless private exchange switch-board.....	5.25
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371-A	Ten line push button key used in intercommunicating system.....	8.80
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371-B	Twenty line push button key used in intercommunicating system.....	15.55
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371-C	Thirty line push button key used in intercommunicating system.....	22.30
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No. 371-A

375-A	Push button type; single mounted ringing key.....	.70
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No. 375-A

378-A	Plunger type listening key, single mounted; used with key lever...	.70
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No. 378-A

381-A	Plunger type listening key with local contact springs, single mounted; used with key lever.....	.85
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WRITE FOR LIBERAL DISCOUNTS

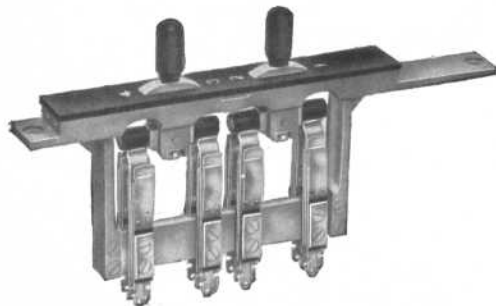


No. 406-A

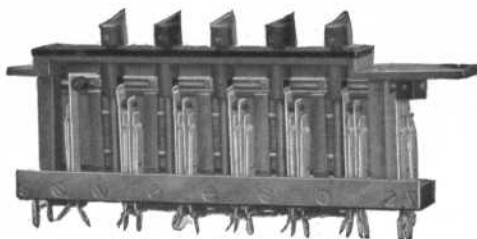
Keys—Continued



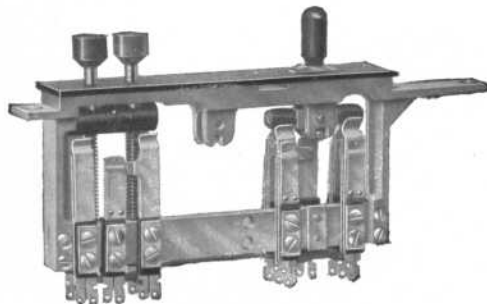
No. 438-A



No. 439-A



No. 442-B



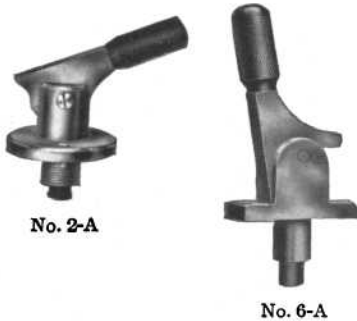
No. 462-A

Code No.	Description	List Price each
406-A	Single switching key; locking.	\$0.75
438-A	Four party ringing key.....	4.50
439-A	Four party ringing key.....	4.90
442-B	Four party machine ringing and listening key; ringing key remains operated until party answers.....	8.55
462-A	Listening, single party ringing, coin collector and service meter key ..	4.60

WRITE FOR LIBERAL DISCOUNTS

KEY LEVERS

These are used with the No. 378 type plunger keys.



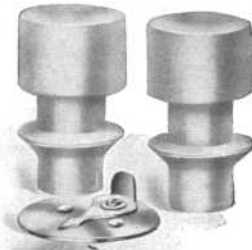
Code No.	Operated Position of Handle	Handle	List Price each
2-A	Vertical	Hard rubber, black.....	\$ 0.45
4-A	Horizontal	Hard rubber, black.....	.45
6-A	Vertical	Hard rubber, black.....	.38
6-B	Vertical	Hard rubber, red.....	.38
14-A	Horizontal	Hard rubber, black.....	.38
14-B	Horizontal	Hard rubber, red.....	.38

KEY MOUNTINGS

These are used with the Nos. 69 and 242 type order wire keys. They are made in various lengths with different numbers of keys per strip to mount with all our standard cord circuit and trunk keys. The width of these mountings is $\frac{1}{2}$ in. for No. 69 type keys and $\frac{3}{8}$ in. for No. 242 type keys.



No. 303



Code No.	Number per Strip	Used with Keys Number	List Price each
300	5	242	The price for Nos. 69 and 242 keys includes the mounting
303	8	69	
304	8	242	
314	5	69	
315	4	69	

KEY INDICATORS

Code No	Use	List Price each
1	With No. 375 type keys to indicate which key was last operated.....	\$ 0.15

LAMPS

The overall diameter of the No. 2 type lamp is .3075 in. and of the No. 4 type .515 in.



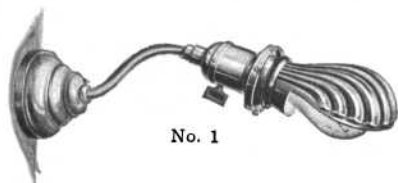
No. 2



No. 4

Code No.	Voltage	Current Consumption		Used with Lamp Sockets Number	List Price each
		Minimum Amperes	Maximum Amperes		
2-A	4	.17	.21	12, 13, 30, 32	\$ 0.225
2-B	4	.27	.31	12, 13, 30, 32	.27
2-C	15	.09	.12	12, 13, 30, 32	.27
2-D	16	.27	.31	12, 13, 30, 32	.27
2-E	20	.09	.12	12, 13, 30, 32	.27
2-F	12	.097	.12	12, 13, 30, 32	.225
2-G	24	.075	.105	12, 13, 30, 32	.225
2-H	6	.27	.31	12, 13, 30, 32	.27
2-J	24	.025	.035	12, 13, 30, 32	.27
2-K	30	.09	.12	12, 13, 30, 32	.27
2-L	10	.24	.26	12, 13, 30, 32	.27
2-N	6	.12	.16	12, 13, 30, 32	.27
2-P	8	.085	.10	12, 13, 30, 32	.27
2-R	18	.09	.12	12, 13, 30, 32	.27
2-T	35 to 47	.03		12, 13, 30, 32	.27
4-A	4	.50	.60	16	.39
4-B	8	.50	.60	16	.39
4-C	22	.17	.21	16	.39
4-D	12	.27	.31	16	.39
4-E	18	.17	.21	16	.39
4-F	20	.17	.21	16	.39
4-G	24	.15	.185	16	.39

WRITE FOR LIBERAL DISCOUNTS



No. 1

LAMP BRACKETS

For use on power switchboards. Comprises a bracket fitted with Edison key socket, lamp shade holder, green porcelain half shade and a 16 c. p. lamp. Voltage of lamp to be called for on the order.....

List Price
each

\$ 1.35

LAMP CAPS

No. 2 TYPE (Used with Nos. 12 and 13 Lamp Sockets)



No. 2-C



No. 2-J



No. 2-AY



No. 4-A



No. 8-A

Code No.	Symbol	Color	List Price each	Code No.	Symbol	Color	List Price each
2-A	⊙	White Opalescent	\$ 0.12	2-AC	⊙	Red.....	\$ 0.12
2-B	⊙	White Opalescent	.12	2-AD	⊙	White Opalescent	.12
2-C	⊕	White Opalescent	.12	2-AE	⊕	Red.....	.15
2-D	⊙	White Opalescent	.12	2-AF	⊕	White Opalescent	.12
2-E	⊙	White Opalescent	.12	2-AG	⊙	White Opalescent	.12
2-F	⊙	White Opalescent	.12	2-AH	⊙	White Opalescent	.12
2-G	⊕	White Opalescent	.12	2-AJ	⊙	White Opalescent	.12
2-H	⊙	Red.....	.12	2-AK	⊙	White Opalescent	.12
2-J	⊙	White Opalescent	.12	2-AL	⊙	Green.....	.15
2-K	⊙	White Opalescent	.12	2-AM	⊙	White Opalescent	.12
2-L	⊙	Green.....	.12	2-AN	⊙	White Opalescent	.12
2-M	⊕	White Opalescent	.12	2-AP	⊙	White Opalescent	.12
2-N	⊙	Red.....	.12	2-AR	⊙	Red.....	.15
2-P	⊙	Jeweled Red.....	.15	2-AS	⊕	White Opalescent	.12
2-R	⊙	Jeweled Blue.....	.15	2-AT	⊙	White Opalescent	.12
2-S	⊙	Jeweled Green....	.15	2-AU	⊙	White Opalescent	.12
2-T	⊕	Red.....	.15	2-AW	⊕	White Opalescent	.12
2-U	⊙	Amber.....	.12	2-AY	⊙	White Opalescent	.075
2-W	⊙	Blue.....	.12	2-AZ	⊕	Red.....	.15
2-Y	⊙	Green.....	.15	2-BA	⊙	{ White Opalescent En- graved as Specified.... }	.15
2-Z	⊙	White Opalescent	.12	2-BC	⊙	White Opalescent	.12
2-AA	⊙	Red.....	.15	2-BD	⊙	White Opalescent	.12
2-AB	⊙	White Opalescent	.12	2-BE	⊕	Green.....	.15

No. 4 TYPE (Used with Nos. 16 and 32 Lamp Sockets)

4-A	⊙	White Opalescent	.15	4-E	⊙	White Opalescent	.225
4-B	⊙	Jeweled Red.....	.225	4-F	⊙	Green.....	.225
4-C	⊙	Jeweled Green....	.225	4-G	⊕	White Opalescent	.225
4-D	⊙	Red... ..	.225	4-H	⊙	White Opalescent	.225

No. 8 TYPE (Used with No. 30 Lamp Socket)

8-A	⊙	White Opalescent	.06	8-G	⊙	White Opalescent	.12
8-B	⊙	Clear.....	.12	8-H	⊙	White Opalescent	.12
8-C	⊙	Clear, Flat Top...	.26	8-J	⊕	White Opalescent	.12
8-D	⊙	Red.....	.12	8-K	⊙	White Opalescent	.12
8-E	⊙	White Opalescent	.12	8-L	⊙	Green.....	.12
8-F	⊙	White Opalescent	.12				

WRITE FOR LIBERAL DISCOUNTS



No. 68-A

Lamp Caps—Continued**No. 68 TYPE** (Used with Nos. 12 and 13 Lamp Sockets)

Code No.	Color	List Price each
68-A	White Opalescent.....	\$ 0.09
68-B	Red.....	.135
68-C	Green.....	.135



No. 69-A

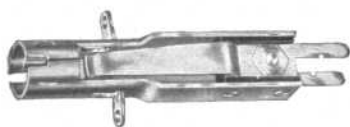
No. 69 TYPE (Used with Nos. 16 and 32 Lamp Sockets)

69-A	○	White Opalescent.....	.165
69-B	⊗	Jeweled Red.....	.24
69-C	⊗	Jeweled Green.....	.24
69-D	⊕	White Opalescent.....	.24

LAMP GUARDS

No. 21

Code No.	Used with Lamp Sockets number	List Price each
21	12, 13	\$ 0.03
22	16, 32	.03

LAMP SOCKETS**Mounted Singly**

No. 13

Code No.	Used with Lamps number	Used with Lamp Caps number	Used with Thickness of Shelf inches	List Price each
13	2 type	2, 68	$\frac{7}{8}$	\$ 0.23
16	4 type	4, 69, 70	$\frac{7}{8}$, $1\frac{3}{16}$, $1\frac{1}{4}$, $1\frac{13}{16}$ as specified.....	.75
32	2 type	4, 69, 70	$\frac{7}{8}$, $1\frac{3}{16}$, $1\frac{1}{4}$, $1\frac{13}{16}$ as specified.....	.75

Mounted in Strips

These must be ordered in connection with the lamp socket mountings. See note under LAMP SOCKET MOUNTINGS.

Code No.	Used with Lamps number	Used with Lamp Caps number	Suitable for Lamp Socket Mountings number	List Price each
12	2 type	2	102, 117, 118, 122, 134, 136, 137	5 per strip \$ 0.75 10 per strip .53 20 per strip .38
30	2 type	8	101, 102, 111, 118	10 per strip .53 20 per strip .38

WRITE FOR LIBERAL DISCOUNTS



No. 101



No. 102



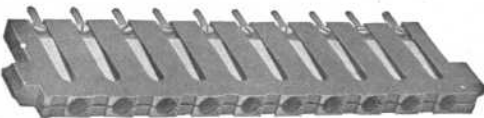
No. 118



No. 136



No. 137



No. 122



No. 134



No. 2

LAMP SOCKET MOUNTINGS

In ordering specify the number of lamp sockets and the code number together with the code number of the lamp socket mounting. The proper number of lamp sockets should be ordered to fully equip the mountings.

Not arranged for Number Plates

Code No.	Used with Lamp Sockets No.	No. per Strip	Used with	List Price
101	30	10	No. 49 jack, No. 1 switchboard	The price of the lamp socket mounting is included in the price of the lamp socket
111	30	10	No. 92 jack, No. 1 switchboard	
102	12, 30	20	No. 49 jack, No. 1 switchboard	
118	30	20	No. 92 jack, No. 1 switchboard	
136	12	10	No. 10 switchboard	
137	12	20	No. 10 switchboard	

Arranged for Number Plates

Code No.	Used with Lamp Sockets No.	No. per Strip	For Number Plates	Used with	List Price
122	12	10	4, 31, 109	No. 49 jack, No. 1 switchboard	The price of the lamp socket mounting is included in the price of the lamp socket.
134	12	10	6, 30, 108	No. 92 jack, No. 1 switchboard	

LINE POLES

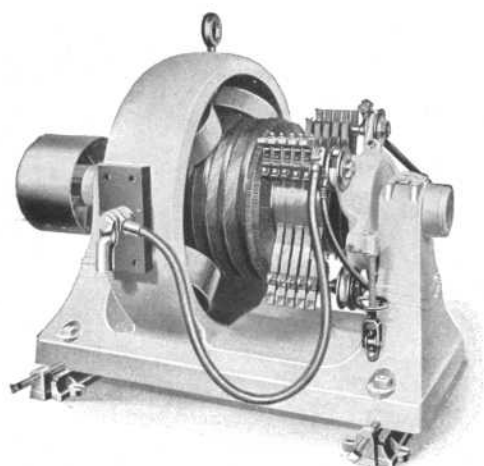
Code No.	List Price each
2 Pole designed to make the line connection for portable railway composite set No. 1314-A. It consists of three six foot sections and one No. 268 cord 100 feet long. The two upper sections are made of bamboo, the lower section of hickory.	\$ 11.25

WRITE FOR LIBERAL DISCOUNTS

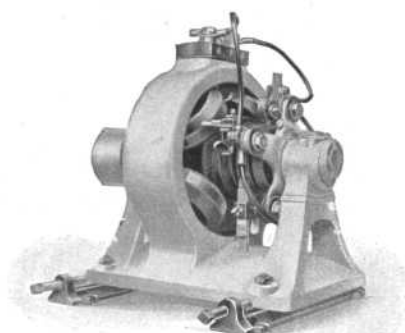
MACHINES

CHARGING GENERATORS

These have been designed for charging storage batteries in telephone exchanges. They are especially constructed to reduce to a minimum the chances of noise being introduced into the telephone circuits while the battery is being charged.



No. 7-A



No. 1-A

CHARGING GENERATORS, BELT DRIVEN

These are suitable for charging eleven cells in series. If there are two batteries (each of eleven cells) the fact should be stated in the order so that the proper rheostat may be determined. The rheostat will regulate the voltage between 22 and 30.

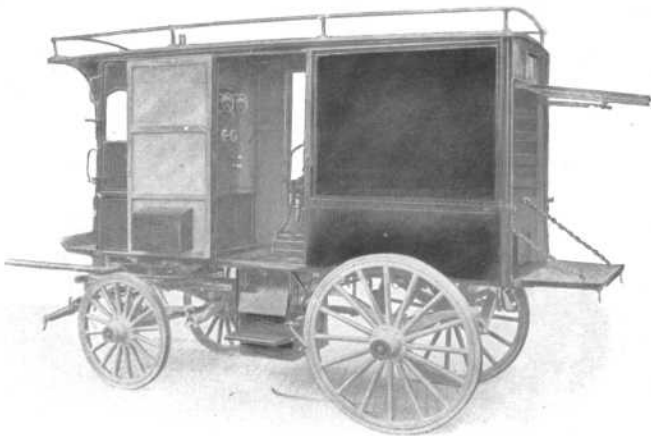
When ordering a new rheostat to replace one in service, the name plate data of the machine should be stated in the order.

Code No.	Type	Output			Standard Speed R.P.M.	Diameter of Pulley inches	Horse Power Required to Drive	Length Including Pulley inches	Size. Width Including Slide Rails inches	Approximate Shipping Weight pounds
		Amperes	Volts	Watts						
1-A	M-1	25	30	750	1,750	8	1½	20½	20	275
2-A	M-2	50	30	1,500	1,750	8	3	23½	20	385
3-A	M-3	100	30	3,000	1,150	8	5½	24½	24	575
4-A	M-4	175	30	5,250	1,150	8	9½	28½	30	900
5-A	M-5	225	30	6,750	1,150	8	11½	28½	30	1,000
6-A	M-5½	300	30	9,000	1,150	8	14½	46½	41	1,950
6-B	M-5½	400	30	12,000	1,150	8	19½	46½	41	1,950
7-A	M-7	600	30	18,000	850	14½	28½	50½	47	2,200
8-A	M-8	800	30	24,000	850	15	37½	52½	51	3,980
9-A	M-9	1,000	30	30,000	475	20 or 24	48	71½	57	6,000

Note:—Orders should read thus:

One No. belt driven charging generator to give an output of amperes at 30 volts; to run at R.P.M., with pulley inches in diameter; terminals drilled for circular mil cable; with necessary rheostat for rear of board mounting with hand wheels; to be used for charging a battery of 11 type "G" cells and also a battery of 11 type E-11 cells.

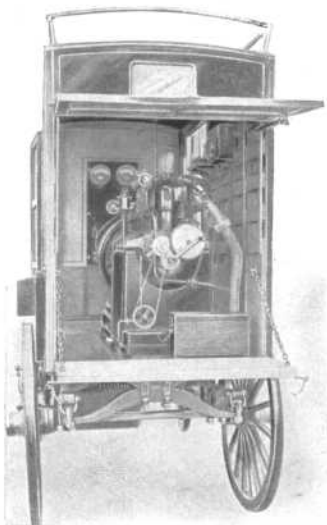
PRICES ON REQUEST



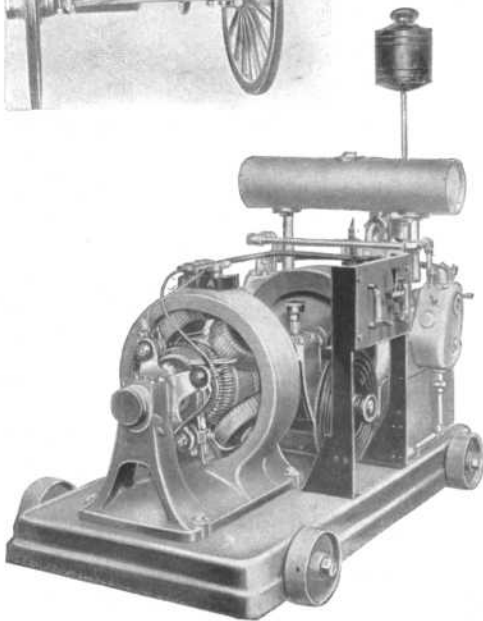
PORTABLE CHARGING
SETS

For Charging Storage Batteries

Output	Gener- ator	Remarks	Shipping Weight pounds
25 amperes at 42 volts	M-2	On iron base with wheels...	1400



Output	Generator	Remarks	Shipping Weight pounds
50 to 60 amperes at 36 volts	M-3	Mounted in cov- ered wagon....	2200
100 to 125 amperes at 36 volts	M-4	Mounted in cov- ered wagon.....	3800



Output	Generator	Remarks	
200 to 225 am- peres at 36 volts	M-5	Mounted in cov- ered wagon....	4000
300 to 350 amperes at 36 volts	M-5½	Mounted in cov- ered wagon....	4500

The above sets include a type "M" generator direct connected to a gasolene engine and the necessary field rheostat. The rheostat with the 25 ampere set is capable of regulating the terminal voltage between 22 and 42 volts. The field rheostat furnished with the other sets is capable of regulating the terminal voltage between 22 and 30 volts.

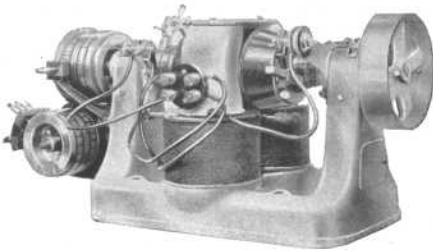
The shipping weights given above for the large sets are for the apparatus complete including the wagon.

PRICES ON REQUEST

CHOKE COILS

Used in the lead between the charging machine and the non-grounded side of the storage battery to choke down any disturbances which might cause noises in the telephone circuits while the battery is being charged. Mounted on wooden base. Terminals are included. Prices are f.o.b. Chicago.

Code No.	Used with Charging Units Employing the Following Generators	Winding	Size of Base inches	List Price each
1-A	M-2	90 turns of No. 0 wire.	24 x 5 $\frac{1}{4}$	\$ 59.35
1-B	M-2	80 turns of No. 00 wire.	24 x 5 $\frac{1}{4}$	64.15
1-C	M-3	72 turns of No. 0000 wire.	24 x 6 $\frac{1}{4}$	110.65
2-A	M-4	69 turns of 3-No. 10x1 in. copper ribbons in parallel.	26 $\frac{1}{4}$ x11 $\frac{1}{2}$	272.55
2-B	M-5	69 turns of 3-No. 8x1 in. copper ribbons in parallel.	36 $\frac{1}{4}$ x12 $\frac{3}{4}$	399.20
2-C	M-7	48 turns of 7-No. 8x1 $\frac{1}{4}$ in. copper ribbons in parallel.	43 $\frac{1}{2}$ x17 $\frac{3}{4}$	1,232.85
2-D	M-5 $\frac{1}{2}$ (300 ampere)	56 turns of 4-No. 9x1 in. copper ribbons in parallel.	37 x13	375.15
2-E	M-5 $\frac{1}{2}$ (400 ampere)	48 turns of 4-No. 9x1 $\frac{1}{4}$ in. copper ribbons in parallel.	42 x14 $\frac{1}{2}$	509.85
2-F	M-8	40 turns of 10-No. 8x1 $\frac{1}{2}$ in. copper ribbons in parallel.	43 $\frac{1}{2}$ x21 $\frac{1}{4}$	1,979.85
2-G	M-9	38 turns of 11-No. 8x2 in. copper ribbons in parallel.	52 $\frac{1}{2}$ x23	3,642.30



No. 3-A
With Interrupter

RINGING GENERATORS

Belt Driven, Self Excited

Prices are f.o.b. Chicago and do not include slide rails or starting boxes

When the power supply is direct current at a voltage exceeding 220 or alternating current, ringing generators driven by suitable motors are used.

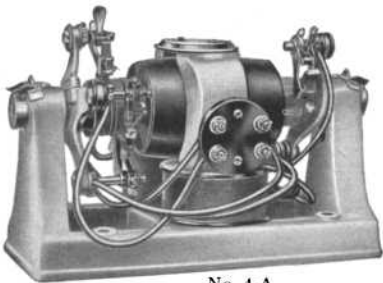
Code No.	Output			Full Load Speed R. P. M.	Overall Length Including Pulley inches	Size Width inches	Horse Power Required to Drive without interrupters	Shipping Weight without interrupters pounds	List Price each
	Amperes	Volts	Watts						
1-A	$\frac{1}{4}$	75	19	950	14 $\frac{1}{2}$	7 $\frac{1}{8}$	$\frac{1}{8}$	50	\$ 179.55
3-A	1	75	75	950	16	9 $\frac{1}{8}$	$\frac{1}{4}$	95	243.70
5-A	2	75	150	950	18 $\frac{1}{2}$	10 $\frac{3}{8}$	$\frac{1}{2}$	160	373.55
8-A	4	75	300	950	23	13 $\frac{3}{8}$	$\frac{3}{8}$	290	488.95

Slide rails are not needed when the driving motor has means for tightening the belt.

Orders should read thus:

1 No. . . . ringing machine, self-excited; with an output of . . . amperes at 75 volts, complete with slide rails and pulley . . . inches in diameter; equipped with . . . interrupter.

WRITE FOR LIBERAL DISCOUNTS



No. 4-A

RINGING DYNAMOTORS

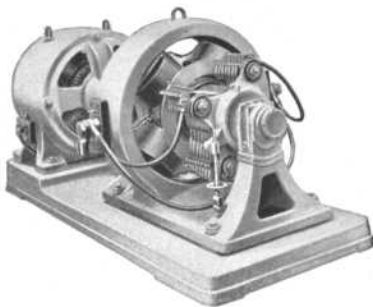
Direct Current Primary

Prices are f.o.b. Chicago and do not include starting boxes

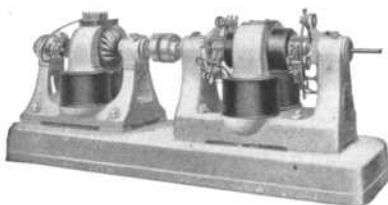
Code No.	Output Amperes	Output volts	watts	Primary Voltage	Size of Starting Box Horse Power	Full Load Speed R.P.M.	Overall Length inches	Size Width inches	Shipping Weight Without Interrupters pounds	List Price
2-A	$\frac{1}{8}$	75	15	20	None Required	950	13	9	50	\$ 168.35
2-B	$\frac{1}{4}$	75	15	110	None Required	950	13	9	50	168.35
2-C	$\frac{1}{2}$	75	15	220	None Required	950	13	9	50	168.35
4-A	$\frac{1}{4}$	75	38	20	$\frac{1}{8}$	950	14 $\frac{1}{2}$	10 $\frac{1}{2}$	95	232.50
4-B	$\frac{1}{2}$	75	38	110	$\frac{1}{4}$	950	14 $\frac{1}{2}$	10 $\frac{1}{2}$	95	232.50
4-C	$\frac{3}{4}$	75	38	220	$\frac{3}{8}$	950	14 $\frac{1}{2}$	10 $\frac{1}{2}$	95	232.50
6-A	1	75	75	20	$\frac{1}{4}$	950	17	13	160	360.70
6-B	1	75	75	110	$\frac{1}{2}$	950	17	13	160	360.70
6-C	1	75	75	220	$\frac{3}{4}$	950	17	13	160	360.70
7-A	2	75	150	20	$\frac{1}{2}$	950	20 $\frac{1}{2}$	15 $\frac{1}{2}$	290	472.90
7-B	2	75	150	110	$\frac{3}{4}$	950	20 $\frac{1}{2}$	15 $\frac{1}{2}$	290	472.90
7-C	2	75	150	220	$\frac{1}{2}$	950	20 $\frac{1}{2}$	15 $\frac{1}{2}$	290	480.95
9-A	4	75	300	20	$\frac{3}{4}$	950	28	18 $\frac{1}{2}$		641.25
9-B	4	75	300	110	$\frac{1}{2}$	950	28	18 $\frac{1}{2}$		641.25
9-C	4	75	300	220	$\frac{3}{4}$	950	28	18 $\frac{1}{2}$		681.35

Orders should read thus:

1 No...ringing machine to give an output of amperes at 75 volts; primary voltage....volts; equipped with....interrupters and necessary starting box for rear of board mounting with hand wheel.



Charging Motor Generator



Ringing Motor Generator

MOTORS

We carry a complete line of motors suitable for all power circuits. In ordering, specify the voltage of the circuit if direct current, or the voltage, phase and frequency if the current is alternating, also whether a starting box for rear of board mounting with hand-wheel is to be provided. If the motor is to be direct connected to a generator, the order should state if a flexible insulated coupling is to be furnished and if the sub-base is to have cushions.

WRITE FOR LIBERAL DISCOUNTS

COIN COLLECTOR MOTOR-GENERATORS

We furnish motor generators for supplying current for operating coin collectors. Orders should state the output desired, and specify exactly the power circuit on which the motor is to work, also whether the rheostat and starting box should be furnished with hand wheels for rear of board mounting.

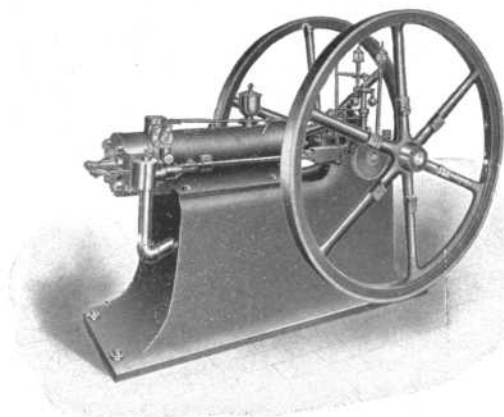
SERVICE METER MOTOR-GENERATORS

We furnish motor-generators for supplying current for operating the service meters. Orders should state the output desired, and specify exactly the power circuit on which the motor is to work, also whether the rheostat and starting box should be furnished with hand wheels for rear of board mounting.

GAS ENGINES

White & Middleton

Brake Horse Power	Extreme Length Including Fly Wheel	Width to Outside of Fly Wheels	Diameter of Fly Wheels	Width of Fly Wheels inches	Width of Belt Used inches	Speed R.P.M.	Approx. Shipping Weight pounds	Used with Charging Machine
4	5 ft. 2½ in.	2 ft. 2½ in.	3 ft. 4 in.	3½	3	300	1600	M-1 and M-2
6	6 ft. 3 in.	2 ft. 5 in.	4 ft. 0 in.	4	4	250	2400	M-3
9	7 ft. 2½ in.	2 ft. 9 in.	4 ft. 8 in.	5½	4	250	3100	M-4
12	7 ft. 3 in.	2 ft. 9 in.	4 ft. 8 in.	5½	5	240	3600	M-5
15	7 ft. 7 in.	3 ft. 1 in.	5 ft. 1 in.	6½	5	220	4300	M-5½ (300 amperes)
20	8 ft. 6½ in.	3 ft. 6 in.	5 ft. 6 in.	6½	6	200	5600	M-5½ (400 amperes)
25	8 ft. 7 in.	3 ft. 7½ in.	6 ft. 0 in.	8	7	200	7700	
30	9 ft. 6½ in.	3 ft. 7½ in.	6 ft. 0 in.	9	8	200	8500	M-7
40	10 ft. 9½ in.	4 ft. 1½ in.	6 ft. 8 in.	9	9	180	13500	M-8
50	12 ft. 3 in.	4 ft. 3½ in.	7 ft. 6 in.	10	10	180	16000	M-9



The engine requires a foundation which is slightly longer and wider than the space occupied by the engine as given above.

The following accessories should be ordered with each engine:

- 1 gas bag
- 1 exhaust muffler
- 1 set of oil cans
- 1 set of wrenches
- 1 5 gallon can of cylinder oil
- 1 5 gallon can of bearing lubricating oil
- 1 wooden templet for locating foundation bolts
- 1 set of foundation bolts and anchor plates
- 1 list of framed instructions
- 1 cooling tank (unless running water will be used for the cylinder jacket)
- 1 spark coil panel including one No. 1 spark coil and one double pole, single throw switch
- 1 belt

SPARK COIL

Code No.	Description and Use	List Price each
1	A gas or gasolene engine spark coil for use on a 24-volt circuit. Resistance 60 ohms. Base 13 in. x 3½ in.	\$7.50

MACHINE COVERS

A complete line of machine covers is manufactured for all of our machines. They are made of eight ounce brown army paraffined canvas.

PRICES ON REQUEST

MACHINE TABLES

These consist of an angle iron frame with a slate top drilled for our various small machines, such as ringing, coin collector or service meter machines.

RHEOSTATS

These are used with our various generators which supply direct current, and are made for mounting on the front or rear of the power switchboard. When rear mounted they require hand wheels and index plates.

They should be ordered with each new machine when required. When a rheostat is being ordered for a machine already installed, the data on the name plate on the machine should be stated in the order.

STARTING BOXES

No-voltage release or no-voltage release and overload boxes are supplied for motors of all capacities and voltages. They are arranged for rear of board mounting and require a hand wheel on the front. They should be ordered with new motors. When a starting box is being ordered for a machine already installed the data on the name plate on the motor should be stated in the order.



HAND WHEELS

These are finished in polished copper and black dip, and are for use with rear mounted starting boxes and rheostats. A complete line is carried for all the various sizes. The hand wheel includes a dial properly marked.

BELTS

No. 101

Endless leather belts are carried in single or double ply. Specify length, width and ply

POWER PROTECTION PANELS

These are arranged for mounting on a wall, and comprise a slate panel equipped with a switch, together with the necessary fuses, retardation coils and lightning arresters for protecting motors. A complete line is manufactured, suitable for all kinds of circuits and for motors of different horse-power.

POWER SWITCHBOARDS

These comprise one or more slate panels mounted on an iron framework, which is braced to the floor and wall. Space is left for access to the back of the board. The size and number of panels depend upon the machines furnished. There is mounted on these boards all of the apparatus for controlling the machines.

BATTERY PANELS

These are arranged for mounting on a wall and comprise a slate panel equipped with fuses for protecting the storage battery and a shunt for reading the battery current. They are made for protecting one or two batteries.

PRICES ON REQUEST

MOUNTING PLATES

The term "mounting plate" refers in general to a mild steel plate drilled and slotted for mounting relays, resistance coils, service meters or small retardation coils. Plates for mounting drops and signals are known as "drop mountings" and "signal mountings" respectively.

The standard thickness of a relay mounting plate is $\frac{3}{16}$ in.; of a mounting plate for No. 18 and No. 19 type resistances $\frac{1}{8}$ in.; and of a mounting plate for service meters $\frac{3}{8}$ in. All these plates are of mild steel, copper plated, oxidized and lacquered to improve the appearance and prevent rusting.

Whenver necessary the holes for terminals are equipped with hard rubber bushings to insulate the parts in circuit from the plate.

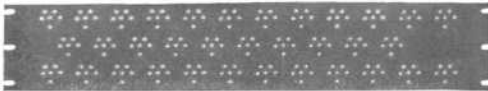
Certain mounting plates are equipped with dust proof covers which enclose the strips of relays. Such mounting plates are used with relays like the No. 189, not equipped with individual covers.

The length of mounting plates is usually 19 in., 21 $\frac{1}{2}$ in., 23 in., or 27 in. The first is used on relay racks, the second and third on subscriber and trunk sections of the No. 1 board and the last on the No. 10 board. Service meters are regularly mounted 20 per strip on a plate 33 $\frac{1}{2}$ in. long.

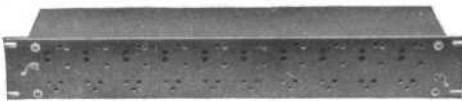
Mounting plates of other sizes are furnished to meet conditions.



No. 600-A



No. 610-C



No. 603-F



No. 601-C



No. 671-A

Relay Mounting Plates

Code No.	Number per Strip	Centers inches	Size inches	List Price each
600-A	10	1 $\frac{3}{4}$	19 x 1 $\frac{1}{2}$	\$ 0.60
606-A	10	1 $\frac{3}{4}$	21 $\frac{1}{2}$ x 1 $\frac{1}{2}$ . . . .	.70
609-A	10	1 $\frac{3}{4}$	23 x 1 $\frac{1}{2}$ . . . .	.70
605-B	34	1 $\frac{1}{8}$	21 $\frac{1}{2}$ x 4 $\frac{1}{4}$	1.80
610-C	34	1 $\frac{1}{8}$	23 x 4 $\frac{1}{4}$	1.80
603-F	10	1 $\frac{3}{8}$	19 x 2	1.75

Resistance Mounting Plates

601-A	10	1 $\frac{3}{4}$	19 x 1 $\frac{1}{2}$ . . . . .	.45
601-C	40	$\frac{1}{16}$	19 x 1 $\frac{1}{2}$ . . . . .	.70
607-D	40	$\frac{1}{16}$	21 $\frac{1}{2}$ x 1 $\frac{1}{2}$ . . . . .	.85
602-F	42	$\frac{1}{16}$	23 x 1 $\frac{1}{2}$ . . . . .	.85

Service Meter Mounting Plates

623-A	20	1 $\frac{5}{8}$	33 $\frac{1}{2}$ x 1 $\frac{1}{4}$	1.00
671-A	10	1 $\frac{5}{8}$	19 x 1 $\frac{1}{4}$ . . . . .	.60

NUMBER PLATES

Code No.	Description	Size inches	Used on	List Price each
1-A	White ivory, black figures $\frac{1}{4}$ in. high	$\frac{5}{8}$ diameter	Wooden stile casings and panel numbers	\$ 0.075
12-A	White ivory, black figures $\frac{3}{16}$ in. high	$\frac{5}{8}$ diameter	Plug shelves and key shelves. . . . .	.0675
113-A	White ivory, black figures $\frac{1}{2}$ in. high	1 $\frac{1}{4}$ diameter	Panels of switchboards	.36
23-B	Aluminum, black figures $\frac{9}{16}$ in. high	$\frac{5}{8}$ diameter	Flat iron stile casings. .	.075
107-A	Aluminum, black figures $\frac{1}{4}$ in. high	$\frac{11}{16}$ diameter	Flat iron stile casings. .	.075
4-A	Metal, black finish white figures $\frac{9}{16}$ in. high	$\frac{1}{16}$ x $\frac{1}{16}$	No. 2 jack mounting No. 2-C designation strip No. 50-A designation strip. . . . .	.045



No. 1-A








No. 23-B



No. 4-A

WRITE FOR LIBERAL DISCOUNTS

Number Plates—Continued

	Code No.	Description	Size inches	Used on	List Price each
	5-A	Metal, black finish, white figures $\frac{5}{8}$ in. high	$\frac{5}{16} \times \frac{1}{2}$	No. 110 jack mounting.	\$ 0.045
No. 58-A					
	6-A	Metal, black finish, white figures $\frac{1}{8}$ in. high	$\frac{1}{4} \times \frac{3}{8}$	No. 19 jack mounting.	.045
No. 30-A					
	21-A	Metal, black finish, white figure $\frac{5}{8}$ in. high	$\frac{5}{16} \times \frac{11}{16}$	No. 105 board, for numbering toll and out-going jacks....	.06
No. 93-A					
	30-A	Metal, black finish, numbers printed on white paper	$\frac{1}{4} \times \frac{3}{8}$	No. 19 jack mounting.....	.0375
No. 97-A					
	31-A	Metal, black finish, numbers printed on white paper	$\frac{5}{16} \times \frac{7}{16}$	No. 2 jack mounting and Nos. 2-C strip and 50-A designation strips..	.0375
No. 110-A					
	108-A	Metal, black finish, numbers printed on white paper	$\frac{11}{16} \times \frac{25}{32}$	No. 19 jack mounting and No. 134 lamp socket mounting when mounted together .....	.0375
	109-A	Metal, black finish, numbers printed on white paper	$\frac{11}{16} \times \frac{17}{32}$	No. 2 jack mounting and No. 122 lamp socket mounting when mounted together .....	.0375
	58-A	Metal, nickel finish, black figures	$\frac{1}{2} \times 1 \frac{1}{4}$	Protector bar of main distributing frame..	.06
	93-A	Aluminum, black figures	$1 \frac{1}{8} \times 2 \frac{5}{8}$	Transmitter of telephone sets.....	.03
	97-A	Metal, black finish, white letters or figures $\frac{1}{4}$ in. high	$2 \times 2 \frac{1}{8}$	Transmitter of telephone sets.....	.06
	110-A	Metal, nickel plated, paper card with celluloid covering	$1 \frac{1}{8} \times 2 \frac{3}{4}$	Transmitter of telephone sets.....	.05

WRITE FOR LIBERAL DISCOUNTS

Number Plates—Continued



No. 67-AF



No. 24-A



No. 117-A

Code No.	Description	Size inches	Used on	List Price each	
67	Brass, black finish, raised copper figures $\frac{1}{8}$ in. high; designa- tions as listed below	2x1	Power switchboards for designating the circuits controlled by switches, etc.		
Code No.	Designation	List Price each	Code No.	Designation	List Price each
67-A	BAT.....	\$ 0.55	67-Q	R-3.....	\$ 0.55
67-B	VM.....	.40	67-R	R-4.....	.55
67-C	G-1.....	.55	67-S	B-1.....	.55
67-D	G-2.....	.55	67-T	B-2.....	.55
67-E	G-3.....	.55	67-U	GEN.....	.55
67-F	G-4.....	.55	67-W	R-2.....	.55
67-G	G-5.....	.55	67-Y	PC-2.....	.70
67-H	G-6.....	.55	67-Z	START.....	.85
67-J	M-1.....	.55	67-AA	RUN.....	.55
67-K	M-2.....	.55	67-AB	LINE.....	.70
67-L	M-3.....	.55	67-AC	R-1.....	.55
67-M	M-4.....	.55	67-AE	PC-1.....	.70
67-N	M-5.....	.55	67-AF	AMM.....	.55
67-P	M-6.....	.55			

These are used for inserting in a jack to designate change of number, dead lines, lines temporarily disconnected, lines arranged for calling only or similar purposes.

For Number 49 Jacks

Code No.	Color	List Price per thousand	Code No.	Color	List Price per thousand
24-A	White	\$ 9.85	24-E	Yellow	\$ 9.85
24-B	Red	9.85	24-F	Dark Blue	9.85
24-C	Slate	9.85	24-G	Dark Green	9.85
24-D	Black	9.40	24-H	Light Green	9.85

These are for the same purpose as those above but have a slot in the face. By means of a screw-driver they can be turned through half a circle when the jack springs will force them out.

117-A	White	9.85	117-E	Yellow	9.85
117-B	Red	9.85	117-F	Dark Blue	9.85
117-C	Slate	9.85	117-G	Dark Green	9.85
117-D	Black	9.40	117-H	Light Green	9.85

For Number 92 Jacks

These are similar to the No. 24 type.

27-A	White	9.85	27-E	Yellow	9.85
27-B	Red	9.85	27-F	Dark Green	9.85
27-C	Slate	9.85	27-G	Light Green	9.85
27-D	Black	9.40			

These are similar to the No. 117 type.

118-A	White	9.85	118-E	Yellow	9.85
118-B	Red	9.85	118-F	Dark Blue	9.85
118-C	Slate	9.85	118-G	Dark Green	9.85
118-D	Black	9.40	118-H	Light Green	9.85

PLUGS

In ordering specify the code number and if cords are to be attached give the code number of the cords together with the length and color. No extra charge is made for attaching cords to plugs.



No. 47



No. 85



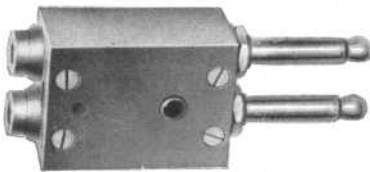
No. 103

Code No.	Number of Conductors	Used with Jacks number	Used with Cords number	Use	List Price each
47	2	3, 91, 99 102, 103 107, 108 124	156, 236	Switchboards...	\$ 0.45
85	3	77	30	Operator's head telephone....	1.50
103	Twin 2	91,99	87, 254	Operator's head telephone and chest transmitter.....	1.50

WRITE FOR LIBERAL DISCOUNTS



No. 109



No. 112



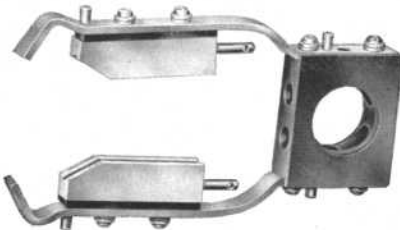
No. 116



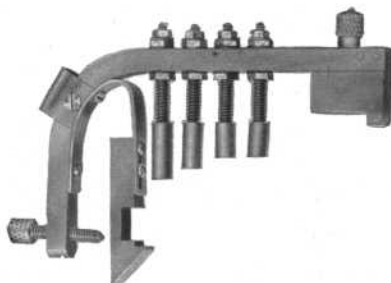
No. 126



No. 124



No. 128



No. 132

Plugs—Continued

Code No.	Number of Conductors	Used with Jacks number	Used with Cords number	Use	List Price each
109	3	92	155, 244	Switchboards...	\$1.13
110	3	49, 117 118, 140 141	152, 249	Switchboards...	1.13
112	Twin 2	91, 99	87	Operator's head telephone and chest transmitter. Has transmitter cutout key...	3.75
116	1	3, 103	265	Switchboards...	.225
126	3	132	309	Portable street railway sets..	4.15

For Testing on Frames

Code No.	Number of Conductors	Used with Cords number	Use	List Price each
124	2	129	For testing on Nos. 4, 65, 78 and 84 protectors.....	\$0.98
128	4	129	For testing on Nos. 4, 65, 78 and 84 protectors.....	1.90
132	4	129, 153	For testing on terminal strips Nos. 35, 36, 38 and 39	2.65

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PLUG SEATS

Red Fibre



No. 13

Code No.	Mounted on Centers inches	Used with Plugs number	List Price each
12	3	110	\$ 0.015
13	4	109	.015
15	13 16	47, 116	.015

PROTECTION

The complete protection of telephone apparatus from foreign electrical currents which might cause damage by fire or injury from electrical shock requires the use of high potential, abnormal current and sneak current arresters. These arresters should be installed (1) at central offices, (2) at cable terminals, and (3) at telephone stations.

Central Offices All lines entering the central office should be equipped with heat coils or sneak current arresters. In case the lines outside the central office are wholly underground, or of non-exposed, insulated wire, no protection other than heat coils is necessary. In case the lines leave the central office in underground cable but are exposed, carbon block cutouts should be installed in addition to heat coils. In case the lines are distributed immediately to open lines, heat coils, carbon block cutouts and No. 7-A fuses should be provided.

When open wire lines enter the central office and at any portion of their length are exposed to potentials in excess of 2,500 volts, the protection noted above should be used and, in addition, metal block cutouts should be installed at the outer end of the bridle cable.

Cable Terminals Cable terminals should be located at the outer end of underground cable and equipped with No. 7-A fuses. If the lines are connected to aerial cable or open wires in localities where lightning is not very prevalent, and if they are not exposed to foreign electrical circuits this protection is sufficient, provided the lines are less than one-half mile in length. Under these conditions if the lines are over one-half mile long, copper block cutouts should also be used. Carbon block cutouts should be installed if the lines are exposed to other electrical circuits. If the lines are not exposed to other circuits copper block cutouts should be used if the lines are over one-half mile in length or if they are in districts where lightning is very severe.

Telephone Stations In case the line from the central office to a telephone station is wholly underground or of non-exposed, insulated wire, no protection need be installed at the telephone station.

If the lines are wholly or in part of open wire, and exposed to circuits not in excess of 1800 volts, the No. 12-A protector should be used at magneto stations and the No. 58-A or Nos. 59-A and 60-A at central battery telephone stations. If the lines are not exposed to other circuits the No. 58-B or the Nos. 59-A and 60-B may be used at central battery and magneto stations respectively.

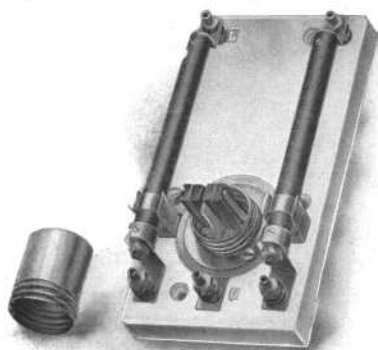
In case the lines are exposed to lighting or power circuits in excess of 1800 volts, or to severe lightning discharges, the No. 47 type fuse should be employed at the telephone stations. These are outside fuses to be connected in the drop wire and are so constructed that if an arc persists after the fuse blows, the tube will be shattered and the wire will fall away by several feet, thus effectually opening the line.

When the exposed line is not more than one-half mile long, the No. 47-A, 7 ampere fuse, may be employed in connection with the No. 60-A protector. In case the exposed line is more than one-half mile long the No. 47-B, 14 ampere fuse, may be used in connection with the No. 79-A protector.

PROTECTORS

For code numbers of fuses, protector blocks and protector micas, see tables having these headings.

MOUNTED SINGLY



No. 12-A

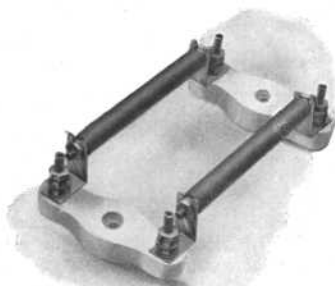
Code No.	Used with	Protecting against	Consists of	List Price each
12-A	Magneto tele- phone sets	High poten- tial, abnormal and sneak cur- rents	2 7-ampere fuses with heat coils, 2 carbon cutouts and mounting....	\$ 1.22

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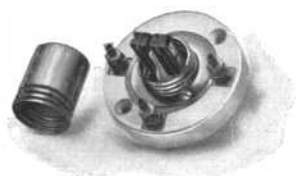
Protectors—Continued



No. 58-A



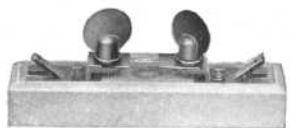
No. 59-A



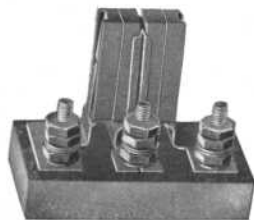
No. 60-A



No. 62-A



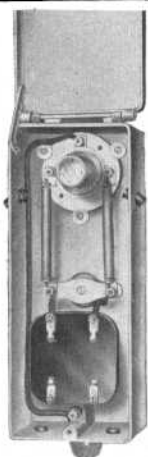
No. 68-A



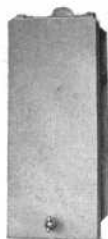
No. 70-A

Code No.	Used with	Protecting against	Consists of	List Price each
58-A	Central battery or magneto telephone sets	High potential and abnormal currents	2 7-ampere fuses, 2 carbon cutouts and mountings..	\$ 0.77
58-B	Magneto telephone sets	High potential and abnormal currents	2 7-ampere fuses, 2 copper cutouts and mountings...	.93
58-C	Magneto street railway telephone sets	High potential and abnormal currents	2 $\frac{1}{2}$ -ampere fuses, 2 copper cutouts and mountings. Two protector micas are used between each pair of protector blocks..	.85
59-A	No. 60 type protector	Abnormal current	2 7-ampere fuses and mountings...	.48
60-A	Central battery or magneto telephone sets	High potential current	2 carbon cutouts and mounting....	.38
60-B	Magneto telephone sets	High potential current	2 copper cutouts and mounting....	.54
62-A	Central battery switchboard circuits	Abnormal current	1 mica fuse and mounting; capacity $\frac{1}{2}$ to 5 amperes as specified.....	.09
62-B	Central battery switchboard circuits	Abnormal current	1 alarm fuse with mounting; capacity $\frac{1}{2}$ to 5 amperes as specified	.195
68-A	Central battery switchboard circuits	Abnormal current	1 mica fuse and mounting; capacity $\frac{1}{2}$ to 5 amperes as specified.....	.135
70-A	Portable street railway telephone sets	High potential current	2 carbon cutouts and mounting....	1.23

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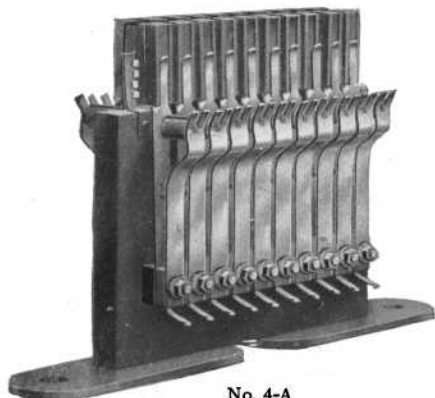
No. 74-A. (open)



No. 74-A (closed)



No. 79-A



No. 4-A

Protectors—Continued

Code No.	Used with	Protecting against	Consists of	List Price each
74-A	Magneto street railway telephone sets	High potential and abnormal currents	2 $\frac{1}{2}$ -ampere fuses, 2 copper cutouts, repeating coil and mounting in iron box. Two protector micas are used between each pair of protector blocks.	\$ 11.18
79-A	Central battery and magneto telephone sets	High potential and abnormal currents	2 7-ampere fuses, 2 copper cutouts, 2 carbon cutouts, 1 retardation coil and mountings. Two protector micas are used between each pair of copper protector blocks.	1.64

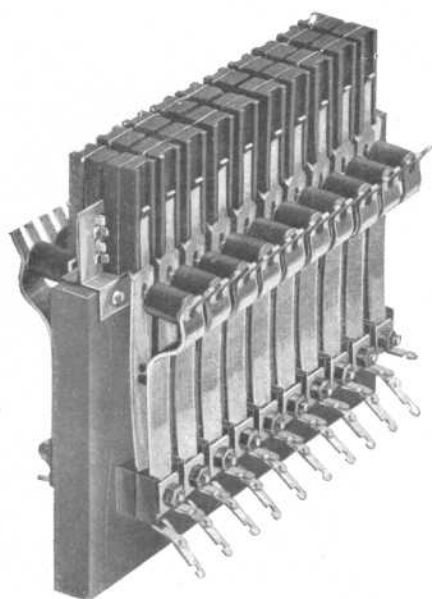
MOUNTED IN STRIPS

The No. 4 and No. 65 protectors are like the No. 84 and No. 78 respectively except the mounting and the No. 4 and No. 84 differ from the No. 65 and No. 78 only in the way the wires are connected to them. The Nos. 4 and 84 are designed for the outside wires to be connected first to a terminal block, and jumper wires to extend from the terminal block to one side of the protector, and the switchboard cables to the other. The Nos. 65 and 78 are just the reverse, that is, they are designed for the outside wires to be connected directly to one side of the protector, and jumper wires to extend from the other side to a terminal strip, where they are connected to the switchboard cables.

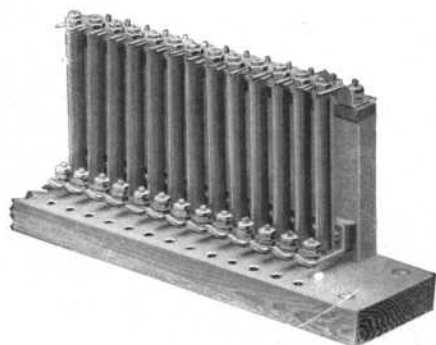
In ordering, specify the number of protectors per strip (noting that some protectors are single, while others are in pairs) and if the protector is for a frame give sufficient information for the drilling. If the protector is to be mounted on a frame which we have furnished, the name of the exchange with the location of the protectors on the frame is sufficient.

Code No.	Used with	Protecting against	Consists of	List Price each
4-A	Magneto central office	High potential and sneak currents	2 heat coils, 2 carbon cutouts and No. 10 protector mounting for mounting on wall	\$ 0.68
4-C	Central battery central office	High potential and sneak currents	2 heat coils, 2 carbon cutouts and No. 10 protector mounting for mounting on wall	.68
65-A	Magneto central office	High potential and sneak currents	2 heat coils, 2 carbon cutouts and No. 23 protector mounting for mounting on wall	.68
65-B	Central battery central office	High potential and sneak currents	2 heat coils, 2 carbon cutouts and No. 23 protector mounting for mounting on wall	.68

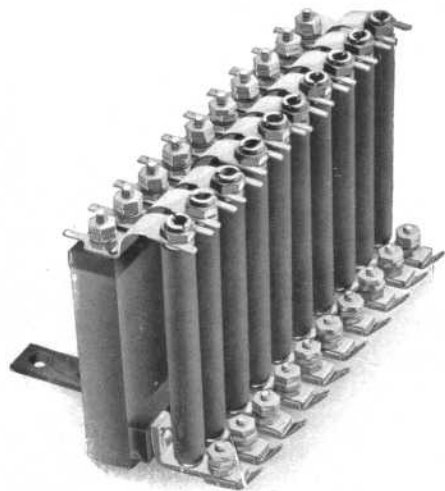
WRITE FOR LIBERAL DISCOUNTS



No. 84



No. 7-D

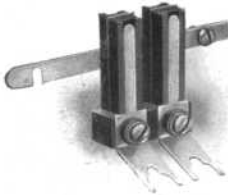


No. 7-A

Protectors—Continued

Code No.	Used with	Protecting against	Consists of	List Price each
78-A	Magneto central office	High potential and sneak currents	2 heat coils, 2 carbon cutouts and No. 24 protector mounting for mounting on frame	\$ 0.68
78-B	Central battery central office	High potential and sneak currents	2 heat coils, 2 carbon cutouts and No. 24 protector mounting for mounting on frame .....	.68
84-A	Magneto central office	High potential and sneak currents	2 heat coils, 2 carbon cutouts and No. 11 protector mounting for mounting on frame .....	.68
84-B	Central battery central office	High potential and sneak currents	2 heat coils, 2 carbon cutouts and No. 11 protector mounting for mounting on frame .....	.68
7-A	Magneto and central battery central offices and cable terminals	Abnormal current	1 6-ampere fuse and No. 2 protector mounting for mounting on wall or in cable terminals (except No. 15 type)...	.24
7-D	Magneto and central battery central offices	Abnormal current	1 6-ampere fuse and No. 41 protector mounting for wall type main distributing frame	27

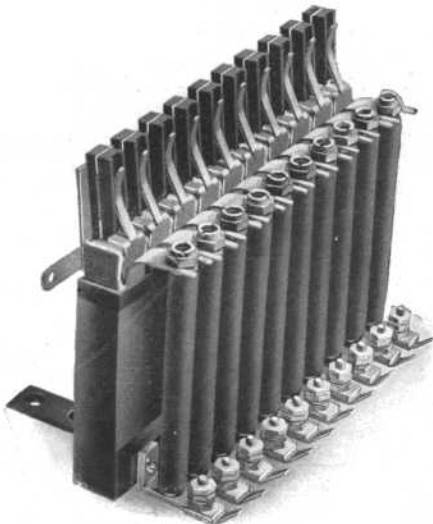
WRITE FOR LIBERAL DISCOUNTS



No. 17-A

Protectors—Continued

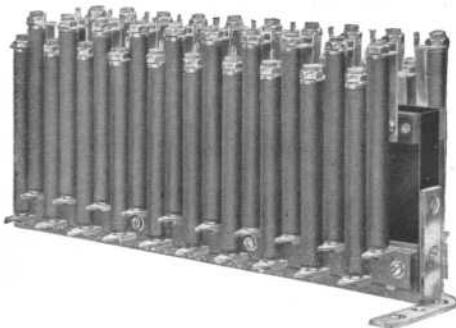
Code No.	Used with	Protecting against	Consists of	List Price each
17-A	No. 7-A protector	High potential current	2 carbon cutouts and No. 15 protector mounting for mounting on No. 7-A protector.....	\$ 0.41



No. 61-A

17-B	No. 7-A protector	High potential current	2 copper cutouts and No. 15 protector mounting for mounting on No. 7-A protector.....	.54
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61-A	Magneto and central battery central offices and cable terminals	High potential and abnormal currents	1 6-ampere fuse, 1 carbon cutout and No. 30 protector mounting for mounting on wall or in cable terminals (except No. 15 type)...	.45
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No. 77-A

77-A	No. 15 cable terminal	Abnormal current	1 6-ampere fuse and No. 51 protector mounting for mounting in No. 15 type cable terminal.....	.24
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PROTECTOR BLOCKS

A No. 1 protector block is used with a No. 2 and requires one or two No. 3 protector micas. A No. 5 block is used with another No. 5 and requires a No. 7 protector mica. A No. 9 protector block is used by itself and requires no protector mica. A No. 19 protector block is used with a No. 20 and requires one or two No. 10 protector micas.



No. 1



No. 2



No. 19



No. 20



No. 3



No. 10



No. 48



No. 9641

Code No.	Description	Used with Protectors number	List Price each
1	Plain carbon block with fuse metal.	4-A, 4-C, 12-A, 58-A, 60-A, 61-A, 65-A, 65-B, 70-A, 78-A, 78-B, 79-A, 84-A, 84-B.....	\$ 0.0225
2	Grooved carbon block without fuse metal.	4-A, 4-C, 12-A, 58-A, 60-A, 61-A, 65-A, 65-B, 70-A, 78-A, 78-B, 79-A, 84-A, 84-B.....	.0125
5	Grooved carbon block with fuse metal.	17-A.....	.02625
9	Wood dummy	4, 65, 78, 84.....	.0075
19	Copper block with two pins which fit into two bushings of the 20 protector block.	17-B, 58-B, 58-C, 60-B, 74-A, 79-A, 80-A.....	.04875
20	Copper block with two bushings which engage two pins of the 19 protector block.	17-B, 58-B, 58-C, 60-B, 74-A, 79-A, 80-A.....	.07125

PROTECTOR MICAS

Code No.	Used with Protector Blocks number	Used with Protectors number	List Price per hundred
3	1, 2	4-A, 4-C, 12-A, 58-A, 60-A, 61-A, 65-A, 65-B, 70-A, 78-A, 78-B, 79-A, 84-A, 84-B.....	\$ 1.15
7	5	17-A.....	1.60
10	19 and 20	17-B, 58-B, 58-C, 60-B, 74-A, 79-A.....	1.15

PROTECTOR MOUNTINGS

Code No.	Description	List Price each
48	Asbestos mat, 8 in. x 4½ in. for placing under No. 58 type protectors.....	\$ 0.021

PUSH BUTTONS

WOOD

Diameter 1¾ in.

Code Word	List No.	Finish
Benton	9641	Natural oak
Benwood	9642	Antique oak
Berkeley	9643	Walnut
Berkley	9644	Ash
Berkshire	9645	Cherry
Berl	9646	Mahogany

Diameter 2½ in.

Code Word	List No.	Finish
Berea	9650	Natural oak
Berger	9651	Antique oak
Berholz	9652	Walnut
Bernice	9653	Ash
Bernie	9654	Cherry
Berryville	9655	Mahogany

WRITE FOR LIBERAL DISCOUNTS

Push Buttons—Continued



No. 9703



No. 2890



No. 9675

Code Word	List No.	Finish
Bloomville	9703	Oak
Blodgett	9704	Ash
Boca	9705	Walnut
Bodan	9706	Mahogany
Boise	9707	Rosewood

NEW MITE PUSH

The smallest push made. Fits in $\frac{1}{4}$ in. hole, is $\frac{3}{8}$ in. deep and has a face $\frac{5}{8}$ in. in diameter. Held in place by side springs. Centers will not turn. Wire connectors will take any size wire.

Code Word	List No.	Finish
Famelict	2889	Light or dark pearl center.
Fames	2890	Black or white celluloid center.
Organiscos	23695	Red or blue celluloid center.

PEAR PUSHES

Biddeford	9675	Oak
Bigelow	9676	Cherry
Billin	9677	Walnut

RECEIVERS



No. 122-W

Code No.	Description	Used with	List Price each
122-W	Standard bipolar hand receiver, hard rubber case.	Telephone sets, desk stands, transmitter arms, etc.	Without cord \$ 1.52 With 3 ft. No. 92-cord..... 1.65



No. 125-W

Code No.	Description	Used with	List Price each
125-W	Lineman's receiver, hard rubber case, metal front and back. Includes a 3 ft. No. 15 cord.	No. 1006 type test sets...	With cord \$ 3.45



No. 128-W

Code No.	Description	Used with	List Price each
128-W	Standard bipolar head receiver, hard rubber case. This receiver used in combination with the No. 234 transmitter takes a No. 87 cord; when used with a No. 85 plug it takes a No. 30 cord.	Operator's telephone set all switchboards...	Without cord \$ 1.95 With 6 ft. No. 87 cord..... 2.70 With 6 ft. No. 30 cord..... 2.31

WRITE FOR LIBERAL DISCOUNTS

Receivers—Continued

Code No.	Description	Used with	List Price each
131-W	Metal case bipolar receiver.	No. 1 hand set handle, No.1001 hand set.....	Without cord \$ 2.30
133-W	Insulated bipolar hand receiver, hard rubber case	No. 1302 and 1314 telephone sets.....	Without cord 1.90 With 3 ft. No. 311 cord..... 2.24
141-W	Small metal case bipolar receiver	No.1002-A hand set.....	Without cord.. 1.90
143-W	Concealed binding post hand receiver composition case.	Telephone sets, desk stands, transmitter arms, etc.....	Without cord.. 1.20 With 3 ft. No. 92 cord..... 1.33
This receiver will be furnished in hard rubber case if desired.			Without cord.. 1.52 With 3 ft. No. 92 cord..... 1.65



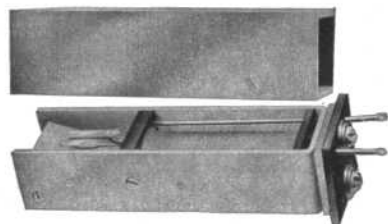
No. 133-W



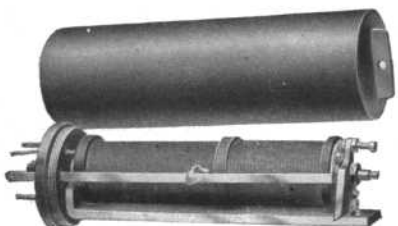
No. 143-W



No. 44-A



No. 87-A



No. 89-A

RELAYS

The wide range of types and resistances of our relays makes it impracticable to catalogue them all here. The following views are shown to convey an idea of the types generally used. The resistances of the windings and the arrangements of contacts are varied to meet the requirements of the circuits in which they are placed.

No. 44 Type Is self-restoring. Has a line operating coil and a restoring coil. Used when a local signal circuit is to be operated by ringing on the line. When the line coil is energized, the front armature is released and falls forward, closing a local contact. When the restoring coil is energized, the front armature is restored to the vertical position. Makes one contact when operated.

No. 87 Type Closes a local circuit only while the line is being rung upon. Has flexible contact springs and a heavy armature sluggish action so that the local circuit remains closed as long as there is ringing current on the line. Used in trunk circuits between central offices. Has a cross-talk proof cover. Makes one contact when operated.

No. 89 Type Has an operating coil and a locking coil. Made to respond to ringing current and to close a circuit through its armature contact and locking coil so that the relay remains in the operated position after ringing has ceased. Used for toll line signalling and in toll cord supervisory circuits. Has cross-talk proof cover. Makes one contact when operated.

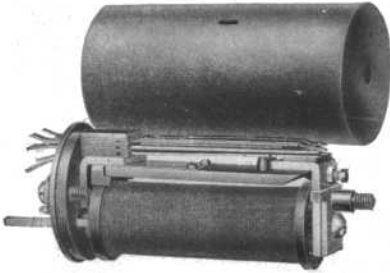
PRICES ON REQUEST

Relays—Continued



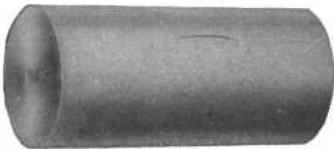
No. 118

No. 114 Type Operates on direct current. Has one or two operating windings. Used when a firmly established back contact is desired. Makes one contact and breaks one.

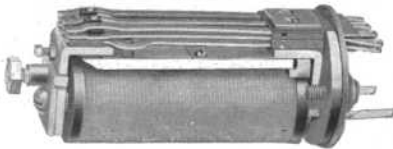


No. 122-A

No. 118 Type Sensitive relay for operating on direct current. For general use where a single contact is to be made. Has cross-talk proof cover. One form of this relay has in addition a back contact.

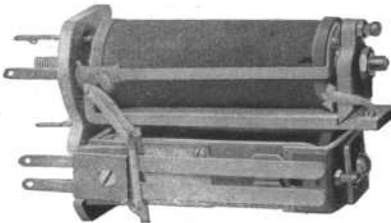


No. 122 Type Operated by direct current and generally used where it is desired to break two and make two contacts when the relay is energized.



No. 125-A

No. 125 Type Operated by direct current and generally used where it is desired to break three and make three contacts when the relay is energized.



No. 163-E

No. 163 Type The type of line and cut-off relay used with the No. 1 switchboard. Comprises a line relay which controls the signal lamp circuit, and a cut-off relay which operates and cuts off the line relay and signal equipment when the call is answered.



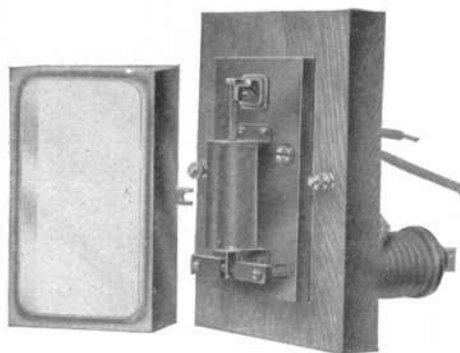
No. 189-B

No. 189 Type A small relay operating on direct current. Used as a line relay with the No. 10 switchboard. Makes one contact when operated.

PRICES ON REQUEST

POLARIZED RELAYS

These are used in connection with the reverse current coil of a circuit breaker, to prevent the storage battery discharging through the generator in case the latter stops.

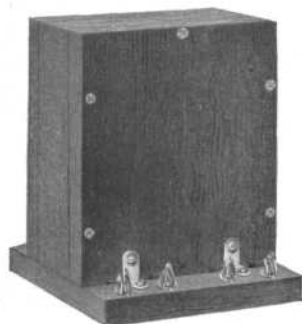


No. 154-A Relay

Code No.	Capacity amperes	For	List Price each
154-A	50	30 volt battery.....	\$ 22.50
154-B	100	30 volt battery.....	30.00
154-C	200	30 volt battery.....	30.00
154-D	300	30 volt battery.....	30.00
154-E	400	30 volt battery.....	30.00
154-F	600	30 volt battery.....	36.00
154-G	800	30 volt battery.....	75.00
154-H	1,000	30 volt battery.....	75.00

REPEATING COILS

The No. 8-A repeating coil is mounted in a wooden box, and the Nos. 20-A and 30-A have a cloth covering. With these exceptions the coils listed below are enclosed in iron cross-talk proof shells. The No. 25-E is provided with a hard rubber base. All others are mounted on wooden bases.



No. 8-A



No. 20-A

Code No.	Resistance ohms	Size of Base inches	Use	List Price each
8-A	2 Primary windings, 52.5 each. 2 Secondary wind- ings, 76 each.	$3\frac{1}{2} \times 4\frac{1}{2}$	Cord circuits Nos. 1006, 1101, 1102 and 1010 mag- neto switch- boards.....	\$ 2.40



No. 25-E

20-A	1 Primary winding, 277. 1 Secondary wind- ing, 40. 1 Tertiary winding, non-inductive, 360	$5\frac{1}{8} \times 1\frac{1}{2}$	Trunk operator's telephone cir- cuit, No. 1 switch- board.....	1.15
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25-E	1 Primary winding, 46. 1 Secondary wind- ing, 46.	$3\frac{1}{8} \times 4\frac{7}{8}$	Street railway tel- ephone sets Nos. 1278 - A and 1302-A.	5.05
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No. 30-A

30-A	1 Primary winding, 385. 1 Secondary wind- ing, .03.	$5\frac{1}{2} \times 5\frac{1}{2}$	Tone test cir- cuit.....	6.25
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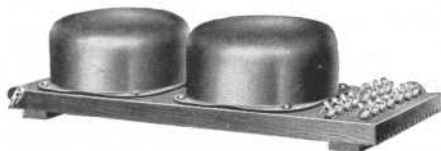
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No. 37-A



No. 39-A



No. 25-A



No. 25-C



No. 26-A

Repeating Coils—Continued

Code No.	Resistance ohms	Size of Base inches	Use	List Price each
37-A	2 Primary windings, 35 each. 2 Secondary windings, 35 each.	11 x 8 $\frac{1}{2}$	Phantom toll circuits and simplex circuits.....	\$ 18.90
39-A	First winding, 62; second winding, 37; third winding, 40.	10 $\frac{1}{2}$ x 3 $\frac{1}{4}$	Phantom toll circuits and simplex circuits.....	13.70

These have two coils mounted on one base and are for use on standard repeating coil racks. Size of base is 10 $\frac{1}{2}$ in. by 4 in.

The windings of the Nos. 25-C and 25-G are the same as those of the Nos. 25-A and F respectively, except that they are brought out to terminals on both ends of the base.

Code No.	Resistance ohms	Use	List Price each
25-A	2 Primary windings, 23 each. 2 Secondary windings, 23 each.	Cord circuits and incoming trunk circuits on central battery switchboards.....	\$ 7.65
25-F	2 Primary windings, 23 each. 2 Secondary windings, 23 each. 2 Non-inductive windings, 40 each.	48 volt battery long distance and incoming toll trunks central battery switchboards.....	8.30
25-C	2 Primary windings, 23 each. 2 Secondary windings, 23 each.	Cord circuits and incoming trunk circuits of central battery switchboards.....	7.65
25-G	2 Primary windings, 23 each. 2 Secondary windings, 23 each. 2 Non-inductive windings, 40 each.	48 volt battery long distance and incoming toll trunks central battery switchboards.....	8.30

These have one coil per base, and are for use on standard repeating coil racks. Size of base is 10 $\frac{1}{2}$ in. by 4 in.

The windings of the Nos. 26-C and 26-F are the same as those of the Nos. 26-A and 26-E respectively, except that they are brought out to terminals on both ends of the base.

Code No.	Resistance ohms	Use	List Price each
26-A	2 Primary windings, 23 each. 2 Secondary windings, 23 each.	Cord circuits and incoming trunk circuits of central battery switchboards.....	\$ 4.05

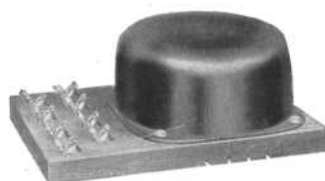
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Repeating Coils—Continued



No. 26-C

Code No.	Resistance ohms	Use	List Price each
26-E	2 Primary wind- ings, 23 each. 2 Secondary windings, 23 each. 2 Non - inductive windings, 40 each.	48 volt battery long distance and in- coming toll trunks central battery switchboards.....	\$ 4.25
26-C	2 Primary wind- ings, 23 each. 2 Secondary windings, 23 each.	Cord circuits and in- coming trunk cir- cuits of central battery switch- boards.....	4.05
26-F	2 Primary wind- ings, 23 each. 2 Secondary windings, 23 each. 2 Non - inductive windings, 40 each.	48 volt long distance and incoming toll trunks central battery switch- boards.....	4.25



No. 27-A

These have a single coil on a base 6 in. by 4 in. and are used where a single coil mounted on a short base is desired.

Code No.	Resistance ohms	Use	List Price each
27-A	2 Primary wind- ings, 23 each. 2 Secondary windings, 23 each.	Cord circuits and in- coming trunk cir- cuits on central battery switch- boards.....	\$ 3.95
27-C	2 Primary wind- ings, 23 each. 2 Secondary windings, 23 each. 2 Non - inductive windings, 40 each.	48 volt battery long distance and in- coming toll trunks on central battery switchboards.....	4.25

These coils may be used in single office districts.

The windings of the "B" type coils are the same as those of the "A" type, except that they are brought out to terminals on only one end of the base.



No. 11-A

Code No.	Resistance ohms	Use	List Price each
11-A	4 windings, 38 each.	Subscriber cord cir- cuits at central bat- tery switchboards ..	\$ 2.50
11-B	4 windings, 38 each.	Subscriber cord cir- cuits at central bat- tery switchboards ..	2.50
12-A	4 windings, 22 each.	Trunk and toll circuits central battery switchboards.....	3.45
12-B	4 windings, 22 each.	Trunk and toll circuits central battery switchboards.....	3.45

WRITE FOR LIBERAL DISCOUNTS

RESISTANCES

No. 1 Type



No. 1

These have a brass core, fibre heads and are enclosed in a brass shell. They have one coil.

Code No.	Resistance ohms	List Price each	Code No.	Resistance ohms	List Price each
1-A	400	\$ 0.30	1-K	30	\$ 0.30
1-B	2500	.45	1-L	100 (Non inductive)	.30
1-C	500	.30	1-N	700	.30
1-D	60	.30	1-P	5	.30
1-E	300	.30	1-R	250	.30
1-F	1000	.45	1-T	350	.30
1-G	3000	.60	1-U	45	.30
1-H	200	.30	1-W	2000 (Non inductive)	.45
1-J	20	.30			

No. 5 Type



No. 5

These have a wooden spool and one winding.

5-A	120	.70	5-S	9000	1.50
5-B	20	.70	5-T	20000	1.90
5-C	60	.70	5-U	450	.85
5-D	50	.70	5-W	150	.70
5-E	90	.70	5-Y	1450	1.15
5-F	10	.75	5-Z	8550	1.50
5-G	10000	1.50	5-AA	300	.70
5-H	500	.85	5-AB	9250	1.50
5-J	600	.85	5-AC	2000	1.12
5-K	750	1.15	5-AD	8800	1.50
5-L	1000	1.15	5-AE	1200	1.15
5-M	2500	1.15	5-AF	100	.70
5-N	800	1.15	5-AG	200	.70
5-P	180	.70	5-AH	250	.70
5-R	40	.70			

No. 18 Type



No. 18

These have a micanite core and two terminals.

18-A	37	.35	18-U	100	.35
18-B	40	.35	18-W	133	.35
18-C	83	.35	18-Y	90	.35
18-D	120	.35	18-Z	67	.35
18-E	140	.35	18-AA	95	.35
18-F	150	.35	18-AB	45	.35
18-G	200	.35	18-AC	500	.35
18-H	210	.35	18-AD	240	.35
18-J	30	.35	18-AE	600	.35
18-K	80	.35	18-AF	300	.35
18-L	170	.35	18-AG	226	.35
18-M	53	.35	18-AH	320	.35
18-N	180	.35	18-AJ	400	.35
18-P	130	.35	18-AK	60	.35
18-Q	110	.35	18-AL	4	.35
18-R	10	.35	18-AM	250	.35
18-S	20	.35	18-AN	350	.35
18-T	50	.35			

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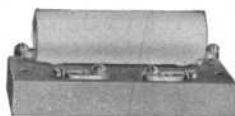
No. 19 Type

These have a micanite core, two windings and three terminals, the middle terminal being common to one end of each of the windings.



No. 19

Code No.	Resistance ohms	List Price each	Code No.	Resistance ohms	List Price each
19-A	37 and 37	\$ 0.38	19-Y	15 and 15	\$ 0.38
19-B	40 and 40	.38	19-Z	120 and 120	.38
19-C	40 and 83	.38	19-AA	15 and 90	.38
19-D	83 and 83	.38	19-AB	120 and 210	.38
19-E	30 and 30	.38	19-AC	60 and 83	.38
19-F	40 and 60	.38	19-AD	150 and 150	.38
19-G	40 and 100	.38	19-AE	30 and 120	.38
19-H	40 and 120	.38	19-AF	140 and 140	.38
19-J	10 and 40	.38	19-AG	120 and 160	.38
19-K	100 and 100	.38	19-AH	240 and 240	.38
19-L	60 and 60	.38	19-AJ	200 and 200	.38
19-M	20 and 20	.38	19-AK	70 and 70	.38
19-N	5 and 8	.38	19-AL	40 and 68	.38
19-P	20 and 130	.38	19-AM	50 and 50	.38
19-R	25 and 120	.38	19-AN	260 and 260	.38
19-S	60 and 90	.38	19-AP	180 and 180	.38
19-T	25 and 25	.38	19-AR	60 and 260	.38
19-U	25 and 90	.38	19-AS	170 and 170	.38
19-W	10 and 10	.38			



No. 31-A

No. 31 Type

A steel tube enameled resistance; mounted on a wood base; used in railway composite circuit.

Code No.	Resistance ohms	List Price each
31-A	1,200	\$ 1.15

RESISTANCE LAMPS

These have tubular bulbs $1\frac{1}{4}$ in. diameter with carbon filament and are fitted with Edison bases.



No. 1

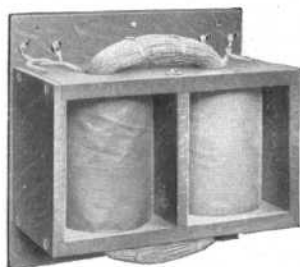
Code No.	Resistance ohms	List Price each
1-A	660	\$ 0.60
1-B	220	.43
1-C	300	.60
1-D	100	.60

RETARDATION COILS

These represent a few of the commonly used types which we manufacture.



No. 1-A



No. 5-K

Code No.	Resistance ohms	Use	List Price each
1-A	1 winding 600	Telephone circuit desk operator, No. 1 switchboard.....	\$ 1.00
1-C	1 winding 200	Telephone circuit Nos. 1006, 1010, 1101 and 1102 magneto switchboards.....	.90
1-F	1 winding 500	Telephone circuit, desk operator, No. 1 switchboard and cord circuit No. 9 switchboard.....	.90
1-G	1 winding 750	Telephone circuit, Nos. 101, 102 and cordless private exchanges.....	1.00
1-K	1 winding 1000	Long line circuit No. 10 switchboard.....	1.05
5-K	2 windings 15 each	Composite circuit and No. 9 switchboard.....	11.80
5-L	2 windings 25 each	Composite circuit.....	12.85
5-N	4 windings 250 each	Duplex telegraph circuit.....	16.20
5-R	2 windings 20 each	Composite circuit.....	1.80

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No. 8-B



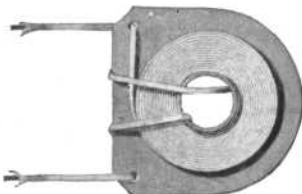
No. 12-A



No. 12-K



No. 31-B



No. 45-A



No. 44-B



No. 2-AG

Retardation Coils—Continued

Code No.	Resistance ohms	Use	List Price each
8-B	2 windings 85 each	Cord circuit Nos. 4, 101, 102 and cordless private exchanges.....	\$ 3.25
8-L	2 windings 175 each	No. 4 private exchange.....	2.55
12-A	1 winding 165	Operator's telephone circuit, Nos. 1, 9 and 10 switchboards, Nos. 101 and 102 private exchanges.....	.85
12-G	1 winding 2	Telephone set No. 1312-A.....	.75
12-L	1 winding 400	Operator's telephone circuit, No. 4 private exchange.....	1.50
12-M	1 winding 2.3	Telephone set No. 1314-A.....	.75
12-H	1 winding	Choke coil used in primary circuit of battery driven 38 watt dynamotor	6.75
12-J	1 winding	Choke coil used in primary circuit of battery driven 75 watt dynamotor	6.75
12-K	1 winding	Choke coil used in primary circuit of battery driven 150 watt dynamotor.....	6.75

The No. 31 type for use with lightning arresters for the protection of overhead direct and alternating current power circuits; mounted on a temporary base for shipment.

Code No.	Capacity amperes	List Price each
31-B	25	\$ 4.30
31-D	50	7.50
31-F	100	17.65
31-H	150	25.90

Code No.	Resistance ohms	Use	List Price each
45-A	2 windings .04 each	In No. 79 type protector.....	\$ 0.20
44-B	2 windings 200 each	This has two separate toroidal coils on the same wooden base. Each coil is enclosed in a cross talk-proof shell. Used in the cord circuit of No. 1 toll switch- board.....	14.25

RINGERS

For Telephone Sets

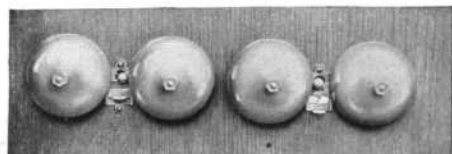
These are equipped with No. 16 gongs and the necessary gong mountings and gong nuts. Different gongs may be used if desired, by changing the gong mountings and nuts and in ordering these it will be sufficient to specify, No.ringers equipped with No.gongs.

Code No.	Type	Type of Gong Posts	Resistance ohms	List Price each
2-AG	Long unbiased	Long	1000	\$ 1.65
2-BG	Long unbiased	Long	2500	2.25
2-FG	Long unbiased	Long	1600	2.25
3-AG	Long unbiased	Medium	1000	1.65
3-BG	Long unbiased	Medium	2500	2.25
4-AG	Long unbiased	Short	1000	1.65
4-BG	Long unbiased	Short	2500	2.25

WRITE FOR LIBERAL DISCOUNTS



No. 6-AG



No. 1-A operated and non operated



No. 5-G



No. 4-E



No. 32-A



No. 34-A



No. 42-A

Ringers—Continued

Code No.	Type	Type of Gong Posts	Resistance ohms	List Price each
6-AG	Long biased	Long	1000	\$ 1.65
6-BG	Long biased	Long	2500	2.25
6-FG	Long biased	Long	1600	2.25
7-AG	Long biased	Medium	1000	1.65
7-BG	Long biased	Medium	2500	2.25
8-AG	Long biased	Short	1000	1.65
8-BG	Long biased	Short	2500	2.25

RINGER INDICATORS

Used in connection with ringers to indicate the calling line.

Code No.	List Price each
1-A	\$ 0.45

SERVICE METERS

These are for counting the number of effective calls made on a telephone line. They are mounted at the central office on steel mounting plates.

Code No.	Outer Winding Resistance ohms	Inner Winding Resistance ohms	Operates on volts	Does not Operate on volts	List Price each
5-G	40	500	26.5	25	\$ 3.70

These are for counting the number of connections made by an operator. They are mounted on steel mounting plates.

Code No.	Resistance ohms	Operating Current amperes	Non-operating Current amperes	List Price each
5-H	.25	1.3	1.2	\$ 3.40

SIGNALS

The No. 4 has two coils and is used principally as a line signal in private exchanges employing magnetic signals and operating on a central battery basis.

The No. 32 has a single coil and is used principally as a supervisory signal in private exchanges employing magnetic signals and operating on a central battery basis. It is also used as the line signal in the cordless private exchange switchboards.

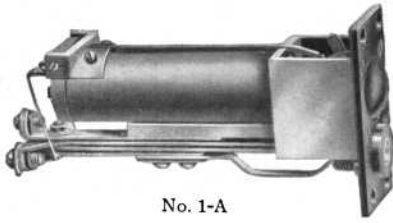
The No. 34 is used as a line signal in the No. 9 switchboard and in the trunk circuits of the No. 105 magneto switchboard. The Nos. 39 and 41 signals are used in the cord circuits of the No. 9 switchboard.

The No. 42 is used as a busy signal with multiple toll line jacks and mounts on same centers as jacks.

The Nos. 4, 34, 39 and 41 signals are numbered in paint on the shutter, numbering to be specified.

Code No.	Resistance ohms	List Price each
4-E	250	\$ 1.90
32-A	33.3	2.35
34-A	80	2.25
34-B	300	2.40
39-A	2 windings 250 each	3.30
41-B	2 windings 100 each	3.25
42-A	100	.90

WRITE FOR LIBERAL DISCOUNTS



No. 1-A



No. 62

Signals—Continued

The No. 1-A Combination Jack and Signal is used as a line signal for the Nos. 1101 and 1102 magneto switchboards. It is designed for magneto switchboards when the jack is to be mounted adjacent to the signal. The signal is restored automatically by inserting a plug in the associated jack.

Code No.	Description	Resistance ohms	List Price each
1-A	Combination jack and signal	500	\$ 2.65

SIGNAL MOUNTINGS

The following are the principal mountings used with the signals described above.

Code No.	For Signals number	Number of Signals per Strip	Size of Face Plate inches	List Price
2	4	10	15x $\frac{9}{16}$	The price of the signal mounting is included in the price of the signal if the strip is fully equipped
29	34, 39, 41	5	7 $\frac{1}{2}$ x1 $\frac{3}{8}$	
60	34, 39, 41	15	24 $\frac{9}{16}$ x1 $\frac{3}{8}$	
61	34, 39, 41	20	24 $\frac{9}{16}$ x1 $\frac{3}{8}$	
62	34, 39, 41	12	21x1 $\frac{3}{8}$	
77	42	10	9 $\frac{1}{16}$ x $\frac{3}{8}$	
78	42	10	7 $\frac{3}{8}$ x $\frac{3}{8}$	
79	42	20	9 $\frac{1}{16}$ x $\frac{3}{8}$	

CENTRAL BATTERY SWITCHBOARDS

No. 1 SUBSCRIBER AND TRUNK SWITCHBOARDS

The No. 1 switchboard is a central battery lamp signal and lamp supervisory switchboard arranged for positive supervision, and is recommended for use for all equipments where a central battery exchange of more than 1600 lines is desired, or for a smaller equipment, where the liability of growth within a few years to a system exceeding 1600 lines is calculated.

For small central battery exchanges we recommend the No. 9 or the No. 10 switchboards which are described herein.

The No. 1 switchboard is a multiple board, the multiple jacks being bridged across the line, and appearing once in each section, so that every operator has a multiple jack of each subscriber's line within her reach.

These boards are furnished in various standard sizes from 3000 to 9600 lines; the commonly used of these being the 3000 line, 4900 line and 9600 line boards. Any equipment desired may be provided with the original installation, as the equipment is so arranged that additions may be installed at any time without interrupting the service.

The 3000 line section is a five panel board, arranged for two operators' positions, 400 answering jacks, 300 outgoing trunk multiple and is 6 ft. 6 in. high, 4 ft. 3 $\frac{1}{4}$ in. long and 3 ft. 7 $\frac{1}{4}$ in. deep from the front of the keyshelf to the rear curtain.

The 4900 line section has seven panels, is arranged for three operators' positions, 560 answering jacks, 500 outgoing trunk multiple and is 6 ft. 10 in. high, 5 ft. 11 $\frac{3}{4}$ in. long and 4 ft. $\frac{1}{4}$ in. deep from the front of the keyshelf to the rear curtain.

The 9600 line section has eight panels, is arranged for three operators' positions, 640 answering jacks, 600 outgoing trunk multiple, and is 7 ft. 8 $\frac{1}{2}$ in. high, 5 ft. 8 in. long and 4 ft. 4 $\frac{5}{8}$ in. deep from the front of the keyshelf to the rear curtain.

The first two of these boards are what are commonly known as the No. 49 jack boards, on account of their being arranged for No. 49 jacks, and the latter is known as the No. 92 jack board, because it is arranged for No. 92 jacks.

The No. 49 and No. 92 jacks are similar with the exception that the No. 92 is smaller and is assembled on a metal mounting, while the No. 49 jack is assembled on a hard rubber mounting. The No. 92 jacks being smaller are mounted on closer centers, and for this reason are used in place of the No. 49 jacks where large multiple equipments are necessary.

It will be understood from the above that the plugs and cords, as well as the various other pieces of apparatus used in these sections, will be different. These differences, however, are only in dimensions, and do not in any way affect the operation, strength and efficiency of the equipment.

PRICES ON REQUEST

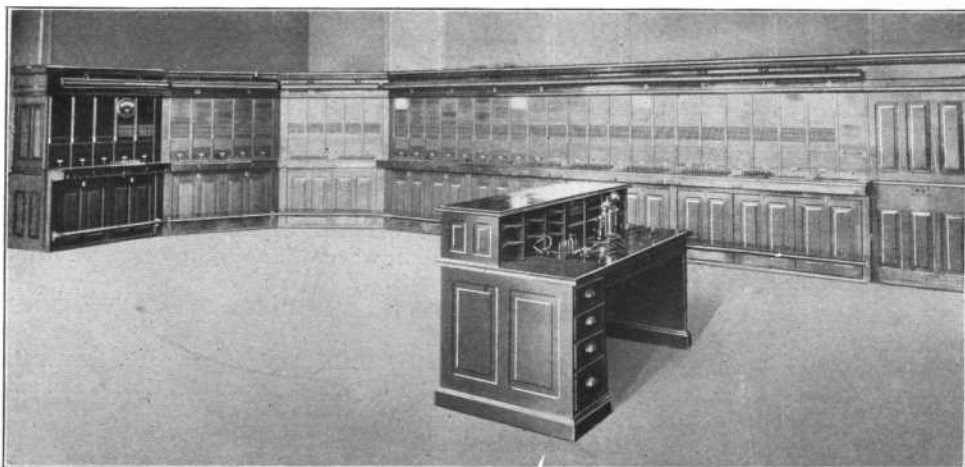
Central Battery Switchboard—Continued

Line and cut-off relays are provided for each subscriber line circuit. The function of the line relay being to operate when a subscriber takes the receiver off the hook, thus lighting the line lamp and signalling the operator. The cut-off relay operates when the call is answered, cutting off the line battery and extinguishing the line lamp. From this point on during a conversation, the talking battery is taken from the cord circuit through the repeating coil, separate coils being provided with each pair of cords.

In multiple office districts, i.e., in districts where there are two or more exchanges, as for instance, in a large city where the number of subscribers is such that they can be accommodated only by a number of central offices, instead of by only one exchange, or where the area covered is such that it is more economical to install several exchanges than to try to handle the business from one point, trunk sections are recommended for use in conjunction with the No. 1 subscriber board.

In these trunk sections appear multiple jacks, bridged across the subscribers' lines, so that a multiple jack of each line is within the reach of every one of the trunk operators.

In cases of this kind, trunk equipments are provided, terminating in jacks at the subscriber board and in incoming trunks, consisting of plugs and cords with the necessary repeating coils, relays, resistances, lamps and keys at a distant exchange. These incoming trunks are placed in the trunk sections, and when a subscriber connected to one exchange desires to converse with a subscriber connected to another exchange,



Operating Room

the operator at the subscriber board where the call originates, has a trunk assigned over a call wire, by the trunk operator at the distant exchange, who then makes connection with the trunk multiple jack of the subscriber's line with which the calling subscriber desires connection.

The trunk sections are in large exchanges placed in a separate line from the subscriber sections, but in exchanges where the number of trunks is not large the sections may be placed in the same line with the subscriber board. Subscriber sections may be readily converted into trunk sections by merely changing the equipment.

The frames of these sections are made of steel to give them strength and rigidity. All the woodwork on the front of the boards is of selected mahogany, and is very carefully fitted and finished. The rear of the board is provided with rolling wooden curtains. Lighting equipment is provided with each section.

These switchboards, both subscriber and trunk, are equipped with the necessary miscellaneous circuits, such as night bell, auxiliary signal, instruction, supervisors, tone test, etc.

FRAMES AND RACKS, USED WITH No. 1 SWITCHBOARD

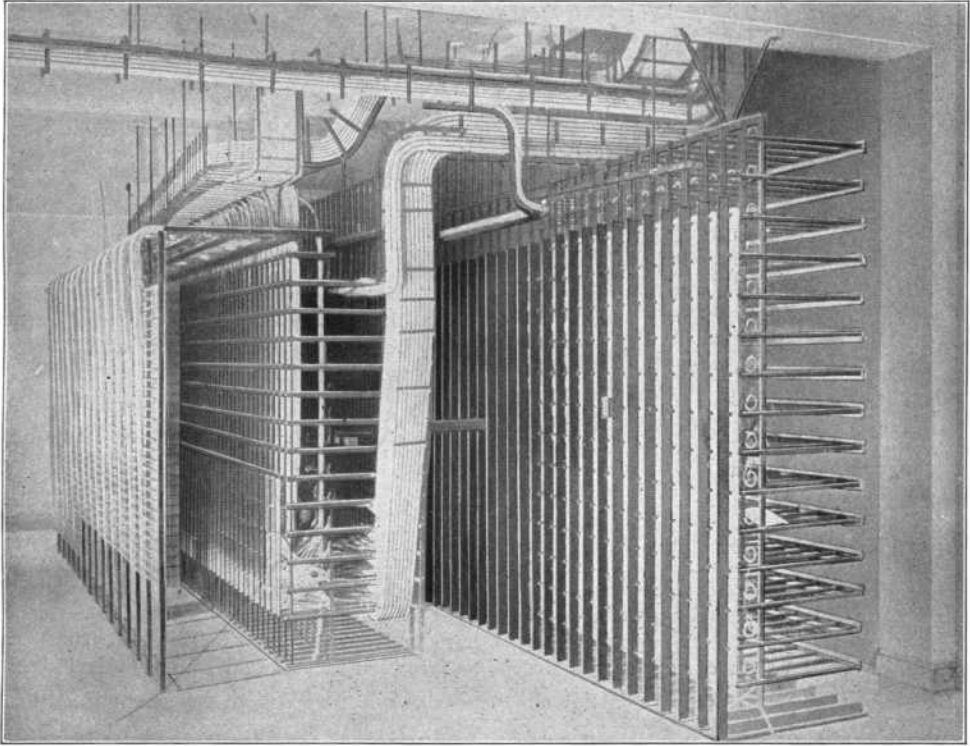
MAIN DISTRIBUTING FRAME

A main frame of iron construction is provided with this board, to one side of which the outside lines are connected, the other side being connected by cable to the intermediate frame. On it are mounted protectors, consisting of heat coils and carbon block arresters. Adequate provision is made for cross connecting.

PRICES ON REQUEST

Frames and Racks—Continued**INTERMEDIATE FRAME**

An intermediate distributing frame of iron construction is provided, on the horizontal side of which are mounted terminal strips, to which the cables from the main frame are soldered. Terminal strips are placed on the vertical side of this frame, and from these the cables are run to the answering jacks in the switchboard and to the relays on the relay rack. Ample provision is made on this frame for cross connecting.



Terminal Room

RELAY RACK

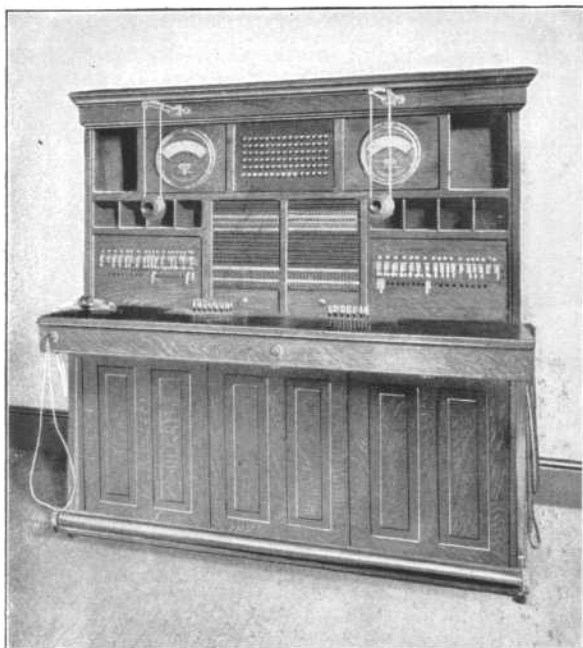
A relay rack of iron construction is provided on which to mount the line relays and the incoming trunk relays in case trunking equipment is necessary. In a very large exchange a separate relay rack is provided for the trunk relays.

COIL RACK

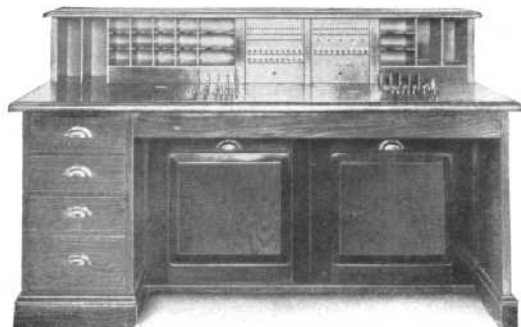
A coil rack of iron construction is provided on which the repeating coils, wired in the cord circuits, are mounted. These coils are connected to the cord circuits by cable run from the coil rack to the switchboard sections.

FUSE PANEL

At the end of the coil rack is placed a fuse panel of slate $1\frac{1}{2}$ in. thick, on which are mounted the fuses for the cord circuits and operators' sets, as well as the line fuses and other fuses necessary to protect the miscellaneous circuits. This fuse panel is generally arranged for alarm type fuses, so that when the fuse blows, a connection is made with an alarm fuse bus-bar closing a circuit through a bell, thus giving the signal that one of the fuses has burned out. (This fuse panel is separate from the power fuse panel on which the fuses used in the power circuits are mounted.)



No. 9 Wire Chief's Desk



No. 2 Chief Operator's Desk

DESKS

The necessary desks, such as Wire Chief's, Chief Operator's, Manager's and Information Desks, will be provided with the multiple switchboard.

POWER PLANT

The power plant is laid out on the basis of 24 volt battery supply for local connections and 48 volt supply for toll and long distance connections. For charging the storage batteries, it is considered desirable to have duplicate

sources of power and the usual arrangement is to have two charging sets entirely independent of each other, one to operate from the city power supply and the other run from a gas engine installed at the exchange, the latter is to be used as an emergency set in case of accidents, or a breakdown in the city plant.

To provide ringing current, duplicate ringing machines are ordinarily furnished, one run from the storage battery and the other from the city power supply. These sets may be equipped with interrupters for tone, trouble and busy test service.

No. 9 SWITCHBOARD

The No. 9 switchboard is used in offices up to 800 lines capacity. Two types of this board are furnished, one for use in offices to handle only local and toll traffic and the other in offices such as those in the vicinity of large telephone centers, where calls will be trunked to other exchanges. These are known as the No. 9-D and No. 9-C switchboards respectively, and differ principally in that the No. 9-D is arranged for 24 and the No. 9-C for 38 volt battery supply.

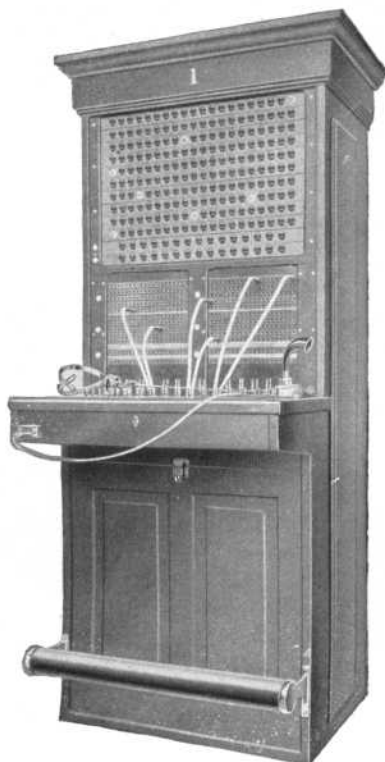
These switchboards are furnished with magnetic line and supervisory signals, and are arranged for negative supervision.

The cord circuits on the subscriber section are equipped with condensers, and those on the toll sections with repeating coils. The toll cord circuits are universal, i.e., they are entirely automatic, being arranged so that either toll to toll or toll to local connections can be made without any additional work by the operator, no keys or switching devices, other than the regular listening and ringing keys, being necessary.

The board is self-contained, terminal strips and connecting rack being mounted on the rear to provide for cross-connecting the multiple jacks and line signals.

This section is a two-panel single operator's section with a capacity for 400 multiple jacks and 200 line signals. The lines are multiplexed every second section, making a total multiple capacity of 800 lines.

WRITE FOR LIBERAL DISCOUNTS



No. 9 Switchboard

No. 9 Switchboard—Continued

The following gives the capacity of the subscriber, trunk, toll and combination subscriber and toll sections:

Subscriber Section

	Capacity
Operator's position	1
Subscriber Multiple jacks—20 per strip	400
Trunk Multiple jacks—10 per strip	40
Subscriber line signals (see note)	200
Ring down trunk drops	As specified
Subscriber cord circuits	15
Operator's telephone circuit	1
Auxiliary signal circuit	1
Ringing circuit	1
Call wire circuits	8
Night bell circuit	1
Test lines to wire chief	2

Note.—When a section is equipped with No. 22-A drops for ring down trunks the subscriber's line signal capacity will be reduced by 20 for each 15 of these trunks.

Incoming Call Wire Trunk Section

	Capacity
Operator's position	1
Subscriber multiple jacks—20 per strip	400
Trunk multiple jacks—10 per strip	30
Busy back jacks—10 per strip	10
Incoming call wire trunks	28
Trunk operator's telephone circuit	1
Call wire signal circuit	1
Ringing circuits	2
Call wire circuits	8

Toll Section

	Capacity
Operator's position	1
Subscriber multiple jacks—20 per strip	400
Toll and trunk multiple jacks—10 per strip	40
Central battery toll line signals	As specified
Magneto toll line drops	As specified
Through toll line drops	As specified
Recording trunks drops	As specified
Universal toll cord circuits (see note)	7
Operator's telephone circuit	1
Auxiliary signal circuit	1
Ringing circuit	1
Call wire circuits	4
Night alarm circuit	1
Test lines to wire chief	2

Note.—The toll cord circuits shall all be wired so that they can be used for either magneto or common battery and local subscriber's lines, and with the repeating coil out on through toll connections or in on all connections. The standard arrangement is to leave the repeating out on the first 5 cords and in on the last 2.

Combination Subscriber and Toll Section

	Capacity
Operator's position	1
Subscriber multiple jacks—20 per strip	400
Toll and trunk multiple jacks—10 per strip	40
Subscriber line signals (see note No. 1) }	120
Central battery toll line signals..... }	
Magneto toll line drops }	20
Through toll line drops }	
Recording trunk drops }	
Universal toll cord circuits (see note No. 2)	5
Operator's telephone circuit	1
Auxiliary signal circuit	1
Call wire circuits	4
Night alarm circuit	1
Test line to wire chief	2

PRICES ON REQUEST

No. 9 Switchboard—Continued**Notes:—**

1. If a section is equipped with No. 22-A drops for ring down trunks the subscriber line signal capacity will be reduced by 20 for each 15 of these trunks.
2. The toll cord circuits shall all be wired so that they can be used for either magneto or common battery toll and local subscriber's lines, and with the repeating coil out on through toll connections or in on all connections. The standard arrangement is to leave the repeating coil out on the first 4 toll cords and in on the last cord.

In addition to these sections we have standard rural and combination subscriber and toll switching trunk sections. We will furnish complete information on any of these upon request.

The frame of this board is made of birch, finished to match mahogany. The dimensions of the standard sections are as follows: 6 ft. 3 in. high; 2 ft. 5 in. wide; 2 ft. 9 in. deep, from front of key shelf to rear door. The equipment in the rear of the section is accessible by removing the rear door.

MAIN DISTRIBUTING FRAMES

The main distributing frame is of iron construction, and may be either the wall type, or arranged to mount separately. In the wall type the lower portion is designed to carry the protectors, consisting of heat coils and carbon block arresters, while the upper portion of the frame carries the fuses.

The separate type is designed so that one vertical may be added at a time, the vertical side carrying the protectors, consisting of heat coils and carbon block arresters, the horizontal side being equipped with terminal strips for connecting the outside lines.

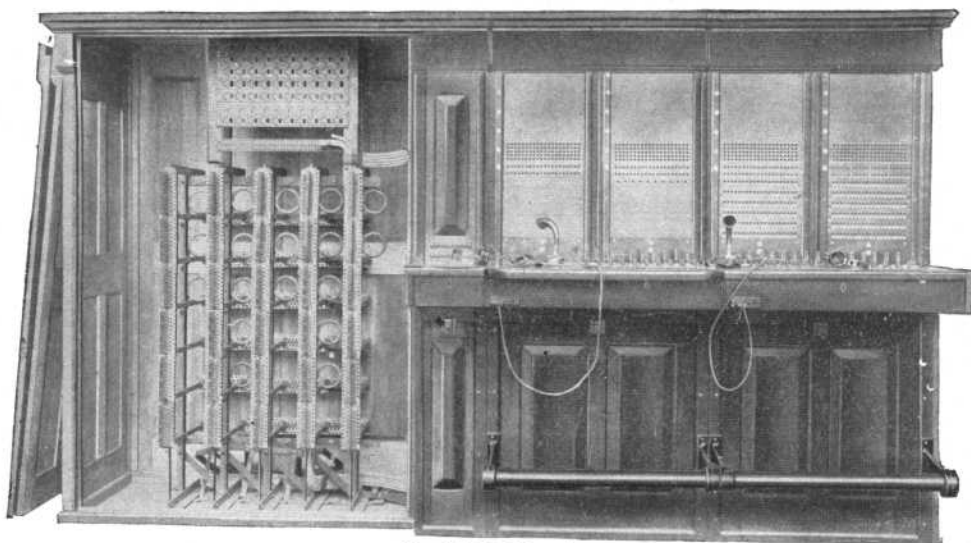
DESKS

A wire chief's desk and chief operator's desk are provided for use with the No. 9 switchboard when necessary.

POWER PLANT

The power plants of the No. 9-D and No. 9-C switchboards are planned on the basis of 24 and 38 volt battery supply respectively. There is supplied a storage battery (usually E-7 cells), motor, charging generator, together with a power switchboard, on which are mounted the necessary instruments, such as voltmeter, ammeter, switches, fuses, etc.

A ringing machine is not ordinarily used, as it is the usual practice to provide two interrupters to supply the ringing current.

No. 10 SWITCHBOARD

No. 10 Switchboard

The No. 10 switchboard is used in offices up to 1600 lines capacity. In general, it may be said that the No. 10 switchboard possesses the operating and transmitting features of the No. 1 switchboard, it being provided with repeating coils in the cord circuits, and the functions of the cut-off relay being performed by a cut-off jack. The supervisory signals are controlled by back contact relays.

The board is provided with answering jacks and associated lamp signals and lamp supervising signals arranged for positive supervision. It is designed for both single and multi-office districts.

PRICES ON REQUEST

No. 10 Switchboard—Continued

This board is self-contained, except that an intermediate distributing frame is provided for cross connecting. The section is a two panel single operator's section with a capacity for 800 multiple and 120 answering jacks per panel. The lines are multiplied every second section, making a total multiple capacity of 1600 lines. The equipment is arranged as flexible as possible, with a view of meeting all usual requirements shown by careful study.

The following gives the capacity of the subscriber, toll and combination subscriber and toll sections:

Subscriber Section		Capacity
Operator's position.....		1
Subscriber multiple jacks, 20 per strip		800
Trunk multiple jacks, 20 per strip.....		80
Subscriber line equipment jacks, 20 per strip		240
Subscriber cord circuits.....		15
Subscriber operator's telephone circuit.....		1
Ringing circuit.....		1
Call wire circuits.....		32
Auxiliary signal circuits.....		2
Night alarm circuit.....		1
Tone test cords.....		2

Toll Section	Capacity	Combination Toll and Subscriber Section	Capacity
Operator's position.....	1	Operator's position.....	1
Subscriber multiple jacks, 20 per strip.....	800	Subscriber multiple jacks, 20 per strip	800
Trunk multiple jacks, 20 per strip	80	Trunk multiple jacks, 20 per strip.....	80
Magneto toll line jacks, 10 per strip....	10	Subscriber or common battery toll	
Common battery toll line jacks, 20 per strip.....	20	lines, jacks 20 per strip.....	120
Universal toll cord circuits:		Magneto toll lines, jacks 10 per strip...	10
Repeating coil in on all connections..	2	Subscriber cord circuits.....	10
Repeating coil out on through connections	8	Universal toll cord circuits:	
Toll operator's telephone circuit.....	1	Repeating coil in on all connections..	1
Ringing circuit.....	1	Repeating coil out on through connections.....	4
Call wire circuits.....	4	Operator's telephone circuit.....	1
Auxiliary signal circuit, magneto toll...	1	Ringing circuit.....	1
Auxiliary signal circuit, common battery toll	1	Call wire circuits.....	4
Night alarm circuit.....	1	Auxiliary signal circuit, magneto toll...	1
		Auxiliary signal circuit, subscriber or common battery toll.....	1
		Night alarm circuit.....	1

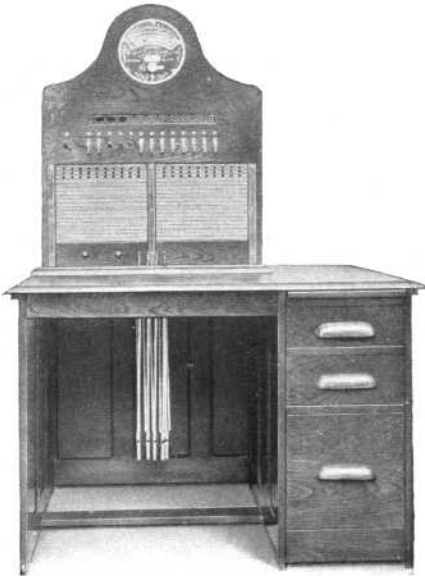
In addition to these sections we have a standard recording, trunk, toll trunk, rural, combination subscriber and toll trunk, combination subscriber and rural sections, and subscriber sections arranged for rural cords. We will furnish complete information on any of these upon request.

The frame of this board consists of steel enclosed in wood, all the woodwork on the front of the board having a mahogany finish.

The dimensions of the standard section are as follows:—5 ft. 10 $\frac{3}{4}$ in. high; 2 ft. 5 in wide; 2 ft. 10 $\frac{1}{2}$ in. deep, from front of keyshelf to rear door.

The line relays are arranged in the board and are accessible by removing the rear door.

No. 10 Switchboard—Continued



No. 10 Wire Chief's Desk



No. 10 Chief Operator's Desk

DESKS

A wire chief's desk and chief operator's desk are provided for use with the No. 10 switchboard when necessary.

FRAMES AND RACKS

An intermediate distributing frame of iron construction is provided for cross connecting, and can be placed either at the end of the first section, or on a separate floor if desired. This frame is so designed that additions may be made in units of one vertical. When placed in line with the boards it is enclosed in a casing, finished to match the board.

The main frame is of iron construction, and may be either the wall type or arranged to mount separately.

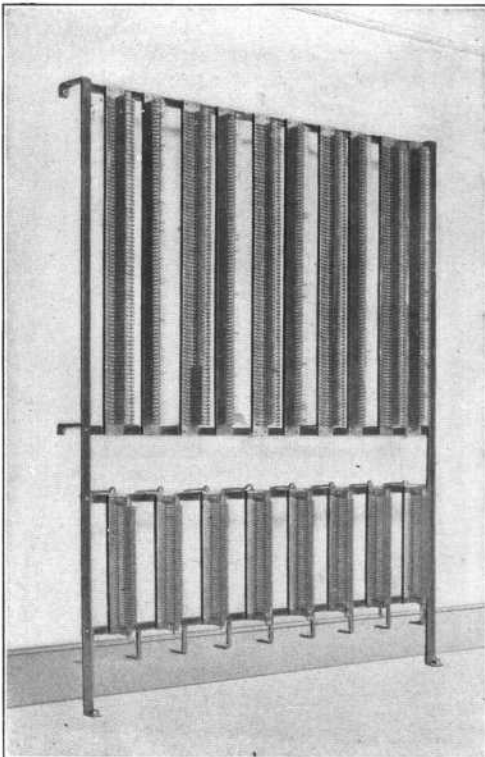
In the wall type the lower portion is designed to carry the protectors, consisting of heat coils and carbon block arresters, while the upper portion of the frame carries the fuses.

The separate type is designed so that one vertical may be added at a time, the vertical side carrying the protectors, consisting of heat coils and carbon block arresters, the horizontal side being equipped with terminal strips for connecting the outside lines.

POWER PLANT

The power plant for the No. 10 switchboard is planned on the basis of a 24-volt battery supply for local connections, and a 48-volt battery supply for toll connections. The equipment is similar to the No. 1 power plant, except that it is smaller.

Standard power plant equipments, with the exception of storage batteries and miscellaneous material, are carried in stock.

Main Distributing Frame
Wall Type

PRICES ON REQUEST

No. 4 PRIVATE EXCHANGE SWITCHBOARDS

In the past few years there has been an increased demand for a private exchange, which will employ lamp signals, provide high efficiency in transmission and conform closely to the standard methods of operation employed in the No. 1 switchboard. This has led to the development of the No. 4 private exchange.

These boards are of the central battery lamp signal type, giving positive supervision. All of the apparatus necessary for their operation is mounted in the framework. Two or more sections may be readily lined up together, thus increasing the capacity of the exchange.

The cord circuits are so arranged that they can be used either for local connections or connections with trunks to a central battery exchange. Any of the subscriber lines may be connected by means of trunk lines direct to the central office, where calls during the night or at other times when the operator is absent, can be handled.

These boards are furnished in two sizes, 30- and 80-line, the capacities of these sections being as follows:

Capacity	30-line	80-line
Subscriber lines.....	30	80
Trunk lines.....	10	15
Cord circuits.....	10	15
List price of one section fully equipped.....	\$ 509.65	\$ 797.50

If the board is connected to a central battery exchange it will with few exceptions be unnecessary to install a storage battery at the private exchange, as the talking and signalling current may be supplied over cable pairs from the central office. If, however, it should be found necessary to install a storage battery, it may be charged over trunks from the central office; two trunk lines in the 30-line board and 3 trunk lines in the 80-line board are wired to permit the addition of the necessary relays.

The 30- and 80-line boards are carried in stock in two finishes,—quarter sawed oak and birch stained to match mahogany. Other finishes than these can be furnished with but a slight increase in cost and delay in delivery. If a special finish is desired a sample should accompany the order.

Either a No. 229 W. transmitter with an arm or the chest type (No. 234) can be furnished. Unless otherwise specified, the board will be arranged for the transmitter arm.

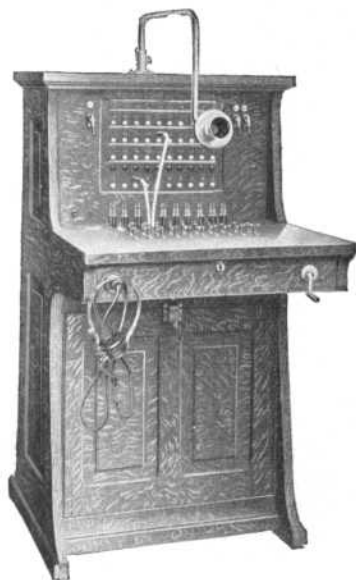
The buzzer circuit can be arranged to operate from either two cells of dry battery or from the ringing current. It will be arranged to operate from the dry battery unless otherwise specified.

The dimensions of these sections are as follows:

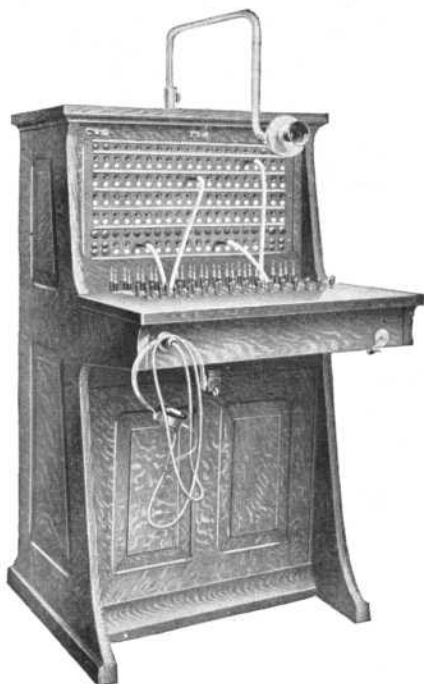
30-line board: 3 ft. 8½ in. high; 1 ft. 11½ in. long; 2 ft. 2½ in. deep, from front of keyshelf to rear door.
80-line board: 3 ft. 10 in. high; 2 ft. 1 in. long; 2 ft. 5½ in. deep, from front of keyshelf to rear door.

Orders for these boards should give the following information:

- Capacity
 - Subscriber lines
- Equipment
 - Subscriber lines
 - Cord circuits
 - Trunk lines
 - Trunk lines arranged for storage battery
- Will suspended or chest transmitter be used
- Will buzzer circuit be connected to dry cells or ringing current
- Finish



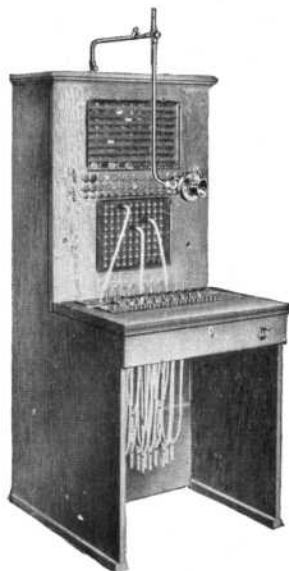
30 Line Section



80 Line Section

WRITE FOR LIBERAL DISCOUNTS

Nos. 101 AND 102 PRIVATE EXCHANGE SWITCHBOARDS



No. 102

These switchboards are furnished in two sizes, thirty line and eighty line capacity. They are equipped with magnetic line and supervisory signals and are arranged for negative supervision. The trunk circuits are equipped with No. 19 drops. The capacities of these sections is as follows:—

Capacity	No. 101	No. 102
Position.....	1	1
Subscriber lines.....	30	80
Subscriber cord circuits.....	10	15
Trunk circuits.....	10	10

List price of one section fully equipped..... \$ 350.05 \$ 573.00

If desired two sections may be lined up together, thus increasing the capacity of the exchange.

The cord circuits are arranged so that they can be used either for local connections or connections with trunks to a central battery exchange. Any of the subscriber lines may be connected by means of trunk lines direct to the central office where calls during the night or at other times when the operator is absent can be handled.

The standard finish of these sections is birch stained to match mahogany or oak.

In case writing space is desired for the operator, a shelf may be provided and attached to the section.

The No. 229-W transmitter with the No. 23 transmitter arm is used on these sections. The dimensions are as follows:—

No. 101—4 ft. 2 in. high; 1 ft. 11 in. long; 2 ft. 2½ in. deep.
No. 102—5 ft. high; 2 ft. 1 in. long; 2 ft. 2½ in. deep.

CORDLESS PRIVATE EXCHANGE SWITCHBOARDS



For 3 trunks and 7 local lines

The cordless private exchange is particularly well adapted for use as a private exchange in small offices, factories, stores, etc. It is very compact and requires less space than a board equipped with connecting cords. All of the apparatus, with the exception of that necessary for the operator, is mounted in the framework, and is readily accessible.

These boards are made in two sizes, one for two trunks and four local stations, and the other for three trunks and seven local stations.

The standard finish is oak.

The local line and supervisory circuits are provided with No. 32 magnetic signals, and the trunks with No. 19 drops.

The connections are made in this board by means of keys, any two local lines or any trunk and any local line may be connected together. The necessary keys are provided in the smaller board for 3 and in the other for 5 simultaneous connections.

The operator's set consists of a No. 20-C desk stand with No. 229-W transmitter, No. 122-W receiver and cord.

List price, smaller, fully equipped, \$ 84.45; larger, \$ 149.20

TOLL SWITCHBOARDS

No. 1 TOLL SWITCHBOARD

This is designed especially for large toll centers, and the cord circuits are arranged to obtain the best possible transmission over long toll lines. The section has an iron framework with selected mahogany on the front of the board.

The capacity is as follows:

	Capacity
Operator's positions per section.....	2
Trunk multiple.....	400
Toll line multiple.....	200
Toll answering jacks.....	100
Toll cord circuits, per position.....	12

The section is 4 ft. 1 in. high; 4 ft. 3½ in. long; 3 ft. ¾ in. deep, from front of keyshelf to rear door.

The board is arranged for all miscellaneous circuits necessary for the proper operation of the exchange, such as night alarm ringing, auxiliary signal, supervisors, instruction circuits, etc.

WRITE FOR LIBERAL DISCOUNTS

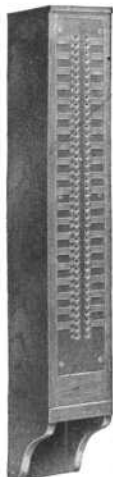
No. 2 TOLL SWITCHBOARD

This is the regular subscriber framework equipped with toll line and toll cord circuits and is arranged to line up with the No. 1 subscriber board, with which it is used. When additions are necessary, adjacent subscriber sections may be converted with very little trouble to toll sections by merely changing the equipment. The subscriber lines will be multiplied through the toll sections. Universal toll cord circuits are provided. These cord circuits are entirely automatic being arranged so that either toll to toll or toll to local connections may be made without any additional work by the operator, no keys or switching devices other than the regular listening and ringing keys being necessary.

This board is arranged with the necessary miscellaneous circuits for its proper operation.



No. 21 Wire toll test board



No. 41 Wire extension

TOLL TEST BOARDS

These are made in twenty-one and forty-one wire capacities and are used as test boards in test stations and small exchanges. The jacks are mounted on a hard rubber panel either in two or four rows as desired. Designation strips are provided so that the jacks may be properly numbered. A telephone and cord circuit are provided and arrangements made for talking and ringing in either direction. The framework is made of mahogany and is arranged to mount on the wall, or on the end of the switchboard.

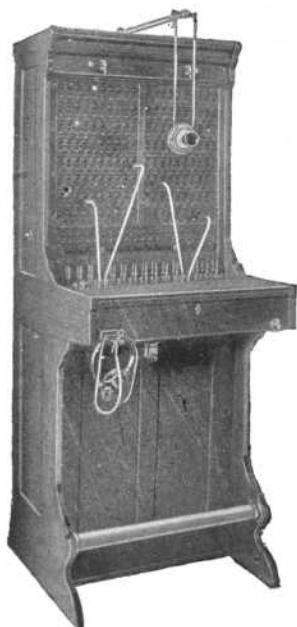
TOLL TEST BOARD EXTENSIONS

These are furnished in twenty-one and forty-one wire capacities and are similar to the toll test boards, except that they are provided with jacks only, no cord or telephone circuits being provided.

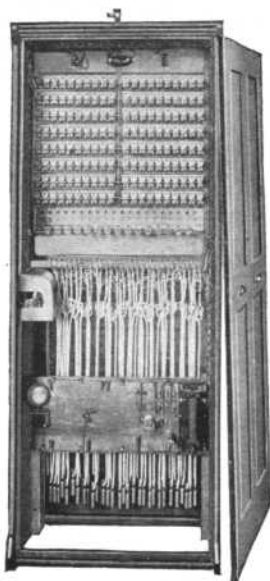
MAGNETO SWITCHBOARDS

Nos. 1101 AND 1102 SWITCHBOARDS

The cabinets are made in two sizes, 100- and 160-line, and are of quarter sawed oak with a dark finish. Two or more may be lined up without any change in the woodwork. Each signal is mechanically associated with its jack so that it is automatically restored when the operator plugs into the jack. The line circuit may be used for either toll or local work. The trunk circuits have lamp signals and are arranged for connection in either direction between sections. Wiring is always provided for the repeating coils, but unless otherwise specified the circuits with which they may be used are equipped the same as those without the coils. All cord circuits are arranged for ringing on the answering and calling cords. A suspended type of transmitter (No. 232-W) is provided unless the chest type (No. 234-W) is specified. A head receiver is always furnished. A night alarm bell is supplied, together with a key to cut it out of service. A five-bar hand generator is mounted in each section. Two or four party selective ringing may be provided. A generator switch-



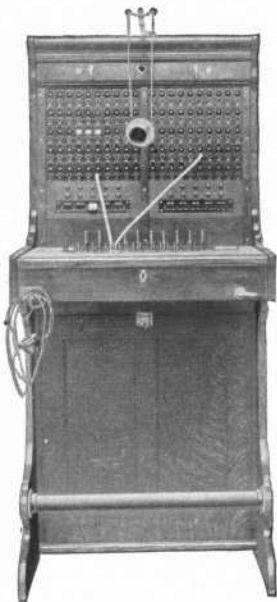
No. 1102—Front



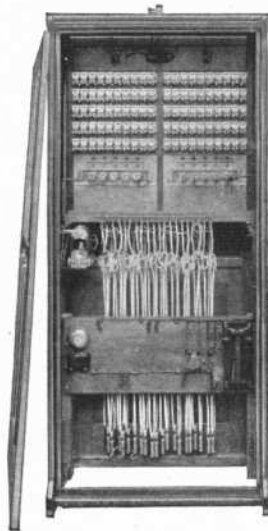
No. 1102—Rear

PRICES ON REQUEST

Nos. 1101 and 1102 Switchboards—Continued



No. 1101—Front



No. 1101—Rear

ing circuit is arranged with a key to throw in the hand generator or some other source of ringing current. Cable for the equipment ordered is provided sufficient to extend fifteen feet from the base of the section.

In ordering specify the number of circuits to be equipped in each section, the type of the transmitter, and whether two or four party selective ringing is to be provided.

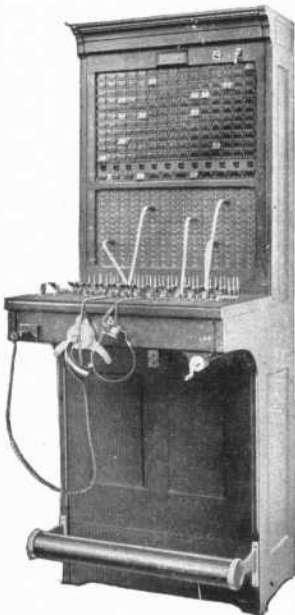
Capacity	No. 1101. Section	No. 1102 Section
Operator's position	1	1
Line circuits	100	160
Trunk circuits	10	20
Cord circuits with repeating coil	3	5
Cord circuits without repeating coil	7	10
List price of one section fully equipped less repeating coils	\$ 436.97	\$ 664.23

Dimensions of No. 1101 cabinet
5 ft. 1 1/4 in. high; 2 ft. 2 1/2 in. long; 2 ft. 3 in. deep.

Dimensions of No. 1102 cabinet
5 ft. 8 1/2 in. high; 2 ft. 2 1/2 in. long; 2 ft. 3 in. deep.

No. 105 SWITCHBOARD

The face of the cabinet is made of mahogany and the unexposed parts of a lighter wood with a mahogany finish. Two or more may be lined up without any change in the woodwork. The trunk circuits are of the call wire type and are arranged for connections between sections. Provision is therefore made for incoming trunks at each section, which will be connected to outgoing trunks at all the other sections. Wiring is always provided for the repeating coils but unless otherwise specified the circuits with which these may be used are equipped the same as those without the coils. All cord circuits are arranged for ringing on the answering and calling cords. A suspended type of transmitter (No. 232-W) is provided unless the chest type (No. 234-W) is specified. A head receiver is always furnished. A night alarm bell is supplied, together with a key to cut it out of service. A five-bar hand generator is mounted in each section. Two or four party selective ringing may be provided. A generator switching circuit is arranged with a key to throw in the hand generator or some other source of ringing current. No cable is provided unless ordered. In ordering specify the number of circuits to be equipped in each section, the type of transmitter and whether two or four party selective ringing is to be provided.



No. 105

Capacity	No. 105 Section
Position	1
Toll lines	15
Subscriber lines	150
Incoming trunk lines	12
Outgoing trunk lines	45
Call wire circuits	5
Cord circuits with repeating coil	5
Cord circuits without repeating coil	7
List price of one section fully equipped less repeating coils	\$ 506.14

Dimensions of cabinet, 5 ft. 9 1/2 in. high; 2 ft. 1 in. long; 2 ft. 1 1/2 in. deep.

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No. 1005 SWITCHBOARD

The cabinet is made of selected oak with a light finish. Two or more may be lined up to increase the capacity of an exchange. The board is very similar to the No. 105, except that it is designed for smaller exchanges when it is desired to secure an equipment at a low cost. Trunk jacks may be placed in each section to be connected to drops or signals in the others. No provision is ordinarily made for repeating coils. The cord circuits are designed for ringing on the calling cords only. A suspended type transmitter (No. 232-W) is furnished, unless the chest type (No. 234-W) is specified. A head receiver is always furnished. A night alarm bell is supplied, together with a key to cut it out of service. A five-bar hand generator is mounted in each section. Two or four party selective ringing may be provided. A generator switching circuit is arranged with a key to throw in the hand generator or some source of ringing current. No cable is provided unless ordered. In ordering, specify the number of circuits to be equipped in each section, the type of transmitter, and whether two or four party selective ringing is to be provided.

	Capacity	No. 1005 Section
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Position		1
Toll lines.....		15
Subscriber lines.....		100
Trunk jacks.....		15
Cord circuits.....		10
List price of one section fully equipped.....		\$ 272.90
Dimensions of cabinet, 4 ft. 10 ⁹ / ₁₆ in. high; 2 ft. 3 in. wide; 2 ft. 1 ¹ / ₂ in. deep.		

No. 1006 SWITCHBOARD

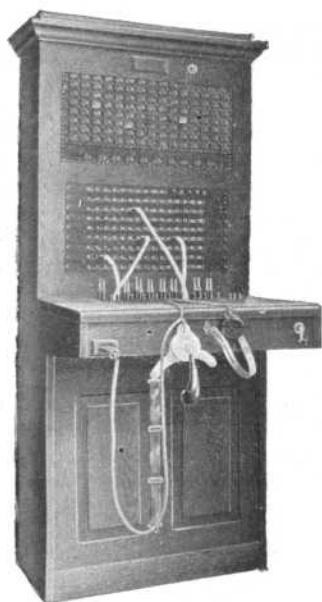
The cabinet is made of quarter sawed oak with a light finish. Two or more may be lined up to increase the capacity of an exchange. The board is very similar to the No. 105 except that it is designed for a smaller exchange. Any subscriber line may be equipped for toll service. Trunk jacks may be placed in each section to be connected to drops in the others. Wiring is always provided for the repeating coils, but unless otherwise specified the circuits with which these may be used are equipped the same as those without the coils. All cord circuits are arranged for ringing on the answering and calling cords. A suspended type transmitter (No. 232-W) is provided unless a chest type (No. 234-W) is specified. A head receiver is always furnished. A night alarm bell is supplied together with a key to cut it out of service. A five-bar hand generator is mounted in each section. Two or four party selective ringing may be provided. No generator switching key is ordinarily furnished. No cable is provided unless specified. In ordering specify the number of circuits to be equipped in each section, the type of transmitter, and whether two or four party selective ringing is to be provided.

	Capacity	No. 1006 Section
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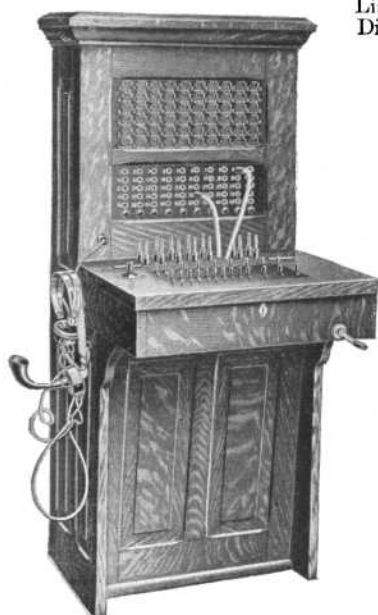
Position		1
Subscriber lines.....		50
Trunk jacks.....		10
Cord circuits with repeating coils.....		4
Cord circuits without repeating coils.....		4
List price of one section fully equipped less repeating coils.....		\$ 164.38

Dimensions of cabinet: 4 ft. 4 in. high; 1 ft. 9 ⁷/₁₆ in. wide; 2 ft. 1 in. deep.

WRITE FOR LIBERAL DISCOUNTS

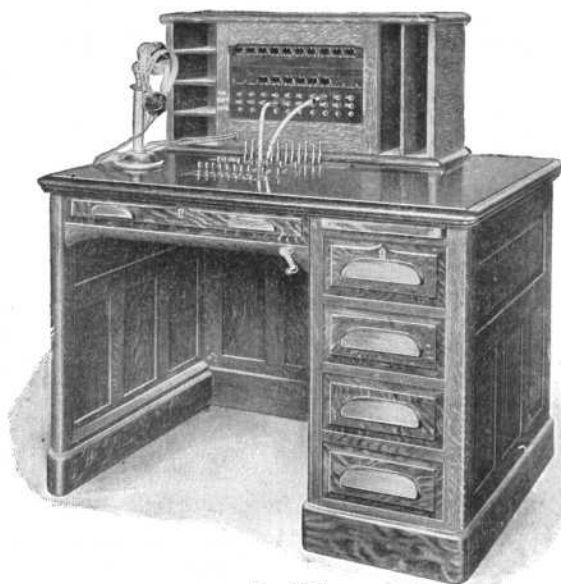


No. 1005.

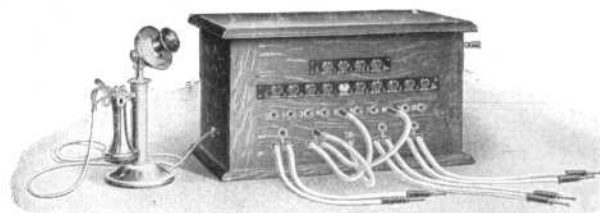


No. 1006

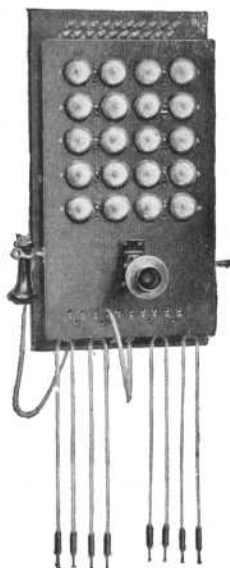
No. 1010 SWITCHBOARD



No. 1010



No. 1011



No. 1012

The desk and cabinet are made of oak with a light finish. Any subscriber line may be equipped for toll service. No provision is made for trunks. Wiring is always provided for the repeating coils, but unless otherwise specified the circuits with which these may be used are equipped the same as those without the coils. All cord circuits are arranged for ringing on the answering and calling cords. A No. 1020-J desk stand is provided. A head receiver is furnished in all cases. A night alarm bell is supplied together with a key to cut it out of service. A five-bar hand generator is mounted in each desk. No provision is ordinarily made for selective ringing. No generator switching key or cable is furnished unless specified. In ordering specify the number of circuits to be equipped in each section and the type of transmitter.

Capacity	No. 1010 Section
Position	1
Subscriber lines.....	30
Cord circuits with repeating coils.....	3
Cord circuits without repeating coils.....	3
List price of one section fully equipped less repeating coils.	\$ 140.79
Dimensions of desk: 2 ft. 4 in. high; 3 ft. 6 in. wide; 2 ft. 8 in. deep.	
Dimensions of cabinet: 1 ft. $\frac{3}{4}$ in. high; 2 ft. 6 in. wide; 10 $\frac{1}{2}$ in. deep.	

No. 1011 SWITCHBOARD

The cabinet is made of quarter sawed oak with a light finish, and is designed for mounting on a desk or shelf. Any subscriber line may be equipped for toll service. A five-bar hand generator and No. 1020-B desk stand are furnished. The operator answers, listens in and rings with a cord

provided for the purpose. Connections are made by the other cords without the use of keys.

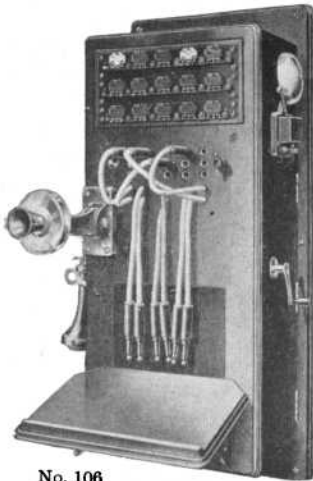
Capacity	No. 1011 Section
Position.....	1
Subscriber lines.....	10
Cord circuits.....	4
List price of one section fully equipped.....	\$ 51.03
Dimensions of cabinet: 1 ft. high; 1 ft. 7 $\frac{1}{4}$ in. wide; 10 $\frac{1}{4}$ in. deep.	

No. 1012 SWITCHBOARD

The cabinet is made of quarter sawed oak with a light finish, and the front is hinged to allow of easy access to the apparatus. A five-bar hand generator, No. 250-W transmitter and No. 122-W receiver are furnished. The ringers are of 1000 ohms resistance, unless otherwise ordered, and are equipped with indicators to show which line is calling. The operator answers, listens in and rings with a cord provided for the purpose. Connections are made by the other cords without the use of keys.

Capacity	No. 1012 Section
Position.....	1
Line circuits.....	10
Cord circuits.....	4
List price, one section fully equipped.....	\$ 57.36
Dimensions of cabinet: 2 ft. 5 $\frac{1}{2}$ in. high; 1 ft. 3 $\frac{1}{2}$ in. wide; 6 $\frac{1}{2}$ in. deep.	

WRITE FOR LIBERAL DISCOUNTS



No. 106

No. 106 SWITCHBOARD

The cabinet is made of black walnut and the front is hinged to allow of easy access to the apparatus. The cabinet has a capacity of ten subscriber lines, 1 toll line and 4 cord circuits. A five-bar hand generator, night alarm circuit, No. 250-W transmitter and No. 122-W receiver are furnished. The drops are 500 ohms resistance and are bridged across the line. They may be of the No. 19 type to operate whenever one subscriber calls another on the same line or, the No. 57 type may be furnished, the latter operating only when a subscriber wishes to signal central office. If the latter service is desired the telephone sets must be equipped with a key and wired so that normally alternating current is delivered, which will ring the bells of the other telephone sets bridged across the line, but will not operate the drop at the central office. When the key is operated, pulsating current is delivered; this will not ring the bell of the telephone sets, but will operate the central office drop. The operator answers, listens in and rings with either of two duplicate cords provided for that purpose, connections are made by the other cords without the use of keys. Four boards are made differing only in the equipment.

In ordering specify only the code numbers.

No. 106-A has 10 subscriber lines equipped with No. 19 drops, 0 toll lines and 4 cord circuits.....	\$ 63.46
No. 106-B has 10 subscriber lines equipped with No. 19 drops, 1 toll line and 4 cord circuits.....	69.89
No. 106-C has 10 subscriber lines equipped with No. 57 drops, 0 toll lines and 4 cord circuits.....	86.75
No. 106-D has 10 subscriber lines equipped with No. 57 drops, 1 toll line and 4 cord circuits.....	93.17



No. 1002

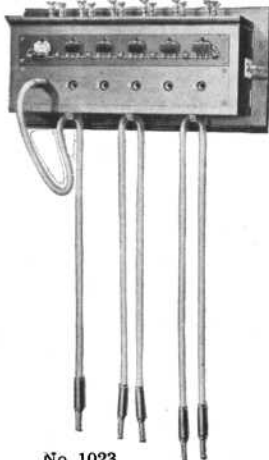
Nos. 1001, 1002 AND 1003 SWITCHBOARDS

These switchboards are of uniform type, varying only in size and capacity; the various capacities being 25, 50 and 100 lines.

The cherry frame is simple in design, and strongly constructed. Each section is equipped with a suspended transmitter, head receiver, hand generator and night alarm circuit. The 100-line switchboard (No. 1001), is equipped with ten pairs of connecting cords; the 50-line switchboard (No. 1002) and the 25-line switchboard (No. 1003) each have five pairs of cords. Any of the subscriber lines may be equipped as toll lines.

In each section space is provided for trunking jacks, the No. 1001 switchboard being drilled for 20, the No. 1002 switchboard for 10, and the No. 1003 switchboard for 5. Two or more of these sections may be easily lined up if desired.

In ordering these boards, it will only be necessary to specify the code number and the number of grounded and metallic lines.



No. 1023

PONY SWITCHBOARDS

The "Pony" switchboards, made in sizes from two to twenty lines, are very simple and inexpensive; and are designed for equipments where it is desired to connect only a few lines; and where the initial expense is an important consideration.

The cabinet is made of black walnut, and is equipped with binding posts on the top, to which the line wires are to be connected.

The board is equipped for either metallic or grounded circuits.

The board is equipped with a night alarm circuit, but not with an operator outfit, as it is intended for use with a separate telephone set, for which a cord and plug are provided.

WRITE FOR LIBERAL DISCOUNTS

Numbers of "Pony" Magneto Switchboards

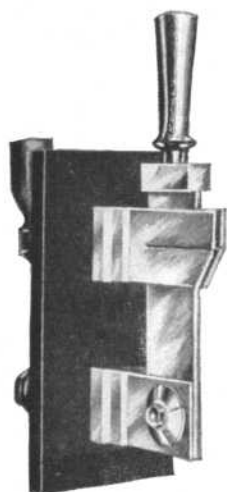
Numbers of Poly Magneto Switchboards				Numbers of Poly Magneto Switchboards			
Code No.	Capacity			Code No.	Capacity		
1021	2 line	magneto	switchboard	1026	12-line	magneto	switchboard
1022	4-line	magneto	switchboard	1027	14-line	magneto	switchboard
1023	6-line	magneto	switchboard	1028	16-line	magneto	switchboard
1024	8-line	magneto	switchboard	1029	18-line	magneto	switchboard
1025	10-line	magneto	switchboard	1030	20-line	magneto	switchboard

In ordering these boards, it will only be necessary to specify the code number, with the number of grounded and metallic lines.

SWITCHES

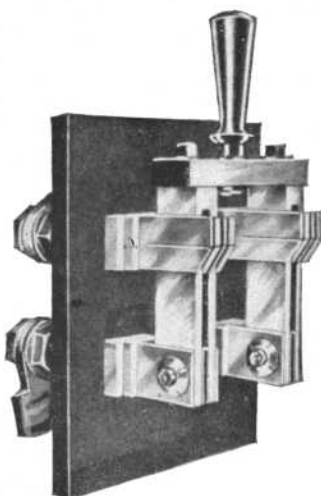
KNIFE SWITCHES

These have a draw file finish and are arranged for rear of board connections. They are mounted on temporary wood bases. Terminal lugs are not provided unless specified. The Nos. 8, 25, 26 and 27 switches are designed for 500 volts, all other knife switches are designed for a maximum of 250 volts. In this list the following abbreviations are used: S. P. single pole; D. P. double pole; 3 P. three pole; 4 P. four pole; S. T. single throw; D. T. double throw.



No. 17-C

Code No.	Style	Capacity amperes	Use	List Price each
4-A	4-P., D. T.	25	Used with 2 or 3 phase dry auto-starter.....	\$ 34.25
4-B	4-P., D. T.	50	Used with 2 or 3 phase dry auto-starter.....	51.50
4-C	4-P., D. T.	100	Used with 2 or 3 phase dry auto-starter.....	65.50
4-D	4-P., D. T.	200	Used with 2 or 3 phase dry auto-starter.....	84.50
4-E	4-P., D. T.	300	Used with 2 or 3 phase dry auto-starter.....	129.50
8-A	4-P., D. T.	25	Used with 2 or 3 phase dry auto-starter.....	49.50
8-B	4-P., D. T.	50	Used with 2 or 3 phase dry auto-starter.....	64.75
8-C	4-P., D. T.	100	Used with 2 or 3 phase dry auto-starter.....	107.75
14-A	S. P. 3 throw knife switch	25	Used to control counter E. M. F. cells in battery driven ringer sets.....	30.00
15-A	D. P., D. T.		Used with ammeter with two shunts.....	18.40

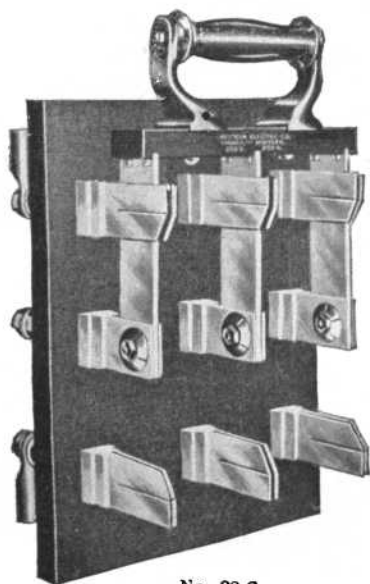


No. 19-H

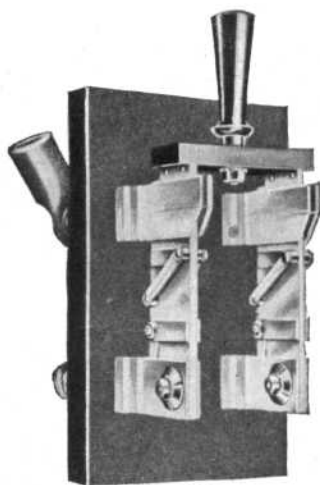
Code No.	Style	Capacity amperes	List Price each
17-A	S.P., S.T.	25	\$ 5.35
17-B	S.P., S.T.	50	6.30
17-C	S.P., S.T.	100	9.10
17-D	S.P., S.T.	200	13.80
17-E	S.P., S.T.	300	17.45
17-F	S.P., S.T.	400	21.60
17-G	S.P., S.T.	600	30.15
17-H	S.P., S.T.	800	38.15
17-J	S.P., S.T.	1200	63.35
18-A	S.P., D.T.	25	7.70
18-B	S.P., D.T.	50	9.40
18-C	S.P., D.T.	100	13.00
18-D	S.P., D.T.	200	19.60
18-E	S.P., D.T.	300	24.50
18-F	S.P., D.T.	400	32.60
18-G	S.P., D.T.	600	41.80
18-H	S.P., D.T.	800	52.00
18-J	S.P., D.T.	1200	87.70
19-A	D.P., S.T.	25	11.30
19-B	D.P., S.T.	50	13.10
19-C	D.P., S.T.	100	18.20
19-D	D.P., S.T.	200	26.60
19-E	D.P., S.T.	300	35.00
19-F	D.P., S.T.	400	47.20
19-G	D.P., S.T.	600	58.30
19-H	D.P., S.T.	800	76.30

WRITE FOR LIBERAL DISCOUNTS

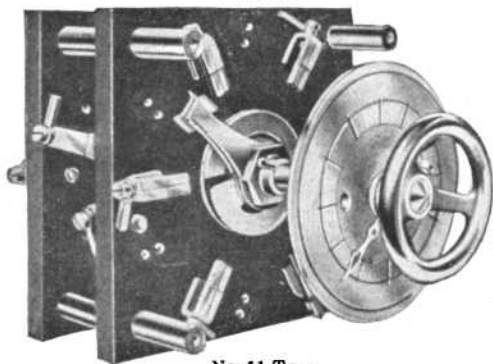
Switches—Continued



No. 22-C



No. 25-B



No. 11-Type

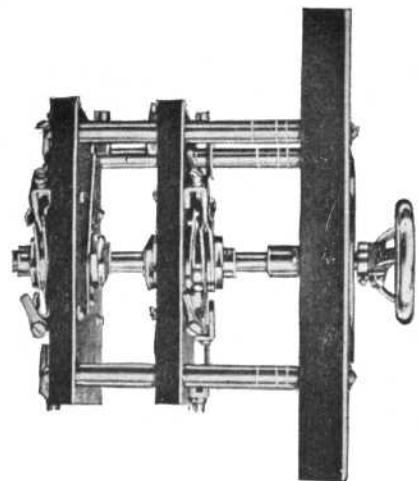
Code No.	Style	Capacity amperes	List Price each
19-J	D.P., S.T.	1200	\$ 126.70
20-A	D.P., D.T.	25	15.70
20-B	D.P., D.T.	50	19.80
20-C	D.P., D.T.	100	27.00
20-D	D.P., D.T.	200	39.50
20-E	D.P., D.T.	300	50.80
20-F	D.P., D.T.	400	68.90
20-G	D.P., D.T.	600	83.60
20-H	D.P., D.T.	800	108.60
20-J	D.P., D.T.	1200	181.40
21-A	3 P., S.T.	25	18.55
21-B	3 P., S.T.	50	21.10
21-C	3 P., S.T.	100	27.10
21-D	3 P., S.T.	200	40.50
21-E	3 P., S.T.	300	50.75
21-F	3 P., S.T.	400	63.30
21-G	3 P., S.T.	600	85.95
21-H	3 P., S.T.	800	106.95
21-J	3 P., S.T.	1200	195.55
22-A	3 P., D.T.	25	24.10
22-B	3 P., D.T.	50	29.00
22-C	3 P., D.T.	100	37.20
22-D	3 P., D.T.	200	54.50
22-E	3 P., D.T.	300	68.20
22-F	3 P., D.T.	400	84.10
22-G	3 P., D.T.	600	113.90
22-H	3 P., D.T.	800	139.40
22-J	3 P., D.T.	1200	259.10
23-A	4 P., S.T.	25	21.40
23-B	4 P., S.T.	50	26.80
23-C	4 P., S.T.	100	36.50
23-D	4 P., S.T.	200	53.70
24-A	4 P., D.T.	25	29.10
24-B	4 P., D.T.	50	38.00
24-C	4 P., D.T.	100	53.70
25-A	D.P., S.T.	25 Quick break	15.20
25-B	D.P., S.T.	50 Quick break	15.20
25-C	D.P., S.T.	100 Quick break	21.00
25-D	D.P., S.T.	200 Quick break	31.00
26-A	D.P., D.T.	25 Quick break	24.00
26-B	D.P., D.T.	50 Quick break	24.00
26-C	D.P., D.T.	100 Quick break	35.50
27-A	3 P., S.T.	25 Quick break	24.40
27-B	3 P., S.T.	50 Quick break	24.40
30-A	5 P., D.T.	25	42.00

INSTRUMENT SWITCHES

Used with voltmeter or ammeter. The switch includes the hand wheel and index plate. The stamping of the index plate should be specified, except for the No. 11-A.

Code No.	Style	Description	List Price each
11-A	16 circuit double scale instrument switch	One scale has 11 contacts and the other 5. Index plate stamped B-1, B-2, G-1, G-2, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.	\$ 62.70
11-D	Two-scale switch for 4 circuits	Two contacts on each scale.....	50.70
11-E	Two-scale switch for 6 circuits	Three contacts on each scale.....	52.00
11-F	Two-scale switch for 8 circuits	Four contacts on each scale.....	53.35
11-G	Two-scale switch for 10 circuits	Five contacts on each scale.....	54.70
11-H	Two-scale switch for 12 circuits	11 contacts on one scale and 1 on the other	56.00

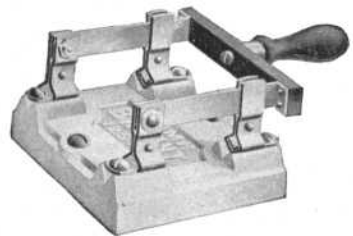
WRITE FOR LIBERAL DISCOUNTS



No. 11-Type



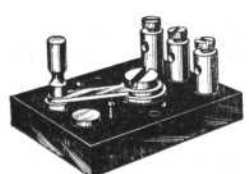
No. 1436



No. 1438



No. 11250



No. 13116

Switches—Continued

Code No.	Style	Description	List Price each
11-J	Two-scale switch for 16 circuits	11 contacts on one scale and 5 on the other	\$ 62.70
11-K	Two-scale switch for 20 circuits	16 contacts on one scale and 4 on the other	65.35
11-L	Two-scale switch for 24 circuits	20 contacts on one scale and 4 on the other	68.00
11-M	Two-scale switch for 14 circuits	11 contacts on one scale and 3 on the other	61.35
11-N	Two-scale switch for 18 circuits	11 contacts on one scale and 7 on the other	64.00

Code No.	Style	List Price each	Code No.	Style	List Price each
16-A	Single scale switch for 2 circuits.....	\$ 35.35	16-G	Single scale switch for 14 circuits.....	\$ 45.35
16-B	Single scale switch for 4 circuits.....	36.70	16-H	Single scale switch for 16 circuits.....	46.70
16-C	Single scale switch for 6 circuits.....	38.00	16-J	Single scale switch for 18 circuits.....	48.00
16-D	Single scale switch for 8 circuits.....	39.35	16-K	Single scale switch for 20 circuits.....	49.35
16-E	Single scale switch for 10 circuits.....	40.70	16-L	Single scale switch for 22 circuits.....	50.70
16-F	Single scale switch for 12 circuits.....	42.00	16-M	Single scale switch for 24 circuits.....	52.00

SMALL KNIFE SWITCHES

Single-Pole Porcelain Base

Code Word	List No.	Description	Standard Package	List Price each
Fluidify	1436	15 amp., S.P., S.T.....	100	\$ 0.34
Fluidize	1437	25 amp., S.P., S.T.....	100	.44
Flying	1454	15 amp., S.P., D.T.....	100	.60
Flysch	1455	25 amp., S.P., D.T.....	100	.74

Double-Pole Porcelain Base, 125 Volts.

	List No.	Description	Standard Package	List Price each
Fluidism	1438	15 amp., D.P., S.T.....	250	.42
Fluidist	1439	25 amp., D.P., S.T.....	250	.50
Outlaid	16040	15 amp., D.P., D.T.....	100	.74
Outlay	16041	25 amp., D.P., D.T.....	100	.90

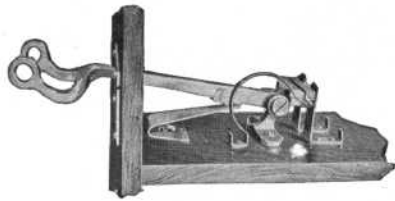
ROUND WOOD BASE SWITCHES

Code Word	List No.	Description
Farragut	11250.....	1-Point
Farrington	11251.....	2-Point
Farwell	11252.....	3-Point
Faucett	11253.....	4-Point
Faukland	11254.....	5-Point
Fayette	11255.....	6-Point

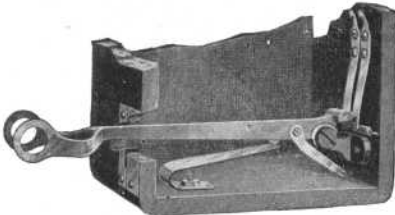
RUBBER BASE SWITCH

	List No.	Description
Holgate	13115.....	1-Point
Holland	13116.....	2-Point
Hollenburg	13117.....	Neutral point

SWITCH HOOKS



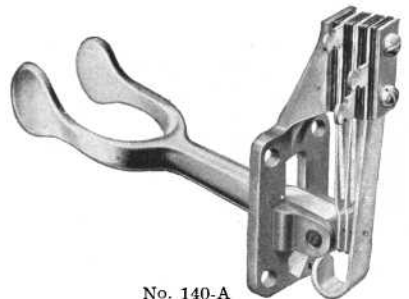
No. 120-A



No. 121-A



No. 140-H



No. 140-A

Code No.	Description	Contacts	List Price each
120-A	Long lever, restoring spring mounted separately, horizontal mounting	2 front	\$ 0.75
121-A	Long lever, restoring spring mounted separately, vertical mounting	2 front	.70
140-A	Short lever, self-contained, vertical mounting	2 front	.75
140-B	Short lever, self-contained, vertical mounting	2 front 1 back opens	.90
140-H	Short lever, self-contained, vertical mounting	2 front	1.05
140-F	Short lever, self-contained, vertical mounting	1 passing ground	.70
141-A	Brass wire hook threaded at one end and provided with a cap staked on. For use with No. 1002-A hand set	1 front 1 back	.03

SIGNALLING SYSTEMS

We give below a brief description of the signalling systems commonly used for giving magneto and central battery telephone service.

MAGNETO SYSTEMS

Code Ringing. In this system a large number of parties may be connected to one line, all of the ringers at the telephone stations and the central office drop being bridged across the line. The ringers are unbiased, and the drop at the central office of the usual type, which is operated by alternating current supplied by the subscribers' hand generators. Whenever a party on the line calls, all of the ringers and the central office drop are operated. When central office rings on the line, likewise, all of the bells are sounded. The proper party is called by a code system made up of various numbers of long and short rings.

2 Party Selective Ringing. In this system two subscribers may be connected to one line. The ringers at the telephone stations are biased and wired to ground, one from each side of the line. The drop at the central office is bridged and operated by alternating current supplied by the subscribers' hand generators. The generators in the subscriber stations are of the two-bar type, and not heavy enough to ring the two bells on the line since these are biased and in series, as far as the ringing current supplied by the hand generator is concerned. The generator, however, is heavy enough to throw the drop at the central office.

Whenever one party calls or is being called the other ringer is not operated. It is impossible for one subscriber to call the other on the same line, except through the central office operator.

The cord circuits at the central office are wired so that alternating ringing current may be sent out on either side of the line to ground by means of a key for each cord circuit, or a master key for all of the cord circuits in a position.

4 Party Selective Ringing. This system is precisely the same as the 2 party selective system, except that there are wired to ground from each side of the line two sets. Both of these sets are biased, and one is so connected to the line that it is operated by positive pulsating current, while the other is operated by negative pulsating current. The cord circuits at the central office are so wired

WRITE FOR LIBERAL DISCOUNTS

Signalling Systems—Continued

that positive and negative pulsating current may be sent out over either side of the line to ground by means of a party line ringing key for each cord circuit or a master key for all of the cord circuits in the position.

Center Checking. This system is used on toll lines where it is desired to have several stations on one line, and yet require all of them to secure connections entirely through one office. The ringers at the stations are all biased and bridged across the line in one way, that is, they either operate on alternating current or on pulsating current in one direction only. The generators at the stations are all arranged to furnish pulsating current of the polarity which does not ring the bells; and accordingly it is impossible for one party on the line to call another, except through the center checking operator. The central office has a bridged drop, operated by the pulsating current, and rings the different parties on the line by means of a code system.

Central Office Selective Signalling. This is just the reverse of the center checking system, that is, there may be placed a large number of subscribers on one line, and they can call one another without signalling central office; or they can call central office without notifying the other parties on the line. This is accomplished in two ways.

The first method is to bridge across the line bells which are biased so that they operate on alternating or pulsating current in one direction. The hand generators in the telephone sets normally deliver to the two sides of the lines alternating current; but when a button is depressed there is delivered to the two sides of the line pulsating current of a polarity which will not operate the bells. This current, however, will throw the drop at the central office. This drop is arranged so that it will not operate on alternating current which, as explained before, is ordinarily used to signal the other subscribers on the line. The central office rings the desired party by a code system.

The other method is to use unbiased ringers and alternating current generators at the telephone stations. The generators normally deliver current to the two sides of the line but when a push button at any set is depressed the generator is connected between one side of the line and ground. At the central office a drop of the regular type is wired from one side of the line to ground and accordingly is not operated unless a subscriber rings with the push button in his set depressed.

CENTRAL BATTERY SYSTEMS

Code Ringing. Several parties may be connected to one line in the central battery system, the bells all being bridged across the line and biased. The line at the central office is wired the same as for single party line service. One party cannot call another on the same line, except through the central office operator, and central office calls the desired party by a code system of ringing.

2 Party Selective Ringing. With this system two parties may be connected to one line, the two bells being biased and connected to ground, one from each side of the line. The line at the central office is wired the same as for single party line service, and the cord circuits are arranged so that alternating current may be sent out over either side of the line by means of a key for each cord circuit, or a master key for all of the cord circuits in the position.

4 Party Selective Ringing. Four parties may be connected to one line, and the line arranged so that any party may be called without signalling the others. There is bridged across the line at each station a high impedance relay, from the local contacts of which the four ringers are wired to ground. These relays are arranged so that when they operate they connect to ground the four ringers, two from each side of the line. These ringers are biased and wired so that one of the pair on each side of the line operates on positive pulsating and the other operates on negative pulsating current. One party cannot call another on the same line, except through the central office operator.

The line circuit at the central office is wired the same as for single party line service. The cord circuits are arranged so that the operator may ring over one side of the line to ground with either positive or negative pulsating current. With either of these currents all four relays on the line operate, connecting to ground all four bells. As the operator rings on only one side of the line with pulsating current of one polarity, only the bell on that side of the line which is connected to that polarity will sound. During conversation all ground connections are open at the substations.

4 Party Semi-Selective Ringing. This is the same as the two party selective system, except that there are connected to ground two stations from each side of the line. The operator thus can ring either pair of bells without operating the other pair. The operator uses a code system of ringing to distinguish between the two parties which form a pair connected to each side of the line.

TELEPHONE SETS CENTRAL BATTERY WALL TYPE

Regularly furnished in oak or walnut. The No. 122-W receiver and standard high resistance transmitter are furnished with these sets, others will be supplied if ordered.



No. 1293-A

Code No.

1293-A For direct, two party selective or four party semi-selective central battery service. 1000-ohm biased ringer and inside binding posts.....

List Price
each

\$ 10.05

Includes: 1 No. 8-AG ringer; 1 No. 21-D condenser; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 140-A switchhook; 1 No. 20 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord. This set may be used with the Nos. 132-A or 134-A backboards



No. 1294-A



No. 1293-Y
On No. 136-B Backboard

1296-A For four party selective central battery service. 2500-ohm biased ringer, relay and inside binding posts.....

14.25

Includes: 1 No. 8-BG ringer; 1 No. 140-A switchhook; 1 No. 21-D condenser; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 20 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 85-B relay. This set may be used with the 132-A backboard.

1293-Y For local battery talking and central battery signalling service. 1000-ohm biased ringer and inside binding posts. No provision made for dry cells, but backboard or No. 1 battery box may be provided for them.....

9.80

Includes: 1 No. 8-AG ringer; 1 No. 140-A switchhook; 1 No. 21-D condenser; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord. This set may be used with Nos. 132-A, 134-A or 136-B backboards.



No. 1098-A



No. 1293-A
On No. 132-A Backboard

1294-A For direct, two party selective or four party semi-selective central battery service. 1000-ohm biased ringer and inside binding posts..

11.05

Includes: 1 No. 7-AG ringer; 1 No. 21-D condenser; 1 No. 140-A switchhook; 1 No. 20 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.

1098-A For four party selective central battery service. 2500-ohm biased ringer and relay....

10.15

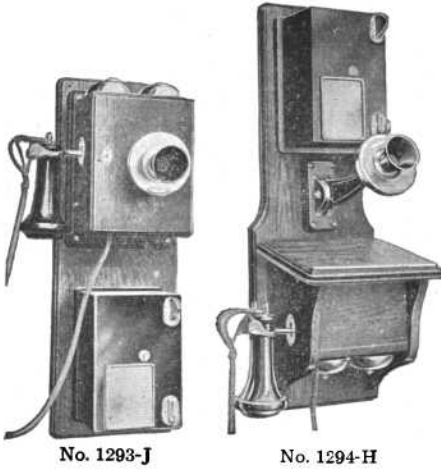
Includes: 1 No. 7-BG ringer; 1 No. 120-A switch hook; 1 No. 5-A condenser; 5 No. 2-A binding posts; 2 No. 3-A binding posts; 1 No. 20 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 85-A relay.

WRITE FOR LIBERAL DISCOUNTS

Telephone Sets—Continued
Central Battery Wall Type—Continued

With No. 7 Type Coin Collectors

These are equipped with No. 7-A (for nickels) coin collectors, but others will be furnished if desired. Coin collector sets arranged for four party selective service will be furnished, if specified. Regularly furnished in oak or walnut.



No. 1293-J

No. 1294-H

- | Code No. | | List Price
each |
|---------------|---|--------------------|
| 1293-J | For direct, two party selective or four party semi-selective central battery service with No. 7 type electrically operated coin collector. 1000-ohm biased ringer and inside binding posts..... | \$ 16.15 |
| | Includes: 1 No. 8-AG ringer; 1 No. 140-B switch hook; 1 No. 21-D condenser; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 20 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 7-A coin collector; 1 No. 133-A backboard. | |



No. 2000

- | | | |
|---------------|---|--------------|
| 1294-H | For direct, two party selective or four party semi-selective central battery service with electrically operated coin collector No. 7-A, 1000-ohm biased ringer and inside binding posts..... | 16.45 |
| | Includes: 1 No. 7-AG ringer; 1 No. 21-D condenser; 1 No. 140-B switch hook; 1 No. 20 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 7-A coin collector. | |

Metal Case Wall Type

- | | | |
|-------------|---|-------------|
| 2002 | For direct, two party selective or four party semi-selective central battery service. 1000-ohm biased ringer | |
| | Consists of: 1 No. 1130-A wall set, which includes: 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 179, 5½ in. cord; 1 No. 196, 3 ft. cord; 1 No. 202, 6 ft. cord and 1 switchhook and 1 No. 1131-J. Desk Set Box, which includes: 1 No. 17-A ringer, 1 No. 21 E condenser, and 1 induction coil. The cases are metal, and regularly furnished with a black finish..... | 9.75 |



No. 2002

CENTRAL BATTERY DESK TYPE

Regularly furnished in oak or walnut. Can be furnished for four party selective service.

- | Code No. | | Price List
each |
|-------------|--|--------------------|
| 2000 | For direct, two party selective or four party semi-selective central battery service.....
Includes: 1 No. 1295-A desk set box, 1 No. 1020-B desk stand. | 11.75 |
| 2001 | For coin collector service.....
Includes: 1 No. 1295-A desk set box, 1 No. 7-A coin collector, 1 No. 1020-F desk stand. | 17.45 |

Telephone Sets—Continued

CENTRAL BATTERY DESK SET BOXES

These do not include transmitters and receivers, but are intended for use with desk stands, transmitter arms, or hand sets. Furnished regularly in oak or walnut.



No. 1295-A



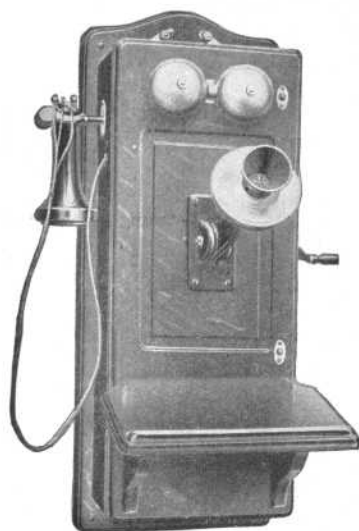
No. 1295-AC

Code No.		List Price each
1131-J	For direct, two party selective or four party semi-selective central battery service. This is used with the No. 1130-A wall set, forming the No. 2002 wall telephone set.	\$ 4.35
	Includes: 1 No. 17-A ringer, 1 No. 21-E condenser, 1 No. 20 induction coil.	
1295-A	For direct, two party selective or four party semi-selective central battery service. May be used either with or without the No. 7 type electrically operated coin collector. 1000-ohm biased ringer and inside binding posts. . . .	4.85
	Includes: 1 No. 8-AG ringer, 1 No. 21-D condenser, 1 No. 20 induction coil.	
1297-A	For four party selective central battery service. 2500-ohm biased ringer, relay and inside binding posts.	9.15
	Includes: 1 No. 8-BG ringer, 1 No. 21-D condenser, 1 No. 20 induction coil, 1 No. 85-B relay.	
1295-AA	For local battery talking and central battery signalling service. 1000-ohm biased ringer and inside binding posts.	4.60
	Includes: 1 No. 8-AG ringer, 1 No. 21-D condenser, 1 No. 13 induction coil.	
1295-AC	For extension to a main telephone set on a direct, two party selective or four party semi-selective central battery system. No ringer, inside binding posts.	3.35
	Includes: 1 No. 21-D condenser, 1 No. 20 induction coil.	

MAGNETO WALL TYPE

These are regularly furnished in oak, and arranged to accommodate 3 standard size dry cells; but the cells are not included in the telephone set, and when desired they should be ordered separately.

The No. 122-W receiver and standard high resistance transmitter are furnished with these sets. Others will be supplied if ordered.





No. 1317-A

with the receiver. 5-bar A.C. generator and 1600-ohm unbiased ringer.
Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 condenser.

Code No.	Description	List Price each
1317-H	For light load bridging service where code ringing is employed. 3-bar A.C. generator and 1000-ohm unbiased ringer.	\$ 12.15
	Includes: 1 No. 2-AG ringer; 1 No. 22-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	
	This telephone set may be equipped with a condenser wired in the receiver circuit, and will be so furnished if specified on the order.	
1317-A	For moderate load rural service where code ringing is employed. 5-bar A.C. generator and 1600-ohm unbiased ringer.	15.60
	Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	
1317-E	For heavy load rural service where code ringing is employed. 5-bar A.C. generator and 2500-ohm unbiased ringer.	15.60
	Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	
1317-F	For moderate load rural service where code ringing is employed. Condenser in series	16.35

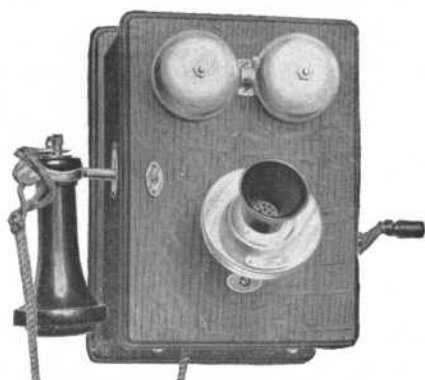
WRITE FOR LIBERAL DISCOUNTS

Telephone Sets—Continued

Code No	Description	List Price each
1317-G	For heavy load rural service where code ringing is employed. Condenser in series with receiver, 5-bar A.C. generator and 2500-ohm unbiased ringer..... Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 condenser.	\$ 16.35
1317-J	For two or four party selective service. 2-bar A.C. generator and 2500-ohm biased ringer..... Includes: 1 N. 6-BG ringer; 1 No. 22-E generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	12.75
1317-K	For heavy load center checking service. 5-bar pulsating and A.C. generator and 2500-ohm biased ringer..... Includes: 1 No. 6-BG ringer; 1 No. 47-B generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	16.60
1317-L	For heavy load rural line where selective central office signalling service and code ringing are employed. 5-bar pulsating and A.C. generator and 2500-ohm biased ringer..... Includes: 1 No. 6-BG ringer; 1 No. 47-B generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 92, 3 ft. cord; 1 push button; 1 No. 250-W transmitter; 1 No. 122-W receiver.	17.05
	This telephone set may be obtained with a ringer of 1000 or 1600 ohms resistance and with a 3-bar generator and will be furnished with these if specified on the order.	
	1317-M For series line. 3-bar A.C. generator and 80-ohm unbiased ringer. Includes: 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 13 induction coil.	11.70
	These are arranged to accommodate 3 standard size dry cells. Regularly furnished in oak or walnut.	
	1240-A For light load bridging service where code ringing is employed. 3-bar A.C. generator and 1000-ohm unbiased ringer.	
	Walnut Oak	14.15 14.05
	Includes: 1 No. 2-AG ringer; 1 No. 22-A generator; 1 No. 121-A switch hook; 4 No. 2-A binding posts; 2 No. 3-A binding posts; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 111-C backboard.	
	1298-A For heavy load rural service where code ringing is employed. 5-bar A.C. generator, 2500-ohm unbiased ringer and inside binding posts.	
	Walnut Oak	16.55 16.45
	Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 138-A backboard.	
	This telephone set may also be obtained with a 1600-ohm ringer in place of the 2500-ohm ringer, or with a condenser wired in the receiver circuit, and will be furnished with these if specified on the order.	
	1240-E For two or four party selective service. 2-bar A.C. generator and 2500-ohm biased ringer.	
	Walnut Oak	14.95 14.85
	Includes: 1 No. 6-BG ringer; 1 No. 22-E generator; 1 No. 121-A switch hook; 5 No. 2-A binding posts; 2 No. 3-A binding posts; 1 No. 13 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 111-C backboard.	

WRITE FOR LIBERAL DISCOUNTS

Telephone Sets—Continued
Magneto Wall Type—Continued

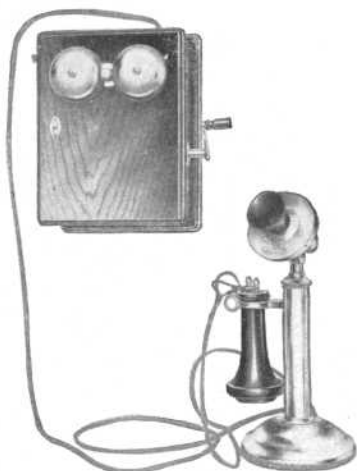


No. 1305-A.

These are not arranged to accommodate the necessary dry cells. It is recommended that the No. 1-A battery box be ordered for this purpose.

Regularly furnished in oak or walnut.

Code No.	Description	List Price each
1305-G	For light load bridging service where code ringing is employed. 3-bar A.C. generator, 1000-ohm unbiased ringer and inside binding posts. Includes: 1 No. 2-AG ringer; 1 No. 22-A generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	\$ 12.30
	This telephone set may be equipped with a condenser wired in the receiver circuit, and will be so furnished if specified on the order.	
1305-H	For moderate load rural service where code ringing is employed. 5-bar A.C. generator, 1600-ohm unbiased ringer and inside binding posts. Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 13 induction coil; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	15.75
1305-A	For heavy load rural service where code ringing is employed. 5-bar A. C. generator, 2500-ohm unbiased ringer and inside binding posts. Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	15.75
1305-J	For moderate load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generator, 1600-ohm unbiased ringer and inside binding posts. Includes: 1 No. 2-FG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter, 1 No. 122-W receiver, 1 No. 92, 3 ft. cord; 1 condenser.	16.50
1305-K	For heavy load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generator, 2500-ohm unbiased ringer and inside binding posts. Includes: 1 No. 2-BG ringer; 1 No. 47-A generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 condenser.	16.50



No. 2004

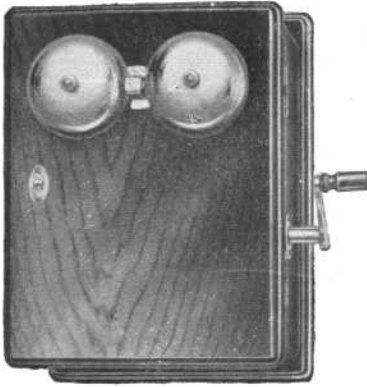
1305-L	For two or four party selective service. 2-bar A.C. generator, 2500-ohm biased ringer and inside binding posts. Includes: 1 No. 6-BG ringer; 1 No. 22-E generator; 1 No. 140-A switch hook; 1 No. 3-A transmitter bracket; 1 No. 179, 5½ in. cord; 1 No. 13 induction coil; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord.	12.90
1305-F	For series line. 3-bar A.C. generator and 80-ohm unbiased ringer. Includes: 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 No. 13 induction coil; 1 No. 92, 3 ft. cord. Regularly furnished in oak or walnut.	11.85

MAGNETO DESK TYPE

2003	For light load service. Includes: 1 No. 1315-A desk set box, 1 No. 1020-B desk stand.	13.75
2004	For heavy load service. Includes: 1 No. 1300-A desk set box, 1 No. 1020-B desk stand.	17.35

Telephone Sets—Continued

MAGNETO DESK SET BOXES



No. 1315-A

These do not include transmitters and receivers, but are intended for use with desk stands, transmitter arms or hand sets. No provision is made in these boxes for the dry cells. It is recommended, however, that the No. 1-A battery box be ordered for this purpose.

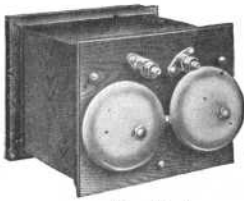
Regularly furnished in oak or walnut.

Code No.	Description	List Price each
1315-A	For light load bridging service where code ringing is employed. 3 bar A.C. generator, 1000-ohm unbiased ringer and inside binding posts..... Includes: 1 No. 2-AG ringer, 1 No. 22-A generator, 1 No. 13 induction coil.	\$ 6.85
1300-F	For moderate load rural service where code ringing is employed. 5-bar A.C. generator, 1600-ohm unbiased ringer and inside binding posts..... Includes: 1 No. 2-FG ringer, 1 No. 47-A generator, 1 No. 13 induction coil.	10.45
1300-A	For heavy load rural service where code ringing is employed. 5-bar A.C. generator, 2500-ohm unbiased ringer and inside binding posts..... Include: 1 No. 2-BG ringer, 1 No. 47-A generator, 1 No. 13 induction coil.	10.45
1300-G	For moderate load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generator, 1600-ohm unbiased ringer and inside binding posts..... Includes: 1 No. 2-FG ringer, 1 No. 47-A generator, 1 No. 13 induction coil, 1 condenser.	11.20
1300-H	For heavy load rural service where code ringing is employed. Condenser in series with the receiver. 5-bar A.C. generators, 2500-ohm unbiased ringer and inside binding posts..... Includes: 1 No. 2-BG ringer, 1 No. 47-A generator, 1 No. 13 induction coil, 1 condenser.	11.20
1315-E	For two or four party selective service. 2-bar A.C. generator, 2500-ohm biased ringer and inside binding posts..... Includes: 1 No. 6-BG ringer, 1 No. 22-E generator, 1 No. 13 induction coil.	7.45
These are intended for the purpose of giving extension service to main telephone sets, and are not provided with generators. Regularly furnished in oak or walnut.		
1295-S	For light load bridging service where code ringing is employed. 1000-ohm unbiased ringer..... Includes: 1 No. 4-AG ringer, 1 No. 13 induction coil.	3.70
1295-Y	For heavy load service where code ringing is employed. 2500-ohm biased ringer..... Includes: 1 No. 8-BG ringer, 1 No. 13 induction coil. This set may be obtained with a 1600-ohm ringer in place of a 2500-ohm ringer, or with a condenser wired in the receiver circuit, and will be furnished with these if specified on the order.	4.10
1295-AB	For all classes of bridging magneto service. Condenser in series with receiver. No ringer..... Includes: 1 No. 13 induction coil, 1 condenser.	3.10



No. 1295-S

WRITE FOR LIBERAL DISCOUNTS



No. 43-A

Telephone Sets—Continued

EXTENSION BELLS

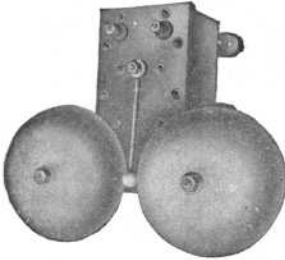
Regularly furnished in oak or walnut.

Code No.	Description	List Price each
43-A	1000-ohm unbiased ringer mounted in box 5 $\frac{3}{8}$ in. x 4 $\frac{3}{8}$ in. x 4 $\frac{3}{8}$ in.	\$ 2.55
43-F	1000-ohm biased ringer mounted in box 5 $\frac{3}{8}$ in. x 4 $\frac{3}{8}$ in. x 4 $\frac{3}{8}$ in.	2.55
43-J	2500-ohm biased ringer mounted in box 5 $\frac{3}{8}$ in. x 4 $\frac{3}{8}$ in. x 4 $\frac{3}{8}$ in.	3.15

LOUD RINGING EXTENSION BELLS

These will operate on alternating or pulsating current. They have metal cases finished in black japan. The gongs are nickel plated.

Code No.	Description	List Price each
292-A	1000-ohm unbiased.	\$ 5.25
292-J	1000-ohm biased.	5.80
292-E	2500-ohm unbiased.	5.65
292-K	2500-ohm biased.	6.15

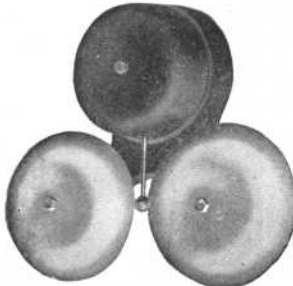


No. 283-A

EXTENSION BELL FOR MINES

These operate on alternating current.

Code No.	Description	List Price each
283-A	1000-ohm unbiased. Gongs and case protected by a coating of lead.	\$ 15.75



No. 292-A

HAND GENERATOR BOXES

Regularly furnished in oak or walnut.

Code No.	Description	List Price each
299-A	5-bar A.C. Generator mounted in box 7 $\frac{1}{2}$ in. x 9 in. x 5 $\frac{3}{4}$ in.	\$ 7.30
299-E	5-bar Pulsating and A.C. Generator mounted in box 7 $\frac{1}{2}$ in. x 9 in. x 5 $\frac{3}{4}$ in.	8.25
303-A	3-bar A.C. Generator mounted in box 6 $\frac{1}{2}$ in. x 8 $\frac{1}{2}$ in. x 4 $\frac{1}{2}$ in.	4.35



No. 299-A

CUT IN STATION SETS FOR TOLL LINES

For use at intermediate station on a toll line to cut the line off in either direction.

Regularly furnished in oak or walnut.

Code No.	Description	List Price each
319-A	For series service; equipped with an 80-ohm unbiased ringer, three jacks, a two-conductor cord and plug.	\$ 5.00
319-E	Similar to No. 319-A but for use on a bridging line and equipped with a 1000-ohm unbiased ringer.	5.30
319-F	Similar to No. 319-E but equipped with a 1600-ohm unbiased ringer.	5.90
319-G	Similar to No. 319-E but equipped with a 2500-ohm unbiased ringer.	5.90

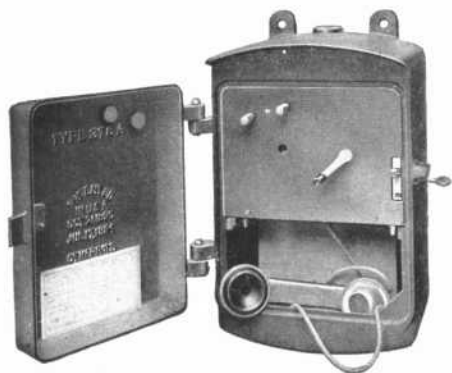


No. 319-A

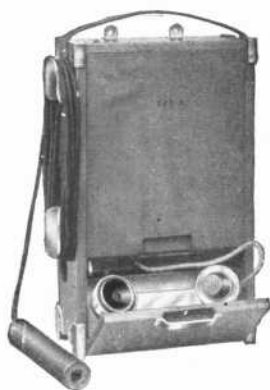
WRITE FOR LIBERAL DISCOUNTS

LOCAL BATTERY TELEPHONE SETS FOR STREET RAILWAYS

These are particularly well adapted to street railway work where the telephone lines are strung with the trolley and feed wires (on the same poles) and where the need of the best known protective devices is apparent.



No. 1278-A



No. 1280-A



No. 1302-A

Pole Type

Code No.	Description	List Price each
1278-A	Includes: 1 No. 47-G, 5-bar generator; 1 No. 25-E repeating coil; 2, 1-amp. fuses; 2 carbon cutouts; 1 No. 13 induction coil; 1 No. 244-W transmitter; 1 No. 131-W receiver; 1 No. 1 hand-set handle; 1 No. 242, 18 in. cord; 1 No. 243, 8 in. cord; 2 switches for automatically opening the line and battery circuits when the door is closed. Arranged for 2 Blue Bell dry cells, but these are not furnished unless specified	\$ 43.75

Portable Type

1280-A	Includes: 1 No. 20-B, 5-Bar generator, 1 No. 34-A repeating coil; 1 No. 126 plug; 1 No. 309, 15 ft. cord; 1 No. 70-A protector; 1 No. 13 induction coil; 1 No. 244-W transmitter; 1 No. 131-W receiver; 1 No. 1 hand-set handle; 1 No. 285, 18 in. cord; 1 No. 243, 8 in. cord; 1 switch for automatically opening the battery circuit when the set is closed. Arranged for 2 Blue Bell dry cells, but these are not furnished unless specified. Weight, 33 lbs.....	43.10
1302-A	Includes: 1 No. 43-B, 5-bar generator; 1 No. 25-E repeating coil; 1 No. 126 plug; 1 No. 309, 15 ft. cord; 1 No. 70-A protector; 1 No. 13 induction coil; 1 No. 228-W transmitter; 1 No. 133-W receiver; 1 No. 179, 5½ in. cord; 1 No. 311, 3 ft. cord; 1 switch for automatically opening the battery circuit when the receiver is placed in holder. Arranged for 2 Blue Bell dry cells, but these are not furnished unless specified. Weight, 27 lbs.....	29.00

TELEPHONE SETS FOR USE ON "RAILWAY COMPOSITE" LINES

Special telephone sets used in railway systems for simultaneous telephony and telegraphy. These are arranged to signal by means of high frequency current which operates a howler, producing a loud tone.

In equipping a line for this service it is necessary to install at each terminal telephone station a differentiator known as the No. 28-B condenser; at each intermediate telegraph station a No. 27-B condenser and No. 31-A resistance coil.

WRITE FOR LIBERAL DISCOUNTS

Telephone Sets—Continued

Telephone Sets for use on "Railway Composite"
Lines—Continued

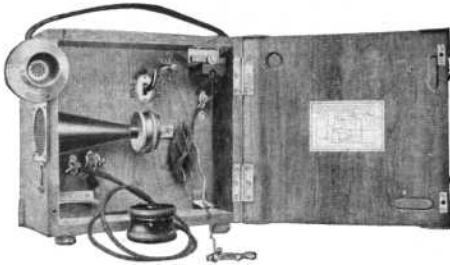
Wall Type



No. 1312-A

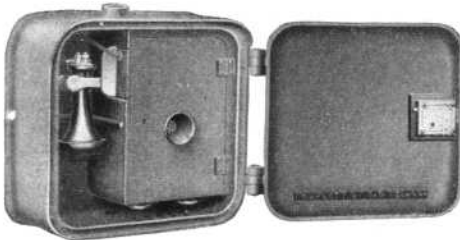
Code No.	Description	List Price each
1312-A	Includes: 1 No. 12-G retardation coil; 1 No. 21-D condenser; 1 No. 21-U condenser; 1 No. 21-H condenser; 1 No. 140-B switch hook; 1 No. 1-A howler; 1 No. 5 induction coil; 1 No. 250-W transmitter; 1 No. 122-W receiver; 1 No. 92, 3 ft. cord; 1 No. 390-B key.....	\$ 28.80

Portable Type



No. 1314-A

1314-A	Includes: 1 No. 12-M retardation coil; 1 No. 140-F switch hook; 1 No. 390-B key; 1 No. 21-D condenser; 1 No. 21-U condenser; 1 No. 1-B howler; 1 No. 3-B binding post; 3 No. 3-C binding posts; 1 No. 311, 3 ft. cord; 1 No. 179, 5½ in. cord; 1 No. 267, 10 ft. cord; 1 No. 2 line pole; 1 No. 228-W transmitter; 1 No. 133-W receiver; 1 No. 5 induction coil; 4 Blue Bell dry cells; 1 rail clamp	47.45
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No. 1320-A Open



No. 1320-A Closed

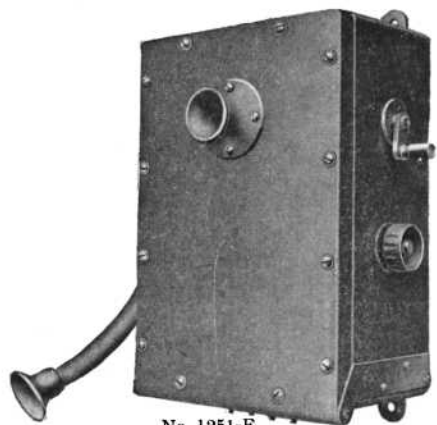
TELEPHONE SETS FOR POLICE SERVICE

This is a central battery telephone set enclosed in a cast iron case about 12 in. x 12 in. x 6½ in. and especially adapted to police patrol service. The lettering on the case can be arranged as ordered. All the telephone parts are mounted on a frame which can be removed as a unit from the case. The door is flanged to make it weather proof and is provided with a strong spring lock of special design.

Code No.	Description	List Price each
1320-A	Furnished with all the necessary apparatus. Includes: 1, 1000-ohm unbiased ringer; 1 No. 21-D condenser; 1 No. 20 induction coil; 2 No. 3-A binding posts; 2 No. 2-A binding posts; 1 No. 92, 12 in. cord; 1 No. 229-W transmitter; 1 No. 122-W receiver; 1 switch hook.....	\$ 40.25

Telephone Sets—Continued

TELEPHONE SETS FOR USE IN MINES



No. 1251-E

Code No.	Description	List Price each
1251-E	This contains all the apparatus except the extension bell. The case is covered with lead as a protection against corrosion and decay, 5 bar generator.....	\$ 35.00

Includes: 1 No. 20-A generator, 1 key for battery circuit, 1 No. 13 induction coil, 1 No. 228-W transmitter, 1 No. 128-W receiver less head band and cap.

The No. 283-A extension bell is used with this set.

INTER-COMMUNICATING TELEPHONE SETS

Regularly furnished in oak

These sets are designed for inter-communicating service between different rooms or departments in the same building or adjoining buildings. They are built in two styles, one being equipped with keys for making the desired connections and the other with jacks and a cord and plug. The former is furnished in three sizes, ten, twenty and thirty line capacities and the latter in twenty four line capacity with equipment as specified. Either wall or desk type telephone sets can be furnished. Two groups of dry batteries are necessary, one for ringing and the other for talking. These sets are wired for metallic service but may be used on a common return system if desired.



No. 1321-A

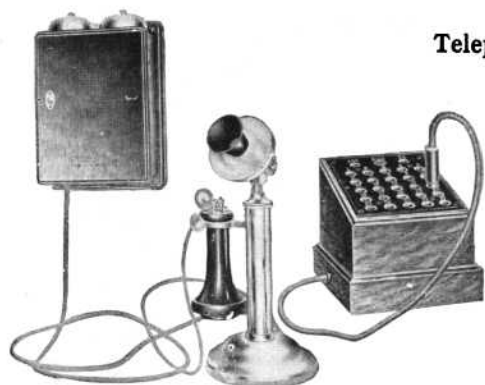
Code No.	Description
1321-A	10 line wall telephone set equipped with keys for making connections
1321-E	20 line wall telephone set equipped with keys for making connections
1321-F	30 line wall telephone set equipped with keys for making connections
2005	10 line desk telephone set with keys for making connections. Includes 1 desk set box, 1 No. 1020-H desk stand, 1 No. 371-A key
2006	20 line desk telephone set with keys for making connections. Includes 1 desk set box, 1 No. 1020-H desk stand, 1 No. 371-B key
2007	30 line desk telephone set with keys for making connections. Includes 1 desk set box, 1 No. 1020-H desk stand, 1 No. 371-C key
1322-A	24 line wall telephone set equipped with jacks and plug and cord for making connections. Equipment of jacks to be specified.



No. 1322-A

PRICES ON REQUEST

Telephone Sets—Continued



No. 2008

Inter-Communicating Telephone Sets—Continued

Code No.	Description
2008	24 line desk telephone set with jacks, plug and cord for making connections. Includes 1 desk set box, 1 No. 1020-H desk stand, 1 jack box. Equipment of jacks to be specified.

PRIVATE LINE TELEPHONE SET

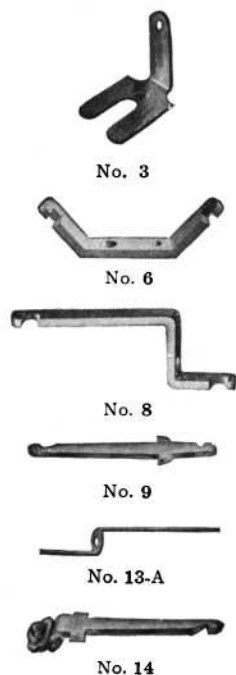


No. 1293-AB

This set is suitable for use on short lines connecting different rooms or departments in the same building, or for connecting house and stable, only two wires between stations being necessary. More than two stations may be connected to the line if desired. The batteries are located at each station and signalling is accomplished by means of a push button which operates direct current ringers at the other stations.

Code No.	Description
1293-AB	Furnished in oak or walnut as specified.

TERMINAL PUNCHINGS



Code No.	Description	List Price per hundred
3	German silver, used on fuse posts and fuse blocks	\$ 0.45
6	Brass, used for the ground side of the ringing leads . . . . .	.90
8	Heavy brass, used on double sided connecting racks	2.25
9	Brass, used on No. 10 switchboard . . . . .	.85
13-A	Brass, used on double sided connecting racks	1.15
13-B	Brass, used on double sided connecting rack, similar to No. 13-A only longer	1.15
14	Brass, screw connection	2.65
15-A	Brass, used on one sided connecting racks	1.30
16	Brass, used on repeating coils and retardation coils . . . . .	.45
17-A	Brass, used on induction coils and telephone sets . . . . .	.55



No. 15

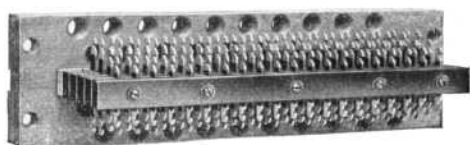


No. 16

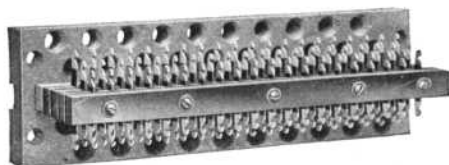


No. 17-A

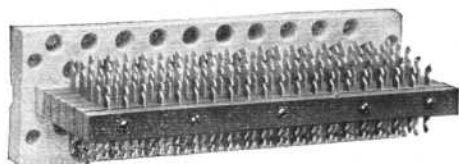
WRITE FOR LIBERAL DISCOUNTS



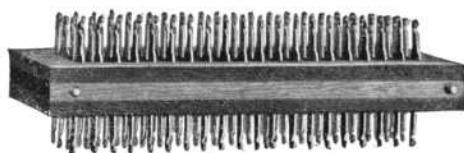
No. 26



No. 35



No. 37



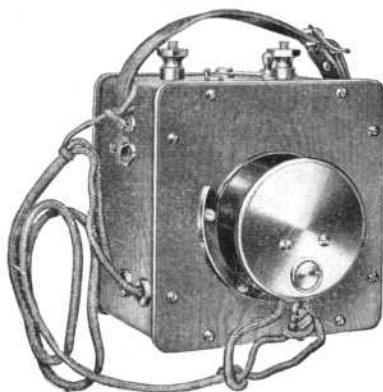
No. 49



No. 65



No. 53



No. 1006-A

TERMINAL STRIPS

These strips consist of a maple base drilled for connecting wires and equipped with terminal punchings held in place by hard rubber insulating strips.

Used on Intermediate Distributing Frame

Code No.	Number of Terminals in each Row	Number of Rows of Terminals	Length of Strip inches	List Price each
35	20	3	7 $\frac{3}{8}$	\$ 1.50
36	20	4	7 $\frac{3}{8}$	1.80
37	20	5	7 $\frac{3}{8}$	2.10
38	20	3	6 $\frac{1}{8}$	1.20
39	20	4	6 $\frac{1}{8}$	1.50
40	20	5	6 $\frac{1}{8}$	1.80
41	20	6	6 $\frac{1}{8}$	2.10
43	20	4	6 $\frac{1}{8}$ for No. 9 ex- change	.53
49	20	3	6 $\frac{1}{8}$ for No. 9 ex- change	.48

Used on Main Distributing Frame

65	1 Row of 40 three-way terminals; 7 $\frac{3}{8}$ in. long.....	1.20
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Used on No. 9 Section

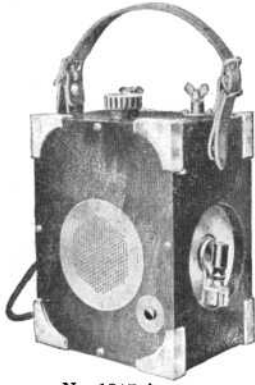
53	20	2	10	.45
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TEST SETS

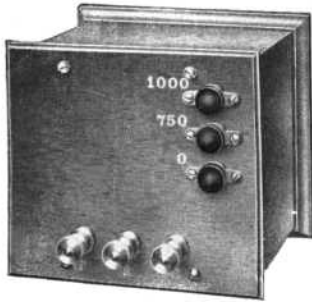
The No. 125-W receiver on the No. 1006 type sets is used both as transmitter and receiver.

Code No.	Will ring through ohms	Contains	Size of Case inches	Finish	List Price each
1006-A	2500	1 No. 2-A buzzer 1 No. 29-A generator 1 switch 1 No. 125-W receiver with cord. Receiver holder	6x5 $\frac{1}{2}$ x4 $\frac{1}{2}$	Cherry	\$ 11.05
1006-B	3500	1 No. 2-B buzzer 1 No. 29-A generator 1 switch 1 No. 125-W receiver with cord. Receiver holder	6x5 $\frac{1}{2}$ x4 $\frac{1}{2}$	Cherry	11.35
1006-C	2500	1 No. 2-A buzzer 1 No. 29-A generator 1 switch 1 No. 125-W re- ceiver with cord	6x5 $\frac{1}{2}$ x4 $\frac{1}{2}$	Cherry	10.60
1006-D	5000	1 No. 2-A buzzer 1 No. 22-B generator 1 switch 1 No. 125-W re- ceiver with cord Receiver holder	6 $\frac{3}{4}$ x6x4 $\frac{3}{4}$	Cherry	12.55

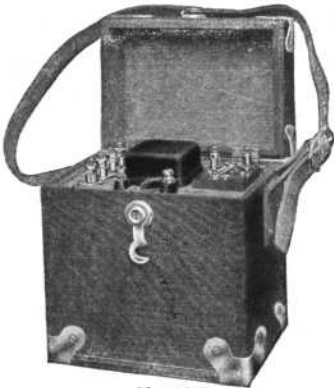
WRITE FOR LIBERAL DISCOUNTS



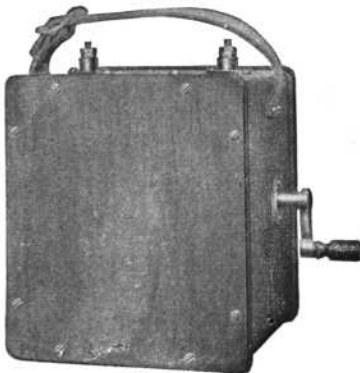
No. 1017-A



No. 9-A



No. 16-A



No. 90510

Test Sets—Continued

Code No.	Will ring through ohms	Contains	Size of Case inches	Finish	List Price each
1006-E	5000	1 No. 2-A buzzer 1 No. 22-B generator 1 switch 1 No. 125-W receiver with cord	6 $\frac{3}{4}$ x6x4 $\frac{1}{4}$	Cherry	\$ 12.10
1017-A	2500	1 No. 2-D buzzer 1 No. 29-A generator 1 switch 1 No. 337 cord 1 dry battery 1 No. 13 induction coil 1 No. 226-W transmitter 1 No. 128-W receiver less head band	7 $\frac{3}{4}$ x6 $\frac{1}{8}$ x4 $\frac{3}{4}$	Birch Mahogany	14.55
9-A		For test- 1 No. 117 jack ing super-3 No. 89-A keys visory re- 1 No. 5-K resistance, lays (750 ohms) 1 No. 5-S resistance (9000 ohms) 1 No. 5-AH resist- ance (250 ohms)	5 $\frac{1}{4}$ x5 $\frac{1}{8}$ x4 $\frac{3}{16}$	Oak nickel trimming	8.25
16-A		For cable 6 O.K. dry cells No. 2 testing 1 No. 31-A condenser 1 No. 13115 switch 1 buzzer 4 No. 2-A binding posts	7 $\frac{1}{16}$ x5 $\frac{1}{16}$ x7 $\frac{3}{4}$	Oak nickel trimming	12.45

These test sets are 5 $\frac{3}{4}$ in. x 6 $\frac{5}{8}$ in. x 5 $\frac{1}{4}$ in.

Code No.	Will ring through ohms	Contains	Finish	List Price each
90530	10000	1 No. 22-K generator 1 No. 18-A ringer	Birch	\$ 6.00
90510	35000	1 No. 22-K generator 1 No. 18-B ringer	Birch	8.50
90511	50000	1 No. 22-N generator 1 No. 19-A ringer	Birch	9.50
90512	100000	1 No. 22-N generator 1 No. 19-B ringer	Birch	11.00

WRITE FOR LIBERAL DISCOUNTS

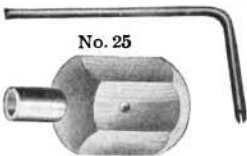


No. E-3200

THE QUEEN ACME PORTABLE
TESTING SETS

This is a combined resistance box and galvanometer used for general resistance measurement work.

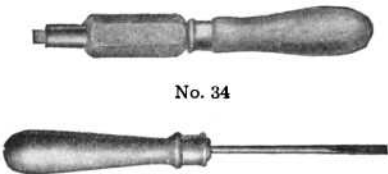
List No.	Range in ohms	List Price each
E-3200	0.01 to 1,000,000	\$ 100.00



No. 25



No. 28



No. 34



No. 35



No. 39



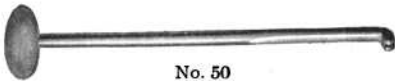
No. 40



No. 43



No. 46



No. 50



No. 58

TOOLS
FOR CENTRAL OFFICES

Code No.	Used for	List Price each
25	Spring adjustment of horizontal key.....	\$ 0.25
28	Nos. 4 and 65 protector nuts.....	.30
34	Wrench and screw driver for $\frac{7}{8}$ in. hexagonal nuts on No. 7 protector.....	1.00
35	Plug and drop screws.....	.30
39	Shutter support adjuster, used on drops...	.30
40	Double screw driver for drops.....	.30
43	Fits $\frac{3}{16}$ in. and $\frac{1}{4}$ in. nuts.....	.30
46	Removing cap nuts from relays of No. 122 type.....	.55
48	Wrench and screw driver for adjusting armature contacts of No. 185-A relay. Will fit $\frac{1}{4}$ in. and $\frac{7}{8}$ in. nuts.....	.90
50	Relay spring adjustment.....	.40
58	Handling heat coils of protectors.....	.75

WRITE FOR LIBERAL DISCOUNTS

Tools—Continued



No. 64



No. 66



No. 68



No. 67



No. 72



No. 74



No. 77



No. 80



No. 81



No. 85



No. 87



No. 90



No. 91



No. 92



No. 93



No. 97



No. 105

Code No.	Used for	List Price each
64	Wrench and screw driver for adjusting Nos. 4 and 16 jack fasteners.....	\$ 1.90
66	Extracting line and supervisory lamps.....	.30
67	Adjusting ring springs of No. 49 jacks....	.40
68	Adjusting tip springs of No. 49 jacks.....	.40
72	Wrench and screw driver for adjusting armature contact screws, $\frac{1}{16}$ in. and $\frac{5}{16}$ in. hexagonal nuts.....	.85
74	Fits $\frac{5}{8}$ in. and $\frac{7}{8}$ in. nuts .....	.45
77	Holding wires to terminals of jacks for soldering.....	1.15
80	Extracting Nos. 2 and 4 type lamp caps ..	.30
81	Adjusting tip and ring springs of No. 92 jacks.....	.40
85	Extracting No. 4 type lamps.....	.30
87	Extracting No. 8 type lamp caps.....	.30
90	Removing caps of service meters.....	.90
91	Removing cover of No. 89 type relay.....	.55
92	Nuts on Nos. 18 and 19 resistances. ....	.55
93	Multiple cable lifter.....	.25
97	$\frac{3}{8}$ in. hexagonal nuts on No. 7 type fuses...	.45
105	Adjusting springs on No. 453 type keys...	.45

WRITE FOR LIBERAL DISCOUNTS

TRANSMITTERS

Code No.	Description	Used with	List Price each
226-W	Low resistance transmitter without lug.		\$ 1.40
227-W	Low resistance transmitter with lug.		2.00
228-W	High resistance transmitter without lug.	Nos. 1251-E, 1302-A and 1314-A telephone sets.....	1.40
229-W	High resistance transmitter with lug.	Desk stands, transmitter arms and small telephone sets	2.00
232-W	High resistance transmitter arranged to be suspended by two cords entering side of case.	Nos. 7 and 19 transmitter arms for switchboards.....	2.55
234-W	Operator's chest transmitter arranged to be supported by a band around the operator's neck. This attachment is not furnished with the transmitter.	Switchboards as operator's transmitter. No. 3 type of transmitter attachment used as support.....	2.95
244-W	Transmitter arranged to be fixed to No. 1 hand set handle.	No. 1001 hand set ..	2.25
250-W	High resistance bracket type transmitter.	All wall telephone sets that require bracket type transmitter.....	2.40



No. 229-W



No. 232-W



No. 234-W



No. 250-W

WRITE FOR LIBERAL DISCOUNTS



No. 266-W



No. 269-W



No. 7-A

Transmitters—Continued

Code No.	Description	Used with	List Price each
251-W	Low resistance bracket type transmitter.		\$ 2.40
266-W	Transmitter to be fastened inside case.	No. 1017-A test set	1.30
267-W	Transmitter arranged to be fixed to No. 2 type hand set handle.	No. 1002-A hand set.....	1.55
269-W	High resistance transmitter having small insulated case.	Intercommunicating wall telephone sets	2.00
270-W	High resistance transmitter of the bracket type having insulated case.	All wall telephone sets that require bracket type transmitter	2.40
271-W	High resistance transmitter having insulated case with lug.	No. 1020-P desk stand.....	2.00
272-W	High resistance transmitter having insulated case with lug, and equipped with two 5½ in. No. 329 cords.	Wall telephone sets (except intercommunicating) that require transmitter with lug.....	2.00



No. 19-A

TRANSMITTER ARMS

FOR SWITCHBOARDS

The code number does not include transmitter, receivers or cords.

Using Suspended Transmitter

Code No.	Description	List Price each
7-A	This includes the two cord escutcheon tubes, hanger and two No. 103 cord weights. Furnished in brass finish unless otherwise specified. In ordering, state whether the tubes through which the cord runs shall be 7 or 13 inches long.	\$ 4.90
19-A	Nickel plated unless otherwise specified.....	5.65

Using Transmitter with Lug

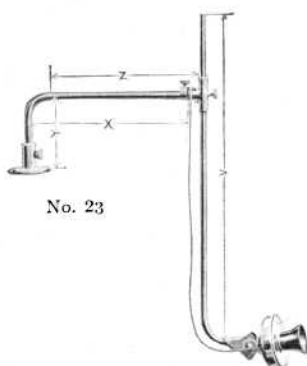
No. 11 type is nickel plated unless otherwise specified.



No. 11

	Dimensions in inches				
	B	C	E	F	
11-A	19	12	12	12	\$ 5.85
11-B	12	11	11	12	5.85
11-C	18	12	12	16	5.85
11-D	12	16	16	15	5.85
11-E	6	12	12	11	5.85

WRITE FOR LIBERAL DISCOUNTS



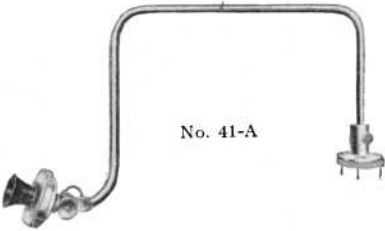
No. 23

Transmitter Arms—Continued

For Switchboards—Continued

No. 23 type is nickel plated unless otherwise specified.

Code No.	Dimensions, inches				List Price each
	V	X	Y	Z	
23-A	27	11	5	10	\$ 3.60
23-B	18	11	5	10	3.60
23-C	12	8	6	7	3.60
23-D	20	14	4	13	3.60
23-E	12	14	8	13	3.60
23-F	8	14	4	13	3.60



No. 41-A

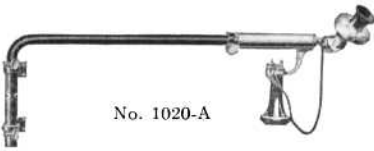
No. 41 type is nickel plated unless otherwise specified.

41-A	Used with No. 4 private exchanges.....	5.65
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FOR DESKS

With Transmitters, Receivers and Cords

The No. 122-W receiver and standard high resistance transmitter are furnished with these transmitter arms, as specified below. Others will be furnished if ordered.



No. 1020-A

Code No.	Description	Finish	List Price each
1020-A	For regular local battery bridging or central battery service. Used on flat top desks.	Rust proof dull black	\$ 12.35

Includes: 1 No. 20-A transmitter arm
1 No. 229-W transmitter
1 No. 122-W receiver
1 No. 310 cord



No. 1040-B

1040-B	For regular local battery bridging or central battery service. Mounts on wall.	Black enamel	9.05
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Includes: 1 No. 40-B transmitter arm
1 No. 229-W transmitter
1 No. 122-W receiver
1 No. 308 cord



No. 1040-D

1040-D	For regular local battery bridging or central battery service. Used on roll top desks.	Black enamel	9.20
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Includes: 1 No. 40-D transmitter arm
1 No. 229-W transmitter
1 No. 122-W receiver
1 No. 308 cord

**Transmitter Arms—Continued
For Desks—Continued**

Code No.	Description	Finish	List Price each
1040-F	For regular local battery bridging or central battery service. Used on flat top desks. Includes: 1 No. 40-F transmitter arm 1 No. 229-W transmitter 1 No. 122-W receiver 1 No. 308 cord	Black enamel	\$ 9.15



No. 1040-F

Without Transmitters, Receivers or Cords

These are similar to those listed above except that the transmitters, receivers and cords are omitted.

Code No.	Description	Finish	List Price each
20-A	Regular local battery bridging or central battery service. Used on flat top desks.	Rust proof dull black	\$ 7.50
40-B	Regular local battery bridging or central battery service. Mounts on wall.	Black enamel	4.35
40-D	Regular local battery bridging or central battery service. Used on roll top desks.	Black enamel	4.50
40-F	Regular local battery bridging or central battery service. Used on flat top desks.	Black enamel	4.50



No. 3-A

Code No.
3-A

Description	List Price each
Nickel plated bracket for mounting transmitter on front of telephone set	\$ 0.18

TRANSMITTER BRACKET

TRANSMITTER ATTACHMENTS

Used to Support the Operator's "Chest" Transmitter

Code No.	Description	List Price each
2-A	Buckle only	\$ 0.08
3-A	Buckles and slate colored tape .....	.24
3-B	Buckles and black colored tape .....	.24
3-C	Buckles and white tape .....	.24



No. 3-A

TROUBLE CAPS

These are split fibre tubes for placing over a plug to designate trouble in the cord circuit apparatus.

Code No.	Color	To be used on Plugs number	List Price each
1-A	Black	109	\$ 0.0225
1-B	Red	109 .....	.0225
2-A	Black	110 .....	.0225
2-B	Red	110 .....	.0225

WESTON AMMETERS

For power switchboards; flush mounting; finished in polished copper and black dip; provided with external shunt, scales may have zero at left or at the center as ordered.

Type "F" has a face plate 9½ in. in diameter

Type "K" has a face plate 7¼ in. in diameter

Order thus:

1 Type "F" Weston 200 - 0 - 200 scale ammeter, flush mounted, with external shunt provided with leads . . . feet long; finished in polished copper and black dip.



No. 1-A

WRITE FOR LIBERAL DISCOUNTS

WESTON VOLTMETERS



For Wire Chief's Desk and Telephone Switchboards

These have high resistance coils of 2500- ohms per scale volt; are arranged for flush mounting, and are finished in nickel and black dip. These are used in the testing circuits. Type "F" instruments have face plates $9\frac{1}{2}$ in. in diameter. They are usually provided with 0 to 4 and 0 to 40 scales.

Order thus:—

1 Type "F" Weston flush mounted voltmeter, finished in nickel and black dip; scales 0 to 4 and 0 to 40; resistance of 4 volt coil 10,000- ohms and of the 40 volt coil 100,000- ohms.

For Power Switchboards

Flush mounting, finished in polished copper and black dip; type "F" has a face plate $9\frac{1}{2}$ in. in diameter and the type "K" has a face plate $7\frac{3}{4}$ in. in diameter.

Order thus:—

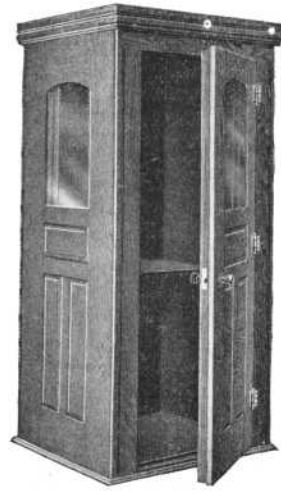
1 Type "F" Weston flush mounted voltmeter, finished in polished copper and black dip; scales 0 to 5 and 0 to 50.

INTEGRATING WATTMETERS

These may be furnished for recording the current consumed, or the current delivered by the power plant. Various styles are carried.

TELEPHONE SUPPLIES

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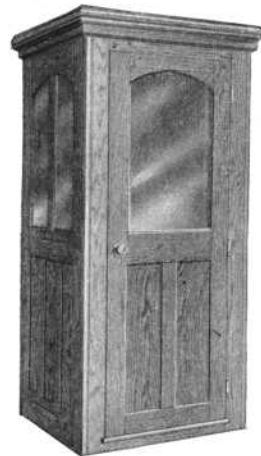


TELEPHONE BOOTHS

Sound Proof

We are prepared to furnish, on request, a complete catalogue illustrating and describing our line of standard sound-proof telephone booths.

All styles, sizes and finishes to match interior fixtures and decorations.



PRICES ON REQUEST



No. 52031

No. 94029

CARBONIC ACID GAS HAND FIRE EXTINGUISHERS

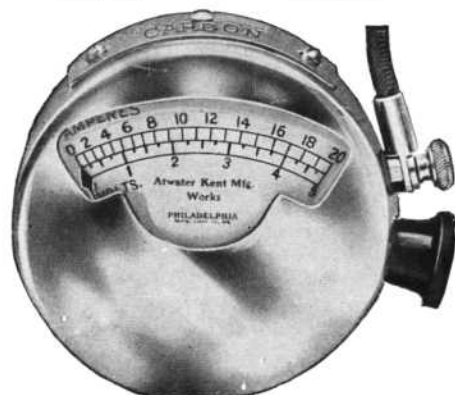
The fire extinguisher, as illustrated, is ready for instant use, being constructed to compel the immediate mixing of the chemicals the instant the extinguisher is turned bottom up. It will throw a stream of fire-killing liquid from 40 to 50 feet, thus enabling the user to reach fires above the surface of the floor, in ceilings, curtains, and elsewhere.

This liquid is heavily charged with carbonic acid gas, and is many times more effective than water, readily extinguishing burning varnish, celluloid, tar, coal-oil, and naphtha.

Code Word
Hygeian
Mertertjes

List No.
52031
94029

Name
Newark
Accurate



No. 16520

KENT AUTOMATIC POCKET VOLT-AMMETER

This instrument is designed and calibrated especially for testing batteries. The needle is delicately pivoted and the readings are accurate.

Flexible leads of ample capacity are provided with each instrument.

No change is made in the connection to the battery for the two readings, as that in amperes is obtained by simply pressing the button.

Code Word
Oxhoftstab

List No.
16520

LEAD SLEEVES

For Making Straight Splices

Size and Gauge Cable	Inside Diameter of Sleeve, inches	Length inches	Size and Gauge Cable	Inside Diameter of Sleeve, inches	Length inches
15 pair No. 22	1	16	15 pair No. 19	1	16
20 pair No. 22	1	16	20 pair No. 19	1½	16
25 pair No. 22	1½	16	25 pair No. 19	1½	16
30 pair No. 22	1½	16	30 pair No. 19	2	16
50 pair No. 22	2	16	50 pair No. 19	2	16
75 pair No. 22	2½	16	75 pair No. 19	2½	16
100 pair No. 22	2½	16	100 pair No. 19	3	16
150 pair No. 22	2½	16	150 pair No. 19	3	18
180 pair No. 22	2½	16	180 pair No. 19	3½	18
200 pair No. 22	3	18	200 pair No. 19	3½	18
300 pair No. 22	3½	18	300 pair No. 19	4½	22
400 pair No. 22	3½	22			

For Making "Y" Splices

Size and Gauge Cable	Inside Diameter of Sleeve, inches	Length inches	Size and Gauge Cable	Inside Diameter of Sleeve, inches	Length inches
10 pair No. 22	1	16	10 pair No. 19	1	16
20 pair No. 22	1½	16	20 pair No. 19	1½	16
25 pair No. 22	1½	16	25 pair No. 19	1½	16
30 pair No. 22	2	16	30 pair No. 19	2	16
50 pair No. 22	2½	16	50 pair No. 19	2½	16
75 pair No. 22	3	16	75 pair No. 19	3	16
100 pair No. 22	3½	18	100 pair No. 19	3½	18
150 pair No. 22	4	18	150 pair No. 19	4	18
180 pair No. 22	4	18	180 pair No. 19	4½	18
200 pair No. 22	4	18	200 pair No. 19	4½	22
300 pair No. 22	4½	22	300 pair No. 19	4½	22
400 pair No. 22	4½	22			

PRICES ON REQUEST

Lead Sleeves—Continued

For Pot Heads

Size and Gauge Cable	Inside Diameter of Sleeve, inches	Length inches	Size and Gauge Cable	Inside Diameter of Sleeve, inches	Length inches
25 and 30 pair No. 22	2	20	25 and 30 pair No. 19	2	20
50 pair No. 22	2½	20	50 pair No. 19	2½	20
60 pair No. 22	3	20	60 pair No. 19	3	20
100 pair No. 22	3½	24	100 pair No. 19	3½	24
120 pair No. 22	3½	26	120 pair No. 19	3½	26
150 pair No. 22	3½	26	150 pair No. 19	4	26
180 pair No. 22	4	26	180 pair No. 19	4	30
200 pair No. 22	4	26	200 pair No. 19	4	30
400 pair No. 22	4½	26			

CABLE PASTERS

Code Word	List No.
Masseteric	100000

Used to limit the length of wiped joint. Sold by thousand

IMPROVED PAPER SLEEVES

Code Word	List No.	Size, inches	Code Word	List No.	Size, inches
Plagiandum	25944	$\frac{1}{8} \times 2\frac{1}{2}$	Plagiarism	25947	$\frac{1}{8} \times 18$
Plagianthe	25945	$\frac{3}{8} \times 3$	Plagiariize	25948	$\frac{3}{8} \times 18$
Plagiara	25946	$\frac{3}{8} \times 3$	Plagiat	25949	$\frac{3}{8} \times 18$

Code Word	List No.
Hymnirent	52002

PARAFFINE

Code Word	List No.
Hyenide	52003

BEESWAX

Code Word	List No.
Escatimeis	7944

W. E. POT HEAD COMPOUND

WIRES

DOUBLE GALVANIZED TELEPHONE WIRE

There are three grades of telephone wire, classified as follows:

EXTRA BEST BEST (E. B. B.)
 BEST BEST (B. B.)
 STEEL

Extra Best Best (E. B. B.) wire is made from a special stock of great purity, producing wire of absolute uniform quality, in which the elements of softness and elongation are combined with low electrical resistance to a marked degree. It is largely employed in long lines or service where low electrical resistance is both desirable and necessary.

Best Best (B. B.) wire is made from a stock of high quality, producing a wire somewhat less uniform and of higher resistance than E. B. B., but of greater tensile strength. This grade is used almost exclusively for the construction of subscribers' lines in exchanges, and on account of its great tensile strength is best adapted for rural or farmer lines.

Steel wire has a greater tensile strength than either E. B. B. or B. B., but on account of its greater electrical resistance is not very generally used.

As indicated by heading, the different grades of wire are double galvanized, each coat being uniform in its application, thereby insuring uniform durability.

Code Word	List No.	Size	Diameter inches	Breaking Strain in Pounds			Weight Pounds per Mile	Coils
				E. B. B.	B. B.	Steel		
Plaindrons	25976	10	.135	780	858	962	260	$\frac{1}{2}$ mile
Plainly	25977	11	.120	642	706	792	214	$\frac{1}{2}$ mile
Plainness	25978	12	.105	495	545	611	165	$\frac{1}{2}$ mile
Plaintful	25979	14	.080	288	317	355	96	$\frac{1}{2}$ mile

RUBBER-COVERED COPPER WIRE (BRAIDED)

Code Word	List No.	No.	Size	Description
Hydatide	52152	No. 14, B. & S., $\frac{5}{32}$ in.		rubber insulation, outside distributing wire, double conductor, braided and twisted; for drop wires and outside work.
Hydatiform	52153	No. 18, B. & S., $\frac{7}{32}$ in.		rubber insulation bridle wire, double conductor, braided and twisted; for bridling, entrance or ground wire.
Hydatigere	52154	No. 19, B. & S., $\frac{3}{16}$ in.		rubber insulation interior wire, single conductor, finished braid.
Hydatism	52155	No. 19, B. & S., $\frac{3}{16}$ in.		same as above, double conductor, braided and twisted, finished braid, oak or olive green; for interior use.

PRICES ON REQUEST

Wires--Continued

Rubber Covered Copper Wire (Braided)—Continued

Code Word	List No.	
Hydatoid	52156	No. 19, B. & S., $\frac{3}{32}$ in., same as above, triple conductor; for interior use.
Hydatule	52157	No. 20, B. & S., rubber insulation flame-proof wire, double conductor, braided and twisted; distributing frame jumper wire.
Hyderode	52158	No. 22, B. & S., rubber insulation flame-proof wire, double conductor, braided and twisted; distributing frame jumper wire.
Hyderzahn	52159	No. 22, B. & S., same as above, triple conductor; distributing frame jumper wire.

RUBBER COVERED COPPER WIRE (PLAIN)

Code Word	List No.	
Hydnei	52160	No. 16, B. & S., $\frac{5}{32}$ in. insulation, double conductor, twisted, no braid; used for pot heads.
Hydnocarpe	52161	No. 19, B. & S., $\frac{3}{32}$ in. insulation, double conductor, twisted, no braid; used for pot heads.
Hydnopore	52162	No. 20, B. & S., $\frac{3}{32}$ in. insulation, double conductor, twisted, no braid; used for pot heads.

GALVANIZED STEEL WIRE STRAND

(Sometimes called Signal Strand.)

These galvanized steel strands are largely employed as messengers or suspension cables for hanging aerial telephone and other cables.

Composed of seven galvanized wires twisted together.

Code Word	List No.	For Cables		Diameter inches	Weight pounds per hundred feet	Breaking Strain pounds
		No. 19 Gauge	No. 22 Gauge			
Methocampe	94031	over 100 pairs	over 200 pairs	$\frac{7}{16}$	40	16,000
Methionate	94030	100 pairs	200 pairs	$\frac{3}{8}$	30	10,000
Aboriginal	3052			$\frac{1}{2}$	52	8,320
Aborsement	3054	50 pairs	100 pairs	$\frac{7}{16}$	40	6,000
Coupe	3055			$\frac{3}{8}$	30	4,700
Coupling	3056			$\frac{1}{16}$	22	3,300
Abounding	3059			$\frac{1}{4}$	13	1,750
Abrade	3061			$\frac{3}{16}$	8	1,000
Abraham	3092			$\frac{5}{32}$	5	700
Abreast	3093			$\frac{1}{8}$	3.50	375
Abridge	3065			$\frac{3}{32}$	2.25	320

WEATHER-PROOF IRON LINE WIRE

This is sometimes classified as tree wire. Its use is advised where branches of trees interfere with line.

This wire is guaranteed genuine double galvanized B. B. iron wire.

This wire can be furnished with double or triple braid. In either case the braid is thoroughly saturated with weather-proof compound, which gives it a highly polished finish.

Put up in half-mile coils only.

Code Word	List No.	Size B. W. G.	Pounds per Mile		Coils
			Double Braid	Triple Braid	
Hydage	52146	10	370	400	$\frac{1}{2}$ mile
Hydarnes	52147	12	225	250	$\frac{1}{2}$ mile
Hydaspei	52148	14	145	165	$\frac{1}{2}$ mile

WEATHER-PROOF COPPER WIRE

Especially adapted for drops or leads from main line to telephone.

This wire is furnished in coils.

Furnished with double or triple insulation, as ordered.

Code Word	List No.	Size B. & S. Gauge	Feet per Pound		Pounds per thousand feet	
			Double Braid	Triple Braid	Double Braid	Triple Braid
Hydaspeos	52149	14	56	38	18	26
Hydaspeum	52150	16	76	48	13	21
Hydatidome	52151	18	100	67	10	15

PRICES ON REQUEST

Wires—Continued

ANNUNCIATOR WIRE

Has covering consisting of two wraps of cotton saturated with paraffine. The outer covering is made in solid color or combination of colors. The following sizes can be furnished tinned.

Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet
Hydracid	52163	16	9½
Hydraemia	52164	18	6½
Hydragogos	52165	20	4½
Hydragogue	52166	22	4

WEATHER-PROOF ANNUNCIATOR WIRE

Code Word	List No.	No. 18, same as above, saturated with weather-proof compound. Furnished in black only. Weight, per thousand ft., 6¾ lbs.
Hydraire	52167	

DAMP-PROOF OFFICE WIRE

For interior work not exposed to heavy moisture

Single Conductor				Double Conductor			
Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet	Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet
Hydralcool	52168	16	13½	Hydramide	52171	16	18½
Hydraleta	52169	18	10	Hydranos	52172	18	12½
Hydraletes	52170	20	8	Hydranths	52173	20	10

GERMAN SILVER RESISTANCE WIRE

Bare

Code Word	List No.	Size B. & S. Gauge	Ohms per thousand feet	Code Word	List No.	Size B. & S. Gauge	Ohms per thousand feet
Hydraotes	52174	16	75.22	Hydreleon	52187	29	1,533
Hydragyre	52175	17	94.84	Hydrellie	52188	30	1,933
Hydrarum	52176	18	119.6	Hydreuma	52189	31	2,437
Hydraspis	52177	19	155.1	Hydreumata	52190	32	3,073
Hydrastina	52178	20	190.2	Hydriade	52191	33	3,875
Hydratado	52179	21	239.8	Hydric	52192	34	4,888
Hydratant	52180	22	302.4	Hydridae	52193	35	6,163
Hydrate	52181	23	381.3	Hydrinorum	52194	36	7,770
Hydraula	52182	24	480.8	Hydriodeux	52195	37	9,797
Hydraules	52183	25	606.3	Hydriodico	52196	38	12,357
Hydrauliam	52184	26	764.6	Hypanthe	52197	39	15,570
Hydraulica	52185	27	964.1	Hypanthium	52198	40	19,653
Hydrazote	52186	28	1,215.				

MAGNET WIRE

Single Cotton Covered

Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet
Jean	1704	24	1.30
Jears	1705	25	1.04
Jeer	1706	26	.84
Jeered	1707	27	.67
Jeerer	1708	28	.53
Jeering	1709	29	.42
Jungly	1710	30	.34
Junior	1711	31	.28
Jockeyism	1712	32	.22
John	1713	33	.18
Joinder	1714	34	.15
Jollify	1715	35	.13

Double Cotton Covered

Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet
Joyously	1725	24	1.37
Joyousness	1726	25	1.11
Jubilant	1727	26	.89
Jubilate	1728	27	.72
Jubilation	1729	28	.59
Judah	1730	29	.47
Judicial	1731	30	.39
Judicious	1732	31	.32
Josephine	1733	32	.26
Joshua	1734	33	.22
Josiah	1735	34	.19
Jostle	1736	35	.17

PRICES ON REQUEST

Wire—Continued

Magnet Wire—Continued

Single Cotton Covered

Double Cotton Covered

Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet	Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet
Jolliment	1716	36	.11	Jostled	1737	36	.15
Jollity	1717	37	...	Jove	1738	37	...
Jonas	1718	38	...	Jovial	1739	38	...
Jonathan	1719	39	...	Jovialty	1740	39	...
Joseph	1720	40	...	Joy	1741	40	...

Single Silk Covered

Double Silk Covered

Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet	Code Word	List No.	Size B. & S. Gauge	Pounds per thousand feet
Jervin	1658	24	1.25	Jeweling	1683	24	1.28
Jested	1659	25	1.00	Jewelry	1684	25	1.02
Jester	1660	26	.79	Jewess	1685	26	.81
Jestful	1661	27	.67	Jewish	1686	27	.69
Jesting	1662	28	.50	Jib	1687	28	.52
Jesuit	1663	29	.39	Jibboom	1688	29	.41
Plantensap	1664	30	.31	Jibdoor	1689	30	.33
Plantenwas	1665	31	.25	Jibe	1690	31	.26
Jelly	1666	32	.20	Jibing	1691	32	.21
Jemima	1667	33	.16	Jigger	1692	33	.17
Jennet	1668	34	.13	Jiggish	1693	34	.14
Jenneting	1669	35	.11	Jiggling	1694	35	.12
Jentling	1670	36	.09	Jill	1695	36	.10
Jeopard	1671	37	.07	Jilted	1696	37	.08
Jeoparder	1672	38	.06	Jilting	1697	38	.07
Jeoparding	1673	39	.05	Jingle	1698	39	.06
Jeopardize	1674	40	.04	Jingled	1699	40	.05

ENAMELED MAGNET WIRE

Enameled insulation is an elastic, yet resistant and firmly adherent film, which is applied to the wire by specially constructed machinery of our own design. The insulation is unaffected by chemical re-agents which will not affect the wire itself, diluted acids, alkalis, alcohol, benzine, turpentine, etc., having little or no effect on it. Excessive humidity will cause silk or cotton insulation to become practically useless as insulators, but has little or no effect on the enameled insulation.

A great saving of space required for magnet windings may be made by using this enameled wire, as the insulation is only about one-quarter as thick as that of silk covering affording the same degree of insulation. Consequently, a given winding space will with No. 32 gauge wire hold 30 per cent. more enameled insulated wire than the silk insulated. At No. 40 gauge the increased number of turns is 120 per cent. more than single silk. With wire insulated with No. 100 cotton a saving in favor of the enameled wire is for No. 24 gauge equal to 30 per cent. and for No. 40 gauge equal to 500 per cent.

A saving in the price of the wire is possible, as the cost of the enamel is only a small fraction of that of the silk.

Size B. & S. Gauge	Pounds per thousand feet	Size B. & S. Gauge	Pounds per thousand feet
24	1.24	33	.16
25	.98	34	.12
26	.78	35	.098
27	.62	36	.078
28	.48	37	.062
29	.39	38	.050
30	.31	39	.040
31	.25	40	.031
32	.20		

SWITCHBOARD WIRE

Copper wire with double silk and single cotton paraffined insulation of assorted colors.

Code Word	List No.	Size B. & S. Gauge
Mezclabais	94056	No. 19 single conductor
Miccianza	94076	No. 22 single conductor
Miccichino	94077	No. 19 twisted pair conductors
Micciebant	94078	No. 22 twisted pair conductors

PRICES ON REQUEST

Wire—Continued
BARE COPPER WIRE
TINNED

For Strapping Apparatus Terminals

Size B. & S. Gauge	Feet per pound	Size B. & S. Gauge	Feet per pound
No. 14	80	No. 18	203
No. 16	127	No. 20	323
		No. 22	513

HABIRSHAW INSULATED CONDUCTORS

Solid Copper, Tinned, Double Coated, Rubber Insulation, Braided and Waxed

White Core		Red Core		Size B. and S.	Diameter over Braid, inches	Thickness of Insulation without Braid inches	Weight per mile pounds
Code Word	List No.	Code Word	List No.				
Platmaken	27040	Plasmabunt	26080	18	.136	$\frac{3}{64}$	84.48
Platole	27041	Plasmadora	26081	16	.162	$\frac{3}{64}$	110.88
Platometer	27042	Plasmados	26082	14	.203	$\frac{3}{64}$	168.96
Platon	27043	Plasmammo	26083	12	.225	$\frac{3}{64}$	221.76
Platonical	27044	Plasmando	26084	11	.235	$\frac{3}{64}$	253.44
Platonis	27045	Plasmarian	26085	10	.246	$\frac{3}{64}$	311.52
Platonize	27046	Plasmarono	26086	9	.256	$\frac{3}{64}$	359.04
Platschelp	27047	Plasmassi	26087	8	.272	$\frac{3}{64}$	422.40
Platt	27048	Plasmata	26088	7	.288	$\frac{3}{64}$	501.00
Platteland	27049	Plasmatic	26089	6	.328	$\frac{3}{64}$	654.72
Plattgarn	27050	Plasmtori	26090	5	.387	$\frac{1}{16}$	839.52
Platthaupt	27051	Plasmavate	26091	4	.409	$\frac{1}{16}$	997.92
Platthin	27052	Plasmogony	26092	3	.434	$\frac{1}{16}$	1209.12
Platthuf	27053	Plasmome	26093	2	.463	$\frac{1}{16}$	1457.28
Platlack	27054	Plasabat	26094	1	.494	$\frac{1}{16}$	1789.92
Plattnarbe	27055	Plasabor	26095	0	.530	$\frac{1}{16}$	2164.80

Stranded Copper Conductors, Tinned Double Coated Insulation, Rubber Braided and Waxed

White Core		Red Core		Size B. and S.	Strand	Diameter of Insulation over Braid without Braid inches	Weight per mile pounds
Code Word	List No.	Code Word	List No.				
Plaudebat	27072	Platanine	27012	14	7-.025	$\frac{3}{64}$	174.24
Plaudendum	27073	Plataninos	27013	13	7-.028	$\frac{3}{64}$	211.20
Plaudit	27074	Plataniste	27014	12	7-.032	$\frac{3}{64}$	253.44
Plauditory	27075	Platanonis	27015	11	7-.035	$\frac{3}{64}$	290.40
Plaudunt	27076	Platanorum	27016	10	7-.038	$\frac{3}{64}$	337.92
Plamurato	27077	Platband	27017	9	7-.043	$\frac{3}{64}$	385.44
Plausible	27078	Platearas	27018	8	7-.048	$\frac{3}{64}$	454.08
Plausisset	27079	Platessa	27019	7	7-.053	$\frac{3}{64}$	528.00
Plausisti	27080	Platessis	27020	6	7-.063	$\frac{3}{64}$	686.40
Plausitabo	27081	Platform	27021	5	7-.069	$\frac{1}{16}$	887.04
Plausitavi	27082	Platheid	27022	4	7-.077	$\frac{1}{16}$	1024.32
Plausuram	27083	Platiasme	27023	3	19-.052	$\frac{1}{16}$	1209.12
Plausuri	27084	Platicos	27024	2	19-.059	$\frac{1}{16}$	1525.92
Plautarum	27085	Platifillo	27025	1	19-.066	$\frac{1}{16}$	1890.24
Plautia	27086	Platija	27026	0	19-.074	$\frac{1}{16}$	2212.32
Plautianos	27087	Platille	27027	00	19-.083	$\frac{1}{16}$	2740.32
Plautidis	27088	Platillos	27028	000	19-.093	$\frac{1}{16}$	3379.20
Plautilla	27089	Platinage	27029	0000	19-.104	$\frac{5}{64}$	4329.60

Copper Conductors Stranded, Tinned, Two Coatings, Rubber Insulation, Taped, Braided and Waxed

White Core		Red Core		Circular Mils	Strand	Diameter over Braid inches	Weight per Mile pounds	Wall of Insulation inches
Code Word	List No.	Code Word	List No.					
Pleiteas	28032	Playground	28000	200000	37-.073	.772	4065	$\frac{5}{64}$
Pleitesia	28033	Playhouse	28001	210000	37-.075	.786	4292	$\frac{5}{64}$
Pleitkunst	28034	Playless	28002	220000	37-.077	.800	4519	$\frac{5}{64}$
Pleitos	28035	Playones	28003	230000	37-.078	.807	4688	$\frac{5}{64}$
Pleitvogel	28036	Playsome	28004	240000	37-.080	.821	4873	$\frac{5}{64}$
Plejaden	28037	Plaything	28005	250000	37-.082	.835	5047	$\frac{5}{64}$
Plejadis	28038	Playtime	28006	260000	37-.083	.842	5216	$\frac{5}{64}$
Pleminius	28039	Playwright	28007	270000	37-.085	.856	5401	$\frac{5}{64}$
Plemmyrium	28040	Pleadable	28008	280000	37-.086	.863	5570	$\frac{5}{64}$
Plemnæus	28041	Pleading	28009	290000	37-.088	.877	5739	$\frac{5}{64}$
Plempe	28042	Pleadingly	28010	300000	37-.089	.884	5924	$\frac{5}{64}$
Plenarias	28043	Pleasance	28011	325000	37-.092	.908	6367	$\frac{5}{64}$

PRICES ON REQUEST

Wires—Continued

Habershaw Insulated Conductors—Continued

White Core		Red Core		Circular Mils	Strand	Diameter over Braid inches	Weight per mile pounds	Wall of Insulation inches
Code Word	List No.	Code Word	List No.					
Plenarily	28044	Pleasedly	28012	350000	37-.096	.933	6811	$\frac{5}{64}$
Plenarty	28045	Plebaglia	28013	375000	37-.100	.958	7260	$\frac{5}{64}$
Plendorum	28046	Plebamus	28014	400000	37-.103	.982	7703	$\frac{5}{64}$
Plengfeest	28047	Plebe	28015	425000	37-.106	1.003	8120	$\frac{5}{64}$
Plenilune	28048	Plebeity	28016	450000	37-.110	1.031	8627	$\frac{5}{64}$
Plenipos	28049	Plebejorum	28017	475000	37-.112	1.045	8986	$\frac{5}{64}$
Plenishing	28050	Plebejum	28018	500000	37-.115	1.066	9435	$\frac{5}{64}$
Plenisme	28051	Plebitatem	28019	525000	37-.118	1.087	9847	$\frac{5}{64}$
Plenitas	28052	Plebitatis	28020	550000	37-.121	1.108	10311	$\frac{5}{64}$
Plenitatis	28053	Plechtig	28021	575000	37-.123	1.122	10755	$\frac{5}{64}$
Plenitude	28054	Pledgeless	28022	600000	61-.098	1.143	11172	$\frac{5}{64}$
Plenteous	28055	Pleegkind	28023	700000	61-.106	1.245	13110	$\frac{3}{32}$
Plentiful	28056	Plegaberes	28024	750000	61-.110	1.275	14013	$\frac{3}{32}$
Platineux	27030	Plegadoras	28025	800000	61-.114	1.317	14868	$\frac{3}{32}$
Platinic	27031	Plegmation	28026	850000	61-.117	1.344	15734	$\frac{3}{32}$
Platinides	27032	Plegueis	28027	900000	61-.120	1.371	16595	$\frac{3}{32}$
Platinise	27033	Pleister	28028	1000000	61-.127	1.443	18448	$\frac{3}{32}$
Platinmohr	27034	Pleitdag	28029	1250000	61-.141	1.580	22820	$\frac{3}{32}$
Platinous	27035	Pleitdagen	28030	1500000	61-.155	1.718	27192	$\frac{3}{32}$
Platinoxyd	27036	Pleiteabas	28031	2000000	91-.148	1.900	36141	$\frac{7}{64}$

ENAMELED STEEL CONDUIT AND FITTINGS

The enameled steel conduit is made from mild drawn steel tubing, which is thoroughly freed by a special process from scales, burrs and silicates before the enamel is applied.

The enamel forms a homogeneous coating, adhering closely to the surface pores of the metal, and retaining its flexibility under all changes of temperature. It is acid-proof, water-proof, rust-proof, and forms a glass smooth coating to both the outside and inside of the tubing, allowing wires to be pulled through it very easily.

This conduit is soft, and may be easily bent, without danger of breaking the tubing or injuring the protecting enamel. It is manufactured in lengths of ten feet, threaded on each end, and furnished with one coupling for each length.

As this conduit has the same outside diameter as the standard gas pipes, no special dies or tools are necessary when it is being installed.

CONDUIT

Code Word	List No.	Nominal Size inches	Inside Diameter inches	Outside Diameter inches	Weight per hundred feet pounds
Kohaerenz	96581	$\frac{1}{2}$	.62	.84	85
Kohautee	96582	$\frac{3}{4}$	.82	1.05	112
Kohlacker	96583	1	1.04	1.31	167
Kohlenader	96584	1 $\frac{1}{4}$	1.38	1.66	224
Kohlenbett	96585	1 $\frac{1}{2}$	1.61	1.90	268
Kohlenerz	96586	2	2.06	2.37	361
Kohlenhaus	96587	2 $\frac{1}{2}$	2.46	2.87	574
Kohlenholz	96588	3	3.06	3.50	754
Kohlenkalk	96589	3 $\frac{1}{2}$	3.54	4.00	900
Kohlenloch	96590	4	4.02	4.50	1066

ELBOWS

Code Word	List No.	Size inches	Weight pounds per hundred	Radius inches	Offset inches
Legumaio	98358	$\frac{1}{2}$	73	4.25	7.50
Leguminoso	98359	$\frac{3}{4}$	132	5.37	9.25
Leguminous	98360	1	200	5.75	10.12
Leguminum	98361	1 $\frac{1}{4}$	300	7.25	11.50
Lehenrecht	98362	1 $\frac{1}{2}$	415	8.50	12.62
Lehensherr	98363	2	700	9.50	15.25
Lehensstab	98364	2 $\frac{1}{2}$	1138	10.50	17.75
Lehenstaxe	98365	3	1885	13.00	19.37
Lehmmuehle	98366	3 $\frac{1}{2}$	2100	15.00	21.00
Lehmmergel	98367	4	2160	16.00	22.50

PRICES ON REQUEST

Enameled Steel Conduit and Fittings—Continued

COUPLINGS

Code Word	List No.	Sizes inches	Weight in pounds per hundred	Code Word	List No.	Size inches	Weight in pounds per hundred
Lehmsandes	98368	$\frac{1}{2}$	15 $\frac{1}{2}$	Lehnsessel	98373	2	132
Lehmziegel	98369	$\frac{3}{4}$	25 $\frac{1}{2}$	Lehnstreue	98374	2 $\frac{1}{2}$	185
Lehnbauer	98370	1	40 $\frac{1}{2}$	Lehnstueck	98375	3	300
Lehngueter	98371	1 $\frac{1}{4}$	57 $\frac{1}{2}$	Lehnzins	98376	3 $\frac{1}{2}$	400
Lehnhoeften	98372	1 $\frac{1}{2}$	71 $\frac{1}{2}$	Lehrbild	98377	4	412

BUSHINGS

Code Word	List No.	Size inches	Standard Package	Code Word	List No.	Size inches	Standard Package
Laetaverit	97759	$\frac{1}{8}$	1000	Laetitatem	97766	3	25
Laetice	97760	$\frac{3}{8}$	100	Laetorio	97767	3 $\frac{1}{2}$	20
Laeticorum	97761	1	100	Laetorius	97768	4	20
Laeticos	97762	1 $\frac{1}{4}$	100	Laetzlein	97769	4 $\frac{1}{2}$	20
Laetificet	97763	1 $\frac{1}{2}$	50	Laeusebaum	97770	5	20
Laetiscet	97764	2	50	Laeutete	97771	6	15
Laetiscunt	97765	2 $\frac{1}{2}$	25				

GALVANIZED FLEXIBLE STEEL CONDUIT

Code Word	List No.	Inside diameter inches	Approximate Feet in Coil
Koppelhaak	96729	$\frac{5}{16}$	250
Koppelhout	96730	$\frac{3}{8}$	250
Koppeljagd	96731	$\frac{1}{2}$	100
Koppelriem	96732	$\frac{3}{4}$	50
Koppelseil	96733	1	50
Koppelstuk	96734	1 $\frac{1}{4}$	50
Koppeltjes	96735	1 $\frac{1}{2}$	50
Koppeltouw	96736	2	50

FITTINGS

In ordering by telegraph specify two code words, one for style and one for size.

Code Word	Description	Code Word	Description
Ladierinha	Couplings.	Ladezeiten	Pipe hooks.
Ladenzeug	Lead bushings.	Ladhoelzer	Bushing tools

Sizes

Code Word	Size inches	Code Word	Size inches
Ladholz	$\frac{3}{8}$	Ladrasemos	1 $\frac{1}{4}$
Ladislao	$\frac{1}{2}$	Ladrillazo	1 $\frac{1}{2}$
Ladogasee	$\frac{3}{4}$	Ladroasso	2
Ladrao	1		

PIPE STRAPS

Code Word	List No.	For
Kruitvaten	97294	For $\frac{1}{2}$ in. conduit
Kruitwagen	97295	For $\frac{3}{4}$ in. conduit
Garcia	11485	For 1 in. conduit
Kruitzak	97297	For 1 $\frac{1}{4}$ in. conduit
Kruitzakje	97298	For 1 $\frac{1}{2}$ in. conduit

SIZE IN INCHES OF ENAMELED STEEL CONDUIT

Size of Wire	1 Wire	2 Wires	3 Wires	4 Wires
14	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1
12	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$
10	$\frac{1}{2}$	1	1	1 $\frac{1}{2}$
8	$\frac{1}{2}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$
6	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$
5	$\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$
4	$\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$
2	1	1 $\frac{1}{2}$		
0	1	1 $\frac{1}{2}$		
00	1 $\frac{1}{2}$	2		
000	1 $\frac{1}{2}$			
0000	1 $\frac{1}{4}$			

PRICES ON REQUEST

Enameled Steel Conduit and Fittings—Continued

SIZE IN INCHES OF ENAMELED STEEL CONDUIT

Circular Mils	1 Wire	Circular Mils	1 Wire
250,000	1½	650,000	2
300,000	1½	700,000	2
350,000	1½	750,000	2½
400,000	1½	800,000	2½
450,000	2	850,000	2½
500,000	2	900,000	2½
550,000	2	950,000	2½
600,000	2	1,000,000	2½

SIZE IN INCHES OF FLEXIBLE STEEL CONDUIT

Size of Wire	1 Wire	2 Wires	For 3 Wires	4 Wires
14	½	¾	¾	1
12	½	¾	1	
10	½	1	1	
8	½	1		
6	¾	1		
4	¾			
2	1			
0	1			
00	1			

MICHIGAN CEDAR POLES

Poles up to and including 30 feet in length may be loaded on cars taking a 24000 pounds minimum; 35s require a car taking 30000 pounds minimum; double loads (45s and longer) require cars taking a 30000 pounds minimum or 60000 pounds for the double load. We do not advise shipment by the small cars taking 24000 pounds minimum as the railroads will not use them except under certain restrictions and thus shipments are delayed.

The Northwestern Cedarman's Specifications govern all inspections.

Write us for our pamphlet on poles.

Code Word	List No.	Length feet	Top inches	Weight pounds	Number per Load
Hydrograph	52042	20	4	100	240 to 420
Hygrologia	52043	20	5	130	185 to 325
Hygrometer	52044	20	6	175	137 to 250
Methodical	94032	22	5	175	137 to 250
Hygrometry	52045	25	4	150	160 to 280
Hygrophile	52046	25	5	200	120 to 210
Hygroscope	52047	25	6	250	100 to 170
Hygroskop	52048	25	7	350	70 to 130
Hygrusine	52049	30	5	275	80 to 150
Hylacides	52050	30	6	350	70 to 120
Hylacion	52051	30	7	450	55 to 95
Hylactor	52052	35	6	450	70 to 90
Hylaeorum	52053	35	7	600	50 to 70
Hylaeum	52054	40	6	625	50 to 65
Hylatae	52055	40	7	800	40 to 55
Hylemide	52057	45	7	1000	60 to 70
Hylicus	52059	50	7	1250	48 to 45
Hylism	52061	55	7	1550	39 to 42
Hylithe	52062	60	7	2000	30 to 33
Hylleer	52063	65	7	2700	23 to 25

PRICES ON REQUEST

CROSS ARMS

YELLOW OR WHITE PINE AS ORDERED

Standard Cross Arms—Size, $3\frac{1}{2}$ in. x $4\frac{1}{2}$ in., bored for $1\frac{1}{2}$ in. or $1\frac{1}{2}$ in. pins; two $\frac{1}{2}$ in. lag screws or one $\frac{3}{8}$ in. machine bolt and two $\frac{3}{8}$ in. brace bolts. Painted red.



No. 23573

Code Word	List No.	Length feet	Number of Pins	End, inches	Spacings Center inches	Sides inches	Weight each pounds
Otley	23563	3	2	4	28	..	12
Otesgo	23564	4	4	4	16	12	16
Ottawa	23565	5	4	4	18	17	20
Otto	23566	6	4	4	22	21	24
Ottumwa	23567	6	6	4	16	12	24
Overton	23568	8	6	4	18	17 $\frac{1}{2}$	32
Ovid	23569	8	8	4	16	12	32
Owego	23572	10	8	4	17	15 $\frac{1}{2}$	40
Oxford	23573	10	10	4	16	12	40

Light Weight Cross Arms—Size, $2\frac{3}{4}$ in. x $3\frac{3}{4}$ in., bored for $1\frac{1}{2}$ in. pins; two $\frac{1}{2}$ in. lag screws and two $\frac{3}{8}$ in. brace bolts 28 in. apart. Painted red.

Code Word	List No.	Length inches	Number of Pins	End inches	Spacings Center inches	Sides inches	Weight each pounds
Newburn	15460	24	2	3	18	..	6
Newburg	15461	30	2	3	24	..	7
Newton	15462	36	2	3	30	..	9
Niagara	15463	42	4	3	16	10	10
Phynonis	24668	48	4	3	16	10	12
Niantic	15464	62	6	3	16	10	16
Phypes	24669	72	6	3	16	10	18
Nichols	15465	82	8	3	16	10	21
Physalia	24670	96	8	3	16	10	24
Nicolleti	15466	102	10	3	16	10	25
Niles	15467	120	12	3	16	10	30

WASHINGTON FIR

The use of Washington fir is recommended, owing to its clear, straight-grained quality and its freedom from defects.

The life of these arms is greater than those of other woods.

Washington fir arms have been adopted for use by the American Telephone and Telegraph Co., the Western Union, and Postal Telegraph Companies.

Standard Cross Arms—Size, $3\frac{1}{2}$ in. x $4\frac{1}{2}$ in.; bored for $1\frac{1}{2}$ in. and $1\frac{1}{2}$ in. pins; two $\frac{1}{2}$ in. lag screws or one $\frac{3}{8}$ in. machine bolt and two $\frac{3}{8}$ in. brace bolts. Unpainted.

Code Word	List No.	Length feet	Number of Pins	Center inches	Spacings Sides inches	End inches	Weight each pounds
Massstabes	100005	3	2	28	..	4	10
Massvoller	100006	4	4	16	12	4	13
Massylorum	100007	5	4	18	17	4	17
Masteiche	100008	6	4	22	21	4	20
Mastenhoch	100009	6	6	16	12	4	20
Masterhood	100010	8	6	18	17 $\frac{1}{2}$	4	27
Mastfutter	100011	8	8	16	12	4	27
Mastgelder	100012	10	8	17 $\frac{1}{2}$	15 $\frac{1}{2}$	4	34
Masthafer	100013	10	10	16	12	4	34

PRICES ON REQUEST

Cross Arms—Continued

Washington Fir—Continued

Light Weight Cross Arms—Size, $2\frac{3}{4}$ in. \times $3\frac{3}{4}$ in., bored for $1\frac{1}{4}$ in. pins, two $\frac{1}{2}$ in. lag screws or one $\frac{3}{8}$ in. and two $\frac{3}{8}$ in. brace bolts 28 in. apart. Unpainted.

Code Word	List No.	Length inches	Number of Pins	Center inches	Spacings Sides inches	End inches	Weight each pounds
Masticine	100014	24	2	18	..	3	5
Masticinos	100015	30	2	24	..	3	$6\frac{1}{2}$
Masticinum	100016	36	2	30	..	3	7
Masticorum	100017	42	4	16	10	3	9
Mastigacao	100018	48	4	16	10	3	10
Mastixoel	100019	62	6	16	10	3	$12\frac{1}{2}$
Mastkeilen	100020	72	6	16	10	3	15
Mastkorf	100021	82	8	16	10	3	17
Mastknehen	100022	96	8	16	10	3	20
Mastochsen	100023	102	10	16	10	3	$21\frac{1}{2}$
Mastoideal	100024	120	12	16	10	3	25

CROSS ARM BRACES

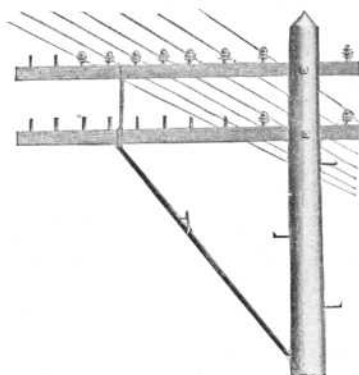
Plain		Galvanized		Size inches	Weight pounds per hundred	
Code Word	List No.	Code Word	List No.		Plain	Galvanized
Ajaja	6630	Ajun	6626	$20 \times 1 \times \frac{3}{16}$	100	107
Plagiadas	25941	Plagiandos	25942	$22 \times 1 \times \frac{3}{16}$	110	117
Ajabe	6629	Ajugis	6625	$24 \times 1 \times \frac{3}{16}$	120	129
Plassor	26052	Plantadora	26066	$20 \times 1 \frac{1}{2} \times \frac{7}{32}$	141	148
Plateful	26053	Planquetas	26067	$22 \times 1 \frac{1}{2} \times \frac{7}{32}$	154	164
Plateau	26054	Platbekkig	26068	$24 \times 1 \frac{1}{2} \times \frac{7}{32}$	168	175
Platine	26055	Platylophe	26069	$26 \times 1 \frac{1}{2} \times \frac{7}{32}$	182	190
Platkop	26056	Platypalpe	26070	$28 \times 1 \frac{1}{2} \times \frac{7}{32}$	196	205
Platrant	26057	Platypyges	26071	$30 \times 1 \frac{1}{2} \times \frac{7}{32}$	210	220
Playbill	26058	Platybune	26072	$32 \times 1 \frac{1}{2} \times \frac{7}{32}$	224	235
Playbook	26059	Platyholme	26073	$20 \times 1 \frac{1}{4} \times \frac{1}{4}$	175	183
Plauso	26060	Platylobes	26074	$22 \times 1 \frac{1}{4} \times \frac{1}{4}$	188	195
Platschig	26061	Platygenie	26075	$24 \times 1 \frac{1}{4} \times \frac{1}{4}$	200	210
Platschaaf	26062	Platyonyx	26076	$26 \times 1 \frac{1}{4} \times \frac{1}{4}$	213	223
Platbek	26063	Platypus	26077	$28 \times 1 \frac{1}{4} \times \frac{1}{4}$	225	238
Plasmavamo	26064	Platynemes	26078	$30 \times 1 \frac{1}{4} \times \frac{1}{4}$	238	250
Plasmodium	26065	Plattstitch	26079	$32 \times 1 \frac{1}{4} \times \frac{1}{4}$	250	265

CROSS ARM BACK BRACES

This back brace is punched at the center for a $\frac{3}{8}$ -inch cross arm bolt. The ends of the brace are bolted to the arm by carriage bolts or lag screws.

Code Word	List No.	
Hybridity	52140	Flat Braces, galvanized
Hybridous	52141	Angle Braces, galvanized

Made in 3 ft., 3 ft. 6 in., 4 ft., 4 ft. 6 in., 5 ft., and 6 ft. lengths.



No. 52134

ALLEY ARM BRACES

The side or alley arm braces, as illustrated, are made of angle iron—stiffer and lighter than pipe or rod braces. A step is placed so that the end pins may be conveniently reached. Angle iron upright braces are used to support arms above the bottom one. In the table below, "A" is the distance between the center of the pole and the point on the arm where the brace is bolted—thus a 5-ft. brace hits the cross arm 5 ft. from the pole. The foot of the brace meets the pole 5 ft. below the cross arms.

"A," 4 ft., 5 ft., 6 ft., 7 ft., 8 ft.

Number of arms.....2, 3, 4, 5, 6, 7, 8, 9, 10

Code Word	List No.	
Hydruntina	52134	Uprights, galvanized, 18 in. gain spacing
Hydrureto	52135	Uprights, galvanized, 24 in. gain spacing

PRICES ON REQUEST

BUTT GUARDS AND BUTT PROTECTORS

Made of $\frac{3}{16}$ in. steel plate, 18 in. high x 22 in. long, bent into half circle. These are finished in black.

Code Word
Hyempsal

List No.
52138

Butt Guards

Made of No. 24 sheet iron, 4 ft. long x 2 in. wide, galvanized. Clipped to points at both ends and punched with nail holes.

Hybridists

52139

Pole Protectors

MACHINE BOLTS

FURNISHED PLAIN OR GALVANIZED

With Square Heads and Square Nuts, Finished Points.

Weight in Pounds per 100. Not Galvanized
Length inches

Diam. inch	1½	2	2½	3	3½	4	4½	5	5½
$\frac{1}{4}$	3.75	4.33	4.91	5.50	6.21	6.92	7.63	8.35	9.06
$\frac{5}{16}$	6.12	7.10	8.08	9.06	10.14	11.22	12.30	13.38	14.46
$\frac{3}{8}$	9.3	10.9	12.5	14.1	15.5	16.9	18.3	19.7	21.1
$\frac{7}{16}$	14.7	16.6	18.4	20.3	22.4	24.4	26.5	28.5	30.6
$\frac{1}{2}$	20.2	22.8	25.3	27.9	30.4	32.9	35.4	37.9	40.4
$\frac{5}{8}$	36.5	40.8	45.0	49.3	53.6	57.9	62.2	66.4	70.7
$\frac{3}{4}$	58.0	63.9	69.9	75.8	81.7	87.7	93.6	99.6	105.5
$\frac{7}{8}$	....	88.5	98.0	107.5	117.0	126.5	136.0	145.5	155.0
1	....	142.	152.	162.	172.	182.	192.	202.	212.

Length inches

Diam. inch	6	6½	7	7½	8	9	10	11	12
$\frac{1}{4}$	9.77	10.48	11.19	11.90	12.62	....	....	....	....
$\frac{5}{16}$	15.54	16.62	17.70	18.78	19.87	....	....	....	....
$\frac{3}{8}$	22.5	23.9	25.3	26.7	28.1	30.9	33.8	36.6	39.4
$\frac{7}{16}$	32.6	34.7	36.7	38.8	40.8	44.9	49.0	53.1	57.2
$\frac{1}{2}$	42.9	45.4	47.9	50.4	52.9	57.9	62.9	67.9	72.9
$\frac{5}{8}$	75.0	79.3	83.4	87.6	91.8	100.	109.	117.	126.
$\frac{3}{4}$	111.5	117.5	123.6	129.6	136.	148.	160.	172.	184.
$\frac{7}{8}$	164.5	173.0	181.0	189.0	....	....	....	....	....
1	222.	232.	243.	253.	....	....	....	....	....

Length inches

Diam. inch	13	14	15	16	17	18	19	20
$\frac{1}{4}$	....	....	....	....	....	....	....	....
$\frac{5}{16}$	....	....	....	....	....	....	....	....
$\frac{3}{8}$	....	....	....	....	....	....	....	....
$\frac{7}{16}$	....	....	....	....	....	....	....	....
$\frac{1}{2}$	77.9	82.9	87.9	92.9	97.9	102.9	107.9	112.9
$\frac{5}{8}$	134.	143.	151.	160.	168.	176.	185.	193.
$\frac{3}{4}$	196.	208.	220.	232.	244.	256.	268.	280.

PRICES ON REQUEST



Nos. 52138
52139



LAG SCREWS

FURNISHED PLAIN OR GALVANIZED
Weight in Pounds per 100. Not Galvanized



Diam. inches	Length inches							
	1½	2	2½	3	3½	4	4½	5
5/16	3.5	4.4	5.3	6.2	7.1	8.0	9.	10.
3/8	5.8	7.1	8.5	9.8	11.1	12.5	13.8	14.9
7/16	9.1	11.	12.9	14.8	16.5	18.2	19.9	21.8
½	....	15.	17.3	19.5	21.6	23.8	26.3	28.8
5/8	....	26.3	29.9	33.5	37.1	40.7	44.5	48.3
¾	....	....	....	46.1	51.5	57.1	62.9	68.8
7/8	....	....	....	71.8	78.5	85.3	92	98.6
1	....	....	....	103.	112.	121.	130	141

Diam. inches	Length inches							
	5½	6	7	8	9	10	11	12
5/16	11	12	....	....	....	....	....	....
3/8	16	17.2	....	....	....	....	....	....
7/16	23.5	25.2	....	....	....	....	....	....
½	31.3	33.8	38.9	44	48.5	53	57.5	62
5/8	52.0	55.7	63.2	69.3	76.4	83.5	90.6	97.8
¾	74.7	80.5	92.3	104	115.4	126.8	138.2	149.5
7/8	105.3	112	125.4	138.8	156.3	173.8	191.3	208.8
1	153	164	185	205	225	245	265	285



CARRIAGE BOLTS

FURNISHED PLAIN OR GALVANIZED

Weight per 100. Not Galvanized

Diam. inches	Length inches									
	1½	2	2½	3	3½	4	4½	5	5½	6
¼	3.7	4.2	4.9	5.6	6.2	7	7.7	8.5	9.2	9.9
5/16	6.2	7.2	8.2	9.2	10.2	11.2	12.3	13.5	14.7	16
3/8	9.7	11.2	12.7	14.5	16	18	19	21	22	24
7/16	14	16	18	20	22	24	26	28	30	32
½	20.2	23.2	26	28	30	33	36	39	41	44
5/8	....	38	42	46	50	55	59	63	67	71

DOUBLE ARMING BOLTS

Furnished with 2 nuts and 3-inch threads on each end of bolt, but no washers; plain or galvanized.

Code Word	List No.	Size inches	Weight pounds per hundred	Code Word	List No.	Size inches	Weight pounds per hundred
Hylogenie	52067	½x12	172	Hylonomous	52072	½x17	202
Hylognosie	52068	½x13	178	Hylophile	52073	½x18	208
Hylogyne	52069	½x14	184	Hylotheist	52074	½x19	214
Hyloist	52070	½x15	190	Hylotome	52075	½x20	220
Hylogy	52071	½x16	196	Hylotropie	52076	½x22	232

PRICES ON REQUEST

ROUND WASHERS

Furnished Plain or Galvanized

Code Word	List No.	For Size Bolt inches	Weight pounds per thousand	
			Plain	Galvanized
Hylozoic	52077	$\frac{3}{8}$	13 $\frac{3}{4}$	15
Hylozoical	52078	$\frac{1}{2}$	34 $\frac{1}{2}$	37
Hylozoism	52079	$\frac{5}{8}$	77	82 $\frac{1}{2}$

SQUARE WASHERS

Furnished Plain or Galvanized

Code Word	List No.	Size inches	For Size Bolt inches	Number in one hundred pounds	
				Plain	Galvanized
Hylozoists	52080	2 x 2 x $\frac{1}{8}$	$\frac{1}{2}$	500	450
Hymeas	52081	2 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x $\frac{3}{16}$	$\frac{3}{8}$	410	380
Hymenaeal	52082	2 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x $\frac{1}{4}$	$\frac{3}{4}$	315	295
Hymenaicos	52083	2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ x $\frac{1}{4}$	$\frac{7}{8}$	165	150
Hymenaicum	52084	3 x 3 x $\frac{1}{4}$	1	87	80
Hydriote	52085	3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$	1 $\frac{1}{8}$	65	60
Hydroarion	52086	4 x 4 x $\frac{3}{8}$	1 $\frac{1}{4}$	48	44
Hydrobate	52087	4 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x $\frac{3}{8}$	1 $\frac{1}{4}$	40	36
Hydrobryon	52088	5 x 5 x $\frac{3}{8}$	1 $\frac{3}{8}$	28	26
Hydrocampe	52089	6 x 6 x $\frac{3}{8}$	1 $\frac{1}{2}$	24	22

POLE STEPS

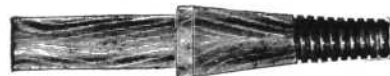


No. 15480

Plain			Galvanized		
Code Word	List No.	Size inches	Code Word	List No.	Size inches
Norton	15480	$\frac{9}{16}$ x 9	Norwalk	15481	$\frac{9}{16}$ x 9
Plage	25938	$\frac{1}{8}$ x 10 $\frac{1}{2}$	Plagellis	25939	$\frac{1}{8}$ x 10 $\frac{1}{2}$
Norway	15482	$\frac{3}{8}$ x 9	Norwich	15483	$\frac{3}{8}$ x 9
Boom	3533	$\frac{5}{8}$ x 10	Bootless	3539	$\frac{5}{8}$ x 10

PINS AND BRACKETS

PAINTED OAK PINS



No. 52090

Code Word	List No.	Size inches	Weight pounds per thousand
Hydrochere	52090	1 $\frac{1}{4}$ x 8	280
Hydrochous	52092	1 $\frac{1}{2}$ x 9	350

UNPAINTED LOCUST PINS



No. 52093

Code Word	List No.	Size inches	Weight pounds per thousand
Hydrocleis	52093	1 $\frac{1}{4}$ x 8	280
Hydrocoque	52094	1 $\frac{1}{4}$ x 9	300
Hydrocyn	52096	1 $\frac{1}{2}$ x 9	350

WESTERN UNION STEEL PINS



No. 19310

Code Word	List No.	Size inches	Weight pounds per thousand
Essandole	19310	$\frac{1}{2}$ x 9 $\frac{1}{2}$	640
Essayames	19311	$\frac{5}{8}$ x 9 $\frac{1}{2}$	880

PRICES ON REQUEST

Pins and Brackets—Continued



No. 52097



No. 1028



No. 01020



No. 01029



No. 18836



No. 18840



No. 52101



No. 52102

OAK BRACKETS

Code Word	List No.	
Hydrocyste	52097	No. 1 Bracket, 12 in. long; $1\frac{3}{8}$ in. wide; $1\frac{7}{8}$ in. deep at shoulder; $\frac{3}{8}$ in. thick tail end. No. 1 packed 100 in crate. Weight, 80 lbs. per 100.
Hydroecie	52098	No. 2 Bracket, 12 in. long; $1\frac{7}{8}$ in. wide; 2 in. deep at shoulder, $\frac{3}{8}$ in. thick tail end. No. 2. Packed 100 in crate. Weight 110 lbs. per 100.
Hydroeciumf	52099	No. 3 Bracket, 12 in. long; $1\frac{3}{8}$ in. wide; $2\frac{1}{4}$ in. deep at shoulder, $\frac{3}{8}$ in. thick tail end. No. 3. Packed 150 in bag. Weight, 90 lbs. per 100.
Hydrogala	52100	No. 4. Packed 200 in bag. Weight 75 lbs. per 100.

FLETCHER BRACKETS

Code Word	List No.		Weight per hundred pieces pounds
Knoud	1028	Curved back bracket	200
Phradates	18838	Fletcher iron bracket	205
Phrasing	18845	Fletcher iron bracket	180
Solely	01020	Short wall bracket	85
Butt, $1\frac{1}{2}$ in.; $3\frac{7}{8}$ in. below shoulder, $4\frac{7}{8}$ in. above shoulder			
Certified	01018	Short wall bracket	190
Certify	01019	Short wall bracket	215
Kontow	01029	Heavy malleable bracket	285
Photophobe	18833	Fletcher iron pin	125
Photopsie	18835	Fletcher iron pin	100
Phototype	18836	Fletcher iron pin	80
Phragmitem	18840	Fletcher iron bracket	90

GALVANIZED STEEL HOUSE BRACKETS

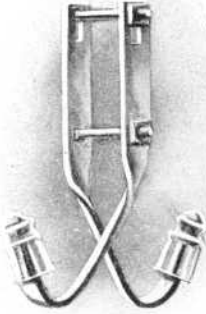
These Brackets are strong, non-corrosive, and very quickly attached. There is an adjustable wood cushion for the insulator which decreases the liability of glass breakage.

Code Word	List No.	
Hydrogarum	52101	One point telephone bracket
Hydrogene	52102	Two point telephone bracket
Mastreacao	100025	Four point telephone bracket

PRICES ON REQUEST

Pins and Brackets—Continued

GALVANIZED UNDERHANG BRACKET



No. 52103

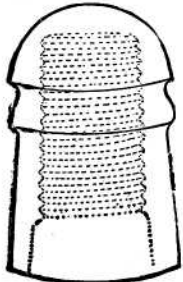
Code Word
Hydrogeton

List No.
52103

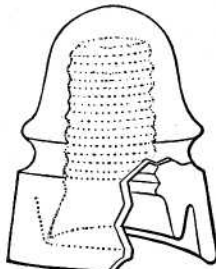
Complete with bolts, washers and split pins

Used for temporarily or permanently doubling the capacity of cross arms. They do not weaken the arms with bolt holes. They are adjustable for any size arm; are easier put up than porcelain knobs, and afford the best of insulation. These brackets are used principally for temporary work, and the ease with which they may be put up and taken down recommends them for this use. Only a small stock is necessary, as they may be used over and over again.

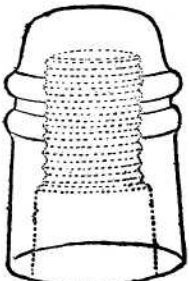
INSULATORS



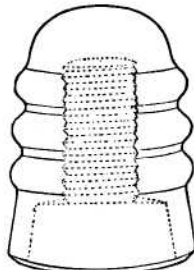
No. 2351



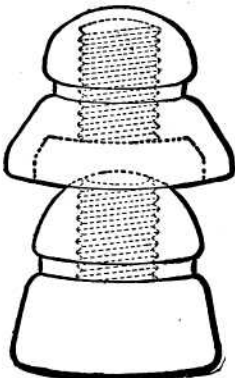
No. 2354



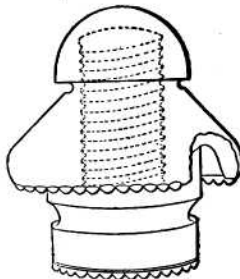
No. 4765



No. 17476



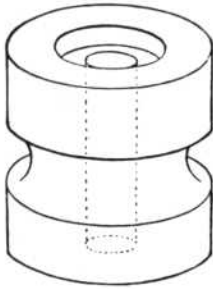
No. 4781



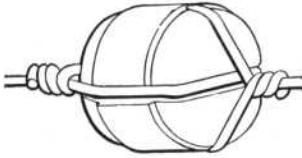
No. 4780

Code Word	List No		Number in Barrel	Weight per thousand Packed Pounds
Eloquence	2351	No. 9 pony glass	400	800
Elsewhere	2354	Pony double petticoat	300	930
Hydrolico	52106	No. 4 pony	300	650
Foreseen	4765	Long distance regular	300	1100
Foreseer	17476	No. 11 double groove pony	400	800
Forestless	4780	Single piece transposition	100	2400
Foresty	4781	Two-piece trans- position	125	2025

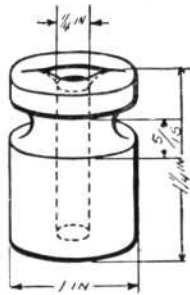
PRICES ON REQUEST



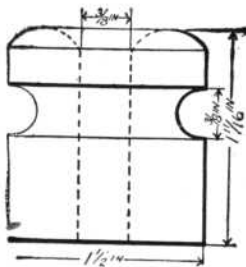
No. 24606



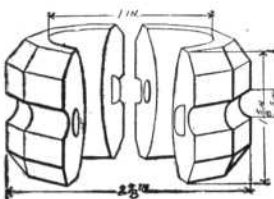
No. 24605



No. 25444



No. 25443



No. 9266

Insulators—Continued

GLASS BREAK KNOBS

Code Word	List No.		Standard Package	Weight per thousand Packed pounds
Empty	2337	No. 1 Break knob 1 1/2 in. long, 1 1/2 in. wide, 3/8 in. hole	500	220
Phrynes	24606	No. 2 Break knob 1 1/2 in. long, 2 in. wide, 3/8 in. hole	500	510
Forestry	4786	No. 10, for guy wires	500	720
Phrygibus	24605	No. 15, for guy wires	250	1260

PORCELAIN KNOBS

Code Word	List No.	Standard Package	Pounds per thousand
Accipient	25444	500	69
Accipenser	25443	1800	200
Empress	9266	1300	342

PORCELAIN TUBES

The following sizes listed measure $\frac{5}{16}$ in. inside diameter and $\frac{9}{16}$ in. outside diameter:

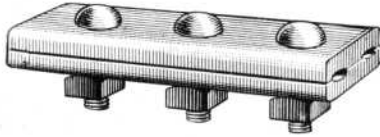
Code Word	List No.	Length inches	Standard Package	Pounds per thousand
Hymnidici	52016	3	6200	67
Hymnidicos	52017	4	3600	83
Hymnidicum	52018	6	1900	150
Hymniebant	52019	8	500	175
Hymnientem	52020	10	500	210
Hymnientis	52021	12	500	260
Hymnificas	52022	14	500	295

We can furnish any size tube from $\frac{5}{16}$ in. inside diameter to 2 1/2 in. inside diameter, and from 3 in. to 24 in. in length of the standard sizes.

PRICES ON REQUEST

GALVANIZED GUY CLAMPS

Rolled steel with high carbon steel bolts.

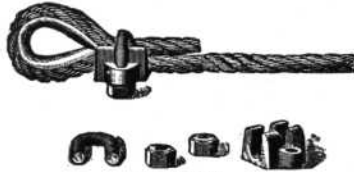


No. 25603

Code Word
Acquittal
Pillottava

List No.
25603
25604

Large size, 3 bolts
 Small size, 2 bolts

CROSBY CLIPS

No. 15484

Code Word
Oakville
Oakland
Oaklawn
Oakdale
Oakfield
Oakford
Oakwood
Obeida
Oconto
Ocean

List No.
15484
15485
15486
15487
15488
15489
15490
15491
15492
15493

Diameter of Strand
inches

$\frac{3}{8}$
 $\frac{1}{2}$
 $\frac{5}{8}$
 $\frac{3}{4}$
 $\frac{7}{8}$
 1
 $1\frac{1}{8}$
 $1\frac{1}{4}$
 $1\frac{3}{8}$
 $1\frac{1}{2}$

THIMBLES

No. 26023



No. 52108

Code Word
Meterschap
Plangent
Plangimur
Plangorum
Planhammer
Planheid
Planiforme

List No.
94012
26022
26023
26024
26025
26026
26027

Diameter of Strand
inches

$\frac{1}{4}$
 $\frac{5}{16}$
 $\frac{3}{8}$
 $\frac{7}{16}$
 $\frac{1}{2}$
 $\frac{5}{8}$
 $\frac{3}{4}$

TELEPHONE GROUND RODS

Code Word
Hydrologo

Hydrolure

Methymnaeo

Meticuloso

Metitionis

Metochite

List No.

52108 $\frac{1}{2}$ in. x 5 ft. Galvanized. Pierced for ground wire with soldered connection.

52109 $\frac{1}{2}$ in. x 6 ft. Galvanized. Pierced for ground wire, but no soldered connection. Approximate weight, $4\frac{1}{2}$ lbs.

94033 $\frac{1}{2}$ in. x 5 ft. Not galvanized. Pierced for ground wire with soldered connection.

94034 $\frac{1}{2}$ in. x 6 ft. Not galvanized. Pierced for ground wire but no soldered connection.



No. 94039

ROCK GUY BOLT

94039 1 in. x 18 in., 2 in. eye galvanized.

94040 1 in. x 18 in., 2 in. eye plain.

PRICES ON REQUEST



No. 2998

ANCHOR OR GUY RODS

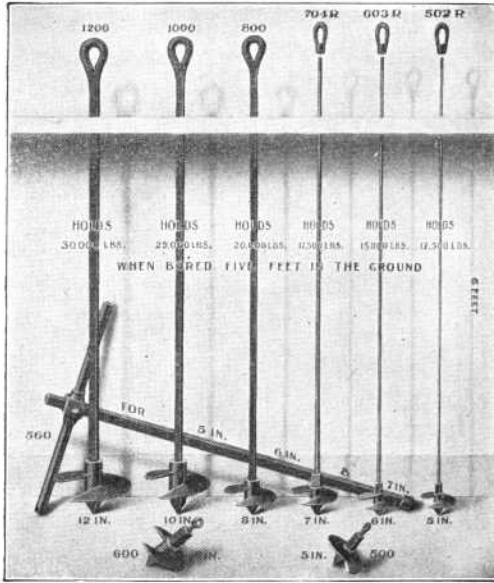
Code Word	List No.	
Metieramos	94035	1 in. x 10 ft. galvanized
Metiliorum	94036	$\frac{5}{8}$ in. x 8 ft. galvanized
Forebode	2998	$\frac{5}{8}$ in. x 6 ft. galvanized
Massstab	100004	$\frac{1}{2}$ in. x 6 ft. galvanized
Meliosedum	94037	1 in. x 10 ft. plain
Metitionem	94038	$\frac{5}{8}$ in. x 8 ft. plain
Mastrinder	100026	$\frac{5}{8}$ in. x 6 ft. plain
Mastschrot	100027	$\frac{1}{2}$ in. x 6 ft. plain

STOMBAUGH GUY ANCHORS

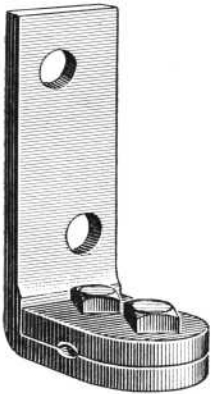
Rods are 6 ft. long.

Trade numbers	Diameter of Anchor inches	Class of Work	Diameter of Rod inches	Weight pounds
500	5	Light Strains	No rod	2½
600	6	Medium Strains	No rod	4½
502R	5	Light Strains	$\frac{1}{2}$	6½
603R	6	Medium Strains	$\frac{5}{8}$	10
704R	7	Medium Strains	$\frac{3}{4}$	15
800	8	Heavy Strains	1½	38
1000	10	Heavier Strains	1¼	50
1200	12	Heaviest Strains	1½	80

- 560 Wrench for 5 in. and 6 in. anchors, weight 18 lbs.
 707 Wrench for 7 in. anchor, weight 24 lbs.
 No wrench required to install 8 in., 10 in. or 12 in. anchors



Nos. 2899 to 2997



No. 52110

GALVANIZED MESSENGER CLAMPS

Code Word List No.
 Hydromancy 52110 6 in. x 2 in. x $\frac{3}{8}$ in., weight 42 ozs.

Will take strand up to and including $\frac{3}{8}$ inch.



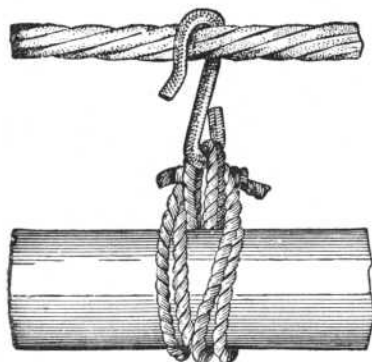
No. 52111

Hydromania 52111 Clamp

PRICES ON REQUEST

MARLINE CABLE HANGER

Furnished galvanized and regalvanized (the wire hooks galvanized a second time after they have been cut and formed). Size of cable in pairs which different size loops will hold.



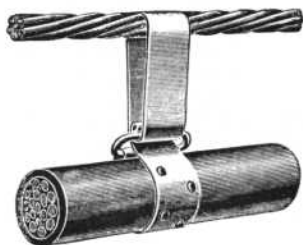
No. 52116

Code Word	List No.	Length of Loop inches	Will Support Cables	
			No. 19 B. & S.	No. 22 B. & S.
Metoeccien	94041	9	24 pairs	49 pairs
Metoeccorum	94042	11	49 pairs	99 pairs
Hydrophora	52116	14	99 pairs	199 pairs
Hydropismo	52118	16	150 pairs	300 pairs
Metoleic	94043	19	above 150 pairs	above 300 pairs

CABLE CLIP

Code Word
Meublases

List No.
94044



No. 94044

"LONG SAUT" COMBINATION CABLE CLAMP AND BRIDLE RING

GALVANIZED CLAMPS

Does not include bridle ring or expansion bolt. The Nos. 94064 and 94065 are not drilled for bridle rings.

Code Word	List No.	Diameter of Cable, inches
Mezzaiolo	94064	$\frac{1}{2}$
Mezzananza	94065	$\frac{5}{8}$
Mezzanetto	94066	$\frac{3}{4}$
Mezzina	94067	1
Mezzissimo	94068	$1\frac{1}{8}$
Mezzotint	94069	$1\frac{1}{2}$
Miagolando	94070	2
Miargyrite	94071	$2\frac{5}{8}$

Made also in other sizes and with nickel plate finish.

BRIDLE RINGS

Threaded to Fit the Galvanized Straps

Code Word	List No.	
Miaveritis	94072	No. 10 wire, $\frac{3}{4}$ in. eye, brass
Micaceous	94073	No. 10 wire, $1\frac{1}{4}$ in. eye, brass
Micaiah	94074	No. 10 wire, $\frac{3}{4}$ in. eye, galvanized
Mication	94075	No. 10 wire, $1\frac{1}{4}$ in. eye, galvanized

BRIDLE OR DISTRIBUTING RINGS

Enameled or Galvanized

Code Word	List No.	
Hydrotheca	52126	Style A $1\frac{5}{8}$ in. eye, $1\frac{1}{4}$ in. shank
Hydrous	52127	Style C $1\frac{1}{4}$ in. eye, $1\frac{1}{4}$ in. shank
Hydroxyde	52128	Style E $\frac{3}{4}$ in. eye, $\frac{3}{4}$ in. shank
Hydrozoal	52129	Style F 3 in. eye, $1\frac{1}{4}$ in. shank

Without Screw, Type "DX"

Meubleront	94046	1 in. eye, galvanized
Meurtrier	94047	$1\frac{3}{8}$ in. eye, galvanized
Meurtriras	94048	$1\frac{3}{4}$ in. eye, galvanized
Mevaniensi	94049	1 in. eye, enameled
Mevaniola	94050	$1\frac{3}{8}$ in. eye, enameled
Mevrouw	94051	$1\frac{3}{4}$ in. eye, enameled

PRICES ON REQUEST



No. 94071 with bridle ring and expansion bolt

No. 94C46



No. 52126

EXPANSION BOLTS

COMPOSITION ONE-PIECE SHIELD, COMPLETE WITH BRIGHT IRON SCREWS

Shield Not Over 1 in. Long

Size of Screw	Length of Screw
No. 5 or 6	$\frac{3}{4}$ in., 1 in., $1\frac{1}{2}$ in.
No. 9, 10 or 11	$\frac{3}{4}$ in., 1 in., $1\frac{1}{2}$ in., 2 in.
No. 12, 13 or 14	$\frac{3}{4}$ in., 1 in., $1\frac{1}{2}$ in., 2 in.
No. 15, 16, 17 or 18	1 in., $1\frac{1}{2}$ in., 2 in., $2\frac{1}{2}$ in.

Shields $1\frac{1}{2}$ in. Long

No. 9, 10 or 11	2 in., $2\frac{1}{2}$ in., 3 in.
No. 12, 13 or 14	2 in., $2\frac{1}{2}$ in., 3 in., $3\frac{1}{2}$ in.

MALLEABLE TWO-PIECE SHIELD COMPLETE WITH LAG SCREW

Length of Lag Screw	Diameter of Lag Screw
2 in.	$\frac{1}{4}$ in., $\frac{5}{16}$ in.
$2\frac{1}{2}$ in.	$\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in.
3 in.	$\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in.
4 in.	$\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in.
5 in.	$\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in.
6 in.	$\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in.

COMPOSITION ONE-PIECE SHIELD

For Screw	Length of Shield inches	Outside Diameter inches
Nos. 5, 6, 7	$\frac{5}{8}$	$\frac{1}{4}$
Nos. 8, 9, 10, 11	$\frac{3}{4}$	$\frac{5}{16}$
Nos. 9, 10, 11	$1\frac{5}{8}$	$\frac{5}{16}$
Nos. 12, 13, 14	$\frac{3}{4}$	$\frac{3}{8}$
Nos. 12, 13, 14	$1\frac{1}{2}$	$\frac{7}{16}$
Nos. 12, 13, 14	$2\frac{1}{2}$	$\frac{7}{16}$
Nos. 15, 16, 17, 18	1	$\frac{7}{16}$
Nos. 22, 23, 24	$1\frac{1}{4}$	$\frac{9}{16}$

No. 1-A CABLE POLE BALCONY

As an adjunct to the No. 15 cable terminal, a pole balcony as inconspicuous as possible has been designed to be used on poles carrying cable terminals of such height as to require linemen to stand while at work upon them.

While the feature of appearance has been an important one affecting the design, the necessity for substantial construction has been by no means disregarded. The framework is of angle iron to secure ample strength and the flooring is of oak. A permanent guard-rail is provided.

All parts are given a coating of asphaltum paint.

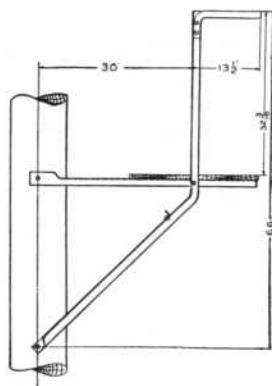
WESTERN ELECTRIC COMPANY POLE SEAT

The frame is made of $1\frac{1}{4}$ in. x $1\frac{1}{4}$ in. x $\frac{1}{8}$ in. angle iron with a brace of $\frac{5}{8}$ in. round iron. The frame is 2 ft. $7\frac{3}{4}$ in. long and has a pine seat 11 in. x 13 in. bolted to it. All parts are given a coat of asphaltum paint.

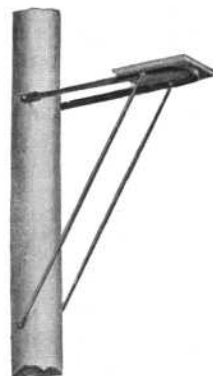
Code Word
Meubleriez

List No.
94045

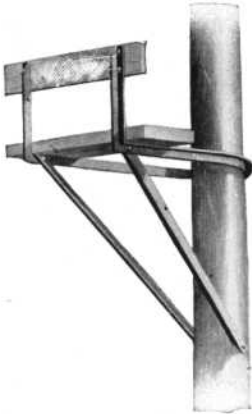
PRICES ON REQUEST



No. 1-A



No. 94045



No. 52132



No. 52136

POLE SEAT

For use at small terminals or in places where a platform would be too conspicuous our pole seat cannot be surpassed. Its angle frame is rigid. Its back and seat board are of oak. We can furnish this seat, fitted with an over balance weight that will keep it tipped up when not in use—clear of snow and sleet.

Code Word	List No.	
Hydrusa	52132	Black
Hydurilate	52133	Galvanized

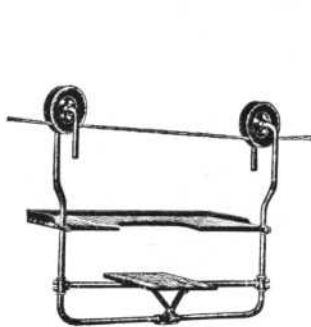
POLE PLATFORM

This platform has two strong angle rails, an oak floor on an iron frame, and two round rod braces. This is the platform to use on important terminal poles—where a good deal of work is done—the sense of security imparted by the railing makes it possible for the lineman to give his entire attention to his work.

Code Word
Hyemated
Hyemation

List No.
52136
52137

Galvanized
Painted



No. 1 Car



No. 3 Car

CABLE CARS

Cable car No. 1 is a combined seat and table. The framework of the car is continuous, without joints. The seat is of wood, and the rollers of malleable iron. The table is adjustable. Tested for 1000 pounds.

Car No. 3 is lighter than No. 1 and is not equipped with a table. It is intended for use with a lineman's safety belt. The height of the seat is adjustable.

Code Word	List No.	
Massiccio	100002	Cable car No. 1
Massicoter	100003	Cable car No. 3

TOOLS

CARRYING HOOKS



No. 24064



No. 15007

Code Word	List No.	
Skill	24064	With swivel bearing, 4 ft. handle
Maro	15010	Extra heavy, 7 ft. handle
Marquan	15011	Heavy, 6 ft. handle
Marquette	15012	Medium, 5 ft. handle
Feign	4402	Standard weight, 4 ft. handle

CANT HOOKS

Merwin	15007	Length, 4 ft.
Penonne	24890	Length, 4½ ft.

TAMPING BARS



No. 24075

Skinch	24075	Hardwood, iron shoe, length 7 ft.
Piovento	25770	Heavy hardwood 7 ft.

PRICES ON REQUEST

Tools—Continued



No. 4412

SPLITWOOD HANDLE DIGGER

Code Word	List No.	Length feet
Felbovinum	4412	5 ft. handle
Feld	4413	7 ft. handle



No. 25093

THE ELECTRIC SPUD

Songstress	25093	With tamping end. 9 ft. long
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TAMPING AND DIGGING BARS



No. 4421

Felician	4421	1½ in. octagon tool steel, 8 ft. long, weight, 30 lbs.
Felicify	4422	1 in. octagon tool steel, 8 ft. long, weight, 25 lbs.
Ejerzo	5924	1 in. round tool steel, 7 ft. long, weight, 19 lbs.



No. 4423

CROW AND DIGGING BARS

Ejointage	5925	1 in. round steel, 7 ft. long, weight, 17 lbs.
Felicitate	4423	1 in. octagon steel, 7 ft. long, weight, 17 lbs.
Felicitous	4424	1½ in. octagon steel 8 ft. long, weight, 28 lbs.



No. 4407

LONG-HANDLED SHOVELS

Pioveva	25771	5 ft. or 6 ft. shovel, 9 in. strap
Pipabimus	25772	7 ft. shovel, 9 in. strap
Pipabunt	25773	8 ft. shovel, 9 in. strap
Feisty	4407	5 ft. or 6 ft. shovel 18 in. strap
Metcalf	14912	7 ft. shovel, 18 in. strap
Metropolitan	14913	8 ft. shovel 18 in. strap



No. 4410

LONG-HANDLED SPOONS

Piparote	25776	6 ft. solid spoons, 9 in. strap
Pipaste	25777	7 ft. solid spoons, 9 in. strap
Pipavisset	25778	8 ft. solid spoons, 9 in. strap
Felanders	4410	6 ft. spoon, 18 in. strap
Beefall	3782	7 ft. spoon, 18 in. strap
Befit	3783	8 ft. spoon, 18 in. strap



No. 3869

GRADING SHOVELS

Binocular	3869	Round point
Binoculate	3870	Square point



No. 3870

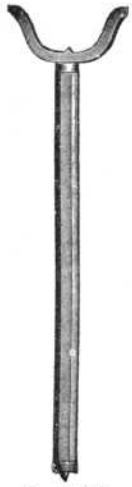
PIKE POLES

		Length feet
Millerton	14928	12
Millenburg	14929	14
Millar	14930	16
Millerburg	14931	18
Piously	25768	20



No. 14928

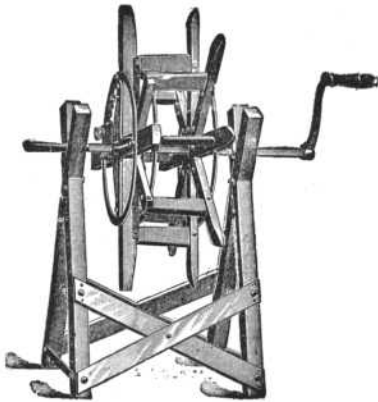
PRICES ON REQUEST



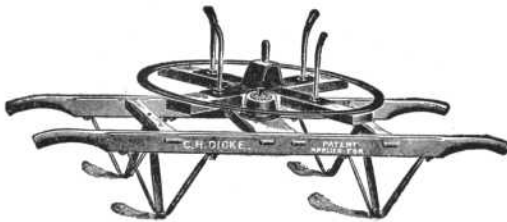
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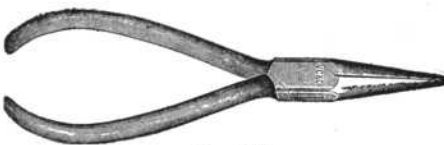
No. 14932



No. 15015



No. 2545



No. 4517

Tools—Continued

POLE SUPPORTS

Mule Pattern

Code Word	List No.	Length feet
Skink	24078	4½
Skinless	24079	6
Skinner	24080	7½

Jenney Pattern

Pilanga	14932	height, 6 ft.
Millercan	14933	height, 7½ ft.

RAISING FORKS OR GUARDED PIKE POLES

Feliform	4427	10 ft. handle, 1¾ in. thick
Millanvill	14925	12 ft. handle, 1¾ in. thick
Millanfeld	14926	14 ft. handle, 2¼ in. thick
Millervill	14927	16 ft. handle, 2¼ in. thick
Felinal	4428	18 ft. handle, 2¼ in. thick

REELS

Take-Up Reels

Martel	15015	Improved take-up reel
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Common Pay-Out Reel

Pilantium	2544	Pay-out reel
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Ball-Bearing Pay-Out Reel with Carrying Handles

Pilanorum	2545	Pay-out and take-up reel, heavy
Piove	25769	Same, but much lighter
Pilaremus	2546	Reel straps, per set

VOM CLEFF'S LONG NOSE CHAIN PLIERS

Not Side Cutting—First Quality

Code Word	List No.	Length inches
Fense	4517	3
Fensible	4518	3½
Fensome	4519	4
Fensucked	4520	4½
Fensure	4521	5
Fent	4522	5½
Fenugreck	4523	6

VOM CLEFF'S ROUND, LONG NOSE

Cordovan	2879	3
Corduroy	2880	3½
Cordwain	2881	4
Corelation	2882	4½
Corinne	2883	5
Corinthian	2884	5½
Cork	2885	6

PRICES ON REQUEST

Tools—Continued



No. 2688

BERNARD'S PARALLEL PLIERS

Code Word	List No.	Length inches
Consummate	2688	4½
Pingres	2689	5½
Piangumen	2690	6½
Contact	2691	7½

BERNARD'S COMBINED PARALLEL AND CUTTING PLIERS



No. 3789

Code Word	List No.	Length inches	Will Cut Wire	Width be- tween plying jaws when open, inches
Beholder	3789	4½	No. 9 B. & S.	¼ in.
Beholding	3790	5½	No. 7 B. & S.	½ in.
Behoove	3791	6½	No. 5 B. & S.	¾ in.
Belabor	3792	7½	No. 3 B. & S.	1 in.

VOM CLEFF'S LINEMAN'S PLIERS



No. 3746

Code Word	List No.	Length inches
Forefend	3746	3½
Forefinger	3747	5
Forefoot	3748	5½
Forefront	3749	6

STUBS' SIDE CUTTING PLIERS



No. 2869

Code Word	List No.	Length inches
Anarchist	3663	4
Anarchy	3664	4½
Anatomist	3665	5
Anatomy	3667	6
Anatron	3668	7
Ancestor	3669	8
Milbrook	2523	9
Pilunno	25744	10

VOM CLEFF'S DIAGONAL CUTTING PLIERS



No. 8633

Code Word	List No.	Length inches
Corant	2869	3
Corcule	2870	3½
Cord	2871	4
Cordage	2872	4½
Cordate	2873	5
Corded	2874	5½
Cordelia	2875	6
Cordial	2876	6½
Cordially	2877	7
Cordon	2878	8

STUBS' DIAGONAL CUTTING PLIERS



No. 5109

Code Word	List No.	Length inches
Foregaff	3750	5
Foreganger	3751	5½
Foregather	3752	6

SPlicing CLAMPS

Contagious	8633	For Nos. 8, 10, 12, 14 B. & S. gauge wires and finer.
Pingendos	5109	For wire connectors on Nos. 8, 10, 12 and 14 B. & S. gauge wires.
Forelay	3769	For wire connectors on Nos. 8, 10, 12, 14 B. & S. gauge or Nos. 10, 12, 16 British gauge copper wire on one side and No. 6 and finer iron wire on the other side.

FRY'S PATENT LINEMAN'S SPlicing PLIERS



No. 3769

Code Word	List No.	Length inches
Ejulatum	5927	7 in.
Eclairage	5090	8 in.

PRICES ON REQUEST

Tools—Continued

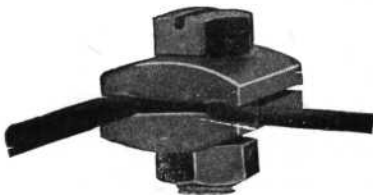
WIRE JOINTS

For splicing wires together. Made to accommodate two wires of the same or different sizes and in two lengths—full and half—the former being about 4 in. long for No. 14 wire, and the latter about 2½ in. long for the same size wire. Made of plain copper for use with copper wires and of tinned copper for use with galvanized iron wires. Splicing clamps are used to twist the joints.

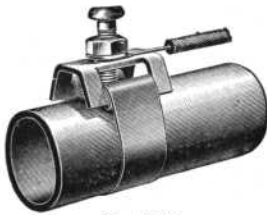
Orders should state size and kind of wire to be accommodated and whether full or half length joints are desired.



No. 24578



No. 52130



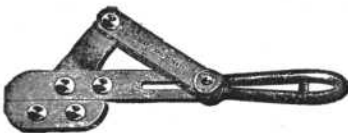
No. 25711



No. 15078



No. 15077



No. 14946



No. 2519

THE ANTI-HUM

Humming of line wires easily and cheaply remedied

Code Word
Ossiopia

List No.
24578

COPPER TEST CONNECTOR

It securely grips wires of the same or different sizes. The convex surface allows the clamp to readily adjust itself.

Code Word
Hydrozoon

List No.
52130

NEW YORK GROUND CLAMP

For connecting telephone and telegraph ground wires to pipes or cables

Code Word
Pillottano

List No.
25711

STEEL LAG SCREW WRENCH

This wrench is very convenient for drawing up lag screws through cross arms. The jaw is made tapering to accommodate variations in bolt heads.

Code Word
Mekers

List No.
15078

COMBINATION LAG SCREW AND NUT WRENCH

Will take lag screws and nuts for ¾ in., ½ in., and ⅜ in. bolts.

Code Word
Medway

List No.
15077

STEEL TIE WRENCH

The purpose of this tool is to make the tie around the line wire, where it is fastened to the insulators. It will wind the tie around line smoothly, without marring the hard drawn copper wire on which it is intended for use.

Code Word
Medora

List No.
15076

BUFFALO GRIPS

Code Word
Milesburg

List No.
14946

Forborn

2519

Milipitus

14945

Forby

2565

Acosmism

25594

Forcause

2663

Force

2664

No. 1, extreme opening .22 in., holding wire from the smallest to No. 6, inclusive.

No. 1, with pulley; will accommodate rope ¾ in.

No. 2, extreme opening .35 in., holding all sizes from the smallest to No. 0, inclusive.

No. 2, with pulley; will accommodate rope ⅞ in.

No. 3, extreme opening .48 in., holding all sizes of wire from the smallest to No. 0000 inclusive.

No. 3, with pulley; will accommodate rope ¾ in.

No. 4, extreme opening .52 in.; for insulated wire.

PRICES ON REQUEST



No. 2667

Tools—Continued

BUFFALO LINEMAN'S TOOL

Latest adaptation to needs of line construction men. Self-adjusting brake, which holds securely under severest tension.

Code Word	List No.	
Forcedly	2667	Lineman's tool, with No. 1 grip, .22 in. opening
Forcedness	2677	Lineman's tool, with No. 2 grip, .35 in. opening
Piomesi	25762	Lineman's tool, with No. 4 grip, .52 in. opening



No. 3494

HAVEN'S CLAMP

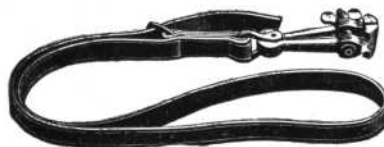
Blundering	3494	Small size, for No. 8 wire and finer
Blunt	3495	Large size, for ½ in. and finer

ECCENTRIC CLAMPS

Skeed	24099	For No. 9 wire and finer
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KLEIN'S PLAIN ECCENTRIC

Beauty	3705	Brass, for No. 8 wire and finer
Beautyspot	3706	Steel, for No. 8 wire and finer



Nos. 1109 and 2548

CAST STEEL VISES

Bilking	2547	5½ in.
Billbrook	2548	6 in.
Billet	2549	5½ in. copper-faced jaws
Milville	2538	6 in. copper-faced jaws

VISE OR ECCENTRIC STRAPS

Milroy	1109
--------	------

WRENCHES



No 3496

Code Word	List No.	Length inches
Blunted	3496	6
Blunting	3497	8
Bluntly	3498	10
Blur	3499	12
Blurred	3500	15
Blurring	3501	18
Elfjarig	6187	21

8-INCH COLD CHISEL



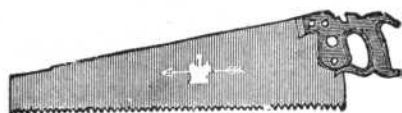
No. 15180

Code Word	List No.	Width inches
Momence	15180	3
Mona	15181	½
Moncure	15182	5
Monclova	15183	¾
Pinuelos	25757	7

PRICES ON REQUEST



No. 15152



No. 1750



No. 15085



No. 15116



No. 15122



No. 15130



No. 15125



No. 2520

Tools—Continued

BELL HANGER'S GIMLET

Code Word	List No.	Length inches	Diameter inches
Minedosa	15152	15	$\frac{8}{32}$
Mineota	15153	15	$\frac{10}{32}$
Minewakan	15154	15	$\frac{12}{32}$
Minock	15155	24	$\frac{8}{32}$
Minuka	15156	24	$\frac{10}{32}$
Minster	15157	24	$\frac{12}{32}$
Mishawaka	15158	36	$\frac{8}{32}$
Misoula	15159	36	$\frac{10}{32}$
Missoura	15160	36	$\frac{12}{32}$

SAWS

Connive	1750	18
Connivency	1751	20
Connivent	1752	22
Conniver	1753	24

DRAW KNIVES

Melborn	15085	12
Melvin	15086	14

NAIL HAMMERS

Plain Eye

Code Word	List No.	Weight ounces
Mewdota	15116	12
Menlo	15117	15
Mento	15118	18

HATCHETS

Meridan	15122	$3\frac{1}{4}$ in. cut
Meridia	15123	4 in. cut

LINEMAN'S AXE

Merillian	15130	With handle
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HAND AXES

Merigold	15124	$4\frac{1}{2}$ in. cut
Merom	15125	5 in. cut
Merian	15126	$5\frac{1}{2}$ in. cut
Merricourt	15127	6 in. cut

TREE TRIMMERS

Minburne	2520	Small size, 18 in. over all
Minden	2521	Large size, 21 in. over all
Pinguesco	5177	18 ft. handles for above
Melton	15080	Best cast steel; length, 12 in., 2 in. cutters

PRICES ON REQUEST



Dicke Type



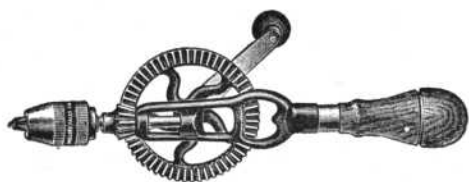
No 5168



No. 15185



No. 2917



No. 4485



Nos. 5033 and 5034

Tools—Continued

DICKE LOCK FERRULE SCREW DRIVER

Blades forged from finest tool steel, polished malleable ferrules, fluted handles.

Cabinet—Length of blade..2½ 3½ 4½ 5½ 6½ 8½ 10½ 12½
Machinists—Length of blade.2½ 3 4 5 6 7 8 9 10 11 12

Blades and handles of the Dicke screw driver are warranted not to turn in the ferrule.

"YANKEE" RATCHET SCREW DRIVER

No. 10

Right and Left Hand, and Rigid

Code Word	List No.	Length of Blade inches
Economicas	5166	2
Pilcrow	5167	3
Economique	5168	4
Economist	5169	5
Economizar	5170	6
Pildish	5171	8
Pildora	5172	10
Pildanthe	5173	12

SOCKET FRAMING CHISEL

Code Word	List No.	Width inches
Pinulam	25758	½
Pinus	25759	¾
Monster	15185	1
Mondamin	15186	1½
Mondola	15187	2

RATCHET BRACE

Code Word	List No.	Sweep inches
Pinfeather	2917	8
Conjunctly	2918	10

BITS

Diameters by thirty-second inch from ⅜ in. to ⅝ in.

Diameters by sixteenth inch from ⅜ in. to ¾ in.

No. 4491 expansion bit bores from ½ in. to 1½ in.

No. 4492 expansion bit bores from ⅝ in. to 3 in.

HAND DRILL

The chuck will hold twist drills from ⅜ to 1 inch. Six drill points are furnished with each drill. The drills are made of malleable iron, nickel plated; with steel spindle and rosewood head and handle.

Code Word	List No.
Feminate	4485 Single gear, hollow handle
Pingadouro	4486 Double gear, same chuck

BREAST DRILL

Pinetorum 6216

We furnish Miller's Falls No. 13, which is similar to cut.

TOOL BELTS

Code Word	List No.
Monongah	15200 Plain tool belt
Pindenisso	5033 Tool belt, for use with safety strap
Pindonga	5034 Safety strap to attach to tool belt; heavy snap on each end

LINEMAN'S TOOL BAG

Pindariser	15201 Canvas, 20 in., with leather bottom
Pindarismo	6227 12 in., with leather bottom
Pindemonte	5031 Leather, best russet, with shoulder stay

PRICES ON REQUEST

Tools—Continued



No. 15165

Code Word

List No.

Modena**15165** Complete set in morocco case, containing everything necessary for adjusting telephone apparatus, telegraph and stock-printing instruments, etc.**Modesta****15166** Case only.

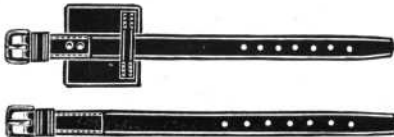
INSPECTOR'S TOOLS



No. 24093

Skittish**24093** Without straps**Skittishly****24094** Straps, with pads**Pintiparo****25752** Nickel plated

KLEIN EASTERN CLIMBERS



EASTERN

Pintoja**25753** Without straps**Pintojos****25754** Straps

DICKE EASTERN CLIMBERS



No. 24091

Skirt**24091** Without straps**Skirting****24092** Straps**Pintamonos****25750** Nickel plated**Pintiparar****25751** Pads for above

KLEIN WESTERN CLIMBERS

16 in. to 18 in.

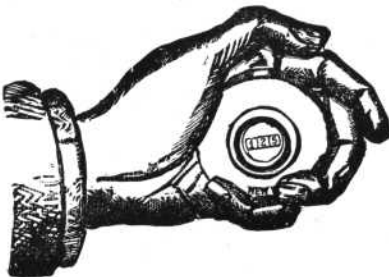


WESTERN

DICKE WESTERN CLIMBERS

Pintonas**25755** Without straps**Pinturas****25756** Straps

POLE COUNTER OR TALLY REGISTER



No. 15218

Montevale**15216** Records to 100**Pilobole****25718** Records to 1000**Pilofora****25719** Records to 10000

PRICES ON REQUEST

Tools—Continued

GAUGES

Standard Wire Gauge



No. 8625

Code Word
Pindongueo
Constrain
Pindust
Pinenchyma

List No.
8624 American, Nos. 0 to 36.
8625 American, Nos. 5 to 36.
8626 English, Nos. 1 to 36.
8627 English, Nos. 6 to 36.

TAPE LINES

Linen tape reinforced with wire; hard leather case.



No. 15205

Code Word	List No.	Length Feet
Monrovia	15205	25
Monsin	15206	50
Pilogyne	25720	75
Montague	15207	100

Steel Tape

Pilosisme	25725	25
Pilosorum	25726	50
Pilostyle	25727	75
Pilotage	25728	100

VULCAN ELECTRIC SOLDERING IRON



No. 52030

Excellent for telephone work. Consumes minimum of energy. Heats quickly. Removable tips, no screws.

Code Word	List No.
Hyetology	52030

SOLDERING COPPERS

Pointed



No. 3513

Code Word	List No.
Pignattini	24876 1 lb. to the pair.
Pignattone	24877 1½ lb. to the pair.
Pignolato	24889 2 lb. to the pair.
Blustrous	3513 2½ lb. to the pair.

RITTER SOLDERING COPPER



No. 4532

This soldering copper is designed to be attached to any gaso-line blow torch. This is an exceedingly convenient soldering iron for linemen, inside wiremen, or for shop use. The temperature of the copper is maintained constant when the torch is in operation.

Code Word	List No.
Feral	4532

EXCELSIOR SOLDERING COPPERS



No. 4711

Code Word	List No.
Fiberd	4711 For joints on No. 12, 14, 16 wire.
Fibratio	4712 For joints on No. 9, 12, 14 wire.
Fibrillous	4713 For joints on No. 4, 6, 8 wire

PRICES ON REQUEST



No. 3338

Code Word	List No.
Solemnnees	24459

Tools—Continued

ALLEN SOLDERING STICK



No. 3339

Concord	3340
Concoiler	3338
Pinillosie	3339

SOLDER

Resin core solder
Strictly half and half
Wire solder



No. 17481

Code Word	List No.
Pinonates	17481
Blushfully	3507
Blushless	3509

SOLDER POTS

Diameter
inches

5
6
8



No. 2550

Carabine	2550
Caravan	2551
Cardine	2552
Careen	2553

SOLDER LADLES

2½
3
4
5



No. 5148

Code Word	List No.
Arbitrate	3205

VICTOR SOLDERING SALTS

Package
In ½ lb. bottles
In 1 lb. bottles
In 5 lb. bottles

BURNLEY SOLDERING PASTE

Pipitanas	25799	In 2 oz. boxes
Plangence	26021	In 4 oz. boxes

HIGHLAND SOLDERING PASTE

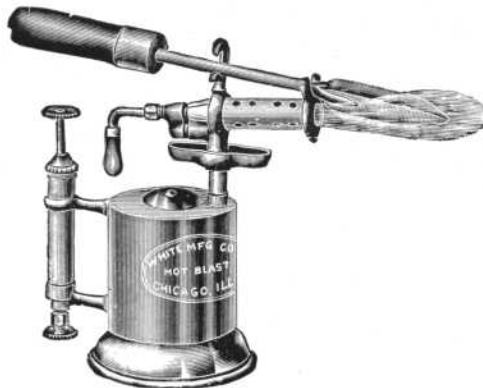
Ferant	4534	In boxes containing 2 ozs.
Planetule	26019	In boxes containing 1 lb.
Plangebat	26020	In boxes containing 5 lbs.

THE COMBINATION "HOT BLAST" BLOW TORCH

Code Word	List No.
Simp'y	23118

GASOLINE BLOW TORCH

Pinnipedes	5148
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No. 23118

PRICES ON REQUEST

Tools—Continued

FURNACES

Code Word List No.
Montevideo **15220**

Combination hot blast furnace holds one gallon of oil.

COMBINATION SOLDERING TORCH

For Alcohol

Code Word List No.
Montcell **15225**

This torch can be carried in the pocket or tool bag. The handle contains a vial for acid, doing away with carrying an extra acid bottle. The blow pipe is adjustable and the wick large. It is made entirely of brass and highly polished.



No. 15220

SOLDERING IRON FURNACES

Code Word List No.
Mezereum **94060**
Mezinheira **94061**
Meziriac **94062**
Mezzabout **94063**

No. 1 Soldering Furnace (American Meter Co.)

No. 2 Hercules Furnace

No. 2 Fire King Furnace

No. 3 Superior Furnace



No. 94060



No. 94061



No. 94062



No. 94063

DOUBLE-POINTED TACKS

Code Word	List No.	Length inches
Grafton	11950	$\frac{3}{8}$
Grayson	11951	$\frac{1}{2}$
Ossiculo	11952	$\frac{5}{8}$

BLAKE INSULATED STAPLES

For use on all low voltage circuits of interior wiring, such as telephone work.

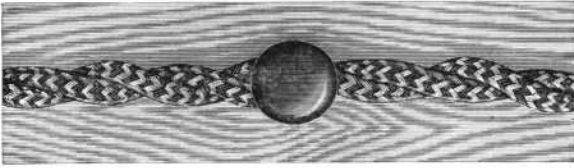
These are a standard, square shouldered staple having good driving qualities the upper part of which is so protected by a sheet fibre insulation as to prevent the covering on the wire coming in contact with the metal of the staple.



Code Word	List No.	Length inches
Placammo	18879	$\frac{1}{2}$
Mevrouwen	94052	$\frac{5}{8}$
Hyetograph	52029	$\frac{3}{4}$
Mevrouwjtje	94053	$\frac{7}{8}$

PRICES ON REQUEST

MILONITE NAILS



Used in installing twisted pair wires. The head is of insulating material and the shank is covered with an insulating paint. The heads are made in four sizes as shown full size herewith and may be obtained in gray, dark green and dark brown.



No. 94055



No. 15150

TAPE

Code Word	List No.	
Mexericada	94054	Amazon, black
Mexerufada	94055	Victor, black
Beamlet	3638	Grimshaw, black
Beamtree	3639	Grimshaw, white
Pigorada	24891	Competition
Beancaper	3642	Okonite
Beancod	3643	Manson, black
Beanfed	3644	Manson, white
Creased	8746	Kerite, black
Escatimado	7943	P. & B.

ELECTRICIAN'S SCISSORS

Code Word	List No.	
Mingo	15150	Nickel plated.

WEBBING

For wrapping multiple cables in switchboards.

Code Word	List No.	
Mezclarian	94057	Cotton, 1½ in. wide, slate.
Mezeillade	94058	Cotton, 1½ in. wide, black.

TWINE

For sewing switchboard cables in runs.

Code Word	List No.	
Mezereine	94059	12 strand linen.

INDIAN MOTOR CYCLE

These are offered in following styles with attachments:
 Single cylinder 2½ horsepower
 Double cylinder, 4 horsepower
 Tandem attachment
 Luggage carrier attachment (capacity 50 pounds)



Indian Motor Cycle



Tandem Attachment

PRICES ON REQUEST

DIFFERENCE BETWEEN WIRE GAUGES IN DECIMAL PARTS OF AN INCH

No. of Wire Gauge	American or Brown & Sharpe	Birmingham or Stubs	Washburn & Moen Mfg. Co., Worcester, Mass.	Trenton Iron Co., Trenton, N. J.	New British	Old English from Brass Mfrs. List	No. of Wire
000000	.....	....	.46	.....	.....	.....	000000
00000	.....	....	.43	.45	.....	.....	00000
0000	.46	.454	.393	.4	.4	.....	0000
000	.40964	.425	.362	.36	.372	.....	000
00	.3648	.38	.331	.33	.348	.....	00
0	.32495	.34	.307	.305	.324	.....	0
1	.2893	.3	.283	.285	.3	.....	1
2	.25763	.284	.263	.265	.276	.....	2
3	.22942	.259	.244	.245	.252	.....	3
4	.20431	.238	.225	.225	.232	.....	4
5	.18194	.22	.207	.205	.212	.....	5
6	.16202	.203	.192	.19	.192	.....	6
7	.14428	.18	.177	.175	.176	.....	7
8	.12849	.165	.162	.16	.16	.....	8
9	.11443	.148	.148	.145	.144	.....	9
10	.10189	.134	.135	.13	.128	.....	10
11	.090742	.12	.12	.1175	.116	.....	11
12	.080808	.109	.105	.105	.104	.....	12
13	.071961	.095	.092	.0925	.092	.....	13
14	.064084	.083	.08	.08	.08	.083	14
15	.057068	.072	.072	.07	.072	.072	15
16	.05082	.065	.063	.061	.064	.065	16
17	.045257	.058	.054	.0525	.056	.058	17
18	.040303	.049	.047	.045	.048	.049	18
19	.03589	.042	.041	.039	.04	.04	19
20	.031961	.035	.035	.034	.036	.035	20
21	.028462	.032	.032	.03	.032	.0315	21
22	.025347	.028	.028	.027	.028	.0295	22
23	.022574	.025	.025	.024	.024	.027	23
24	.0201	.022	.023	.0215	.022	.025	24
25	.0179	.02	.02	.019	.02	.023	25
26	.01594	.018	.018	.018	.018	.0205	26
27	.014195	.016	.017	.017	.0164	.01875	27
28	.012641	.014	.016	.016	.0148	.0165	28
29	.011257	.013	.015	.015	.0136	.0155	29
30	.010025	.012	.014	.014	.0124	.01375	30
31	.008928	.01	.0135	.013	.0116	.01225	31
32	.00795	.009	.013	.012	.0108	.01125	32
33	.00708	.008	.011	.011	.01	.01025	33
34	.006304	.007	.01	.01	.0092	.0095	34
35	.005614	.005	.0095	.009	.0084	.009	35
36	.005	.004	.009	.008	.0076	.0075	36
37	.004453	....	.0085	.00725	.0068	.0065	37
38	.003965	....	.008	.0065	.006	.00575	38
39	.003531	....	.0075	.00575	.0052	.005	39
40	.003144	....	.007	.005	.0048	.0045	40

EQUIVALENTS OF WIRES

Brown & Sharpe Gauge

0000	2 No. 0	4 No. 3	8 No. 6	16 No. 9	32 No. 12	64 No. 15
000	2 No. 1	4 No. 4	8 No. 7	16 No. 10	32 No. 13	64 No. 16
00	2 No. 2	4 No. 5	8 No. 8	16 No. 11	32 No. 14	64 No. 17
0	2 No. 3	4 No. 6	8 No. 9	16 No. 12	32 No. 15	64 No. 18
1	2 No. 4	4 No. 7	8 No. 10	16 No. 13	32 No. 16	64 No. 19
2	2 No. 5	4 No. 8	8 No. 11	16 No. 14	32 No. 17	64 No. 20
3	2 No. 6	4 No. 9	8 No. 12	16 No. 15	32 No. 18	64 No. 21
4	2 No. 7	4 No. 10	8 No. 13	16 No. 16	32 No. 19	64 No. 22
5	2 No. 8	4 No. 11	8 No. 14	16 No. 17	32 No. 20	64 No. 23
6	2 No. 9	4 No. 12	8 No. 15	16 No. 18	32 No. 21	64 No. 24
7	2 No. 10	4 No. 13	8 No. 16	16 No. 19	32 No. 22	64 No. 25
8	2 No. 11	4 No. 14	8 No. 17	16 No. 20	32 No. 23	64 No. 26
9	2 No. 12	4 No. 15	8 No. 18	16 No. 21	32 No. 24	64 No. 27
10	2 No. 13	4 No. 16	8 No. 19	16 No. 22	32 No. 25	64 No. 28
11	2 No. 14	4 No. 17	8 No. 20	16 No. 23	32 No. 26	64 No. 29
12	2 No. 15	4 No. 18	8 No. 21	16 No. 24	32 No. 27	64 No. 30
13	2 No. 16	4 No. 19	8 No. 22	16 No. 25	32 No. 28	
14	2 No. 17	4 No. 20	8 No. 23	16 No. 26	32 No. 29	
15	2 No. 18	4 No. 21	8 No. 24	16 No. 27	32 No. 30	
16	2 No. 19	4 No. 22	8 No. 25	16 No. 28		
17	2 No. 20	4 No. 23	8 No. 26	16 No. 29		
18	2 No. 21	4 No. 24	8 No. 27	16 No. 30		
19	2 No. 22	4 No. 25	8 No. 28			
20	2 No. 23	4 No. 26	8 No. 29			
21	2 No. 24	4 No. 27	8 No. 30			

BARE COPPER WIRE

Am. Gauge B. & S. No.	Diam. mils.	Area		Weight and Length		Sp. Gr. 8.9 Feet per pound	Resistance at 75° F.			
		Circular Mils. (d ²) 1 mil. - .001 inch	Square in. (D ² x .7854)	Lbs. per 1000 ft.	Pounds per mile		R. Ohms per 1000 feet	Ohms per mile	Feet per ohm	Ohms per pound
0000	460.000	211600.00	166190.	639.33	3375.7	1.56	.04906	.25903	20383.	.000076736
000	409.640	167805.00	131790.	507.01	2677.0	1.97	.06186	.32664	16165.	.00012039
00	364.800	133079.40	104520.	402.09	2123.0	2.49	.07801	.41187	12820.	.00019423
0	324.950	105592.50	82932.	319.04	1684.5	3.13	.09831	.51909	10409.	.00030772
1	289.300	83691.20	65733.	252.88	1335.2	3.95	.12404	.65490	8062.3	.00048994
2	257.680	66373.00	52130.	200.54	1058.8	4.99	.15640	.82582	6393.7	.00078045
3	229.420	52634.00	41399.	159.03	839.68	6.29	.19723	1.0414	5070.2	.0012406
4	204.310	41742.00	32784.	126.12	665.91	7.93	.24869	1.3131	4021.0	.0019721
5	181.940	33102.00	25998.	100.01	528.05	10.00	.31361	1.6558	3188.7	.0031361
6	162.020	26250.50	20617.	79.32	418.81	12.61	.39546	2.0881	2528.7	.0049868
7	144.280	20816.00	16349.	62.90	332.11	15.90	.49871	2.6331	2005.2	.0079294
8	128.490	16509.00	12966.	49.88	263.37	20.05	.62881	3.3201	1590.3	.012608
9	114.430	13094.00	10284.	39.56	208.88	25.28	.79281	4.1860	1261.3	.020042
10	101.890	10381.00	8153.2	31.37	165.63	31.38	1.	5.2800	1000.0	.031380
11	90.742	8234.00	6467.0	24.88	137.37	40.20	1.2607	6.6568	793.18	.050682
12	80.808	6529.90	5128.6	19.73	104.18	50.69	1.5898	8.3940	629.02	.080585
13	71.961	5178.38	4067.0	15.68	82.792	63.78	2.0037	10.5798	499.06	.127788
14	64.084	4106.76	3225.4	12.44	65.658	80.42	2.5266	13.3405	375.79	.203180
15	57.068	3256.76	2557.8	9.86	52.069	101.40	3.1860	16.8223	313.87	.323079
16	50.820	2582.67	2028.4	7.82	41.292	127.87	4.0176	21.2130	248.90	.513737
17	45.257	2048.20	1608.6	6.20	32.746	161.24	5.0660	26.7485	197.39	.816839
18	40.303	1624.33	1275.7	4.92	25.970	203.31	6.3880	33.7285	156.54	1.298764
19	35.890	1288.09	1011.6	3.90	20.594	256.39	8.0555	42.5329	124.14	2.065312
20	31.961	1021.44	802.2	3.09	16.331	323.32	10.1584	53.6362	98.44	3.284374
21	28.462	810.09	636.2	2.45	12.952	407.67	12.8088	67.6302	78.07	5.221775
22	25.347	642.47	504.6	1.95	10.272	514.03	16.1504	85.2343	61.92	8.301819
23	22.571	509.45	400.1	1.54	8.1450	648.25	20.3674	107.540	49.10	13.20312
24	20.100	404.01	317.3	1.22	6.4593	817.43	25.6830	135.606	38.94	20.99405
25	17.900	320.41	251.6	.97	5.1227	1030.71	32.3833	170.984	30.88	33.37780
26	15.940	254.08	199.5	.77	4.0623	1299.77	40.8377	215.623	24.49	53.07946

PRICES ON REQUEST

THE METRIC SYSTEM

Metric Denominations and Values

Equivalents in Denominations in use

WEIGHTS

Name	No. Grams	Weight of what quantity of water at max. density
Millier or tonneau	= 1,000,000	= 1 cubic meter.
Quintal	= 100,000	= 1 hectoliter.
Myriagram	= 10,000	= 10 liters.
Kilogram or Kilo	= 1,000	= 1 liter.
Hectogram	= 100	= 1 deciliter.
Dekagram	= 10	= 10 cubic centimeters.
Gram	= 1	= 1 cubic centimeter.
Decigram	= .1	= .1 cubic centimeter.
Centigram	= .01	= 10 cubic millimeters.
Milligram	= .001	= 1 cubic millimeter.

Name	No. Grams	Avoirdupois Weight
Millier or tonneau	= 1,000,000	= 2,204.6 pounds.
Quintal	= 100,000	= 220.46 pounds.
Myriagram	= 10,000	= 22.046 pounds.
Kilogram or Kilo	= 1,000	= 2.2046 pounds.
Hectogram	= 100	= 3.5274 ounces.
Dekagram	= 10	= 0.3527 ounce.
Gram	= 1	= 15.432 grains.
Decigram	= .1	= 1.5432 grains.
Centigram	= .01	= 0.1543 grain.
Milligram	= .001	= 0.0154 grain.

MEASURES OF LENGTH

Myriameter	= 10,000 meters	= 6.2137 miles.
Kilometer	= 1,000 meters	= 0.62137 m. or 3,280 ft. 10 in.
Hectometer	= 100 meters	= 328. feet and 1 inch.
Dekameter	= 10 meters	= 39.37 inches.
Meter	= 1 meter	= 39.37 inches.
Decimeter	= .1 meter	= 3.937 inches.
Centimeter	= .01 meter	= 0.3937 inch.
Millimeter	= .001 meter	= 0.0394 inch.

MEASURES OF SURFACE

Hectare	= 10,000 square meters	= 2.471 acres.
Are	= 100 square meters	= 119.6 square yards.
Centare	= 1 square meter	= 1.550 square inches.

MEASURES OF CAPACITY

Name	No. Liters	Cubic Measure	Dry Measure
Kiloliter	= 1,000	= 1 cu. meter	= 1.308 cubic yards.
Hectoliter	= 100	= .1 cu. meter	= 2 bush. 3.35 pks.
Decaliter	= 10	= 10 c. decimet.	= 9.08 quarts.
Liter	= 1	= 1 c. decimet.	= 0.908 quart.
Deciliter	= .1	= .1 c. decimet.	= 6.1022 cubic in.
Centiliter	= .01	= 10 c. centim.	= 0.6102 cubic in.
Milliliter	= .001	= 1 c. centim.	= 0.061 cubic in.

Name	No. Liters	Cubic Measure	Wine Measure
Kiloliter	= 1,000	= 1 cubic meter	= 264.17 galls.
Hectoliter	= 100	= .1 cubic meter	= 26.417 galls.
Decaliter	= 10	= 10 c. decimeters	= 2.6417 galls.
Liter	= 1	= 1 c. decimeter	= 1.0567 qts.
Deciliter	= .1	= .1 c. decimeter	= 0.845 gill.
Centiliter	= .01	= 10 c. centimeter	= 0.388 fluid oz.
Milliliter	= .001	= 1 c. centimeter	= 0.27 fluid oz.

TABLE of DECIMAL EQUIVALENTS

of 8ths, 16ths, 32ds and 64ths
of an Inch

FOR USE IN CONNECTION WITH
THE MICROMETER CALIPERS

8ths.	64ths.
$\frac{1}{8}$ = .125	$\frac{1}{64}$ = .015625
$\frac{1}{4}$ = .250	$\frac{2}{64}$ = .046875
$\frac{3}{8}$ = .375	$\frac{3}{64}$ = .078125
$\frac{1}{2}$ = .500	$\frac{4}{64}$ = .109375
$\frac{5}{8}$ = .625	$\frac{5}{64}$ = .140625
$\frac{3}{4}$ = .750	$\frac{6}{64}$ = .171875
$\frac{7}{8}$ = .875	$\frac{7}{64}$ = .203125
16ths.	$\frac{15}{64}$ = .234375
$\frac{1}{16}$ = .0625	$\frac{1}{16}$ = .265625
$\frac{1}{8}$ = .1875	$\frac{2}{64}$ = .296875
$\frac{3}{16}$ = .3125	$\frac{3}{64}$ = .328125
$\frac{1}{4}$ = .4375	$\frac{4}{64}$ = .359375
$\frac{5}{16}$ = .5625	$\frac{5}{64}$ = .390625
$\frac{3}{8}$ = .6875	$\frac{6}{64}$ = .421875
$\frac{1}{2}$ = .8125	$\frac{7}{64}$ = .453125
$\frac{5}{8}$ = .9375	$\frac{8}{64}$ = .484375
32ds.	$\frac{31}{64}$ = .515625
$\frac{1}{32}$ = .03125	$\frac{35}{64}$ = .546875
$\frac{3}{32}$ = .09375	$\frac{37}{64}$ = .578125
$\frac{5}{32}$ = .15625	$\frac{39}{64}$ = .609375
$\frac{7}{32}$ = .21875	$\frac{41}{64}$ = .640625
$\frac{9}{32}$ = .28125	$\frac{43}{64}$ = .671875
$\frac{11}{32}$ = .34375	$\frac{45}{64}$ = .703125
$\frac{13}{32}$ = .40625	$\frac{47}{64}$ = .734375
$\frac{15}{32}$ = .46875	$\frac{49}{64}$ = .765625
$\frac{17}{32}$ = .53125	$\frac{51}{64}$ = .796875
$\frac{19}{32}$ = .59375	$\frac{53}{64}$ = .828125
$\frac{21}{32}$ = .65625	$\frac{55}{64}$ = .859375
$\frac{23}{32}$ = .71875	$\frac{57}{64}$ = .890625
$\frac{25}{32}$ = .78125	$\frac{59}{64}$ = .921875
$\frac{27}{32}$ = .84375	$\frac{61}{64}$ = .953125
$\frac{29}{32}$ = .90625	$\frac{63}{64}$ = .984375
$\frac{31}{32}$ = .96875	

PRICES ON REQUEST

INDEX

TELEPHONE APPARATUS AND SUPPLIES

MATERIAL	A	PAGE
Accessories, Storage Battery.....		9-10
Accumulators, Chloride.....		6-8
Alcohol Torch.....		148
Allen Soldering Stick.....		147
Alley Arm Braces.....		126
Ammeters.....		111
Anchors, Stombaugh Guy.....		134
Annunciator Wire.....		119
Anti-Hum Insulators.....		141
Apparatus Blanks.....		1
Arrester, Lightning (see Protectors).		
Axes.....		143

B

Backboards.....	1-2
Bags, Lineman's Tool.....	144
Bare Copper Wire.....	121-151
Bars, Tamping and Digging.....	137-138
Bars, Crow and Digging.....	138
Batteries, Primary.....	2-4
Batteries, Blue Bell.....	4
Batteries, Columbia.....	5
Batteries, Dry.....	4-5
Batteries, Fuller Standard.....	2
Batteries, Gladstone-Lelande.....	3
Batteries, Gravity.....	2
Batteries, Leclanche.....	3
Batteries, Liberty.....	4
Batteries, 1900.....	5
Batteries, Storage.....	6-8
Battery Supplies, Primary.....	3-4
Battery Supplies, Dry.....	5-6
Battery Accessories, Storage.....	9-10
Battery Ammeter.....	111
Battery Boxes.....	2
Battery Coppers.....	6
Battery Hydrometer.....	10
Battery Sand Trays.....	10
Battery Panels.....	52
Battery Syringe.....	6
Battery Volt Ammeter.....	116
Battery Voltmeter.....	112
Battery Zincs.....	5-6
Beeswax.....	117
Bells.....	11
Bell Hanger's Gimlet.....	143
Belts.....	52
Belts, Tool.....	144
Bernard Pliers.....	140
Bicycle, Indian Motor.....	149
Binding Posts.....	12
Bits.....	144
Bit Brace.....	144
Blake Insulated Staples.....	148
Blanks, Apparatus.....	1
Blocks, Protector.....	62
Blow Torch.....	147
Blue Bell Battery.....	4
Blue Vitriol.....	6
Bolts, Carriage.....	128

MATERIAL	PAGE
Bolts, Double Arming.....	128
Bolts, Expansion.....	136
Bolts, Machine.....	127
Booths, Telephone.....	115
Boxes, Battery.....	2
Boxes, Tool.....	145
Brace, Alley Arm.....	126
Brace, Ratchet.....	144
Brackets, Fletcher.....	130
Brackets, House.....	130
Brackets, Underhang.....	131
Brackets, Wood.....	130
Breast Drill.....	144
Bridle Rings.....	135
Brushes, Battery.....	6
Buffalo Grips.....	141
Buffalo Lineman's Tool.....	142
Burnley's Soldering Paste.....	147
Bus-Bar Connector.....	9
Butt Guards and Protectors.....	127
Buttons, Push.....	62-63
Buzzers.....	13

C

Cables.....	14-16
Cable Cars.....	137
Cable Clips.....	135
Cable Clamp and Bridle Rings.....	135
Cable Hangers.....	135
Cable, Lead.....	15-16
Cable, Pastors.....	117
Cable Pole Balcony.....	136
Cable, Switchboard.....	14
Cable Terminals.....	17-18
Calculagraph.....	18
Cant Hooks.....	137
Carriage Bolts.....	128
Carrying Hooks.....	137
Cedar Poles.....	124
Central Battery Switchboards.....	73-82
No. 1.....	73-75
No. 9.....	76-78
No. 10.....	78-80
No. 4 Private Exchange.....	81
No. 101 Private Exchange.....	82
No. 102 Private Exchange.....	82
Cordless Private Exchange.....	82
No. 1 and No. 2 Toll.....	82-83
Telephone Sets.....	93-95
Wall Type.....	93-94
Desk Type.....	94
Chairs, Operators'.....	19
Charging Machines.....	47-48
Charging Sets.....	47-48
Chisels.....	142-144
Chloride Accumulators.....	9-10
Choke Coils.....	49
Circuit Breakers.....	19
Clamps.....	141-142
Clamps, Eccentric.....	142

Index—Continued

Telephone Apparatus and Supplies—Continued

MATERIAL	PAGE
Clamps, Ground.....	141
Clamps, Guy.....	133
Clamps, Haven.....	142
Clamps, Messenger.....	134
Clamps, Splicing.....	140
Climbers.....	145
Clips, Crosby.....	133
Coin Collectors.....	19-20
Coin Collector Machines.....	51
Columbia Batteries.....	5
Combination Cable Clamp and Bridle Ring.....	135
Combination Jack and Signal.....	73
Compensating Hydrometer.....	10
Compound for Pot Heads.....	117
Condensers.....	20-21
Condenser Straps.....	22
Conduit.....	122-124
Conduit, Enameled Steel.....	122
Conduit, Enameled Proper Sizes.....	124
Conduit, Enameled Steel Fittings.....	122-123
Conduit, Flexible Metallic.....	123
Conduit, Flexible Proper Sizes.....	124
Connecting Blocks.....	22
Connectors, Bus-Bar.....	9
Connectors, Copper Test.....	141
Connectors, Wire.....	141
Coppers, Soldering.....	146
Copper Test Connectors.....	141
Cordless Private Exchange.....	82
Cords.....	22-24
Cords, Switchboard.....	22-23
Cords, Telephone.....	23-24
Cord Fasteners.....	24
Cord Hooks.....	25
Cord Pulleys.....	25
Cord Weights.....	26
Counter Electro-Motive Force Cells.....	9
Counter, Pole.....	145
Counter, Telephone.....	26
Covers, Machine.....	51
Crosby Clips.....	133
Cross Arms.....	125-126
Cross Arm Braces.....	126
Cross and Back Braces.....	126
Crow and Digger Bars.....	138
Cut-Outs.....	26
Cut-Outs, D. & W.....	26
Cutter Circuit Breaker.....	19
D	
D. & W. Fuses.....	30
Dicke Climbers.....	145
Dicke Lock Ferrule Screw Driver.....	144
Designation Strips.....	26-27
Desk Stands.....	27-28
Desk Type Tel. Set, Central Battery.....	94
Desk Type Tel. Set, Magneto.....	97
Digger Bars.....	138
Digger, Splitwood Handle.....	138
Distributing Rings.....	28, 135
Double Arming Bolts.....	128
Draw Knives.....	143
Dry Batteries.....	4-5
Dry Battery Supplies.....	5-6
Drill, Breast.....	144
Drill, Hand.....	144

MATERIAL	PAGE
Drills.....	144
Drops.....	29
Drop Mountings.....	29
Dynamotors, Ringing.....	50
E	
Eccentric Clamps.....	142
Eccentric Straps.....	142
Eccentrics, Klein.....	142
Eco Bells.....	11
Eco Buzzers.....	13
Electrician's Scissors.....	149
Electric Soldering Copper, Vulcan.....	146
Electrolyte.....	10
Engine, Gas.....	51
Excelsior Soldering Copper.....	146
Expansion Bolts and Shields.....	136
Extinguisher, Fire.....	116
F	
Fasteners, Cords.....	24
Fasteners, Jacks.....	38
Fire Extinguishers.....	116
Fixture Wire.....	120
Fletcher Brackets.....	130
Flexible Metallic Conduit.....	122-124
Flexible Metallic Conduit Fittings.....	122-124
Fork, Raising.....	139
Fry's Lineman's Pliers.....	140
Fuller Battery.....	2
Furnace, Soldering.....	147-148
Fuse Clips.....	31
Fuse Posts.....	31
Fuses.....	30
Fuses, D. & W.....	30
G	
Galvanized Guy Clamps.....	133
Gas Engine.....	51
Gasoline Automatic Burner.....	147
Gauges, Wire.....	146
Gauges, B. & S. Table.....	151
Generators.....	47-49
Generators, Charging.....	47
Generators, Hand.....	32
Generators, Ringing.....	49
Gimlets, Bell Hangers.....	143
Gladstone-Lalande Batteries.....	3
Glass Break Knobs.....	132
Glass Insulators.....	131
Gong Mountings.....	33
Gong Nuts.....	33
Gongs.....	33
Grading Shovels.....	138
Gravity Batteries.....	2
Grips, Buffalo.....	141
Ground Clamps.....	141
Ground Rod, Telephone.....	133
Guy Anchors.....	134
Guy Bolts.....	133
Guy Rods or Anchors.....	134
Guards, Butt and Protector.....	127
H	
Hammers.....	143
Hand Axes.....	143
Hand Drills.....	144

Index—Continued

Telephone Apparatus and Supplies—Continued

MATERIAL	PAGE
Hand Generators.....	32
Hand Sets.....	33-34
Hand Set Handles.....	34
Hand Wheels.....	32
Hangers, Cable.....	135
Hatchet.....	143
Haven Clamp.....	142
Heat Coils.....	34
Highland Soldering Paste.....	147
Hook, Cant.....	137
Hook, Carrying.....	137
Hook, Switch.....	91
Hooks.....	137
Hooks, Cord.....	25
House Bracket.....	130
Howler.....	34
Hydrometer, Battery.....	10
Hydrometer, Compensating.....	10

I

Indian Motorcycle.....	149
Indicator, Fuse.....	30
Indicators, Key.....	43
Induction Coils.....	34-35
Insulating Staples, Blake.....	148
Inspectors, Tools.....	145
Insulators.....	131-132
Insulators, Anti-Hum.....	141
Insulators, Glass.....	10, 131
Insulators, Porcelain.....	131-132
Interrupters.....	35-36
Interrupters, Warner's Pole Changer.....	36
I-T-E Circuit Breakers.....	19

J

Jack Fasteners.....	38
Jack Mountings.....	38-39
Jack and Signal, Combination.....	73
Jacks.....	36-37

K

Kent, Automatic Volt-Ammeter.....	116
Key Indicators.....	43
Key Levers.....	43
Key Mountings.....	43
Keys.....	39-42
Klein Climbers.....	145
Klein Eccentrics.....	142
Knives, Draw.....	143
Knife Switches.....	88-90
Knobs, Glass Break.....	132
Knobs, Porcelain.....	132

L

Ladles, Solder.....	147
Lag Screws.....	128
Lag Screw Wrench.....	141
Lamp Brackets.....	44
Lamp Caps.....	44-45
Lamp Guards.....	45
Lamp, Resistance.....	70
Lamp Socket Mountings.....	46
Lamp Sockets.....	45
Lamps.....	43
Lead Cable.....	15-16
Lead Sleeves.....	116-117

MATERIAL	PAGE
Leclanche Batteries.....	3
Liberty Battery.....	4
Lightning Arresters (See Protectors).....	
Line Construction Material.....	124-137
Line Construction Tools.....	137-145
Lineman's Axe.....	143
Lineman's Set.....	33-34
Lineman's Tool Bag.....	144
Lineman's Tool, Buffalo.....	142
Line Poles.....	46
Line Tape.....	146
Locust Pins.....	129

M

Machine Bolts.....	127
Machine Covers.....	51
Machines.....	47-51
Machine Table.....	52
Magnet Wire.....	119-120
Magneto Switchboards.....	83-87
No. 105.....	84
No. 106.....	87
No. 1001.....	87
No. 1002.....	87
No. 1003.....	87
No. 1005.....	85
No. 1006.....	85
No. 1010.....	86
No. 1011.....	86
No. 1012.....	86
No. 1101.....	83
No. 1102.....	83
Pony.....	87-88
Combination Jack and Signal.....	83
Telephone Sets.....	95-103
Wall Type.....	95-97
Desk Type.....	97
Material, Line Construction.....	124-137
Messenger Clamps.....	134
Metric System, Table.....	152
Micas, Protector.....	62
Milonite Nails.....	149
Motorcycle, Indian.....	149
Motors.....	50
Mountings, Drop.....	29
Mountings, Gong.....	33
Mountings, Jack.....	38-39
Mountings, Key.....	43
Mountings, Lamp Socket.....	46
Mounting Plates.....	53
Mounting Plates, Relay.....	53
Mounting Plates, Resistance.....	53
Mounting Plates, Service Meter.....	53
Mounting, Protectors.....	62
Mounting, Signals.....	73
Mule Pole Support.....	139

N

Nails, Milonite.....	149
Nineteen Hundred Battery.....	5
Number Plates.....	53-55

O

Oak Brackets.....	130
Oak Pins.....	129
Operators, Chairs.....	19
Overload Circuit Breakers.....	19

Index—Continued

Telephone Apparatus and Supplies—Continued

MATERIAL	PAGE
Straps, Pipe.....	123
Straps, Vises and Eccentrics.....	141-142
Strips, Terminal.....	104
Stubs, Side Cutting Pliers.....	140
Stubs Diagonal Cutting Pliers.....	140
Supplies.....	115-149
Support, Pole.....	139
Switchboard Cable.....	14
Switchboard Cords.....	22-23
Switchboard, Power.....	52
Switchboard Tools.....	106-107
Switchboards.....	73-87
Switchboards, Central Battery.....	73-82
No. 1.....	73-76
No. 9.....	76-78
No. 10.....	78-80
No. 4 Private Exchange.....	81
No. 101 Private Exchange.....	82
No. 102 Private Exchange.....	82
Cordless Private Exchange.....	82
No. 1 and No. 2 Toll.....	82-83
Switchboards, Magneto.....	83-87
No. 105.....	84
No. 106.....	87
No. 1001.....	87
No. 1002.....	87
No. 1003.....	87
No. 1005.....	85
No. 1006.....	85
No. 1010.....	86
No. 1011.....	86
No. 1012.....	86
No. 1101.....	83
No. 1102.....	83
Pony.....	87-88
Combination Jack and Signal.....	83
Switches.....	88-90
Switch Hook.....	91
Syringe, Battery.....	6

T

Tables, Wire.....	150-151
Tables, B. & S. Gauge.....	151
Tacks.....	148
Tally Register.....	145
Tamping Bars.....	137
Tape.....	149
Tape Line.....	146
Telegraph Code.....	xiv, xv
Telephone Booths.....	115
Telephone Cord.....	23-24
Telephone Counter.....	26
Telephone Ground Rods.....	133
Telephone Sets.....	93-103
Central Battery.....	93-95
Central Battery with Coin Collector.....	94
Central Battery, Desk Type.....	94
Central Battery, Desk Set Boxes.....	94-95
Central Battery, Wall Boxes.....	94-95
Central Battery Wall Type.....	93-94
Magneto, or Local Battery.....	95-103
Magneto, Desk Set Boxes.....	98
Magneto Desk Type.....	97
Magneto, Extension.....	99
Magneto, Street Railway.....	100
Magneto, Railway Composite.....	100-101

MATERIAL	PAGE
Telephone Sets—Continued	
Magneto, Police Sets.....	101
Magneto Wall Type.....	95-97
Inter-Communicating Sets.....	102-103
For Use in Mines.....	102
Private Line Sets.....	103
Loud Ringing Extension Bells.....	99
Extension Bell for Mines.....	99
Hand Generator Boxes.....	99
Cut-in Station Sets.....	99
Test Connectors, Copper.....	141
Test Sets.....	104-106
Testing Sets, Queen Acme.....	106
Thimbles.....	133
Toll Switchboards.....	82-83
Toll Test Boards.....	83
Toll Test Board Extensions.....	83
Tool Bags, Lineman's.....	144
Tool Belts.....	144
Tool Box.....	145
Tool, Buffalo Lineman's.....	142
Tools, Inspector's.....	145
Tools, Line Construction.....	137-145
Tools, Switchboard.....	106-107
Torches.....	147
Transmitters.....	108-109
Transmitter Arms (Desk).....	110-111
Transmitter Arms (Switchboard).....	109-110
Transmitter Attachments.....	111
Transmitter Brackets.....	111
Tree Trimmers.....	143
Trouble Caps.....	111
Tubes, Porcelain.....	132
Twine.....	149

U

Underhang Brackets.....	131
Underload Circuit Breakers.....	19

V

Victor Soldering Salts.....	147
Vises.....	142
Volt-Ammeter, Kent's.....	116
Voltmeter.....	112
Vom Cleff's Lineman's Pliers.....	139-140
Vulcan Electric Soldering Coppers.....	146

W

Wall Type Sets, Central Battery.....	93-94
Wall Type Tel. Sets, Magneto.....	95-97
Warner Pole Changer.....	36
Washers.....	129
Wattmeters.....	112
Webbing.....	149
Weights, Cord.....	26
Western Electric Pole Seat.....	136
Western Union Steel Pins.....	129
Weston Ammeter.....	111
Weston Voltmeter.....	112
Wheels, Hand.....	52
Wires.....	117-122
Annunciator.....	119
Annunciator Weatherproof.....	119
Bare Tinned Copper.....	121
Bare Copper.....	151
Damp-Proof Office.....	119
Double Galvanized Telephone.....	117

Index—Continued

Telephone Apparatus and Supplies—Continued

MATERIAL	PAGE	MATERIAL	PAGE
Wires—Continued		Wire Joints.....	141
Galvanized Steel Strand.....	118	Wire Tables.....	150-151
German Silver Resistance.....	119	Wire Table B. & S.....	151
Gauges.....	146	Wrenches.....	141-142
Habirshaw Insulated.....	121-122	Wrench, Steel Lag Screw.....	141
Magnet, Enameled.....	120	Wrench, Combination Lag Screw and Nut...	141
Magnet Silk and Cotton Covered.....	119-120	Wrench, Steel Tie.....	141
Rubber Covered Copper (Braided).....	117-118		
Rubber Covered Copper (Plain).....	118	Y	
Stranded Copper.....	121	Yankee Ratchet Screw Driver.....	144
Switchboard.....	120		
Weatherproof Copper.....	118	Z	
Weatherproof Iron Line.....	118	Zincs, Battery.....	5-6

Index—Continued

LIST NUMBERS

LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE
01018.....	130	1712.....	119	2871.....	140	3751.....	140	6625.....	126
01019.....	130	1713.....	119	2872.....	140	3752.....	140	6626.....	126
01020.....	130	1714.....	119	2873.....	140	3769.....	140	6629.....	126
01029.....	130	1715.....	119	2874.....	140	3782.....	138	6630.....	126
500.....	134	1716.....	120	2875.....	140	3783.....	138	7943.....	149
502 R.....	134	1717.....	120	2876.....	140	3789.....	140	7944.....	117
560.....	134	1718.....	120	2877.....	140	3790.....	140	8624.....	146
600.....	134	1719.....	120	2878.....	140	3791.....	140	8625.....	146
603 R.....	134	1720.....	120	2879.....	139	3792.....	140	8626.....	146
704 R.....	134	1725.....	119	2880.....	139	3869.....	138	8627.....	146
707.....	134	1726.....	119	2881.....	139	3870.....	138	8633.....	140
800.....	134	1727.....	119	2882.....	139	4129.....	5	8746.....	149
1000.....	134	1728.....	119	2883.....	139	4402.....	137	9266.....	132
1028.....	130	1729.....	119	2884.....	139	4407.....	138	9275.....	11
1109.....	142	1730.....	119	2885.....	139	4410.....	138	9276.....	11
1200.....	134	1731.....	119	2889.....	63	4412.....	138	9277.....	11
1436.....	90	1732.....	119	2890.....	63	4413.....	138	9279.....	11
1437.....	90	1733.....	119	2917.....	144	4421.....	138	9280.....	11
1438.....	90	1734.....	119	2918.....	144	4422.....	138	9344.....	13
1439.....	90	1735.....	119	2998.....	134	4423.....	138	9641.....	62
1454.....	90	1736.....	119	3052.....	118	4424.....	138	9642.....	62
1455.....	90	1737.....	120	3054.....	118	4427.....	139	9643.....	62
1658.....	120	1738.....	120	3055.....	118	4428.....	139	9644.....	62
1659.....	120	1739.....	120	3056.....	118	4449.....	5	9645.....	62
1660.....	120	1740.....	120	3059.....	118	4450.....	5	9646.....	62
1661.....	120	1741.....	120	3061.....	118	4485.....	144	9650.....	62
1662.....	120	1750.....	143	3065.....	118	4486.....	144	9651.....	62
1663.....	120	1751.....	143	3092.....	118	4517.....	139	9652.....	62
1664.....	120	1752.....	143	3093.....	118	4518.....	139	9653.....	62
1665.....	120	1753.....	143	3205.....	147	4519.....	139	9654.....	62
1666.....	120	2337.....	132	3338.....	147	4520.....	139	9655.....	62
1667.....	120	2351.....	131	3339.....	147	4521.....	139	9675.....	63
1668.....	120	2354.....	131	3340.....	147	4522.....	139	9676.....	63
1669.....	120	2460.....	11	3494.....	142	4523.....	139	9677.....	63
1670.....	120	2519.....	141	3495.....	142	4532.....	146	9703.....	63
1671.....	120	2520.....	143	3496.....	142	4534.....	147	9704.....	63
1672.....	120	2521.....	143	3497.....	142	4711.....	146	9705.....	63
1673.....	120	2523.....	140	3498.....	142	4712.....	146	9706.....	63
1674.....	120	2538.....	142	3499.....	142	4713.....	146	9707.....	63
1683.....	120	2544.....	139	3500.....	142	4765.....	131	10000.....	3
1684.....	120	2545.....	139	3501.....	142	4780.....	131	10002.....	3
1685.....	120	2546.....	139	3507.....	147	4781.....	131	10003.....	3
1686.....	120	2547.....	142	3509.....	147	4786.....	132	10004.....	3, 5
1687.....	120	2548.....	142	3513.....	146	5031.....	144	10005.....	3
1688.....	120	2549.....	142	3533.....	129	5033.....	144	10126.....	2
1689.....	120	2550.....	147	3539.....	129	5034.....	144	10130.....	2
1690.....	120	2551.....	147	3638.....	149	5090.....	140	10132.....	2
1691.....	120	2552.....	147	3639.....	149	5109.....	140	10133.....	2
1692.....	120	2553.....	147	3642.....	149	5148.....	147	10134.....	2
1693.....	120	2565.....	141	3643.....	149	5166.....	144	10135.....	2, 5
1694.....	120	2632.....	13	3644.....	149	5167.....	144	10250.....	2
1695.....	120	2633.....	13	3663.....	140	5168.....	144	10251.....	2
1696.....	120	2634.....	13	3664.....	140	5169.....	144	10252.....	2
1697.....	120	2635.....	13	3665.....	140	5170.....	144	10253.....	2, 5, 6
1698.....	120	2663.....	141	3667.....	140	5171.....	144	10255.....	2
1699.....	120	2664.....	141	3668.....	140	5172.....	144	10256.....	2
1704.....	119	2667.....	141	3669.....	140	5173.....	144	10257.....	2, 6
1705.....	119	2677.....	141	3705.....	142	5177.....	143	10258.....	2, 6
1706.....	119	2688.....	140	3706.....	142	5924.....	138	10453.....	5
1707.....	119	2689.....	140	3746.....	140	5925.....	138	10490.....	6
1708.....	119	2690.....	140	3747.....	140	5927.....	140	10497.....	6
1709.....	119	2691.....	140	3748.....	140	6187.....	142	10498.....	6
1710.....	119	2869.....	140	3749.....	140	6216.....	144	10500.....	6
1711.....	119	2870.....	140	3750.....	140	6227.....	144	10502.....	6

Index—Continued

List Numbers—Continued

LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE
11250.....	90	15186.....	144	23939.....	4	25945.....	117	27014.....	121
11251.....	90	15187.....	144	24064.....	137	25946.....	117	27015.....	121
11252.....	90	15200.....	144	24075.....	137	25947.....	117	27016.....	121
11253.....	90	15201.....	144	24078.....	139	25948.....	117	27017.....	121
11254.....	90	15205.....	146	24079.....	139	25949.....	117	27018.....	121
11255.....	90	15206.....	146	24080.....	139	25976.....	117	27019.....	121
11485.....	123	15207.....	146	24091.....	145	25977.....	117	27020.....	121
11950.....	148	15216.....	145	24092.....	145	25978.....	117	27021.....	121
11951.....	148	15220.....	147	24093.....	145	25979.....	117	27022.....	121
11952.....	148	15225.....	148	24094.....	145	26019.....	147	27023.....	121
13115.....	90	15460.....	125	24099.....	142	26020.....	147	27024.....	121
13116.....	90	15461.....	125	24459.....	147	26021.....	147	27025.....	121
13117.....	90	15462.....	125	24578.....	141	26022.....	133	27026.....	121
14912.....	138	15463.....	125	24605.....	132	26023.....	133	27027.....	121
14913.....	138	15464.....	125	24606.....	132	26024.....	133	27028.....	121
14925.....	139	15465.....	125	24668.....	125	26025.....	133	27029.....	121
14926.....	139	15466.....	125	24669.....	125	26026.....	133	27030.....	122
14927.....	139	15467.....	125	24670.....	125	26027.....	133	27031.....	122
14928.....	138	15480.....	129	24876.....	146	26052.....	126	27032.....	122
14929.....	138	15481.....	129	24877.....	146	26053.....	126	27033.....	122
14930.....	138	15482.....	129	24889.....	146	26054.....	126	27034.....	122
14931.....	138	15483.....	129	24890.....	137	26055.....	126	27035.....	122
14932.....	139	15484.....	133	24891.....	149	26056.....	126	27036.....	122
14933.....	139	15485.....	133	25093.....	138	26057.....	126	27040.....	121
14945.....	141	15486.....	133	25443.....	132	26058.....	126	27041.....	121
14946.....	141	15487.....	133	25444.....	132	26059.....	126	27042.....	121
15007.....	137	15488.....	133	25594.....	141	26060.....	126	27043.....	121
15010.....	137	15489.....	133	25603.....	133	26061.....	126	27044.....	121
15011.....	137	15490.....	133	25604.....	133	26062.....	126	27045.....	121
15012.....	137	15491.....	133	25711.....	141	26063.....	126	27046.....	121
15015.....	139	15492.....	133	25718.....	145	26064.....	126	27047.....	121
15076.....	141	15493.....	133	25719.....	145	26065.....	126	27048.....	121
15077.....	141	16040.....	90	25720.....	146	26066.....	126	27049.....	121
15078.....	141	16041.....	90	25725.....	146	26067.....	126	27050.....	121
15080.....	143	16520.....	116	25726.....	146	26068.....	126	27051.....	121
15085.....	143	17476.....	131	25727.....	146	26069.....	126	27052.....	121
15086.....	143	17481.....	147	25728.....	146	26070.....	126	27053.....	121
15116.....	143	18833.....	130	25744.....	140	26071.....	126	27054.....	121
15117.....	143	18835.....	130	25750.....	145	26072.....	126	27055.....	121
15118.....	143	18836.....	130	25751.....	145	26073.....	126	27072.....	121
15122.....	143	18838.....	130	25752.....	145	26074.....	126	27073.....	121
15123.....	143	18840.....	130	25753.....	145	26075.....	126	27074.....	121
15124.....	143	18845.....	130	25754.....	145	26076.....	126	27075.....	121
15125.....	143	18879.....	148	25755.....	145	26077.....	126	27076.....	121
15126.....	143	18880.....	26	25756.....	145	26078.....	126	27077.....	121
15127.....	143	19310.....	129	25757.....	142	26079.....	126	27078.....	121
15130.....	143	19311.....	129	25758.....	144	26080.....	121	27079.....	121
15150.....	149	23118.....	147	25759.....	144	26081.....	121	27080.....	121
15152.....	143	23563.....	125	25762.....	14	26082.....	121	27081.....	121
15153.....	143	23564.....	125	25768.....	138	26083.....	121	27082.....	121
15154.....	143	23565.....	125	25769.....	139	26084.....	121	27083.....	121
15155.....	143	23566.....	125	25770.....	137	26085.....	121	27084.....	121
15156.....	143	23567.....	125	25771.....	138	26086.....	121	27085.....	121
15157.....	143	23568.....	125	25772.....	138	26087.....	121	27086.....	121
15158.....	143	23569.....	125	25773.....	138	26088.....	121	27087.....	121
15159.....	143	23572.....	125	25776.....	138	26089.....	121	27088.....	121
15160.....	143	23573.....	125	25777.....	138	26090.....	121	27089.....	121
15165.....	145	23590.....	11	25778.....	138	26091.....	121	28000.....	121
15166.....	145	23591.....	11	25799.....	147	26092.....	121	28001.....	121
15180.....	142	23592.....	11	25938.....	129	26093.....	121	28002.....	121
15181.....	142	23596.....	11	25939.....	129	26094.....	121	28003.....	121
15182.....	142	23597.....	11	25941.....	126	26095.....	121	28004.....	121
15183.....	142	23598.....	11	25942.....	126	27012.....	121	28005.....	121
15185.....	144	23695.....	63	25944.....	117	27013.....	121	28006.....	121

Index—Continued

List Numbers—Continued

LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE	LIST NO.	PAGE
28007.....	121	52034.....	19	52118.....	135	52194.....	119	94075.....	135
28008.....	121	52039.....	36	52126.....	135	52195.....	119	94076.....	120
28009.....	121	52040.....	36	52127.....	135	52196.....	119	94077.....	120
28010.....	121	52041.....	18	52128.....	135	52197.....	119	94078.....	120
28011.....	121	52042.....	124	52129.....	135	52198.....	119	96581.....	122
28012.....	122	52043.....	124	52130.....	141	90510.....	105	96582.....	122
28013.....	122	52044.....	124	52132.....	137	90511.....	105	96583.....	122
28014.....	122	52045.....	124	52133.....	137	90512.....	105	96584.....	122
28015.....	122	52046.....	124	52134.....	126	90530.....	105	96585.....	122
28016.....	122	52047.....	124	52135.....	126	90535.....	11	96586.....	122
28017.....	122	52048.....	124	52136.....	137	90536.....	11	96587.....	122
28018.....	122	52049.....	124	52137.....	137	90537.....	11	96588.....	122
28019.....	122	52050.....	124	52138.....	127	90538.....	11	96589.....	122
28020.....	122	52051.....	124	52139.....	127	90539.....	11	96590.....	122
28021.....	122	52052.....	124	52140.....	126	90540.....	11	96729.....	123
28022.....	122	52053.....	124	52141.....	126	90541.....	11	96730.....	123
28023.....	122	52054.....	124	52146.....	118	90542.....	11	96731.....	123
28024.....	122	52055.....	124	52147.....	118	94012.....	133	96732.....	123
28025.....	122	52057.....	124	52148.....	118	94029.....	116	96733.....	123
28026.....	122	52059.....	124	52149.....	118	94030.....	118	96734.....	123
28027.....	122	52061.....	124	52150.....	118	94031.....	118	96735.....	123
28028.....	122	52062.....	124	52151.....	118	94032.....	124	96736.....	123
28029.....	122	52063.....	124	52152.....	117	94033.....	133	97294.....	123
28030.....	122	52067.....	128	52153.....	117	94034.....	133	97295.....	123
28031.....	122	52068.....	128	52154.....	117	94035.....	134	97297.....	123
28032.....	121	52069.....	128	52155.....	117	94036.....	134	97298.....	123
28033.....	121	52070.....	128	52156.....	118	94037.....	134	97759.....	123
28034.....	121	52071.....	128	52157.....	118	94038.....	134	97760.....	123
28035.....	121	52072.....	128	52158.....	118	94039.....	133	97761.....	123
28036.....	121	52073.....	128	52159.....	118	94040.....	133	97762.....	123
28037.....	121	52074.....	128	52160.....	118	94041.....	135	97763.....	123
28038.....	121	52075.....	128	52161.....	118	94042.....	135	97764.....	123
28039.....	121	52076.....	128	52162.....	118	94043.....	135	97765.....	123
28040.....	121	52077.....	129	52163.....	119	94044.....	135	97766.....	123
28041.....	121	52078.....	129	52164.....	119	94045.....	136	97767.....	123
28042.....	121	52079.....	129	52165.....	119	94046.....	135	97768.....	123
28043.....	121	52080.....	129	52166.....	119	94047.....	135	97769.....	123
28044.....	122	52081.....	129	52167.....	119	94048.....	135	97770.....	123
28045.....	122	52082.....	129	52168.....	119	94049.....	135	97771.....	123
28046.....	122	52083.....	129	52169.....	119	94050.....	135	98358.....	122
28047.....	122	52084.....	129	52170.....	119	94051.....	135	98359.....	122
28048.....	122	52085.....	129	52171.....	119	94052.....	148	98360.....	122
28049.....	122	52086.....	129	52172.....	119	94053.....	148	98361.....	122
28050.....	122	52087.....	129	52173.....	119	94054.....	149	98362.....	122
28051.....	122	52088.....	129	52174.....	119	94055.....	149	98363.....	122
28052.....	122	52089.....	129	52175.....	119	94056.....	120	98364.....	122
28053.....	122	52090.....	129	52176.....	119	94057.....	149	98365.....	122
28054.....	122	52092.....	129	52177.....	119	94058.....	149	98366.....	122
28055.....	122	52093.....	129	52178.....	119	94059.....	149	98367.....	122
28056.....	122	52094.....	129	52179.....	119	94060.....	148	98368.....	123
52002.....	117	52096.....	129	52180.....	119	94061.....	148	98369.....	123
52003.....	117	52097.....	130	52181.....	119	94062.....	148	98370.....	123
52016.....	132	52098.....	130	52182.....	119	94063.....	148	98371.....	123
52017.....	132	52099.....	130	52183.....	119	94064.....	135	98372.....	123
52018.....	132	52100.....	130	52184.....	119	94065.....	135	98373.....	123
52019.....	132	52101.....	130	52185.....	119	94066.....	135	98374.....	123
52020.....	132	52102.....	130	52186.....	119	94067.....	135	98375.....	123
52021.....	132	52103.....	131	52187.....	119	94068.....	135	98376.....	123
52022.....	132	52106.....	131	52188.....	119	94069.....	135	98377.....	123
52029.....	148	52108.....	133	52189.....	119	94070.....	135	100000.....	117
52030.....	146	52109.....	133	52190.....	119	94071.....	135	100002.....	137
52031.....	116	52110.....	134	52191.....	119	94072.....	135	100003.....	137
52032.....	19	52111.....	134	52192.....	119	94073.....	135	100004.....	134
52033.....	19	52116.....	135	52193.....	119	94074.....	135	100005.....	125

CODE WORD INDEX

CODE WORD	PAGE	CODE WORD	PAGE	CODE WORD	PAGE	CODE WORD	PAGE
A		Blodgett	63	Corinthian	139	Feminate	144
Aboriginal	118	Bloomville	63	Coupling	118	Fense	139
Aborsement	118	Blundering	142	Coupe	118	Fensible	139
Abounding	118	Blunt	142	Creased	149	Fensome	139
Abrade	118	Blunted	142	D			
Abraham	118	Blunting	142	Deerfield	2	Fensucked	139
Abreast	118	Bluntly	142	Defiance	2	Fensure	139
Abridge	118	Blur	142	Delanco	2, 5	Fent	139
Accipenser	132	Blurred	142	Deland	2, 6	Fenugreek	139
Accipient	132	Blurring	142	Delano	2	Feral	146
Acosmism	141	Blushfully	147	Delaware	2	Ferant	147
Acquittal	133	Blushless	147	Delevan	2, 6	Fiberd	146
Ajabe	126	Blustrous	146	Delhi	2, 6	Fibration	146
Ajaja	126	Boca	63	Devereux	5	Fibrillous	146
Ajagus	126	Bodan	63	Dumont	6	Fluidify	90
Ajun	126	Boise	63	Duncan	6	Fluidism	90
Anarchist	140	Boom	129	Duncannon	6	Fluidist	90
Anarchy	140	Bootless	129	Dundee	6	Fluidize	90
Anatomist	140	C		Dunellen	6	Flying	90
Anatomy	140	Carabine	147	E			
Anatron	140	Caravan	147	Economicas	144	Foolish	5
Ancestor	140	Cardine	147	Economique	144	Foolocracy	5
Annawan	11	Careen	147	Economist	144	Forborn	141
Anniston	11	Caredo	3	Economizar	144	Forby	141
Annville	11	Ceretto	3	Eclairage	140	Forcause	141
Anserated	11	Certified	130	Ejerzo	138	Force	141
Anserine	11	Certify	130	Ejointage	138	Forcedly	142
Arbitrate	147	Ceylon	3	Ejulatum	140	Forcedness	142
Ashcraft	13	Ceylones	3, 5	Elfjarig	142	Forebode	134
B		Chase	3	Eloquence	131	Forefend	140
Beamlet	149	Colville	2	Elsewhere	131	Forefinger	140
Beamtree	149	Comanche	2	Empress	132	Forefoot	140
Beancaper	149	Comillah	2	Empty	132	Forefront	140
Beancod	149	Comines	2	Escatimado	149	Foregaff	140
Beanfed	149	Como	2	Escatimeis	117	Foreganger	140
Beauty	142	Compton	2, 5	Essandole	129	Foregather	140
Beautyspot	142	Concolor	147	Essayames	129	Forelay	140
Beefall	138	Concord	147	F			
Befit	138	Conjunctly	144	Factive	11	Forestry	132
Beholder	140	Connive	143	Falcon	13	Foreseer	131
Beholding	140	Connivency	143	Falconer	13	Foreseen	131
Behoove	140	Connivent	143	Falcones	13	Foresty	131
Belabor	140	Conniver	143	Falconette	13	Forestless	131
Benton	62	Constrain	146	Fameliet	63	G	
Benwood	62	Consummate	140	Fames	63	Garcia	123
Berea	62	Contact	140	Farragut	90	Grafton	148
Berger	62	Contagious	140	Farrington	90	Grayson	148
Berholz	62	Corant	140	Farwell	90	H	
Berkeley	62	Corcule	140	Faucett	90	Holgate	90
Berkley	62	Cord	140	Faulkland	90	Holland	90
Berkshire	62	Cordage	140	Fayette	90	Hollenburg	90
Berl	62	Cordate	140	Feign	137	Hybridists	127
Bernice	62	Corded	140	Feisty	138	Hybridity	126
Bernie	62	Cordelia	140	Felanders	138	Hybridous	126
Berryville	62	Cordial	140	Felbovinum	138	Hydage	118
Bigdeford	63	Cordially	140	Feld	138	Hydarnes	118
Bigelow	63	Cordon	140	Felician	138	Hydaspei	118
Bilking	142	Cordovan	139	Felicify	138	Hydaspeos	118
Billbrook	142	Corduroy	139	Felicitate	138	Hydaspeum	118
Billet	142	Corelation	139	Felicitous	138	Hydatide	117
Billin	63	Corinne	139	Felinal	139	Hydatidome	118
Binocular	138	Cork	139	Feliform	139	Hydatiform	117
Binoculate	138					Hydatigere	117

Index—Continued

Code Word—Continued

CODE WORD	PAGE	CODE WORD	PAGE	CODE WORD	PAGE	CODE WORD	PAGE
Hydatule.....	118	Hydrous.....	135	Hymnirent.....	117	Jubilation.....	119
Hyderode.....	118	Hydroxyde.....	135	Hypanthe.....	119	Judah.....	119
Hyderzahn.....	118	Hydrozoal.....	135	Hypanthium....	119	Judicial.....	119
Hydnei.....	118	Hydrozoon.....	141			Judicious.....	119
Hydnocarpa.....	118	Hydruntina.....	126	J		Jungly.....	119
Hydnopore.....	118	Hydrureto.....	126	Jean.....	119	Junior.....	119
Hydracid.....	119	Hydrusa.....	137	Jears.....	119		
Hydraemia.....	119	Hydurilate.....	137	Jeer.....	119	K	
Hydragogos.....	119	Hyemated.....	137	Jeered.....	119	Knibeoog.....	3
Hydragogue.....	119	Hyemation.....	137	Jeerer.....	119	Kniedicht.....	3
Hydraire.....	119	Hyempsal.....	127	Jeering.....	119	Kniefall.....	3
Hydralcool.....	119	Hyenide.....	117	Jelly.....	120	Kniefalles.....	3
Hydraleta.....	119	Hyetograph.....	148	Jemima.....	120	Kniegurt.....	3
Hydraletes.....	119	Hyetology.....	146	Jennet.....	120	Kniegurtes.....	3
Hydramide.....	119	Hygeian.....	116	Jenning.....	120	Kniehebel.....	3
Hydranos.....	119	Hygeist.....	19	Jentling.....	120	Kniehieb.....	3
Hydranthus.....	119	Hygia.....	19	Jeopard.....	120	Kniehout.....	3
Hydraotes.....	119	Hygicium.....	19	Jeoparder.....	120	Kniehouten.....	3
Hydragyre.....	119	Hygiocome.....	36	Jeoparding.....	120	Kniekappe.....	3
Hydrarum.....	119	Hygiologie.....	36	Jeopardize.....	120	Knielap.....	3
Hydraspis.....	119	Hygram.....	18	Jervin.....	120	Knievormig.....	4
Hydrastina.....	119	Hydrograph.....	124	Jested.....	120	Kniewele.....	4
Hydratado.....	119	Hydrologia.....	124	Jester.....	120	Kniffes.....	4
Hydratant.....	119	Hygrometer.....	124	Jestful.....	120	Knoffook.....	4
Hydrate.....	119	Hygrometry.....	124	Jesting.....	120	Knokkels.....	4
Hydraula.....	119	Hygrophile.....	124	Jesuit.....	120	Knolkool.....	4
Hydraules.....	119	Hygroscope.....	124	Jeweling.....	120	Knoud.....	130
Hydrauliam.....	119	Hygroskop.....	124	Jewelry.....	120	Kohaerenz.....	122
Hydraulica.....	119	Hygrusine.....	124	Jewess.....	120	Kohautee.....	122
Hydrazote.....	119	Hylacides.....	124	Jewish.....	120	Kohlacker.....	122
Hydreleon.....	119	Hylacion.....	124	Jib.....	120	Kohlenader.....	122
Hydrellie.....	119	Hylactor.....	124	Jibboon.....	120	Kohlenbett.....	122
Hydreuma.....	119	Hylaeorum.....	124	Jibdoor.....	120	Kohlenerz.....	122
Hydreumata.....	119	Hylaeum.....	124	Jibe.....	120	Kohlenhaus.....	122
Hydriade.....	119	Hylatae.....	124	Jibing.....	120	Kohlenholz.....	122
Hydrie.....	119	Hylemide.....	124	Jigger.....	120	Kohlenkalk.....	122
Hydridae.....	119	Hylicus.....	124	Jiggish.....	120	Kohlenloch.....	122
Hydrinorum.....	119	Hylism.....	124	Jiggling.....	120	Kontow.....	130
Hydriodeux.....	119	Hylithe.....	124	Jill.....	120	Koppelhaak.....	123
Hydriodico.....	119	Hyllcer.....	124	Jilt.....	120	Koppelhout.....	123
Hydriote.....	129	Hylogenie.....	128	Jilting.....	120	Koppeljagd.....	123
Hydroarion.....	129	Hylognosie.....	128	Jingle.....	120	Koppelriem.....	123
Hydrobate.....	129	Hylogyne.....	128	Jingled.....	120	Koppelseil.....	123
Hydrobryon.....	129	Hyloist.....	128	Jockeyism.....	119	Koppelstuk.....	123
Hydrocampe.....	129	Hylology.....	128	John.....	119	Koppeltjis.....	123
Hydrochere.....	129	Hylonomous.....	128	Jouider.....	119	Koppeltouw.....	123
Hydrochous.....	129	Hylophile.....	128	Jollify.....	119	Kruitvaten.....	123
Hydrocleis.....	129	Hylotheist.....	128	Jolliment.....	120	Kruitwagen.....	123
Hydrocoque.....	129	Hylotome.....	128	Jollity.....	120	Kruitzak.....	123
Hydrocyn.....	129	Hylotropie.....	128	Jonas.....	120	Kruitzakje.....	123
Hydrocyste.....	130	Hylozoic.....	129	Jonathan.....	120		
Hydroecie.....	130	Hylozoical.....	129	Joseph.....	120	L	
Hydroecium.....	130	Hylozoism.....	129	Josephine.....	119	Ladeirinha.....	123
Hydrogala.....	130	Hylozoists.....	129	Joshua.....	119	Ladenzeug.....	123
Hydrogarum.....	130	Hymeas.....	129	Josiah.....	119	Ladezeiten.....	123
Hydrogene.....	130	Hymenaeal.....	129	Jostle.....	119	Ladhoelzer.....	123
Hydrogeton.....	131	Hymenaicos.....	129	Jostled.....	120	Ladholz.....	123
Hydrolico.....	131	Hymenaicum.....	129	Jove.....	120	Ladislao.....	123
Hydrologo.....	133	Hymnidici.....	132	Jovial.....	120	Ladogasee.....	123
Hydrolure.....	133	Hymnidicos.....	132	Jovialty.....	120	Ladrao.....	123
Hydromancy.....	134	Hymnidicum.....	129	Joy.....	120	Ladrasemos.....	123
Hydromania.....	134	Hymniebant.....	132	Joyously.....	119	Ladrillazo.....	123
Hydrophora.....	135	Hymnientem.....	132	Joyousness.....	119	Ladroasso.....	123
Hydropismo.....	135	Hymnientis.....	132	Jubilant.....	119	Laetaverit.....	123
Hydrotheca.....	135	Hymnificas.....	132	Jubilate.....	119	Laetice.....	123

Index—Continued

Code Word—Continued

CODE WORD	PAGE	CODE WORD	PAGE	CODE WORD	PAGE	CODE WORD	PAGE
Laeticorum.....	123	Lawgiver.....	xv	Legislating.....	xv	Massiccio.....	137
Laeticos.....	123	Lawgiving.....	xv	Legislative.....	xv	Massicoter.....	137
Laetificet.....	123	Lawless.....	xv	Legislator.....	xv	Massstab.....	134
Laetiscet.....	123	Lawn.....	xv	Legislature.....	xiv	Massstabes.....	125
Laetiscunt.....	123	Lawrence.....	xv	Legitimate.....	xiv	Massvoller.....	125
Laetitatem.....	123	Lax.....	xv	Legitimately.....	xiv	Massylorum.....	125
Laetorio.....	123	Laxative.....	xv	Legitimist.....	xiv	Masteiche.....	125
Laetorius.....	123	Laxity.....	xv	Legless.....	xiv	Mastenhoch.....	125
Laetzlein.....	123	Laxness.....	xv	Legumaic.....	122	Masterhood.....	125
Laeusebaum.....	123	Laymen.....	xv	Leguminoso.....	122	Mastfutter.....	125
Laeutete.....	123	Lazily.....	xv	Leguminous.....	122	Mastgelder.....	125
Lapwing.....	xv	Laziness.....	xv	Leguminum.....	122	Masthafer.....	125
Larboard.....	xv	Lazy.....	xv	Lehenrecht.....	122	Masticine.....	126
Larceny.....	xv	Leach.....	xv	Lehensherr.....	122	Masticinos.....	126
Larch.....	xv	Leaden.....	xv	Lehensstab.....	122	Masticinum.....	126
Largeness.....	xv	Leader.....	xv	Lehenstaxe.....	122	Masticorum.....	126
Largess.....	xv	Leading.....	xv	Lehmmuehle.....	122	Mastigacao.....	126
Lariat.....	xv	Leafage.....	xv	Lehmmergel.....	122	Mastixael.....	126
Lark.....	xv	Leafing.....	xv	Lehmsandes.....	123	Mastkeilen.....	126
Larva.....	xv	Leafless.....	xv	Lehmziegel.....	123	Mastkorf.....	126
Larynx.....	xv	Leafy.....	xv	Lehnbauer.....	123	Mastknehen.....	126
Lascar.....	xv	League.....	xv	Lehngueter.....	123	Mastochsen.....	126
Lash.....	xv	Leagued.....	xv	Lehnhoefen.....	123	Mastoideal.....	126
Lashed.....	xv	Leak.....	xv	Lehnssessel.....	123	Mastreacao.....	130
Lashing.....	xv	Leakage.....	xv	Lehnstreue.....	123	Mastrinder.....	134
Lass.....	xv	Leaking.....	xiv	Lehnstueck.....	123	Mastschrot.....	134
Lasting.....	xv	Leaky.....	xiv	Lehnzins.....	123	Maststueck.....	4
Latch.....	xv	Lean.....	xiv	Lehrbild.....	123	Mastuerzo.....	5
Lateen.....	xv	Leaned.....	xiv	Leisure.....	xiv	Medora.....	141
Lateness.....	xv	Leaning.....	xiv	Leisurely.....	xiv	Medway.....	141
Latent.....	xv	Leanness.....	xiv	Leming.....	xiv	Melborn.....	143
Latently.....	xv	Leaped.....	xiv	Lemon.....	xiv	Meliosedum.....	134
Lateral.....	xv	Leaping.....	xiv	Lemonade.....	xiv	Melton.....	143
Lather.....	xv	Learn.....	xiv	Lender.....	xiv	Melvin.....	143
Lathered.....	xv	Learned.....	xiv	Lending.....	xiv	Mekers.....	141
Lathering.....	xv	Learning.....	xiv	Lengthen.....	xiv	Menlo.....	143
Latin.....	xv	Lease.....	xiv	Lengthened.....	xiv	Mento.....	143
Latinize.....	xv	Leased.....	xiv	Lengthening.....	xiv	Merian.....	143
Latitude.....	xv	Leasehold.....	xiv	Lengthily.....	xiv	Meridan.....	143
Latterally.....	xv	Leaseholder.....	xiv	Leniency.....	xiv	Meridia.....	143
Latterly.....	xv	Leash.....	xiv	Lenient.....	xiv	Merigold.....	143
Lattice.....	xv	Leaven.....	xiv	Lent.....	xiv	Merillian.....	143
Laud.....	xv	Leavened.....	xiv	Leonard.....	xiv	Merom.....	143
Laudable.....	xv	Leavening.....	xiv	Leonine.....	xiv	Merricourt.....	143
Laudably.....	xv	Lecture.....	xiv	Leonora.....	xiv	Mertertjes.....	116
Laudation.....	xv	Lectured.....	xiv	Leopard.....	xiv	Merwin.....	137
Laudative.....	xv	Lecturing.....	xiv	Leopold.....	xiv	Metcalf.....	138
Laugh.....	xv	Ledge.....	xiv	Leper.....	xiv	Meterschap.....	133
Laughable.....	xv	Leeward.....	xiv	Leprosy.....	xiv	Methionate.....	118
Laughed.....	xv	Leeway.....	xiv	Leprous.....	xiv	Methocampe.....	118
Laughter.....	xv	Legacy.....	xiv	Lessen.....	xiv	Methodical.....	124
Laughing.....	xv	Legal.....	xiv	Lessened.....	xiv	Methymnaeo.....	133
Launch.....	xv	Legalize.....	xiv	Lessening.....	xiv	Meticuloso.....	133
Launched.....	xv	Legally.....	xiv	Lethargy.....	xiv	Metieramos.....	134
Laundress.....	xv	Legate.....	xiv	Lettuce.....	xiv	Metiliorum.....	134
Laundry.....	xv	Legatee.....	xv	Levant.....	xiv	Metitionem.....	134
Laura.....	xv	Legation.....	xv	Levelness.....	xiv	Metitionis.....	133
Laurate.....	xv	Legend.....	xv			Metochite.....	133
Laurel.....	xv	Legendary.....	xv			Metocien.....	135
Lava.....	xv	Legging.....	xv			Metocorum.....	135
Lavation.....	xv	Legible.....	xv			Metoleic.....	135
Lavatory.....	xv	Legibly.....	xv			Metropolitan.....	138
Lavender.....	xv	Legion.....	xv			Meublasses.....	135
Lawfully.....	xv	Legislate.....	xv			Meubleriez.....	136
Lawfulness.....	xv	Legislated.....	xv			Meubleront.....	135

M

Maro.....	137
Marquan.....	137
Marquette.....	137
Martel.....	139
Masseteric.....	117

Index—Continued

Code Word—Continued

CODE WORD	PAGE	CODE WORD	PAGE	CODE WORD	PAGE	CODE WORD	PAGE
Plasmata.....	121	Platmaken.....	121	Plausuram.....	121	Pleitesia.....	121
Plasmatic.....	121	Platole.....	121	Plausuri.....	121	Pleitkunst.....	121
Plasmatori.....	121	Platometer.....	121	Plautarum.....	121	Pleitos.....	121
Plasmavamo.....	126	Platon.....	121	Plautia.....	121	Pleitvogel.....	121
Plasmavate.....	121	Platonical.....	121	Plautianos.....	121	Plejaden.....	121
Plasmodium.....	126	Platonis.....	121	Plautidis.....	121	Plejadis.....	121
Plasmogony.....	121	Platonize.....	121	Plautilla.....	121	Pleminius.....	121
Plasmome.....	121	Platrant.....	126	Playbill.....	126	Plemmyrium.....	121
Plassabat.....	121	Platschaaf.....	126	Playbook.....	126	Plemnæus.....	121
Plassabor.....	121	Platschelp.....	121	Playground.....	121	Plempe.....	121
Plassor.....	126	Platschig.....	126	Playhouse.....	121	Plenarias.....	121
Platbek.....	126	Platt.....	121	Playless.....	121	Plenarily.....	122
Platbekkig.....	126	Platteland.....	121	Playones.....	121	Plenarty.....	122
Platanine.....	121	Plattgarn.....	121	Playsome.....	121	Plendorem.....	122
Plataninos.....	121	Platthaupt.....	121	Plaything.....	121	Plengfeest.....	122
Plataniste.....	121	Platthin.....	121	Playtime.....	121	Plenilune.....	122
Platanonis.....	121	Platthuf.....	121	Playwright.....	121	Plenipos.....	122
Platanorum.....	121	Platlack.....	121	Pleadable.....	121	Plenishing.....	122
Platband.....	121	Plattnarbe.....	121	Pleading.....	121	Plenisme.....	122
Platearas.....	121	Plattstitch.....	126	Pleadingly.....	121	Plenitas.....	122
Plateau.....	126	Platybune.....	126	Pleasance.....	121	Plenitatis.....	122
Plateful.....	126	Platygenie.....	126	Pleasedly.....	122	Plenitude.....	122
Platessa.....	121	Platyholme.....	126	Plebaglia.....	122	Plenteous.....	122
Platessis.....	121	Platylobes.....	126	Plebamus.....	122	Plentiful.....	122
Platform.....	121	Platylophe.....	126	Plebe.....	122		
Platheid.....	121	Platynemes.....	126	Plebeity.....	122		
Platiasme.....	121	Platyonyx.....	126	Plebejorum.....	122		
Platicos.....	121	Platypalpe.....	126	Plebejum.....	122		
Platifillo.....	121	Platypus.....	126	Plebitatem.....	122		
Platija.....	121	Platypyges.....	126	Plebitatis.....	122		
Platille.....	121	Plaudebat.....	121	Plechtig.....	122		
Platillos.....	121	Plaudendum.....	121	Pledgeless.....	122		
Platinage.....	121	Plaudit.....	121	Pleegkind.....	122		
Platine.....	126	Plauditory.....	121	Plegaderes.....	122		
Platineux.....	122	Plaudunt.....	121	Plegadoras.....	122		
Platinic.....	122	Plaumorato.....	121	Plegmation.....	122		
Platinides.....	122	Plausible.....	121	Plegueis.....	122		
Platinise.....	122	Plausisset.....	121	Pleister.....	122		
Platinmohr.....	122	Plausisti.....	121	Pleitag.....	122		
Platinous.....	122	Plausitabo.....	121	Pleitudagen.....	122		
Platinoxyd.....	122	Plausitavi.....	121	Pleiteabas.....	122		
Platkop.....	126	Plauso.....	126	Pleiteas.....	121		

S

Simply.....	147
Skeed.....	142
Skill.....	137
Skinch.....	137
Skink.....	139
Skinless.....	139
Skinner.....	139
Skirt.....	145
Skirting.....	145
Skittish.....	145
Skittishly.....	145
Solely.....	130
Solemnnees.....	147
Songstress.....	138