The Union Switch & Signal Co. Swissvale, Pa.

1907

Electro-Pneumatic Catalogue

A CATALOGUE AND PRICE LIST

OF

Interlocking and Signaling Devices

MADE BY

THE UNION SWITCH & SIGNAL CO.

OF PITTSBURGH, PA.

Owners of the Westinghouse System of Electro-Pneumatic Block Signaling and Interlocking.

Also Designers, Manufacturers and Erectors of Pneumatic, Electro-Pneumatic, Electric, Electro-mechanical, and Purely Mechanical Appliances for Railway Protection.

Automatic, Semi-automatic and Manually Operated Block Signals.

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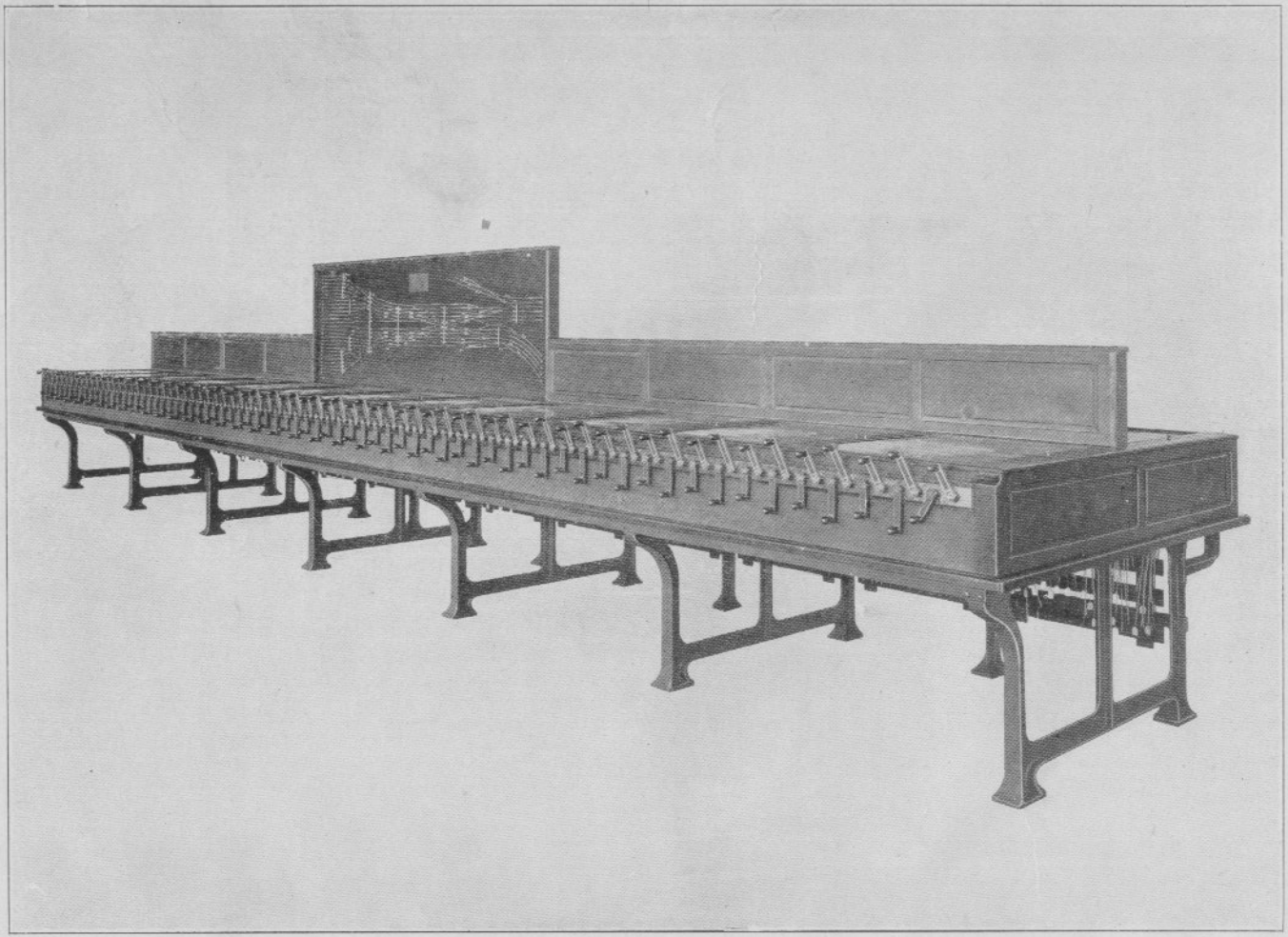
ELECTRO-PNEUMATIC CATALOGUE

PREFACE

THIS Catalogue covers the latest designs of Electro-Pneumatic Appliances for interlocking and block signaling. Switch fittings, such as detector bars, rods, etc., common to all interlocking systems, will be found in our Mechanical Catalogues, while appliances used for the Automatic Control of both Electro-Pneumatic and Electric Signals are listed in our Catalogues covering such articles.

ORDERS

In ordering material from this Catalogue, the plate and figure number should be given in all cases. Also **such other information as may be called for in the notes or lists.**



THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE
Horizontal Roller Type

PLATE 0801

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

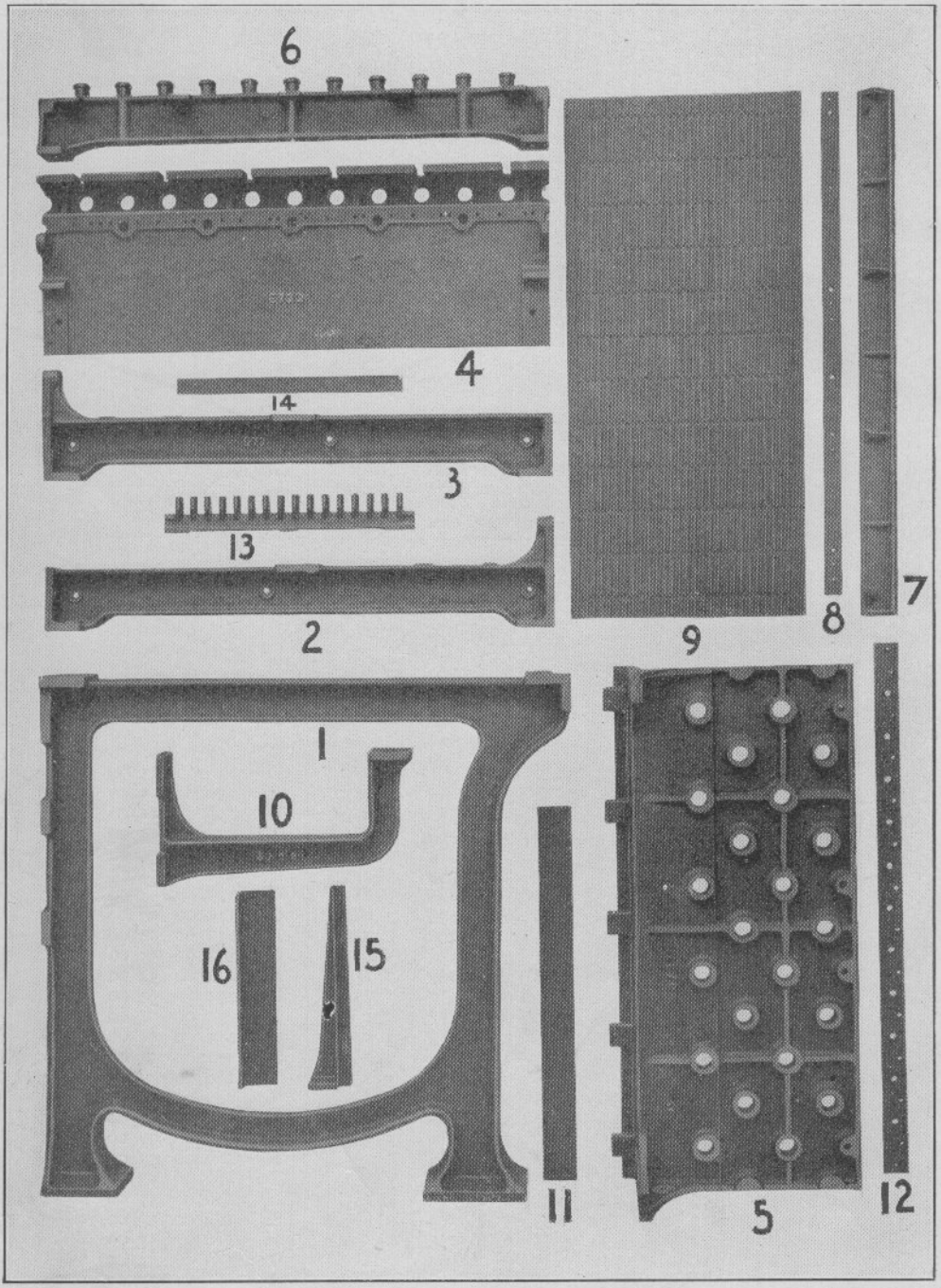
Horizontal Roller Type

In ordering Electro-Pneumatic Interlocking Machines, a signaled track plan should be furnished, drawn to the scale of not over one hundred feet to the inch. This plan must show the location of the tower and the relation of the front of the machine to the track, and also the route or routes to be governed by each signal. It must also indicate the switches which are to be controlled by one lever, unless it is preferred to leave this to our judgment. If any special mechanical locking or electric appliances are required which would not ordinarily be included, full information concerning these must accompany the order. List prices shown on this page are based on machine cases being made of oak, and do not include track models, or special attachments for electric detector circuits, for which special quotations will be furnished, on application, to cover the particular layout of tracks.

The front of a machine is that part occupied by a man when operating the levers.

Order by Plate, Figure and Instructions Given Above

Fig.	CAPACITY OF MACHINE			PRINCIPAL DIMENSIONS		Draw'g	LIST PRICE	
	Levers	Lock'g Bars	Combin't'n Grooves	Length (Outside of Case)	Width / Height to Center of Levers	C-2826 Letter	Per Lever	Per Space
1	2	2	22	1′ 3″	2′ 11¼″ / 0′ 10 5/16″	A	156 00	51 00
2	5	20	22	2′ 0″	3′ 6⅞″ / 3′ 2⅞″	B	156 00	51 00
3	11	20	22	3′ 3″	3′ 6⅞″ / 3′ 2⅞″	B	156 00	51 00
4	17	20	22	4′ 6″	3′ 6⅞″ / 3′ 2⅞″	B	156 00	51 00
4a	17	30	28	4′ 6″	4′ 1 1/16″ / 3′ 2⅞″	C	156 00	51 00
4b	17	30	35	4′ 6″	4′ 5″ / 3′ 2⅞″	D	156 00	51 00
5	23	20	22	5′ 9″	3′ 6⅞″ / 3′ 2⅞″	B	156 00	51 00
5a	23	30	28	5′ 9″	4′ 1 1/16″ / 3′ 2⅞″	C	156 00	51 00
5b	23	30	35	5′ 9″	4′ 5″ / 3′ 2⅞″	D	156 00	51 00
6	29	30	28	7′ 0″	4′ 1 1/16″ / 3′ 2⅞″	C	156 00	51 00
6a	29	30	35	7′ 0″	4′ 5″ / 3′ 2⅞″	D	156 00	51 00
7	35	30	28	8′ 3″	4′ 1 1/16″ / 3′ 2⅞″	C	156 00	51 00
7a	35	30	35	8′ 3″	4′ 5″ / 3′ 2⅞″	D	156 00	51 00
8	47	36	28	10′ 9″	4′ 3⅞″ / 3′ 2⅞″	E	171 00	54 00
8a	47	48	28	10′ 9″	4′ 10⅞″ / 3′ 2⅞″	F	171 00	54 00
9	59	48	28	13′ 3″	4′ 10⅞″ / 3′ 2⅞″	F	171 00	54 00
9a	59	60	28	13′ 3″	5′ 4⅛″ / 3′ 2⅞″	G	171 00	54 00
10	71	60	28	15′ 9″	5′ 4⅛″ / 3′ 2⅞″	G	171 00	54 00
10a	71	72	35	15′ 9″	6′ 1⅛″ / 3′ 1⅛″	H	171 00	54 00
11	83	60	28	18′ 3″	5′ 4⅛″ / 3′ 2⅞″	G	171 00	54 00
11a	83	72	35	18′ 3″	6′ 1⅛″ / 3′ 1⅛″	H	171 00	54 00
12	95	60	28	20′ 9″	5′ 4⅛″ / 3′ 2⅞″	G	171 00	54 00
12a	95	72	35	20′ 9″	6′ 1⅛″ / 3′ 1⅛″	H	171 00	54 00
13	107	60	28	23′ 3″	5′ 4⅛″ / 3′ 2⅞″	G	171 00	54 00
13a	107	72	35	23′ 3″	6′ 1⅛″ / 3′ 1⅛″	H	171 00	54 00
14	119	72	35	25′ 9″	6′ 1⅛″ / 3′ 1⅛″	H	186 00	57 00
14a	119	108	35	25′ 9″	7′ 6⅝″ / 3′ 1⅛″	I	186 00	57 00
15	131	72	35	28′ 3″	6′ 1⅛″ / 3′ 1⅛″	H	186 00	57 00
15a	131	108	35	28′ 3″	7′ 6⅝″ / 3′ 1⅛″	I	186 00	57 00
16	143	72	35	30′ 9″	6′ 1⅛″ / 3′ 1⅛″	H	186 00	57 00
16a	143	108	35	30′ 9″	7′ 6⅝″ / 3′ 1⅛″	I	186 00	57 00
17	155	72	35	33′ 3″	6′ 1⅛″ / 3′ 1⅛″	H	186 00	57 00
17a	155	108	35	33′ 3″	7′ 6⅝″ / 3′ 1⅛″	I	186 00	57 00
18	167	72	35	35′ 9″	6′ 1⅛″ / 3′ 1⅛″	H	186 00	57 00
18a	167	108	35	35′ 9″	7′ 6⅝″ / 3′ 1⅛″	I	186 00	57 00
19	179	108	35	38′ 3″	7′ 6⅝″ / 3′ 1⅛″	I	186 00	57 00
20	191	108	35	40′ 9″	7′ 6⅝″ / 3′ 1⅛″	I	186 00	57 00
21	203	108	35	43′ 3″	7′ 6⅝″ / 3′ 1⅛″	I	186 00	57 00
22	215	108	35	45′ 9″	7′ 6⅝″ / 3′ 1⅛″	I	202 00	60 00



THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Horizontal Roller Type, Details

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Horizontal Roller Type, Details

The front of a machine is that part occupied by a man when operating the levers.

Order by Plate and Figure

Fig.		List Price	
1	Leg only, as shown, for machine having one 15-way or one 18-way locking bracket	14	70
1a	as above, for machine having one 10-way locking bracket	10	00
1b	as above, for machine having two 12-way locking brackets	16	00
1c	as above, for machine having two 15-way locking brackets	19	00
1d	as above, for machine having two 18-way locking brackets	24	00
1e	as above, for machine having three 18-way locking brackets	32	50
2	Right Hand Channel Bar only, as shown, for machine having one 15-way locking bracket and 28 groove combination plate	12	00
2a	as above, for machine having one 10-way locking bracket and 22 groove combination plate	11	70
2b	as above, for machine having one 15-way locking bracket and 35 groove combination plate	12	00
2c	as above, for machine having one 18-way locking bracket and 28 groove combination plate	12	00
2d	as above, for machine having two 12-way locking brackets and 28 groove combination plate	15	30
2e	as above, for machine having two 15-way locking brackets and 28 groove combination plate	15	60
2f	as above, for machine having two 18-way locking brackets and 35 groove combination plate	16	50

For Bolts for above see Plate 0807

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Horizontal Roller Type, Details

Order by Plate and Figure

Fig.		List Price	
2g	Right Hand Channel Bar only, for machine having three 18-way locking brackets and 35 groove combination plate.	22	60
3	Left Hand Channel Bar only, as shown, for machine having one 15-way locking bracket and 28 groove combination plate.	12	00
3a	as above, for machine having one 10-way locking bracket and 22 groove combination plate.	11	70
3b	as above, for machine having one 15-way locking bracket and 35 groove combination plate.	12	00
3c	as above, for machine having one 18-way locking bracket and 28 groove combination plate.	12	00
3d	as above, for machine having two 12-way locking brackets and 28 groove combination plate.	15	30
3e	as above, for machine having two 15-way locking brackets and 28 groove combination plate.	15	60
3f	as above, for machine having two 18-way locking brackets and 35 groove combination plate.	16	50
3g	as above, for machine having three 18-way locking brackets and 35 groove combination plate.	22	60
4	Front Plate only, as shown, for 11 lever section	41	40
4a	as above, for 17 lever section	54	60
4b	Right Hand Front Plate only, for 11 lever section	42	60
4c	as above, for 17 lever section	55	50
4d	Left Hand Front Plate only, for 11 lever section	42	60
4e	as above, for 17 lever section	55	50

For Bolts for above see Plate 0807

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Horizontal Roller Type, Details

Order by Plate and Figure

Fig.		List Price	
4f	Front Plate only, for 5 lever machine	20 00	
4g	as above, for 11 lever machine	41 40	
4h	as above, for 15 lever machine	49 40	
4j	as above, for 17 lever machine	54 60	
5	Back Plate only, as shown, for 11 lever machine	35 50	
5a	as above, for 5 lever machine	20 80	
5b	as above, for 15 lever machine	56 60	
5c	as above, for 17 lever machine	54 40	
5d	as above, for 11 lever section	39 00	
5e	as above, for 17 lever section	56 00	
5f	Right Hand Back Plate only, for 11 lever section	38 40	
5g	as above, for 17 lever section	53 00	
5h	Left Hand Back Plate only, for 11 lever section	38 40	
5j	as above, for 17 lever section	53 00	
6	Intermediate Bearing only, as shown, with lugs for 11 lever machine	9 60	
6a	as above, for 5 lever machine	6 20	
6b	as above, for 15 lever machine	12 50	
6c	as above, for 17 lever machine	13 90	
6d	as above, without lugs, for 11 lever machine	8 20	
6e	as above, for 17 lever machine	12 20	
7	Moulding, as shown, 30″ long	10 00	
7a	as above, 15″ long	5 90	
7b	as above, 20″ long	7 90	
8	Back Bearing Plate, as shown, for 11 lever machine	3 10	
8a	as above, for 5 lever machine	1 62	
8b	as above, for 15 lever machine	4 20	
8c	as above, for 17 lever machine	4 60	

For Bolts for above see Plate 0807

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Horizontal Roller Type, Details

Order by Plate and Figure

Fig.		List Price	
8d	Back Bearing Plate, for 11 lever section	3 12	
8e	as above, for 17 lever section	4 66	
8f	Right Hand Back Bearing Plate, for 11 lever section	3 00	
8g	as above, for 17 lever section	4 50	
8h	Left Hand Back Bearing Plate, for 11 lever section	3 30	
8j	as above, for 17 lever section	4 80	
9	Combination Plate, 28 groove, as shown, for 11 lever machine	36 90	
9a	as above, for 15 lever machine	49 20	
9b	as above, for 17 lever machine	53 80	
9c	Combination Plate, 35 groove, for 11 lever machine	44 80	
9d	as above, for 17 lever machine	66 20	
9e	Combination Plate, 22 groove, for 5 lever machine	15 80	
9f	as above, for 11 lever machine	31 70	
10	Bracket, as shown, for supporting case, for machine having channel bars Figs. 2, 2d, 2e, 2f and 2g	5 00	
10a	as above, for machine having channel bar Fig. 2a	3 30	
10b	as above, for machine having channel bar Fig. 2b	5 70	
10c	as above, for machine having channel bar Fig. 2c	5 70	
11	Tie Bar, as shown, for 11 lever machine	2 20	
11a	as above, for 15 lever machine	2 30	
11b	as above, for 17 lever machine	2 40	
12	Intermediate Bearing Plate, as shown, for 11 lever machine	4 90	
12a	as above, for 5 lever machine	2 50	

For Bolts for above see Plate 0807

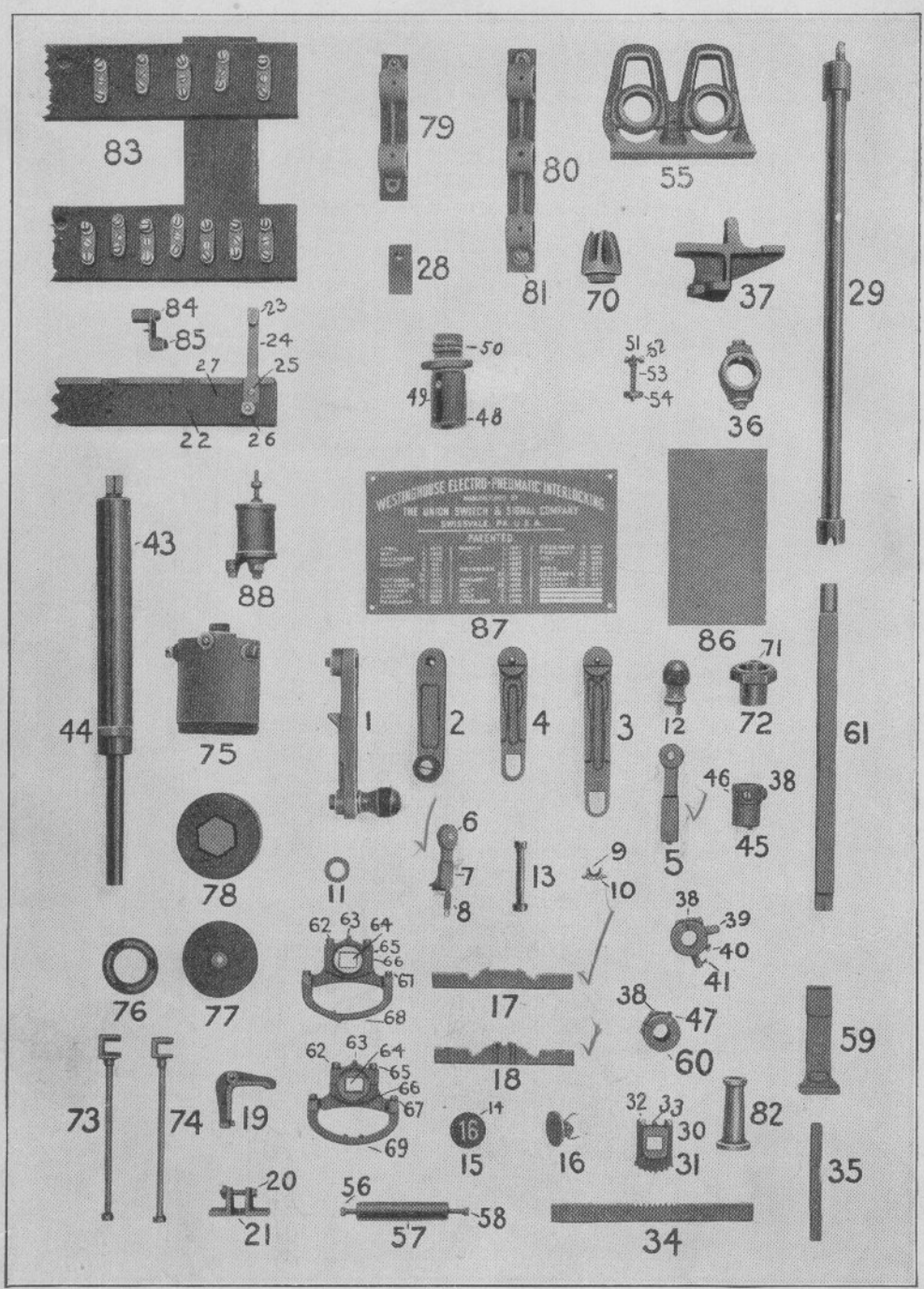
THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Horizontal Roller Type, Details

Order by Plate and Figure

Fig.		List Price	
12b	Intermediate Bearing Plate, for 15 lever machine	6	50
12c	as above, for 17 lever machine	6	80
12d	as above, for 11 lever section	5	30
12e	as above, for 17 lever section	9	70
12f	Right Hand Intermediate Bearing Plate for 11 lever section	5	22
12g	as above, for 17 lever section	9	70
12h	Left Hand Intermediate Bearing Plate, for 11 lever section	5	26
12j	as above, for 17 lever section	9	70
13	Locking Bracket only, 15-way, as shown, for 30 bars	2	10
13a	as above, complete, with cover and machine screws, (1-13, 1-14, Plate 0803), (8-85, 2-82, Plate 0807)	2	60
13b	Locking Bracket only, 10-way, for 20 bars	1	90
13c	as above, complete, with cover and machine screws, (1-13b, 1-14a, Plate 0803), (6-85, 2-82, Plate 0807)	2	30
13d	Locking Bracket only, 12-way, for 24 bars	2	00
13e	as above, complete, with cover and machine screws, (1-13d, 1-14b, Plate 0803), (6-85, 2-82, Plate 0807)	2	42
13f	Locking Bracket only, 18-way, for 36 bars	2	24
13g	as above, complete, with cover and machine screws, (1-13f, 1-14c, Plate 0803), (8-85, 2-82, Plate 0807)	2	72
14	Cover, as shown, for 15-way locking bracket		34
14a	as above, for 10-way locking bracket		26
14b	as above, for 12-way locking bracket		28
14c	as above, for 18-way locking bracket		36
15	Bracket, as shown, for supporting back panel of case	3	66
16	Angle Bar, as shown, for 5 lever machine	1	00
16a	as above, for 11 lever machine	2	00
16b	as above, for 15 lever machine.	2	10
16c	as above, for 17 lever machine	2	60

For Bolts for above see Plate 0807



THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Details Applicable to the Horizontal or Vertical Roller Type

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Details Applicable to the Horizontal or Vertical Roller Type

The front of a machine is that part occupied by a man when operating the levers.

Order by Plate and Figure

Fig.		List Price	
1	Long Switch Lever, complete, with arm, latch, handle, washer, machine screw for handle, bearing, number plate, and screw for fastening lever to shaft (1-3, 1-5a, 1-12, 1-11, 1-13, 1-9a, 1-15a, Plate 0805),	14 40	
1a	Long Signal Lever, complete, as above, (1-3, 1-5c, 1-12, 1-11, 1-13, 1-9a, 1-15a, Plate 0805)	14 40	
2	Short Switch Lever, complete, as above, (1-4, 1-6a, 1-12, 1-11, 1-13, 1-9a, 1-15a, Plate 0805)	14 20	
2a	Short Signal Lever, complete, as above, (1-4, 1-6c, 1-12, 1-11, 1-13, 1-9a, 1-15a, Plate 0805)	14 20	
3	Long Switch or Signal Lever Arm.	3 10	
4	Short Switch or Signal Lever Arm.	3 00	
5	Latch only, for long switch lever	4 90	
5a	Latch, for long switch lever, complete, with spring, (1-5, 1-8a, Plate 0805.)	5 22	
5b	Latch only, for long signal lever.	3 10	
5c	Latch, for long signal lever, complete, with spring. (1-5b, 1-8a, Plate 0805)	3 40	
6	Latch only, for short switch lever	4 90	
6a	Latch, for short switch lever, complete, with spring, (1-6, 1-8a, Plate 0805)	5 20	
6b	Latch only, for short signal lever.	4 90	
6c	Latch, for short signal lever, complete, with spring, (1-6b, 1-8a, Plate 0805).	5 20	
7	Escutcheon Pin, No. 12x¼", for fastening spring Fig. 8 to latch and lever. Price per hundred	1 00	
8	Spring only, for latch	22	
8a	as above, complete, with escutcheon pins, (1-8, 2-7, Plate 0805)	24	
9	Bearing only, for lever handle	90	
9a	Bearing, for lever handle, complete, with machine screw, (1-9, 1-10, Plate 0805).	1 80	
10	Machine Screw, No. 4–40x13/16", for fastening bearing Fig. 9 to lever arm. Price per hundred	3 00	
11	Washer for lever handle Fig. 12	10	
12	Lever Handle, complete, with sleeve	1 80	
13	Machine Screw and Nut, 5/16"x2-5/16", for fastening lever handle to lever arm. Price per hundred	8 00	
14	Flat Head Machine Screw, No. 4–40x¼", for fastening number plate to lever. Price per hundred	1 00	
15	Number Plate only, for lever. Specify number.	40	
15a	as above, complete, with screw, (1-15, 1-14, Plate 0805)	42	

For Screws for above see Plate 0807

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Details Applicable to the Horizontal or Vertical Roller Type

Order by Plate and Figure

Fig.		List Price	
16	Blank Number Plate for spare space, complete, with screw, nut, and spring for fastening to front plate of machine	80	
17	Switch Lever Quadrant	2 70	
18	Signal Lever Quadrant	2 70	
19	Crank only, for signal lever circuit controller	52	
19a	as above, complete, with bearing, machine screw and nut, (1-19, 1-21, 1-20, Plate 0805)	1 60	
19b	Crank only, for signal lever circuit controller at the joint of sections	70	
19c	as above, complete, with bearings, and pivot screws, (1-19b, 1-21a, 1-21b, 2-20a, Plate 0805)	1 50	
20	Machine Screw and Nut, No. 10–32x1 1/16" for bearing Fig. 21	18	
20a	Pivot Screw, 5/16"-32x1/2" for bearings Figs. 21a and 21b	04	
21	Bearing for crank Fig. 19	80	
21a	R. H. Bearing for crank Fig. 19b	40	
21b	L. H. Bearing for crank Fig. 19b	40	
22	Circuit Controller Base only, for 11 lever section	7 60	
22a	as above, for 17 lever section	10 90	
22b	Circuit Controller Base for 11 lever section, complete, with spacers, contact springs, screws for contact springs, terminal posts and battery strip, (1-22, 5-28, 6-23, 6-24, 6-25, 8-26, 1-27, Plate 0805)	14 00	
22c	Circuit Controller Base for 17 lever section, complete, as above, (1-22a, 8-28, 9-23, 9-24, 9-25, 11-26 1-27a, Plate 0805)	30 20	
23	Back Contact Spring for circuit controller	80	
24	Front Contact Spring for circuit controller	16	
25	Machine Screw, No. 8–32x3/8", for fastening contact spring Fig. 24 to circuit controller base	02	
26	Binding Post, complete, with washers and nuts, for circuit controller base	10	
27	Battery Strip, for 11 lever section	60	
27a	as above, for 17 lever section	80	
28	Spacer, for circuit controller base	20	
29	Lever Shaft, complete, as shown, with bushings, for machine having one 10-way locking bracket	3 70	
29a	as above, for machine having one 15-way locking bracket	3 80	
29b	as above, for machine having one 18-way locking bracket	4 00	
29c	Lever Shaft, complete, with three bushings for machine having two 12-way locking brackets	6 50	
29d	as above, for machine having two 15-way locking brackets	6 80	

For Screws for above see Plate 0807

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Details Applicable to the Horizontal or Vertical Roller Type

Order by Plate and Figure

Fig.		List Price	
29e	Lever Shaft, complete, as above, for machine having two 18-way locking brackets	6 90	
29f	Lever shaft, complete, with four bushings, for machine having three 18-way locking brackets	7 00	
31	Locking Bar Driver complete, with cap, screws, and set screw	1 00	
32	Machine Screw, No. 10–32x1″, for fastening cap to locking bar driver. Price per hundred	2 00	
33	Set Screw, No. 10–32x7/16″, for locking bar driver. Price per hundred	2 00	
34	Longitudinal Locking Bar with rack, 5/8″x1/4″. Specify length when ordering. Price per foot	20	
34a	as above, without rack, 5/8″x1/4″. Specify length when ordering. Price per foot	16	
35	Cross Locking Bar, 3/8″x3/8″. Specify length when ordering. Price per foot	16	
36	Trunnion for intermediate shaft bearing	90	
36a	as above, with tapped ends	1 00	
36b	Suspended Trunnion, used at the junction of intermediate shaft bearings	94	
37	Track Model Bracket	2 50	
38	Machine Screw, No. 10–32x3/4″, for couplings Figs. 39 and 60. Price per hundred	1 00	
39	Combined Track Model Driver and Coupling only, for lever and contact roller shafts	94	
39a	as above, complete, with machine screws and set screw, (1-39, 1-38, 2-41, 1-40, Plate 0805)	1 02	
40	Set Screw, No. 10–32x7/16″, for coupling Fig. 39. Price per hundred	5 00	
41	Machine Screw, No. 4–40x3/8″, for track model driver Fig. 39. Price per hundred	1 00	
43	Contact Roller and Shaft, for machine having 22-groove horizontal spring combination plate	5 80	
43a	as above, for machine having 28-groove horizontal spring combination plate	6 00	
43b	as above, for machine having 35-groove horizontal spring combination plate	7 00	
44	Contact Band for contact roller	04	
45	Circuit Shifter Driver only	1 12	
45a	as above, complete, with machine screw and set screw, (1-45, 1-38, 1-46, Plate 0805)	1 20	
46	Set Screw, No. 10–32x7/16″, for circuit shifter driver. Price per hundred	5 00	

For Screws for above see Plate 0807

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Details Applicable to the Horizontal or Vertical Roller Type

Order by Plate and Figure

Fig.		List Price	
47	Set Screw, No. 10–32x7/16", for coupling Fig. 60. Price per hundred	5 00	
48	Contact Roller, complete, with machine screw and bushing for fastening to circuit shifter	3 00	
49	Contact Band, for circuit shifter	1 00	
50	Circuit Shifter only, for switch lever	2 10	
50a	as above, complete, with contact roller and contact band, (1-50, 1-48, 1-49, Plate 0805)	4 40	
51	Spring Guide, for toggle joint Fig. 51a	24	
51a	Toggle Joint, for circuit shifter, complete, with spring guide, spring, pivot, machine screw and nut. (1-51, 1-53, 1-54, 1-52, Plate 0805)	50	
52	Machine Screw and Nut, No. 6–32x1/2", for toggle joint Fig. 51a. Price per hundred	5 00	
53	Spring for toggle joint Fig. 51a	10	
54	Pivot for toggle joint Fig. 51a	12	
55	Double Circuit Shifter Bracket	3 70	
55a	Single Circuit Shifter Bracket	2 10	
56	Machine Screw, No. 12–32x5/8", for fastening support Fig. 57 to combination plate. Price per hundred.	2 00	
57	Support for combination plate, for machine with horizontal spring combination, complete, with machine screws, (1-56, 1-58, Plate 0805)	16	
58	Machine Screw, No. 12–32x7/8", for fastening support Fig. 57, to channel bar. Price per hundred	2 00	
59	End Bracket for intermediate bearing	70	
60	Coupling only, for lever and contact roller shafts	80	
60a	as above, complete, with machine screw and set screw, (1-60, 1-38, 1-47, Plate 0805)	86	
61	Shaft for indication segments	90	
62	Machine Screw, No. 10–32x7/8", for fastening cap to clamp Fig. 66. Price per hundred	2 00	
63	Set Screw, No. 10–32x3/8", for cap Fig. 65. Price per hundred	2 00	
64	Journal for clamp Fig. 66	30	
66	Clamp for indication segment	2 50	
67	Machine Screw, No. 10–32x5/8", for fastening clamp to indication segment. Price per hundred	2 00	
68	Indication Segment only, for switch lever	2 30	
68a	as above, complete, with clamp, cap, journal, machine screws, and set screw, (1-68, 1-66, 1-65, 1-64, 2-62, 2-67, 1-63, Plate 0805)	5 30	
69	Indication Segment only, for signal lever	2 30	
69a	as above, complete, with clamp, cap, journal, machine screws and set screw, (1-69, 1-66, 1-65, 1-64, 2-62, 2-67, 1-63, Plate 0805)	5 30	

For Screws for above see Plate 0807

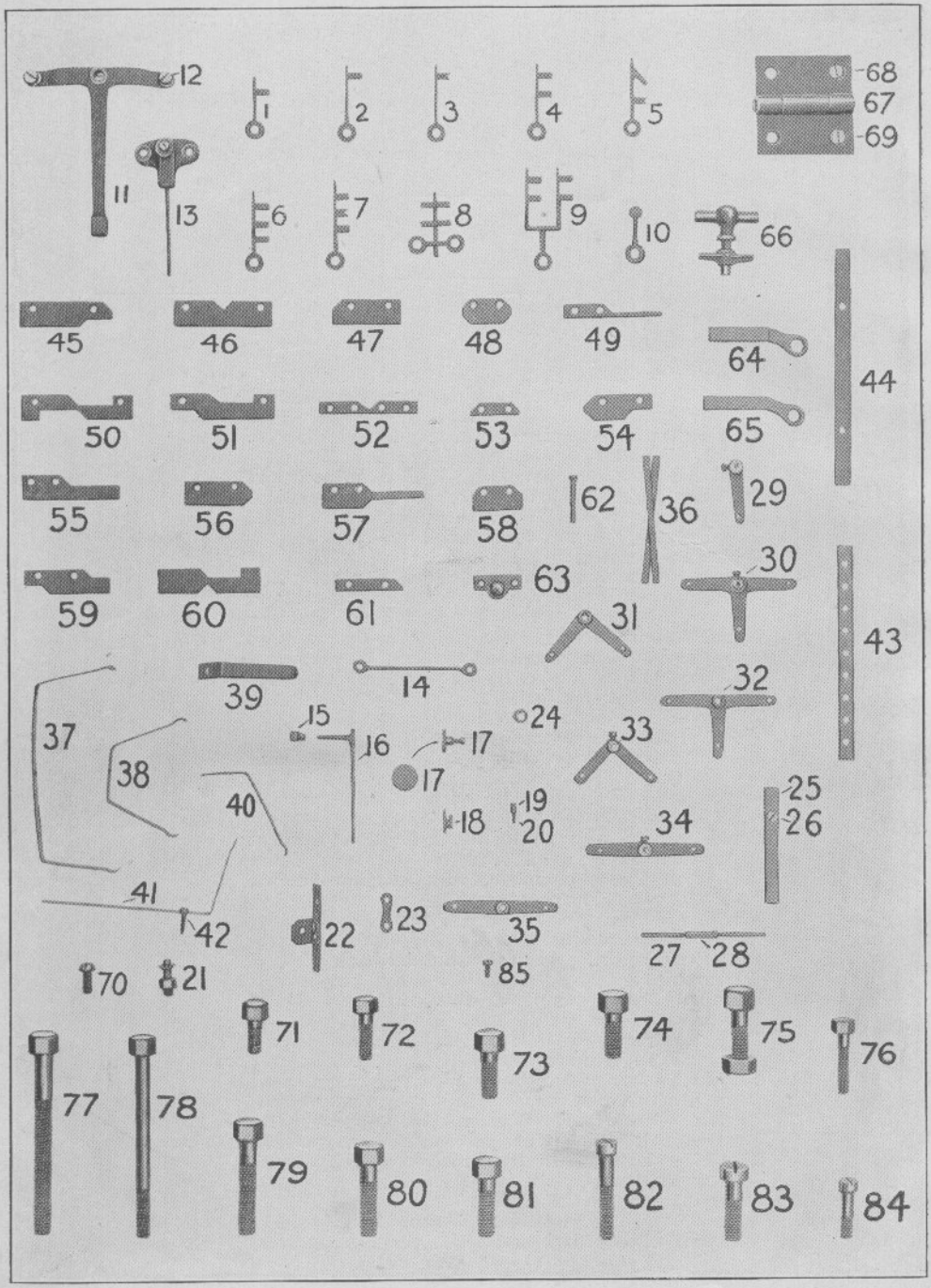
THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Details Appplicable to the Horizontal or Vertical Roller Type

Order by Plate and Figure

Fig.		List Price	
70	Guide for indication latch and segment	1 12	
71	Special Screw, for fastening guide Fig. 70 to bushing Fig. 72	10	
72	Bushing for fastening indication magnet to back plate of machine	90	
73	Armature Stem, complete, with indication latch and armature lock nut, for switch lever	1 90	
74	Armature Stem, complete, with indication latch and armature lock nut, for signal lever	1 70	
75	Indication Magnet only	13 80	
75a	Switch Indication Magnet, complete, with armature, armature stem, spring for releasing armature, and cap, (1-75, 1-77, 1-73, 1-76, 1-78, Plate 0805)	20 00	
75b	Signal Indication Magnet, complete, with armature, armature stem, spring for releasing armature and cap, (1-75, 1-77, 1-74, 1-76, 1-78, Plate 0805.)	20 00	
76	Spring for releasing armature	16	
77	Armature for indication magnets	1 60	
78	Cap for indication magnets	82	
79	Back Bearing, 2-way, only, for indication segment shafts	90	
79a	as above, complete with machine screws, (1-79, 2-81, Plate 0805)	1 00	
80	Back Bearing, 3-way, only, for indication segment shafts	1 00	
80a	as above, complete, with machine screws, (1-80, 2-81, Plate 0805)	1 10	
81	Machine Screw, No. 12–32x⅝″, for back bearing. Price per hundred	3 00	
82	Post for supporting back bearing on back plate of machine	60	
83	Terminal Board, complete, with terminals, for 11 levers	27 00	
83a	as above, for 15 levers	33 00	
83b	as above, for 17 levers	40 00	
84	Terminal, complete, with machine screws, washers, and wood screw for fastening to terminal board	20	
85	Machine Screw and Washer, No. 12–32x⅜″, for terminal. Price per hundred	2 00	
86	Zinc Plate, ⅛″ thick, for track model. Specify length and width when ordering		
87	Name Plate for machine		
88	Resistance coil, complete, as shown. Specify resistance when ordering	4 00	

For Screws for above see Plate 0807



THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Locking Dogs, Track Model and Machine Details Applicable to the Horizontal or Vertical Roller Type

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Locking Dogs, Track Model and Machine Details, Applicable to the Horizontal or Vertical Roller Type

The front of a machine is that part occupied by a man when operating the levers.

Order by Plate and Figure

Fig.		List Price	
1	One-Arm Home Bridge Signal, for track model	10	
2	" " Home Ground Signal, for track model	10	
3	" " Distant Signal, for track model	10	
4	Two-Arm Home Signal, for track model	10	
5	" " Signal, one home and one distant blade, for track model	40	
6	Three-Arm Home Signal, for track model	40	
7	" " " " one distant and two home blades, for track model	42	
8	Four-Arm Signal, for track model	54	
9	Four-Arm Bracket Signal, for track model	80	
10	Pot Signal, for track model	26	
11	Operating Arm only, for track model,	50	
12	Special Screw, No. 4–40 x 13/64", for fastening connecting rod Fig. 14 to operating arm Fig. 11. Price per hundred	4 00	
13	Spring Holder, for track model, complete, with spring and screw for holding operating arm Fig. 11	1 12	
13a	as above, complete, with reinforcing springs, used only on large machines	2 00	
14	Connecting Rod for track model. Specify length when ordering. Price per foot	12	
15	Special Screw, No. 4–40 x 1/4", for fastening connecting rod Fig. 14 to crank. Price per hundred	4 00	
16	Switch, for track model	12	
17	Number Plate, complete, with bushing and screw, for track model signals. Specify number when ordering	20	
18	Number Plate, for track model switch. Specify number when ordering	20	
19	Machine Screw, 1/16"–60 x 3/8", for fastening tracks to track model plate. Price per hundred	2 00	
20	Bushing for screw Fig 19	02	
21	Pivot Post, for cranks of track model, complete, with washer	06	
22	Guide for connecting rod Fig. 14	20	
23	Link for operating double slip for track model	26	

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Locking Dogs, Track Model and Machine Details, Applicable to the Horizontal or Vertical Roller Type

Order by Plate and Figure

Fig.		List Price	
24	Bushing for number plate Fig. 17	02	
25	Brass Bar, 5/32" x 1/4", for track model signal bridge. Specify length when ordering. Price per foot	24	
26	Machine Screw, No. 4-40 x 3/16", for fastening track model signals to bridge. Price per hundred	1 00	
27	Phosphor Bronze Rod for connections to switches and signals on track model. Price per foot	12	
28	Turnbuckle for joining connecting rods of track model	06	
29	Lever, complete, with set screw, for track model	16	
30	Crank, 3-arm 90°, complete, with set screw, for track model	30	
31	Crank, 2-Arm 90°, used without set screw, for track model	22	
32	Crank, 3-Arm 90°, as above	30	
33	Crank, 2-Arm 90°, complete, with set screw, for track model	22	
34	Compensating Lever, complete, with set screw, for track model	34	
35	as above, used without set screw, for track model	34	
36	Double Slip, for track model	1 80	
37	Contact Spring, for combination plate, for alternate rollers	18	
38	as above, for adjacent rollers	12	
39	as above, for signal or switch control	10	
40	as above, for lock magnet control	10	
41	Contact Spring, with long connector, for combination plate	10	
42	Round Head Wood Screw, No. 6 x 3/8", for fastening contact springs to combination plate. Price per hundred.,	1 00	
43	Cross Strip, for combination plate. Specify length when ordering. Price per foot	20	
44	Battery Strip, for combination plate. Specify length when ordering. Price per foot	22	

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Locking Dogs, Track Model and Machine Details, Applicable to the Horizontal or Vertical Roller Type

The term "front and back drilling," as applied to locking dogs, refers to the position of the dogs with relation to the front and back of the machine.

The front of a machine is that part occupied by a man when operating the levers.

Order by Plate and Figure

Fig.						List Price	
45	No.	43	Locking Dog,	3/8	inch thick, back drilling	22	
45a	"	44	" "	3/16	inch thick, back drilling	20	
45b	"	45	" "	3/8	" " front drilling	22	
45c	"	46	" "	3/16	" " " "	20	
46	"	31	" "	3/8	" " back drilling	14	
46a	"	32	" "	3/16	" " " "	12	
46b	"	33	" "	3/8	" " front drilling	14	
46c	"	34	" "	3/16	" " " "	12	
46d	"	58	" "	3/16	" " middle drilling	16	
47	"	3	" "	3/8	" " back drilling	12	
47a	"	4	" "	3/16	" " " "	10	
47b	"	5	" "	3/8	" " front drilling	12	
47c	"	6	" "	3/16	" " " "	10	
48	"	19	" "	3/8	" " front or back drl'g	20	
48a	"	20	" "	3/16	" " " " " "	20	
49	"	23	" "	3/8	" " middle drilling	14	
49a	"	24	" "	3/16	" " " "	14	
50	"	35	" "	3/8	" " front or back drl'g	22	
50a	"	36	" "	3/16	" " " " " "	20	
51	"	47	" "	3/8	" " back drilling	24	
51a	"	48	" "	3/16	" " " "	24	
51b	"	49	" "	3/8	" " front drilling	24	
51c	"	50	" "	3/16	" " " "	24	
52	"	29	" "	3/8	" " middle drilling	16	
52a	"	30	" "	3/16	" " " "	16	
53	"	7	" "	3/8	" " " "	10	
53a	"	8	" "	3/16	" " " "	16	
54	"	15	" "	3/8	" " back drilling	20	
54a	"	16	" "	3/16	" " " "	20	
54b	"	17	" "	3/8	" " front drilling	20	
54c	"	18	" "	3/16	" " " "	20	
55	"	25	" "	3/8	" " back drilling	16	
55a	"	26	" "	3/16	" " " "	16	
55b	"	27	" "	3/8	" " front drilling	16	
55c	"	28	" "	3/16	" " " "	16	

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Locking Dogs, Track Model and Machine Details, Applicable to the Horizontal or Vertical Roller Type

The term "front and back drilling," as applied to locking dogs, refers to the position of the dogs with relation to the front and back of the machine.

The front of a machine is that part occupied by a man when operating the levers.

Order by Plate and Figure

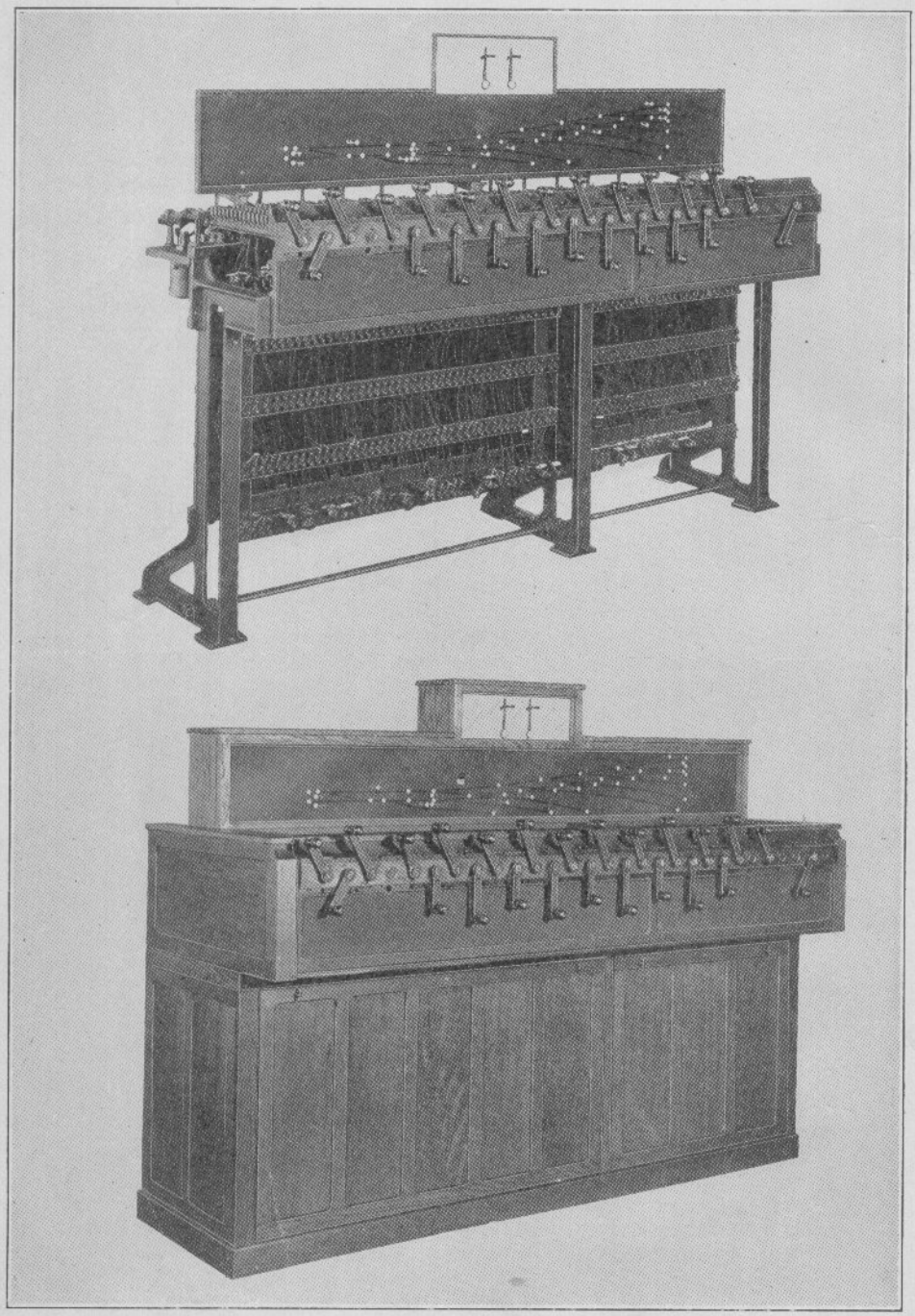
Fig.		List Price	
56	No. 13 Locking Dog, 3/8 in. thick, front or back drl'ng	14	
56a	" 14 " " 3/16 " " " " " " "	12	
57	" 37 " " 3/8 " " " " " " "	20	
57a	" 38 " " 3/16 " " " " " " "	18	
58	" 9 " " 3/8 " " back drilling	14	
58a	" 10 " " 3/16 " " " "	12	
58b	" 11 " " 3/8 " " front drilling	14	
58c	" 12 " " 3/16 " " " "	12	
58d	" 57 " " 3/16 " " middle drilling	12	
59	" 21 " " 3/8 " " front or back drl'ng	16	
59a	" 22 " " 3/16 " " " " " "	16	
60	" 39 " " 3/8 " " back drilling	16	
60a	" 40 " " 3/16 " " " "	16	
60b	" 41 " " 3/8 " " front drilling	16	
60c	" 42 " " 3/16 " " " "	16	
61	" 1 " " 3/8 " " middle drilling	10	
61a	" 2 " " 3/16 " " " "	10	
62	Rivet, 1/8" x 15/16", for fastening locking dog, 3/16 inch thick, to locking bar. Price per hundred	1 00	
62a	Rivet, 1/8" x 1 1/8", for fastening locking dog, 3/8 inch thick, to locking bar. Price per hundred	1 00	
63	Single Reach Trunnion, as shown	20	
63a	Double Reach Trunnion	20	
63b	Triple Reach Trunnion	40	
64	Right Hand Swinging Dog, 3/8 inch thick, as shown	1 42	
64a	Left Hand Swinging Dog, 3/8 inch thick	1 42	
65	Swinging Dog, 3/16 inch thick, as shown	1 40	
66	Handle, complete, as shown, with latch, for case	60	
67	Hinge only, 2" x 1 1/2", for back of track model case	12	
68	Wood Screw, No. 6 x 1/2", for fastening hinge Fig. 67, to back of track model case. Price per hundred	1 00	
69	as above, for fastening hinge Fig. 67 to supporting strip for back of track model case. Price per hundred	1 00	
70	Round Head Machine Screw, No. 10-32 x 1/4", for fastening name plate to machine. Price per hundred	1 00	

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Locking Dogs, Track Model and Machine Details, Applicable to the Horizontal or Vertical Roller Type

Order by Plate and Figure

Fig.		List Price	
71	Cap Screw, 5/16" x 3/4", for fastening intermediate bearing plate to trunnion. Price per hundred	2 00	
72	Cap Screw, 5/16" x 1", for fastening intermediate bearing plate to end bracket. Price per hundred	2 00	
73	Cap Screw, 3/8" x 3/4", for fastening angle iron to leg. Price per hundred	3 00	
74	Cap Screw, 3/8" x 1", for fastening end bracket to intermediate bearing. Price per hundred	3 00	
75	Bolt and Nut, 3/8" x 1 1/4", for fastening intermediate bearing to right and left hand channel bars. Price per hundred	3 00	
76	Cap Screw, 1/4" x 1 1/4", for fastening circuit controller base to front plate. Price per hundred	2 00	
77	Bolt, 3/8" x 3 5/8", for fastening back bearing plate to back plate. Price per hundred	6 00	
78	Cap Screw, 5/16" x 3 3/4", for fastening trunnion to intermediate bearing. Price per hundred	6 00	
79	Cap Screw, 3/8" x 2", for fastening back plate to right and left hand channel bars. Price per hundred	4 00	
80	Bolt and Nut, 3/8" x 1 1/2", for fastening back plate to right and left hand channel bars. Price per hundred	3 00	
81	Cap Screw, 3/8" x 1", for fastening bracket, for supporting back of case, to leg. Price per hundred	3 00	
82	Machine Screw, with Nut, 5/16" x 1 3/4", for fastening locking bracket to front plate. Price per hundred	4 00	
83	Machine Screw, 3/8" x 1 1/4", for fastening right and left hand channel bars to front plate. Price per hundred	3 00	
84	Machine Screw, 1/4" x 1", for fastening lever to shaft. Price per hundred	3 00	
85	Brass Machine Screw, No. 6–32 x 1/4", for fastening cover to locking bracket. Price per hundred	1 00	



THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Vertical Roller Type

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

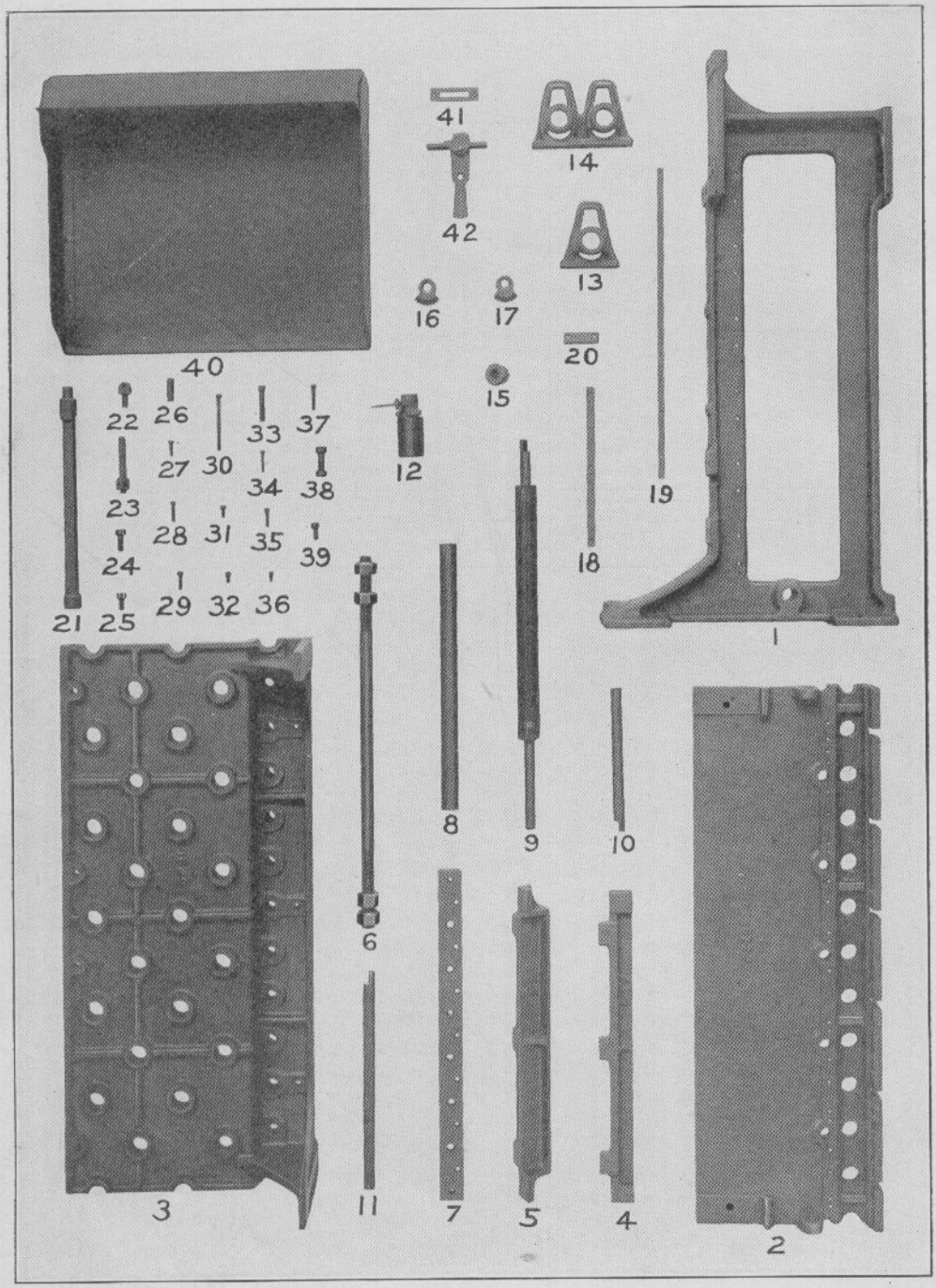
Vertical Roller Type

In ordering Electro-Pneumatic Interlocking Machines, a signaled track plan should be furnished, drawn to the scale of not over one hundred feet to the inch. This plan must show the location of the tower and the relation of the front of the machine to the track, and also the route or routes to be governed by each signal. It must also indicate the switches which are to be controlled by one lever, unless it is preferred to leave this to our judgment. If any special mechanical locking or electric appliances are required which would not ordinarily be included, full information concerning these must accompany the order. List prices shown on this page are based on machine cases being made of oak, and do not include track models, hoods for levers Fig. 40 Plate 0811, or special attachments for electric detector circuits for which special quotations will be furnished, on application, to cover the particular layout of tracks.

The front of a machine is that part occupied by a man when operating the levers.

Order by plate, figure and instructions given above

Fig.	CAPACITY OF MACHINE			PRINCIPAL DIMENSIONS			Draw'g C-2827 Letter	LIST PRICE	
	Levers	Lock'g Bars	Combin't'n Grooves	Length (Outside of Case)	Width (Outside of Case)	Height to Center of Levers		Per Lever	Per Space
1	6	20	35	2′ 2½″	2′ 1¾″	2′ 8¾″	K	159 00	51 00
2	11	20	35	3′ 3″	2′ 1¾″	2′ 8¾″	K	159 00	51 00
2a	11	30	35	3′ 3″	2′ 6⅛″	3′ 2⅞″	L	159 00	51 00
3	17	20	35	4′ 6″	2′ 1¾″	2′ 8¾″	K	159 00	51 00
3a	17	30	35	4′ 6″	2′ 6⅛″	3′ 2⅞″	L	159 00	51 00
4	23	20	35	5′ 9″	2′ 1¾″	2′ 8¾″	K	159 00	51 00
4a	23	30	35	5′ 9″	2′ 6⅛″	3′ 2⅞″	L	159 00	51 00
5	29	20	35	7′ 0″	2′ 1¾″	2′ 8¾″	K	159 00	51 00
5a	29	30	35	7′ 0″	2′ 6⅛″	3′ 2⅞″	L	159 00	51 00
6	35	20	35	8′ 3″	2′ 1¾″	2′ 8¾″	K	159 00	51 00
6a	35	30	35	8′ 3″	2′ 6⅛″	3′ 2⅞″	L	159 00	51 00
6b	35	36	35	8′ 3″	2′ 8¾″	3′ 2⅞″	M	159 00	51 00
7	47	36	35	10′ 9″	2′ 8¾″	3′ 2⅞″	M	174 00	54 00
7a	47	48	35	10′ 9″	3′ 7⅛″	3′ 2⅞″	N	174 00	54 00
8	59	48	35	13′ 3″	3′ 7⅛″	3′ 2⅞″	N	174 00	54 00
8a	59	60	35	13′ 3″	4′ 1⅛″	3′ 2⅞″	O	174 00	54 00
9	71	60	35	15′ 9″	4′ 1⅛″	3′ 2⅞″	O	174 00	54 00
9a	71	72	35	15′ 9″	4′ 6⅜″	3′ 2⅞″	P	174 00	54 00
10	83	60	35	18′ 3″	4′ 1⅛″	3′ 2⅞″	O	174 00	54 00
10a	83	72	35	18′ 3″	4′ 6⅜″	3′ 2⅞″	P	174 00	54 00
11	95	60	35	20′ 9″	4′ 1⅛″	3′ 2⅞″	O	174 00	54 00
11a	95	72	35	20′ 9″	4′ 6⅜″	3′ 2⅞″	P	174 00	54 00
12	107	60	35	23′ 3″	4′ 1⅛″	3′ 2⅞″	O	174 00	54 00
12a	107	72	35	23′ 3″	4′ 6⅜″	3′ 2⅞″	P	174 00	54 00
13	119	72	35	25′ 9″	4′ 6⅜″	3′ 2⅞″	P	189 00	57 00
13a	119	108	35	25′ 9″	5′ 11⅞″	3′ 2⅞″	Q	189 00	57 00
14	131	72	35	28′ 3″	4′ 6⅜″	3′ 2⅞″	P	189 00	57 00
14a	131	108	35	28′ 3″	5′ 11⅞″	3′ 2⅞″	Q	189 00	57 00
15	143	72	35	30′ 9″	4′ 6⅜″	3′ 2⅞″	P	189 00	57 00
15a	143	108	35	30′ 9″	5′ 11⅞″	3′ 2⅞″	Q	189 00	57 00
16	155	72	35	33′ 3″	4′ 6⅜″	3′ 2⅞″	P	189 00	57 00
16a	155	108	35	33′ 3″	5′ 11⅞″	3′ 2⅞″	Q	189 00	57 00
17	167	72	35	35′ 9″	4′ 6⅜″	3′ 2⅞″	P	189 00	57 00
17a	167	108	35	35′ 9″	5′ 11⅞″	3′ 2⅞″	Q	189 00	57 00
18	179	108	35	38′ 3″	5′ 11⅞″	3′ 2⅞″	Q	189 00	57 00
19	191	108	35	40′ 9″	5′ 11⅞″	3′ 2⅞″	Q	189 00	57 00
20	203	108	35	43′ 3″	5′ 11⅞″	3′ 2⅞″	Q	189 00	57 00
21	215	108	35	45′ 9″	5′ 11⅞″	3′ 2⅞″	Q	205 00	60 00



THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Vertical Roller Type, Details

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Vertical Roller Type, Details

The front of a machine is that part occupied by a man when operating the levers.

Order by Plate and Figure

Fig.		List Price	
1	Leg only, as shown, for machine having one 10-way locking bracket. I. R. T. Co's. Standard.	16	60
1a	as above, for machine having one 15-way locking bracket. Penna. R. R. Standard	24	90
1b	as above, for machine having two 12-way locking brackets. Penna. R. R. Standard	17	90
1c	as above, for machine having two 15-way locking brackets. Penna. R. R. Standard	17	60
1d	as above, for machine having two 15-way locking brackets. C. & N. W. R. R. Standard	25	60
2	Front Plate, as shown, for 11 lever section	43	80
2a	as above, for 17 lever section	76	60
2b	as above, for 6 lever machine	21	70
2c	as above, for 11 lever machine	41	40
2d	as above, for 17 lever machine	54	60
2e	Right Hand Front Plate, for 11 lever section	42	50
2f	as above, for 17 lever section	55	50
2g	Left Hand Front Plate, for 11 lever section	42	50
2h	as above, for 17 lever section	55	50
3	Back Plate, as shown, for 11 lever section	39	00
3a	as above, for 17 lever section	56	00
3b	as above, for 6 lever machine	25	00
3c	as above, for 11 lever machine	35	50
3d	as above, for 17 lever machine	54	40
3e	Right Hand Back Plate, for 11 lever section	38	40
3f	as above, for 17 lever section	53	00
3g	Left Hand Back Plate, for 11 lever section	38	40
3h	as above, for 17 lever section	53	00
4	Lower Support, as shown, for combination plate for 6 lever machine	4	80
4a	as above, for 11 lever machine	8	20
4b	as above, for 17 lever machine	11	80

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Vertical Roller Type, Details

Order by Plate and Figure

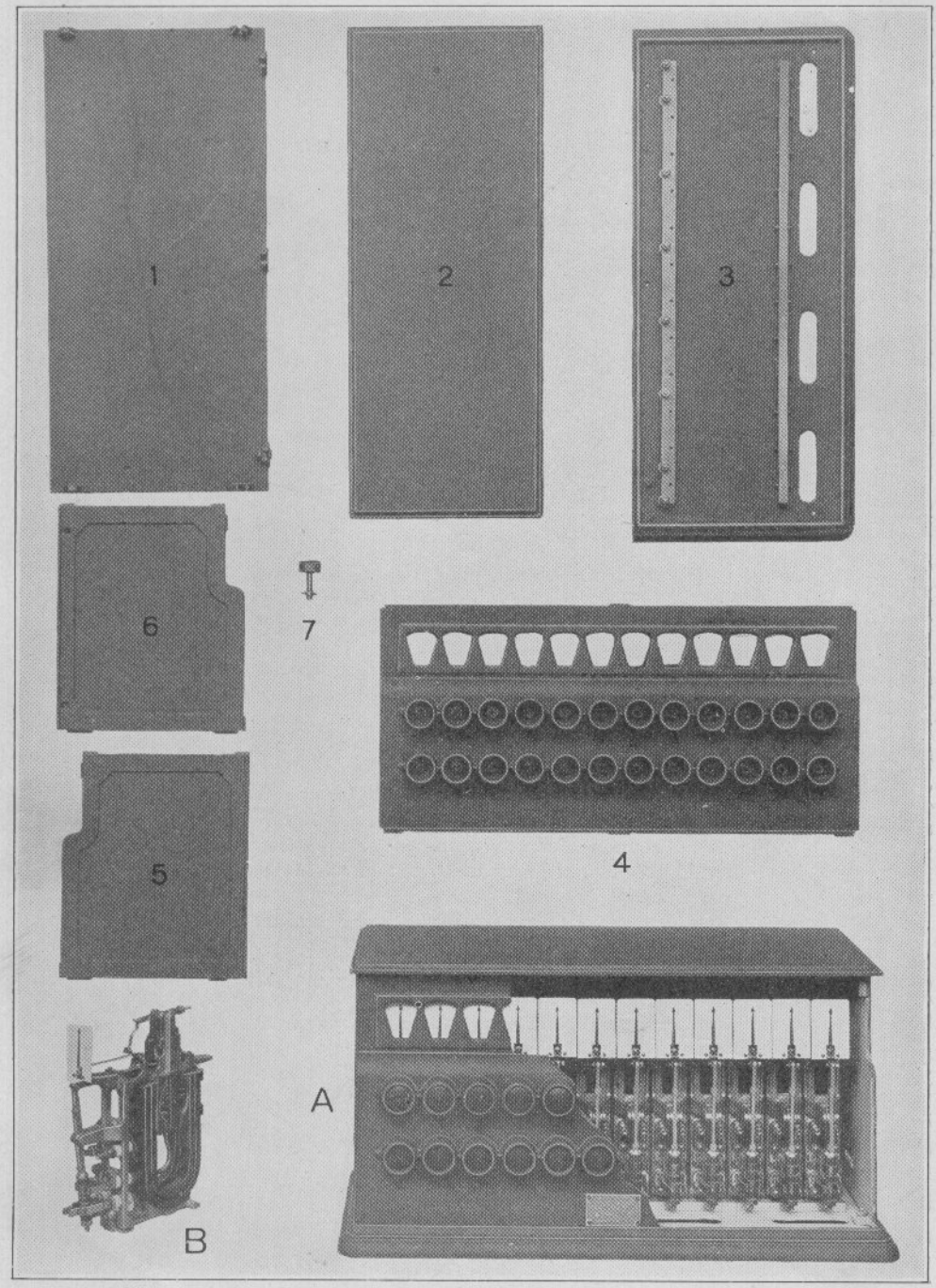
Fig.		List Price	
5	Upper Support, as shown, for combination plate for 6 lever machine	5 10	
5a	as above, for 11 lever machine	8 30	
5b	as above, for 17 lever machine	12 00	
6	Tie Rod as shown, ¾" x 1'-9", complete, with four nuts, for holding legs together, for 6 lever machine	50	
6a	as above, ¾"x2'-9½", for holding legs together for 11 lever machine	60	
6b	as above, ¾"x4'-0½", for holding legs together, for 17 lever machine	70	
7	Intermediate Bearing Plate, for 6 lever machine	3 40	
8	Terminal Strip. Specify length when ordering. Price per foot	1 50	
9	Contact Roller and Shaft only	7 30	
10	Extension Shaft for contact roller	1 10	
11	Shaft for indication segments	90	
12	Circuit Shifter, complete, as shown	4 00	
13	Single Circuit Shifter Bracket	2 10	
14	Double Circuit Shifter Bracket	3 70	
15	Bushing for back plate	60	
16	Bevel Gear for indication segment shaft, with machine screw Fig. 34	90	
17	as above, for contact roller extension shaft, with machine screw Fig. 34	90	
18	Battery Strip, for 6 lever machine	42	
19	as above, for 11 lever machine	60	
19a	as above, for 17 lever machine	80	
20	Bracket for fastening terminal strip to leg	42	
21	Shaft, complete, as shown, with bushings, for machine having one 10-way locking bracket	3 70	
22	Jaw, for fastening hood to front plate of machine	50	
23	Jaw, complete, with link and rivets for fastening hood to jaw Fig. 22	1 12	
24	Tap Bolt, ⅜"x⅞", for fastening lower support Fig. 4 to leg. Price per hundred	3 00	
25	Tap Bolt, ⅜"x1¼", for fastening upper support Fig. 5 to leg. Price per hundred	3 00	

THE ELECTRO-PNEUMATIC INTERLOCKING MACHINE

Vertical Roller Type, Details

Order by Plate and Figure

Fig.		List Price
26	Bushing for side of case	04
27	Machine Screw, No. 12–32x¾", for fastening combination plate to leg. Price per hundred	2 00
28	Machine Screw, No. 12–32x1", for fastening front of case to leg. Price per hundred	4 00
29	Machine Screw, No. 12–32x⅝", for fastening moulding to front plate. Price per hundred	3 00
30	Tap Bolt, ⅜"x3⅝", for fastening back bearing plate to back plate. Price per hundred	6 00
31	Machine Screw, No. 12–32x½", for fastening combination plate to upper and lower supports. Price per hundred	2 00
32	Machine Screw, No. 12–32x⅜", for fastening special locking lever bearing to locking brackets. Price per hundred	3 00
33	Cap Screw, 5/16"x1⅝", for fastening trunnion of intermediate bearing to back plate. Price per hundred.	3 00
34	Machine Screw, No. 8–32x1", for fastening bevel gear to shaft. Price per hundred	2 00
35	Flat Head Machine Screw, No. 10–32x11/16", for fastening terminal strip to bracket Fig. 20. Price per hundred	2 00
36	Machine Screw, No. 12–32x⅜", for fastening bracket Fig. 20 to leg. Price per hundred	2 00
37	Machine Screw, No. 12–32x2¾", for fastening side of case to leg. Price per hundred	9 00
38	Machine Screw and Nut, ⅜"x1⅜", for fastening front plate to leg. Price per hundred	6 00
39	Cap Screw, 5/16"x¼", for fastening intermediate bearing plate to end bracket. Price per hundred	2 00
40	Hood for levers of 6 lever machine	8 60
	Note:—For price of hood for machines of over six levers add $1.20 to list price of Fig. 40 for each additional lever	
41	Latch Plate, for opening in case to accommodate special locking lever	80
42	Special Locking Lever, complete, as shown, with bearing, pin and cotters	4 20



THE ELECTRO-PNEUMATIC PUSH BUTTON MACHINE

(For Classification Yards)

THE ELECTRO-PNEUMATIC PUSH BUTTON MACHINE

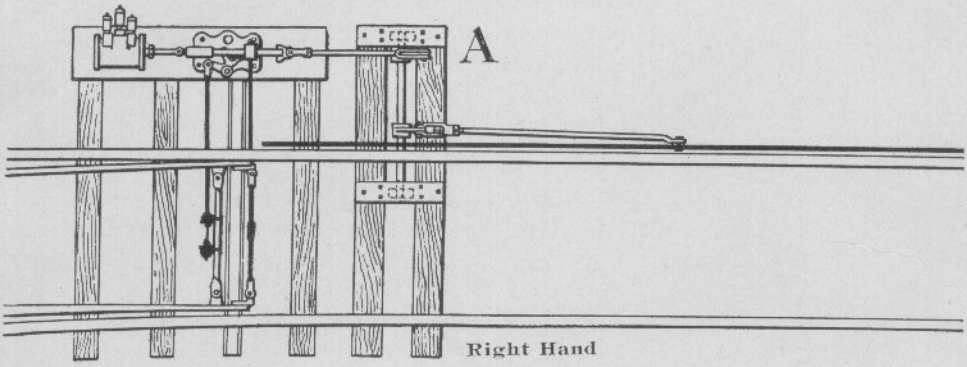
(For Classification Yards)

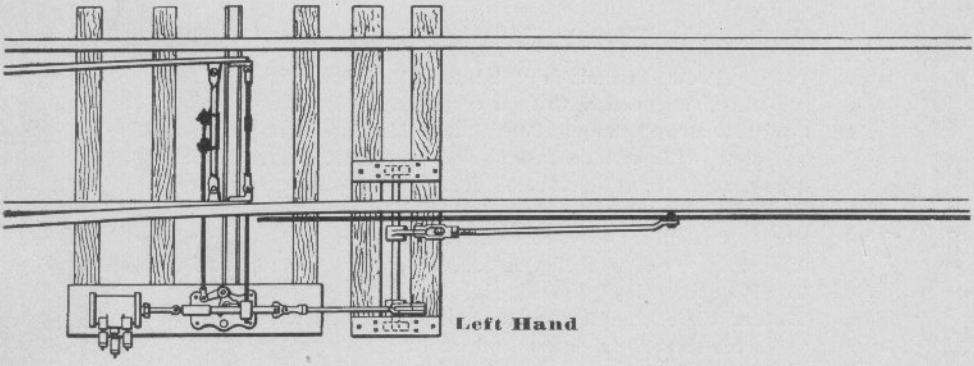
This machine is furnished in 12-way sections with iron cases, although if desired, a two, four or six-way can be furnished in a wooden case.

Orders for repair parts of the mechanism, shown in Fig. B on the opposite plate, should always be accompanied by samples of the parts required.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	12-way Electro-Pneumatic Push Button Machine, complete, as shown, with iron case	1006 00	
Aa	2-way Electro-Pneumatic Push Button Machine, complete, with wooden case	196 00	
Ab	4-way, as above	374 00	
Ac	6-way, as above	552 00	
B	Single Mechanism only, complete, as shown	80 00	
1	Back Plate for case of Fig. A	2 60	
2	Top Plate for case of Fig. A	2 40	
3	Bottom Plate, complete, as shown, for Fig. A, with screws, washers, nuts, and retaining strips for mechanisms	3 50	
4	Front Plate, for case of Fig. A, complete, with glass, retaining strips for glass, and screws	29 00	
5	Right Hand End Plate for case of Fig. A	1 62	
6	Left Hand End Plate for case of Fig. A	1 62	
7	Push Button, complete, as shown with collar and cotter	80	





ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR SINGLE SWITCH WITH ONE DETECTOR BAR

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR SINGLE SWITCH WITH ONE DETECTOR BAR

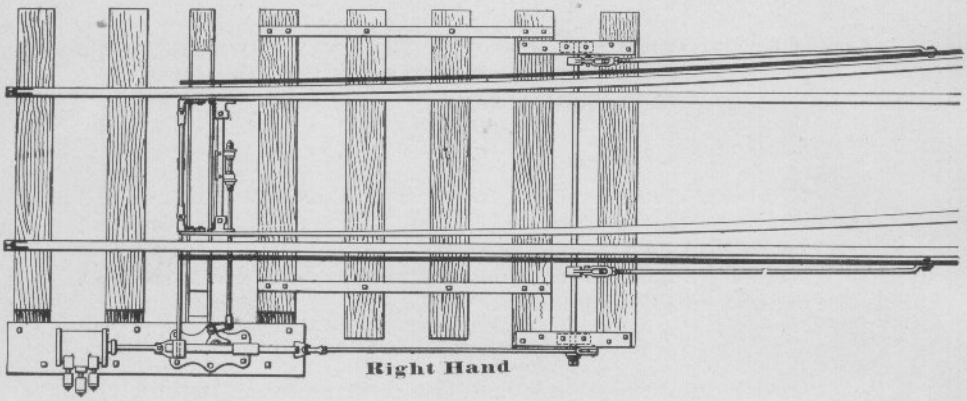
Mechanical Details, such as front and lock rods, detector bars, rail clips, rocking shafts, bearings, etc., are the U. S. & S. Co.'s standard, and will be found in the mechanical catalogue.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

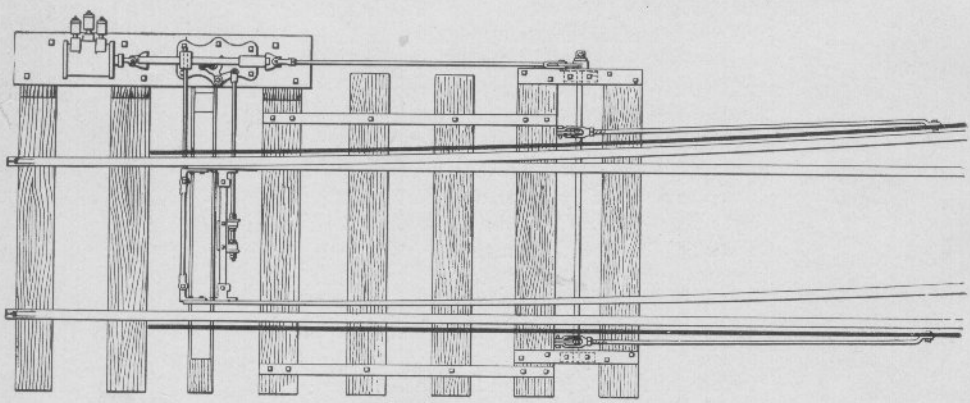
Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
A	Layout for a single switch with detector bar ahead of points. Specify whether a right or left hand layout is desired, and weight of rail. Assemblage: — Iron base plate for supporting cylinder and movement on ties; tie plate with riser plates; switch cylinder with valves and magnets; No. 12 switch and lock movement with indication box; covers for cylinder and movement; switch operating rod and cage; front and lock rods; rocking shaft with arms, bearings, and plates for fastening to ties; 50 foot detector bar, with driving piece, and 16 motion plate rail clips, complete; connecting rods between switch and lock movement and rocking shaft, and between rocking shaft and detector bar; two pieces, 2½" x ½", strap iron and all the necessary pins, bolts, nuts, lag screws and rivets.....	386 00	
Aa	Layout, as above, without detector bar or its fittings ..	322 00	

B



Right Hand



Left Hand

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR SINGLE SWITCH WITH TWO DETECTOR BARS

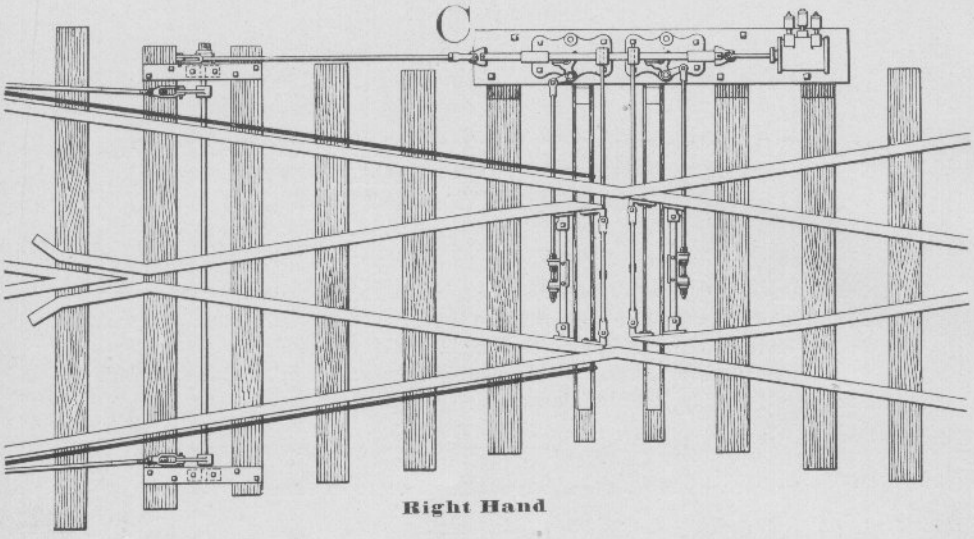
ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR SINGLE SWITCH WITH TWO DETECTOR BARS

Mechanical Details, such as front and lock rods, detector bars, rail clips, rocking shafts, bearings, etc., are the U. S. & S. Co.'s standard, and will be found in the mechanical catalogue.

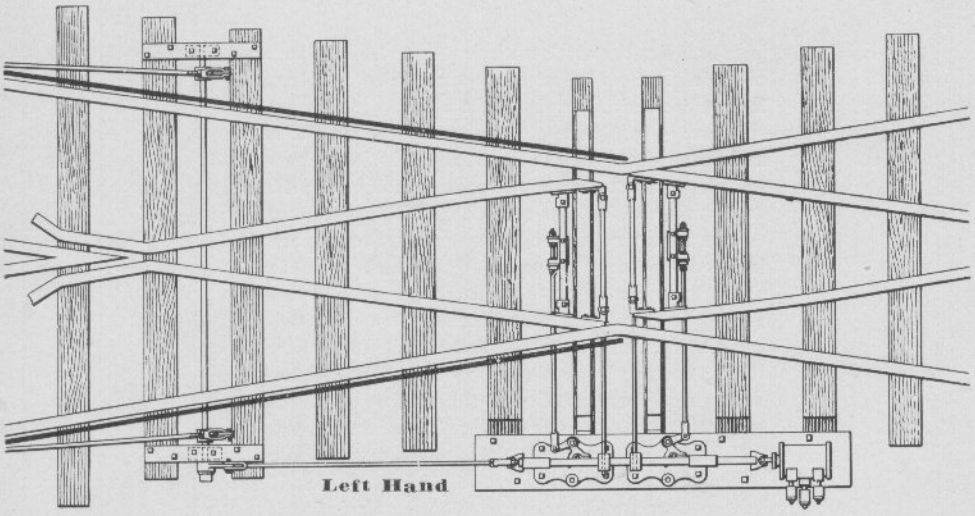
Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
B	Layout for a single switch with two detector bars back of points. Specify whether a right or left hand layout is desired, and weight of rail. Assemblage: — Iron base plate for supporting cylinder and movement on ties; tie plate with riser plates; switch cylinder with valves and magnets; No. 12 switch and lock movement with indication box; covers for cylinder and movement; switch operating rod and cage; front and lock rods; rocking shaft with arms, bearings, and plates for fastening to ties; two 50 foot detector bars with driving pieces, and 32 motion plate rail clips, complete; connecting rods between switch and lock movement and rocking shaft, and between rocking shaft and detector bars; two pieces, 2½" x ½", strap iron; and all the necessary pins, bolts, nuts, lag screws and rivets.....	446 00	
Ba	Layout, as above, without detector bars or their fittings	322 00	



Right Hand



Left Hand

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR MOVABLE POINT FROG CROSSING WITH TWO DETECTOR BARS CONNECTED IN MULTIPLE

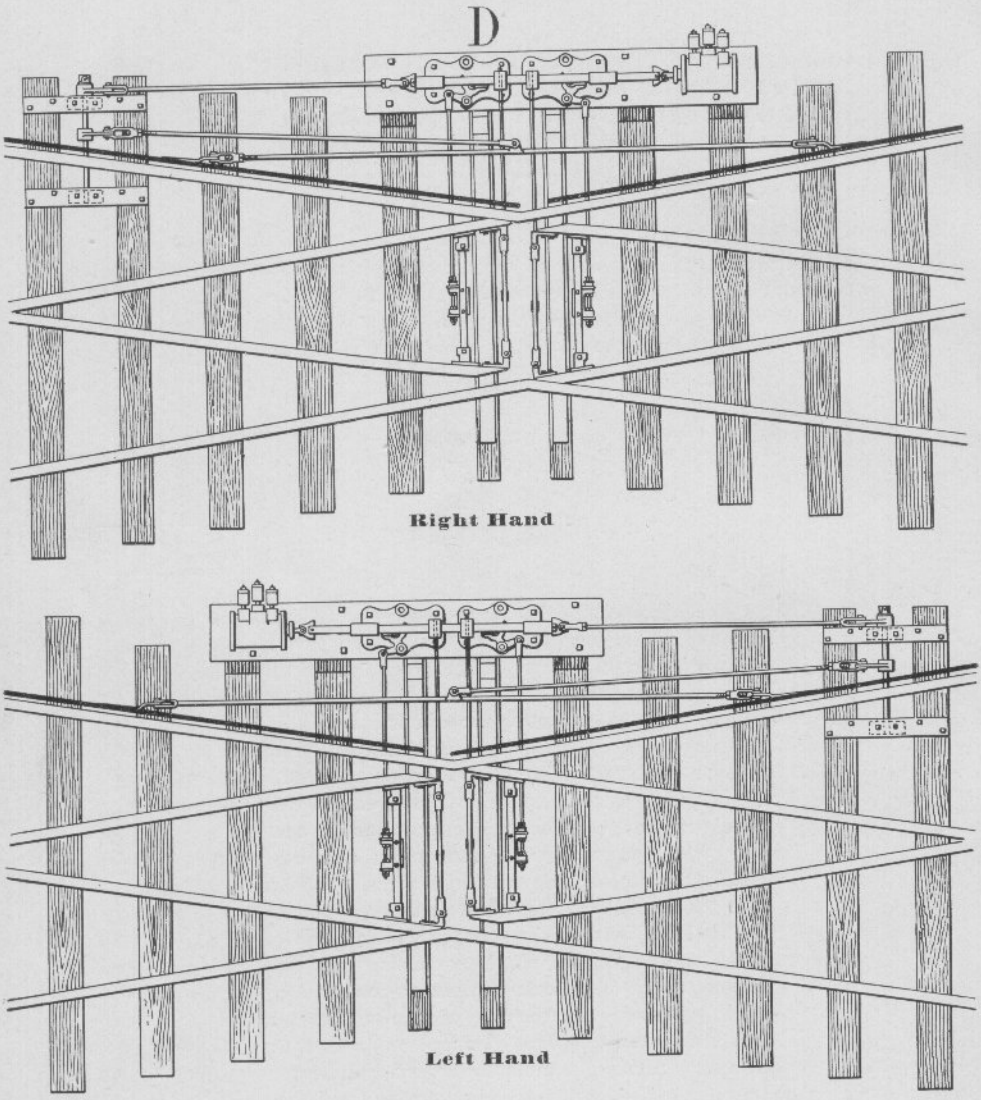
ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR MOVABLE POINT FROG CROSSING WITH TWO DETECTOR BARS CONNECTED IN MULTIPLE

Mechanical Details, such as front and lock rods, detector bars, rail clips, rocking shafts, bearings, etc., are the U. S. & S. Co.'s standard, and will be found in the mechanical catalogue.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
C	Layout for a movable point frog crossing with two detector bars connected in multiple. Specify whether a right or left hand layout is desired, and weight of rail. Assemblage:—Iron base plate for supporting cylinder and movement on ties; two tie plates with riser plates; switch cylinder with valves and magnets; No. 12 tandem switch and lock movement with indication box; covers for cylinder and movement; two switch operating rods and cages; two front and lock rods; rocking shaft with arms, bearings, and plates for fastening to ties; two 50 foot detector bars with driving pieces, and 32 motion plate rail clips, complete; connecting rods between switch and lock movement and rocking shaft, and between rocking shaft and detector bars; two pieces, 2½" x ½", strap iron, and all the necessary pins, bolts, nuts, lag screws and rivets	550 00	
Ca	Layout, as above, without detector bars or their fittings	418 00	



ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR MOVABLE POINT FROG CROSSING WITH TWO DETECTOR BARS CONNECTED IN TANDEM

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR MOVABLE POINT FROG CROSSING WITH TWO DETECTOR BARS CONNECTED IN TANDEM

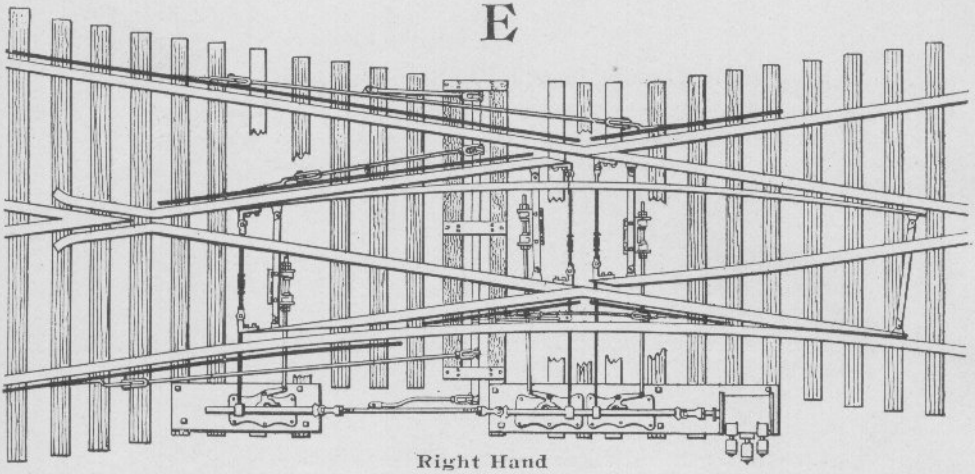
Mechanical Details, such as front and lock rods, detector bars, rail clips, rocking shafts, bearings, etc., are the U. S. & S. Co.'s standard, and will be found in the mechanical catalogue.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

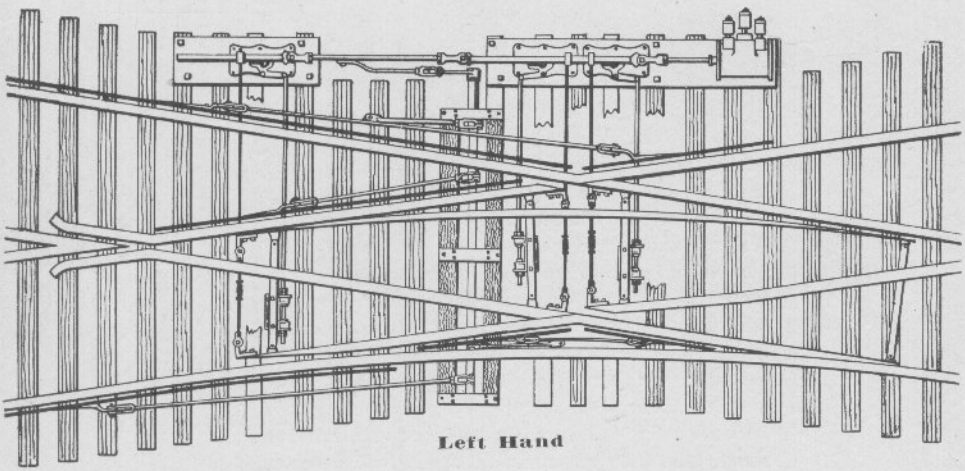
Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
D	Layout for a movable point frog crossing with two detector bars connected in tandem. Specify whether a right or left hand layout is desired and weight of rail Assemblage: — Iron base plate for supporting cylinder and movement on ties; two tie plates with riser plates; switch cylinder with valves and magnets; No. 12 tandem switch and lock movement with indication box; covers for cylinder and movement; two switch operating rods and cages; two front and lock rods; rocking shaft with arms, bearings, and plates for fastening to ties; two 50 foot detector bars with driving pieces, and 32 motion plate rail clips, complete; connecting rods between switch and lock movement and rocking shaft, and between rocking shaft and detector bars; two pieces, 2½″ x ½″, strap iron; and all the necessary pins, bolts, nuts, lag screws and rivets .	534 00	
Da	Layout, as above, without detector bars or their fittings.....	418 00	

E



Right Hand



Left Hand

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR MOVABLE POINT FROGS AND ONE END OF A SINGLE SLIP CROSSING

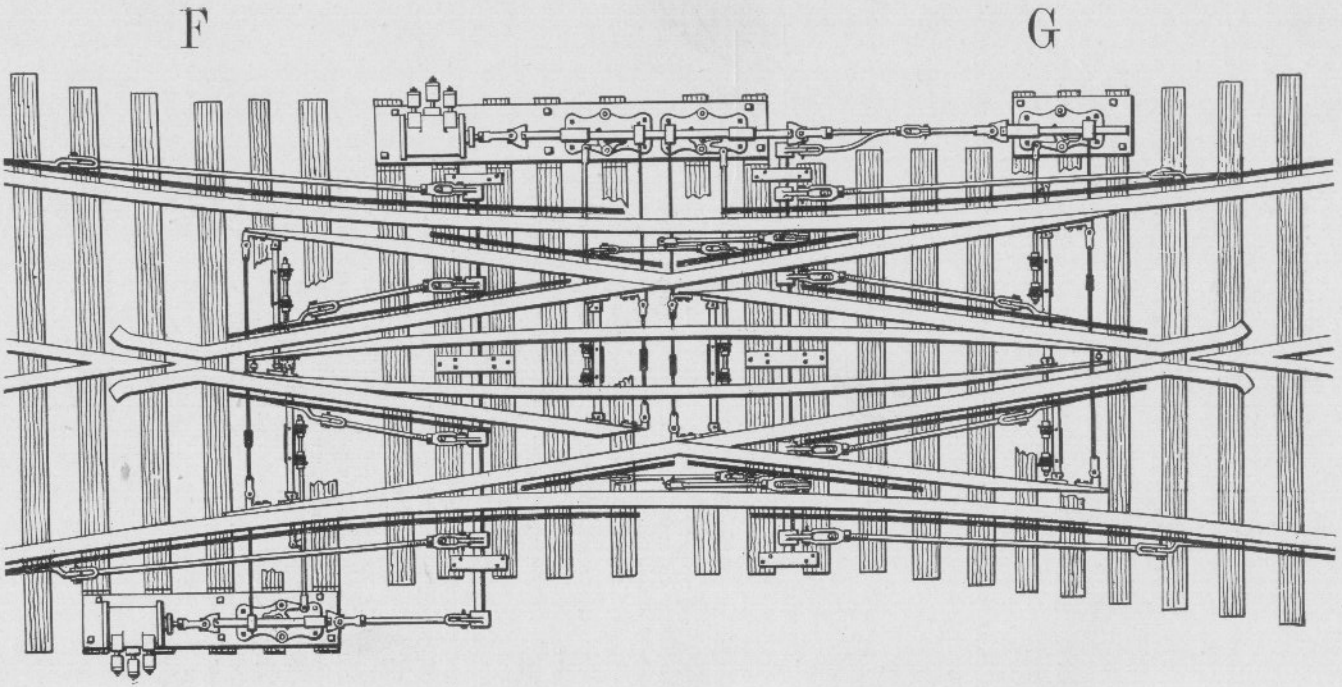
ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR MOVABLE POINT FROGS AND ONE END OF A SINGLE SLIP CROSSING

Mechanical Details, such as front and lock rods, detector bars, rail clips, rocking shafts, bearings, etc., are the U. S. & S. Co.'s standard, and will be found in the mechanical catalogue.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
E	Layout for movable point frogs and one end of a single slip crossing with six detector bars. Specify whether a right or left hand layout is desired, and weight of rail Assemblage:—Two iron base plates for supporting cylinder and movements on ties; three tie plates with riser plates; switch cylinder with valves and magnets; No. 12 tandem switch and lock movement; No. 12 switch and lock movement with indication box; covers for cylinder and movements; switch operating rods and cages; front and lock rods; rocking shaft with arms, bearings, and plates for fastening to ties; two 50-foot detector bars and four short lengths with driving pieces, and 49 motion plate rail clips, complete; connecting rods between switch and lock movements and rocking shaft, and between rocking shaft and detector bars; 2½" x ½", strap iron; and all the necessary pins, bolts, nuts, lag screws and rivets	706 00	
Ea	Layout, as above, without detector bars or their fittings	502 00	



ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR ONE END OF A DOUBLE SLIP CROSSING, AND FOR MOVABLE POINT FROGS AND THE OTHER END OF A DOUBLE SLIP CROSSING

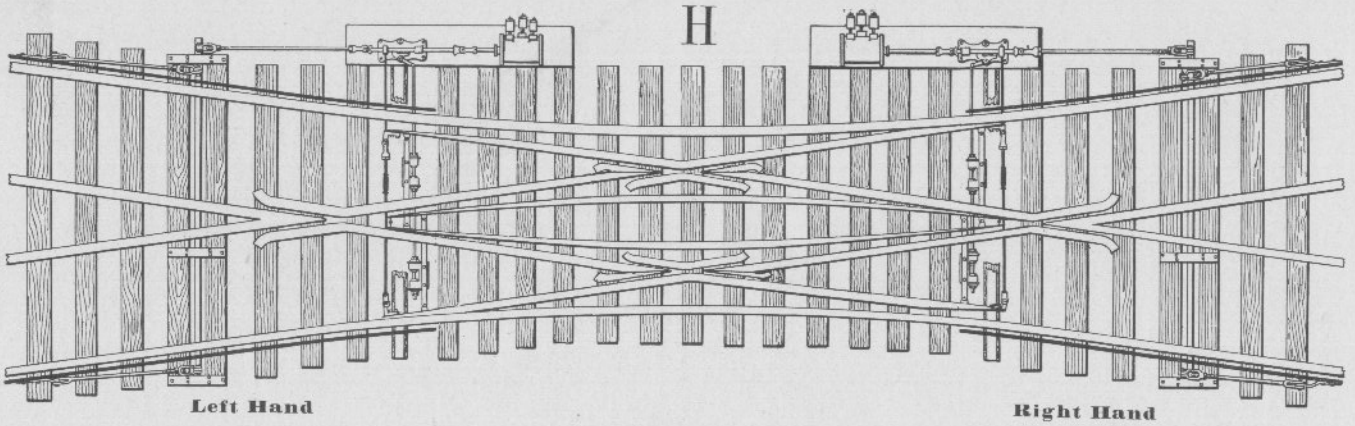
ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR ONE END OF A DOUBLE SLIP CROSSING, AND FOR MOVABLE POINT FROGS AND THE OTHER END OF A DOUBLE SLIP CROSSING.

Mechanical details, such as front and lock rods, detector bars, rail clips, rocking shafts, bearings, etc., are the U. S. & S. Co.'s. standard, and will be found in the mechanical catalogue.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
F	Layout for one end of a double slip crossing with four detector bars. Specify weight of rail. Assemblage: — Iron base plate for supporting cylinder and movement on ties; tie plate with riser plates; switch cylinder with valves and magnets; No. 12 switch and lock movement with indication box; covers for cylinder and movement; switch operating rod and cages, front and lock rods; point separator; rocking shaft with arms, bearings, and plates for fastening to ties; two 50 foot detector bars and two short lengths, with driving pieces and 50 motion plate rail clips, complete; connecting rods between switch and lock movement and rocking shaft, and between rocking shaft and detector bars; 2½" x ⅛" strap iron, and all the necessary pins, bolts, nuts, lag screws and rivets	530 00	
Fa	Layout, as above, without detector bars or their fittings	348 00	
G	Layout, for movable point frogs and one end of a double slip crossing with eight detector bars. Specify weight of rail. Assemblage: — Two iron base plates for supporting cylinder and movements on ties; three tie plates with riser plates; switch cylinder with valves and magnets; No. 12 tandem switch and lock movement; No. 12 switch and lock movement with indication box; covers for cylinder and movements; switch operating rods and cages; front and lock rods; point separator; rocking shaft with arms, bearings, and plates for fastening to ties; two 50 foot detector bars and six short lengths with driving pieces; and 86 motion plate rail clips, complete; connecting rods between switch and lock movements and rocking shaft, and between rocking shaft and detector bars; two special pipe carriers; 2½" x ½" strap iron; and all the necessary pins, bolts, nuts, lag screws and rivets	800 00	
Ga	Layout, as above, without detector bars or their fittings	520 00	



ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR ONE END OF A DOUBLE SLIP CROSSING WITH TWO DETECTOR BARS AHEAD OF POINTS

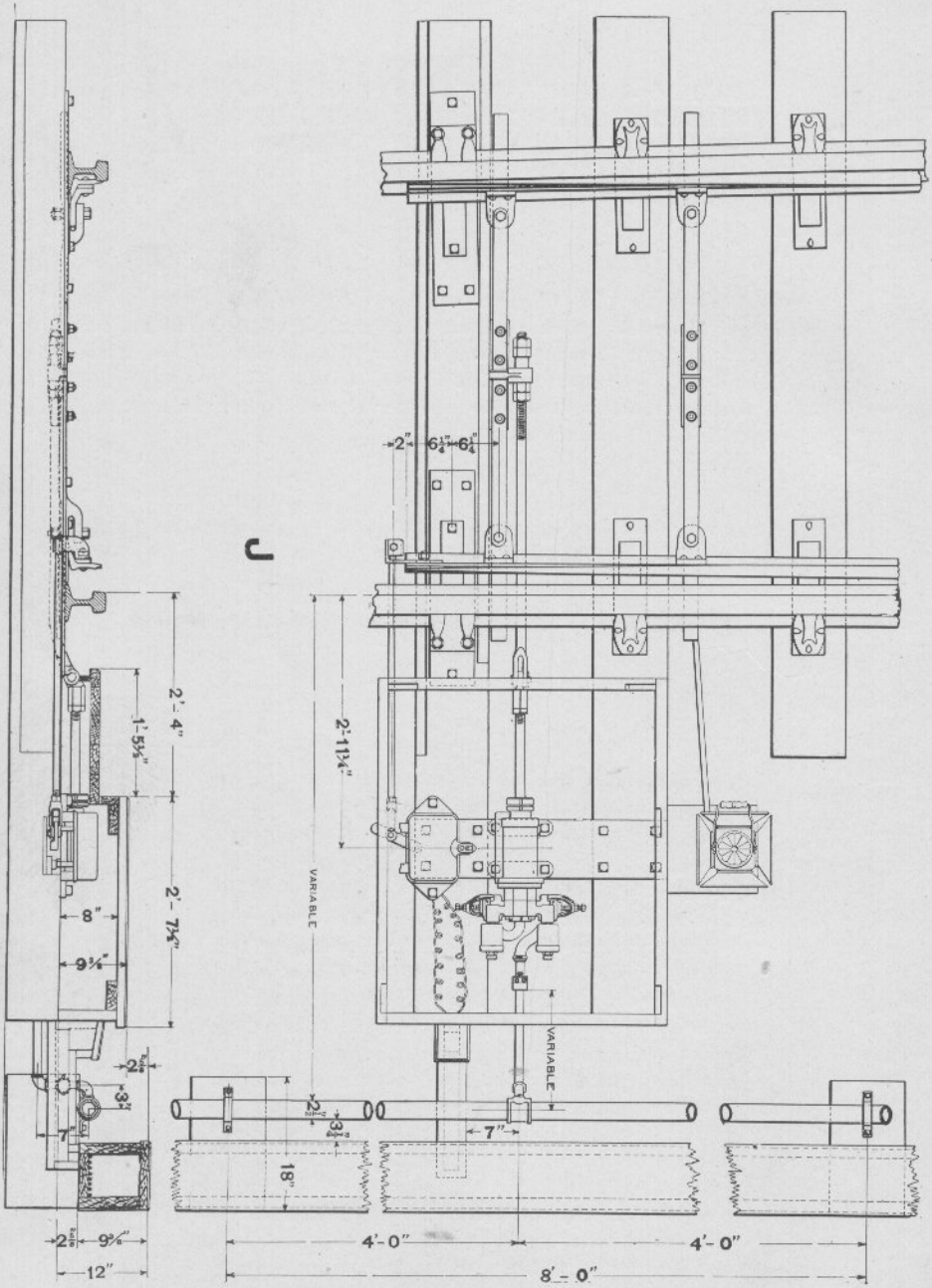
ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENT LAYOUTS FOR ONE END OF A DOUBLE SLIP CROSSING WITH TWO DETECTOR BARS AHEAD OF POINTS

Mechanical details, such as front and lock rods, detector bars, rail clips, rocking shafts, bearings, etc., are the U. S. & S. Co's. standard and will be found in the mechanical catalogue.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
H	Layout for one end of a double slip crossing with two detector bars ahead of points. Specify whether a right or left hand layout is desired, and weight of rail		
	Assemblage: — Iron base plate for supporting cylinder and movement on ties; tie plate with riser plates; switch cylinder with valves and magnets; No. 12 switch and lock movement with indication box; covers for cylinder and movement; switch operating rod and cages; front and lock rods; point separator; rocking shaft with arms, bearings, and plates for fastening to ties; two 50 foot detector bars with driving pieces, and 32 motion plate rail clips, complete; connecting rods between switch and lock movement and rocking shaft, and between rocking shaft and detector bars; 2½" x ½", strap iron; and all the necessary pins, bolts, nuts, lag screws and rivets	476 00	
Ha	Layout, as above, without detector bars or their fittings	348 00	



DIRECT ACTING ELECTRO-PNEUMATIC SWITCH MOVEMENT LAYOUT FOR SINGLE SWITCH WITHOUT DETECTOR BAR

(For Classification Yards)

DIRECT ACTING ELECTRO-PNEUMATIC SWITCH MOVEMENT LAYOUT FOR SINGLE SWITCH WITHOUT DETECTOR BAR

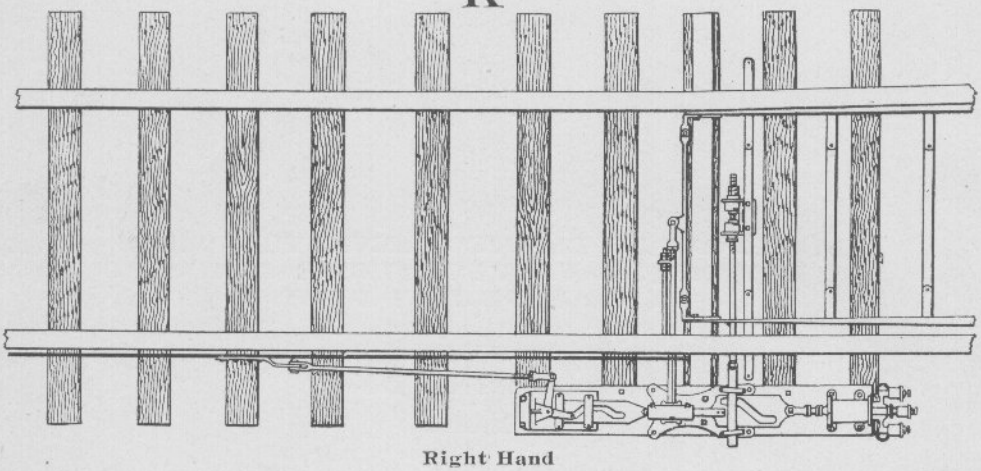
(For Classification Yards.)

Magnets are wound to 400 ohms resistance unless otherwise specified. See page 171 for table of resistances.

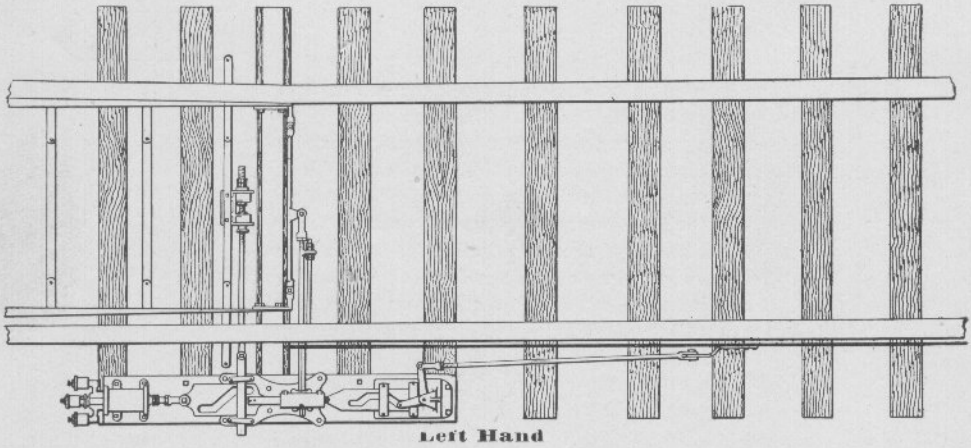
Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
J	Layout for a single switch without detector bar. Specify weight of rail. Penna. R. R. Standard. Assemblage: — Iron base plate for supporting cylinder and circuit controller on ties; tie plates, with riser plates; switch cylinder and switch valve without lock magnet; rotary circuit controller; insulated head and second switch rods; switch operating rod; right or left hand switch foot and connecting rod between switch point and circuit controller; and all the necessary pins, bolts, nuts, lag screws and rivets.	214 00	

K



Right Hand



Left Hand

ELECTRO-PNEUMATIC MOTION PLATE SWITCH AND LOCK MOVEMENT LAYOUTS, WITH DETECTOR BAR MOVEMENT, FOR SINGLE SWITCH WITH ONE DETECTOR BAR

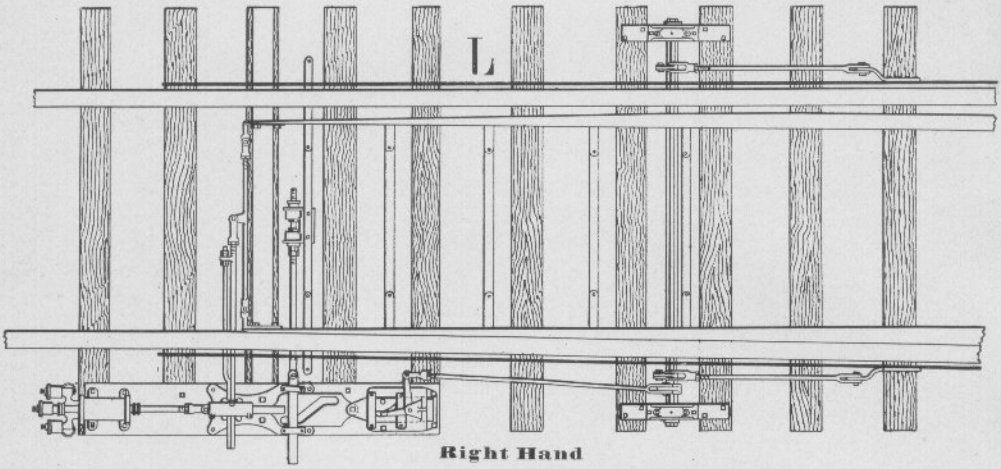
ELECTRO-PNEUMATIC MOTION PLATE SWITCH AND LOCK MOVEMENT LAYOUTS, WITH DETECTOR BAR MOVEMENT, FOR SINGLE SWITCH WITH ONE DETECTOR BAR

Mechanical details, such as front and lock rods, detector bars, rail clips, etc., are the U. S. & S. Co's. standard, and will be found in the mechanical catalogue.

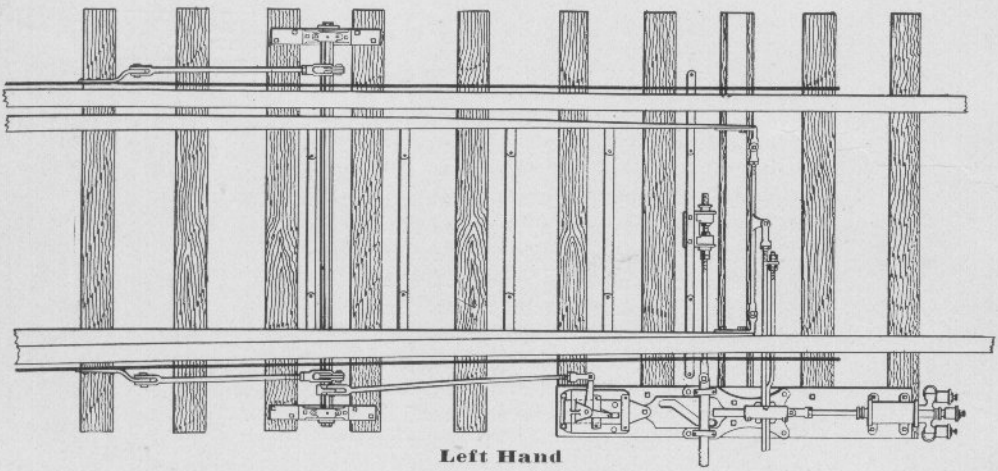
Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
K	Layout for a single switch with detector bar ahead of points. Specify whether a right or left hand layout is desired, and weight of rail. Assemblage: — Iron base plate for supporting cylinder and movements on ties; tie plate with riser plates; switch cylinder with valves and magnets; motion plate switch and lock movement with indication box; motion plate detector bar movement; switch operating rod and cage; front and lock rods; 50 foot detector bar with driving piece and 16 motion plate rail clips, complete; connecting rod between detector bar movement and detector bar; 2½"x½", strap iron; and all the necessary pins, bolts, nuts, lag screws and rivets	316 00	
Ka	Layout, as above, without detector bar movement, detector bar, or its fittings	260 00	



Right Hand



Left Hand

ELECTRO-PNEUMATIC MOTION PLATE SWITCH AND LOCK MOVEMENT LAYOUTS, WITH DETECTOR BAR MOVEMENT, FOR SINGLE SWITCH WITH TWO DETECTOR BARS

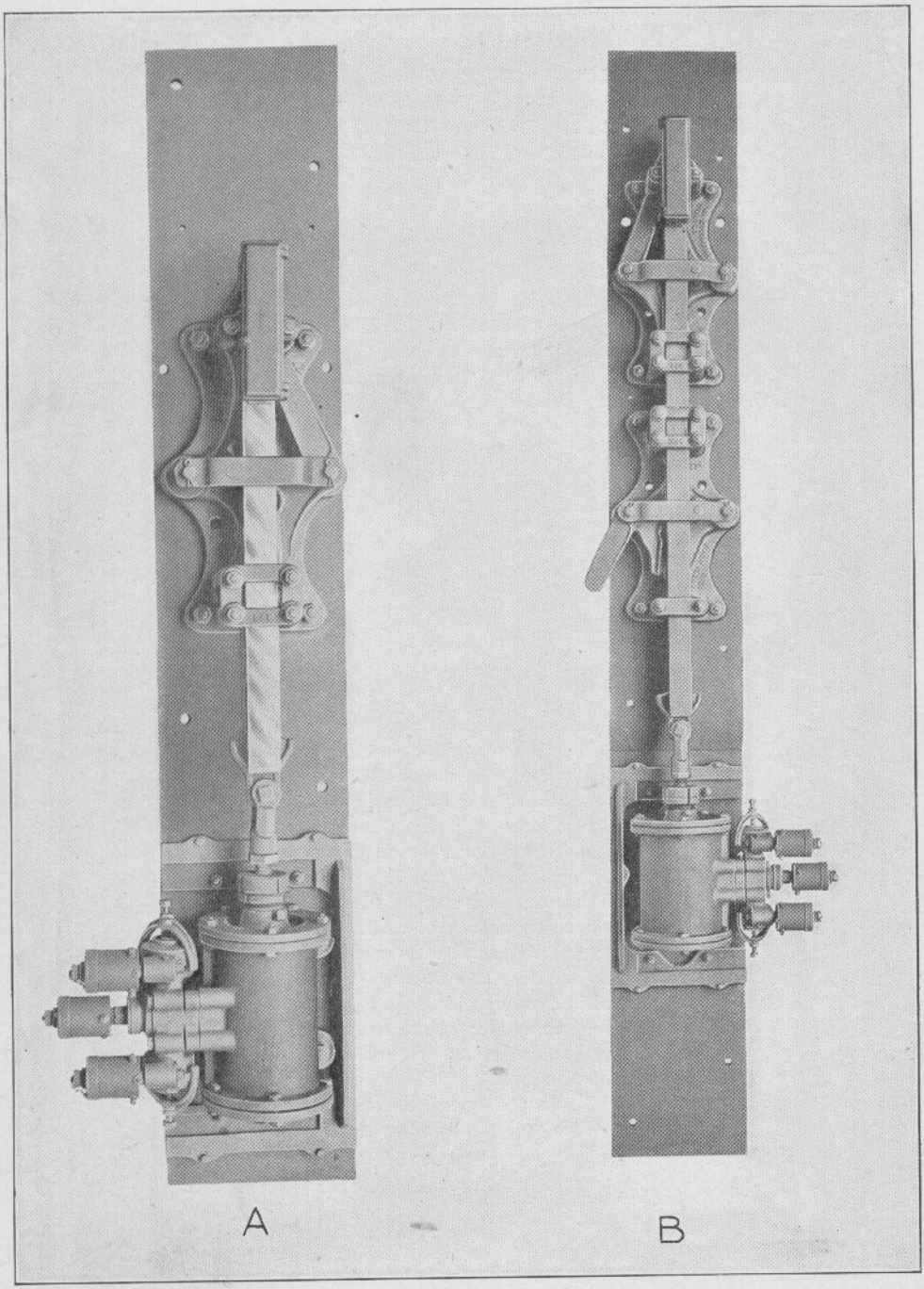
ELECTRO-PNEUMATIC MOTION PLATE SWITCH AND LOCK MOVEMENT LAYOUTS, WITH DETECTOR BAR MOVEMENT, FOR SINGLE SWITCH WITH TWO DETECTOR BARS

Mechanical details, such as front and lock rods, detector bars, rail clips, rocking shafts, bearings, etc., are the U. S. & S. Co's. standard and will be found in the mechanical catalogue.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Below

Fig.		List Price	
1	Layout for a single switch with two detector bars back of points. Specify whether a right or left hand layout is desired, and weight of rail. Assemblage: — Iron base plate for supporting cylinder and movements on ties; tie plate with riser plates; switch cylinder with valves and magnets; motion plate switch and lock movement with indication box; motion plate detector bar movement; switch operating rod and cage; front and lock rods; rocking shaft with arms, bearings and plates for fastening to ties; two 50 foot detector bars with driving pieces and 32 motion plate rail clips, complete; connecting rods between detector bar movement and rocking shaft, and between rocking shaft and detector bars; two pieces, 2½″x½″, strap iron; and all the necessary pins, bolts, nuts, lag screws and rivets	376 00	
1a	Layout, as above, without detector bar movement, detector bars or their fittings	260 00	



ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENTS
WITH CYLINDERS

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENTS WITH CYLINDERS

The No. 12 and No. 14 Switch and Lock Movements are identical, except that No. 12 is used with a solid lock rod, while No. 14 is arranged to accommodate an adjustable lock rod in which the distance between the notches may be varied at will.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

When ordering, specify layout for which movement is desired. For layouts see Plates 0815, 0817, 0819, 0821, 0823, 0825, and 0827.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	No. 12 Switch and Lock Movement, complete, with a 5 inch metallic packed cylinder, switch valve, indication box, base plate and covers for movement and cylinder. When ordering, specify layout for which movement is desired. For layouts see Plates 0815, 0817, 0825 and 0827	244 00	
Aa	as above, with a 6 inch metallic packed cylinder	246 00	
Ab	as above, with a 6½ inch metallic packed cylinder	248 00	
Ac	No. 14 Switch and Lock Movement, complete, with a 5 inch metallic packed cylinder, switch valve, indication box, base plate and covers for movement and cylinder. When ordering, specify layout for which movement is desired. For layouts see Plates 0815, 0817, 0825 and 0827	246 00	
Ad	as above, with a 6 inch metallic packed cylinder	248 00	
Ae	as above, with a 6½ inch metallic packed cylinder	250 00	
B	No. 12 Tandem Switch and Lock Movement, complete, with a 6½ inch metallic packed cylinder, switch valve, indication box, base plate and covers for movement and cylinder. When ordering, specify layout for which movement is desired. For layouts see Plates 0819, 0821, 0823, and 0825	280 00	
Ba	as above, without indication box	270 00	
Bb	as above, with indication box and a 7½ inch metallic packed cylinder	286 00	
Bc	as above, without indication box	276 00	
Bd	No. 14 Tandem Switch and Lock Movement, complete, with a 6½ inch metallic packed cylinder, switch valve, indication box, base plate and covers for movement and cylinder. When ordering, specify layout for which movement is desired. For layouts see Plates 0819, 0821, 0823, and 0825	282 00	
Be	as above, without indication box	272 00	
Bf	as above, with indication box and a 7½ inch metallic packed cylinder	290 00	
Bg	as above, without indication box	280 00	

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENTS AND DETAILS

The No. 12 and No. 14 Switch and Lock Movements are identical, except that No. 12 is used with a solid lock rod, while No. 14 is arranged to accommodate an adjustable lock rod in which the distance between the notches may be varied at will.

Order by Plate and Figure

Fig.		List Price	
A	No. 12 Switch and Lock Movement, complete, as shown, with indication box	32 00	
Aa	No. 14 Switch and Lock Movement, complete, with indication box	32 00	
B	No. 12 Tandem Switch and Lock Movement, complete, as shown, with indication box	48 00	
Ba	as above, without indication box	38 00	
Bb	No. 14 Tandem Switch and Lock Movement, complete, with indication box	48 00	
Bc	as above, without indication box	38 00	
C	Switch Indication Box, Circuit Controller, complete, as shown	10 00	
1	Base, as shown for No. 12 switch and lock movement	5 40	
1a	as above, for No. 14 switch and lock movement	5 40	
2	Stud, 1 " x 6 ", complete, with $\frac{5}{8}$ inch hex nut for guide rollers	30	
3	Strap for guide rollers	48	
4	Cotter, $\frac{1}{4}$ " x $1\frac{3}{4}$", for stud Fig. 6. Price per hundred.	1 00	
5	Cap for lock rod guide rollers, for No. 12 switch and lock movement	36	
5a	as above, for No. 14 switch and lock movement	44	
6	Stud, $1\frac{1}{4}$ " x $5\frac{1}{4}$ ", complete, with cotter for switch crank Fig. 19	36	
7	Guide Roller	36	
8	Operating Roller for slide bar	36	
9	Upper Slide Bar only, as shown, for single movements.	1 20	
9a	as above, for No. 12 tandem movement	2 22	
9b	as above, for No. 14 tandem movement	2 22	

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENTS AND DETAILS

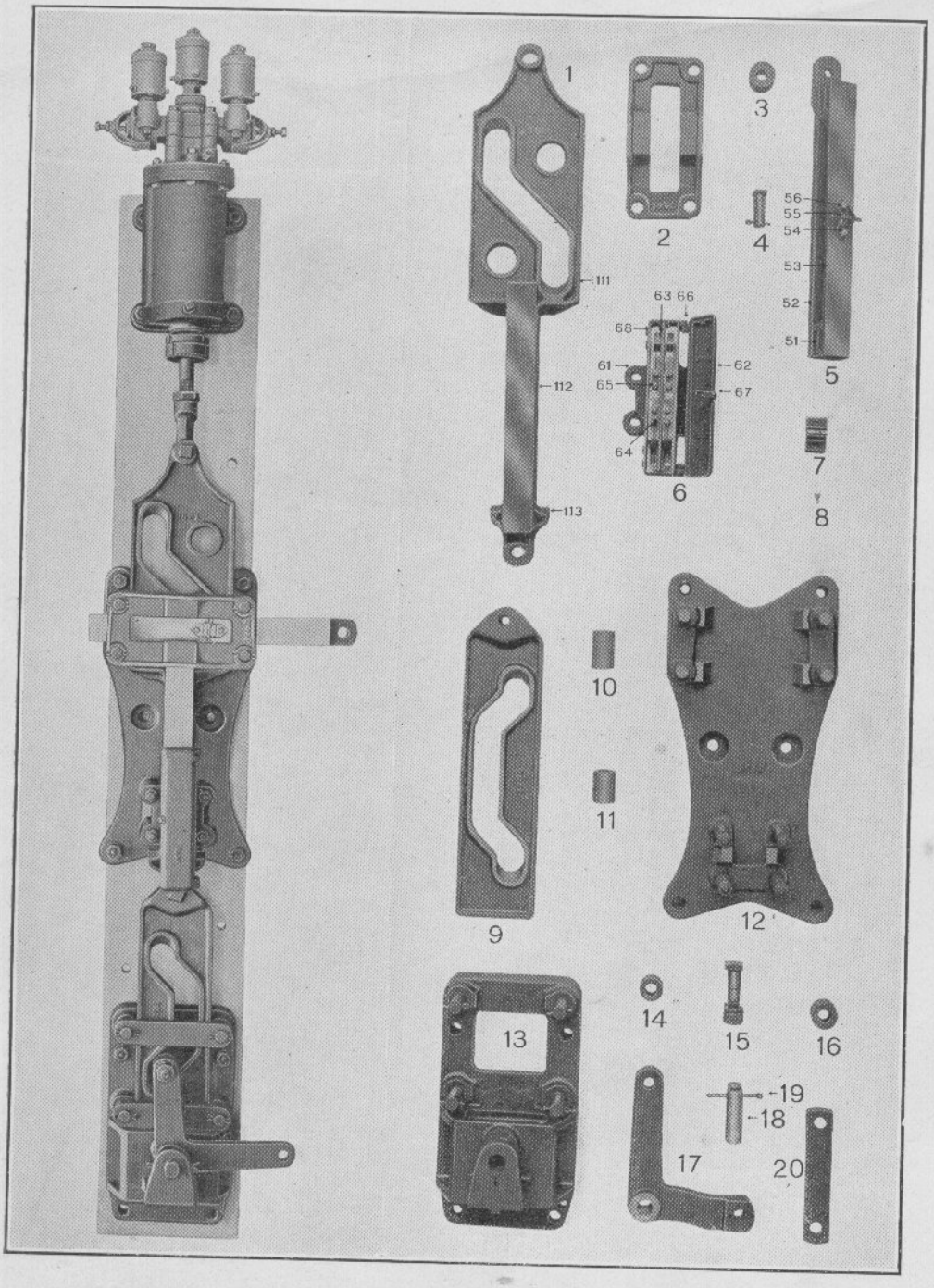
Order by Plate and Figure

Fig.		List Price	
9c	Slide Bar, for single movements, complete, with lugs, operating roller and stud, locking dogs, rivets, contact block and cap screws, (1-9, 1-10, 2-11, 1-8, 1-16, 1-14, 1-15, 6-13, 4-12, 1-45, 2 46, Plate 0837).	6 00	
9d	Slide Bar, for No. 12 tandem movement, complete, as above, (1-9a, 1-10a, 2-11, 2-8, 2-16, 2-14, 1-15a, 9-13, 4-12, 1-45, 2-46, Plate 0837)	10 70	
9e	Slide Bar, for No. 14 tandem movement, complete, as above, (1-9b, 1-10a, 2-11, 2-8, 2-16, 2-14, 1-15a, 9-13, 4-12, 1-45, 2-46, Plate 0837)	10 70	
10	Lower Slide Bar only, as shown, for single movements.	1 30	
10a	as above, for tandem movements	2 22	
11	Lug for slide bar	60	
12	Rivet, ½ " x 3 ", for fastening lug Fig. 11 to slide bars. Price per hundred	3 00	
13	Rivet, ½ " x 1 ", for fastening locking dog to slide bar. Price per hundred	1 00	
14	Upper Locking Dog, for slide bar, for single and tandem movements	28	
15	Lower Locking Dog, for slide bar, for single movements	22	
15a	as above, for tandem movements	24	
16	Stud for operating roller of slide bar	16	
17	Strap for switch crank and intermediate guide roller	48	
18	Stud for intermediate guide roller	16	
19	Switch Crank, as shown, for No. 12 switch and lock movement	2 90	
19a	as above, for No. 14 switch and lock movement	2 90	
20	Bolt and Nut, ¾ " x 10 ", for fastening movement to tie. Price per hundred	12 00	
21	Bolt and Nut, ¾ " x 8½ ", for fastening movement to tie. Price per hundred	12 00	
22	Bolt and Nut, ¾ " x 8 ", for fastening movement to tie. Price per hundred	11 00	

ELECTRO-PNEUMATIC SWITCH AND LOCK MOVEMENTS AND DETAILS

Order by Plate and Figure

Fig.		List Price
23	Bolt and Nut, ¾″ x 7½″, for fastening movement to tie. Price per hundred	11 00
24	Bolt and Nut, ¾″ x 2¾″, for fastening movement to base plate. Price per hundred	12 00
25	¾ inch Lock Washer. Price per hundred	2 00
26	¾ inch Plate Washer. Price per hundred	2 00
27	Indication box only, as shown	1 10
28	Cover only, for indication box	72
29	Insulating Separator, for indication box	22
30	Top Insulation, for indication box	34
31	Bottom Insulation, for indication box	34
32	Top Insulating Plate, for indication box	22
33	Bottom Insulating Plate, for indication box	20
34	Insulation only, for cover of indication box	12
35	Machine Screw, No. 6–32 x ½″, for fastening insulation Fig. 34 to cover of indication box. Price per hundred	1 00
36	Insulating Bushing for indication box	02
37	Terminal Post, for indication box, complete, as shown, with nuts and insulating bushing	10
38	as above, without insulating bushing	08
39	Contact Spring for indication box	20
40	Spring, complete, with two rivets, ⅛″ x ⅜″, and pin, No. 30 x 7/16″, for fastening cover to indication box	24
41	Connector for terminal posts of indication box	02
42	Connector and Lock Plate for terminal posts of indication box	20
43	Nut Lock for cap screw Fig. 46	02
44	Rivet, 3/16″ x 1″, for fastening cover to indication box. Price per hundred	1 00
45	Contact Block, for slide bar, complete, with insulating block, contact plate and rivets for fastening insulating block to contact block	90
46	Cap Screw, ¼″ x ⅝″, for fastening contact block to slide bar. Price per hundred	2 00



ELECTRO-PNEUMATIC MOTION PLATE SWITCH AND LOCK MOVEMENT

ELECTRO-PNEUMATIC MOTION PLATE SWITCH AND LOCK MOVEMENT

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

When ordering, specify layout for which movement is desired. For layouts see Plates 0831 and 0833.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Motion Plate Switch and Lock Movement, complete, as shown, with base plate, cylinder, switch valve, indication box and detector bar movement. When ordering, specify layout for which movement is desired. For layouts see Plates 0831 and 0833.	248 00	
1	Motion Plate, for switch and lock movement, complete, as shown, with slide bars	8 58	
111	Motion Plate only	3 60	
112	Upper Slide Bar only	1 00	
112a	Lower Slide Bar only	1 00	
113	Lug for slide bar	70	
2	Cap for guide rollers of switch and lock movement for switch operating slide bar	1 10	
3	Roller for slide bar Fig. 5	34	
4	Pin, $\frac{7}{8}$" x $2\frac{3}{8}$", complete, with cotter, for slide bar Fig. 5	10	
5	Switch Operating Slide Bar, complete, as shown, with roller and pin, (1-3, 1-4, Plate 0839)	6 50	

ELECTRO-PNEUMATIC MOTION PLATE SWITCH AND LOCK MOVEMENT

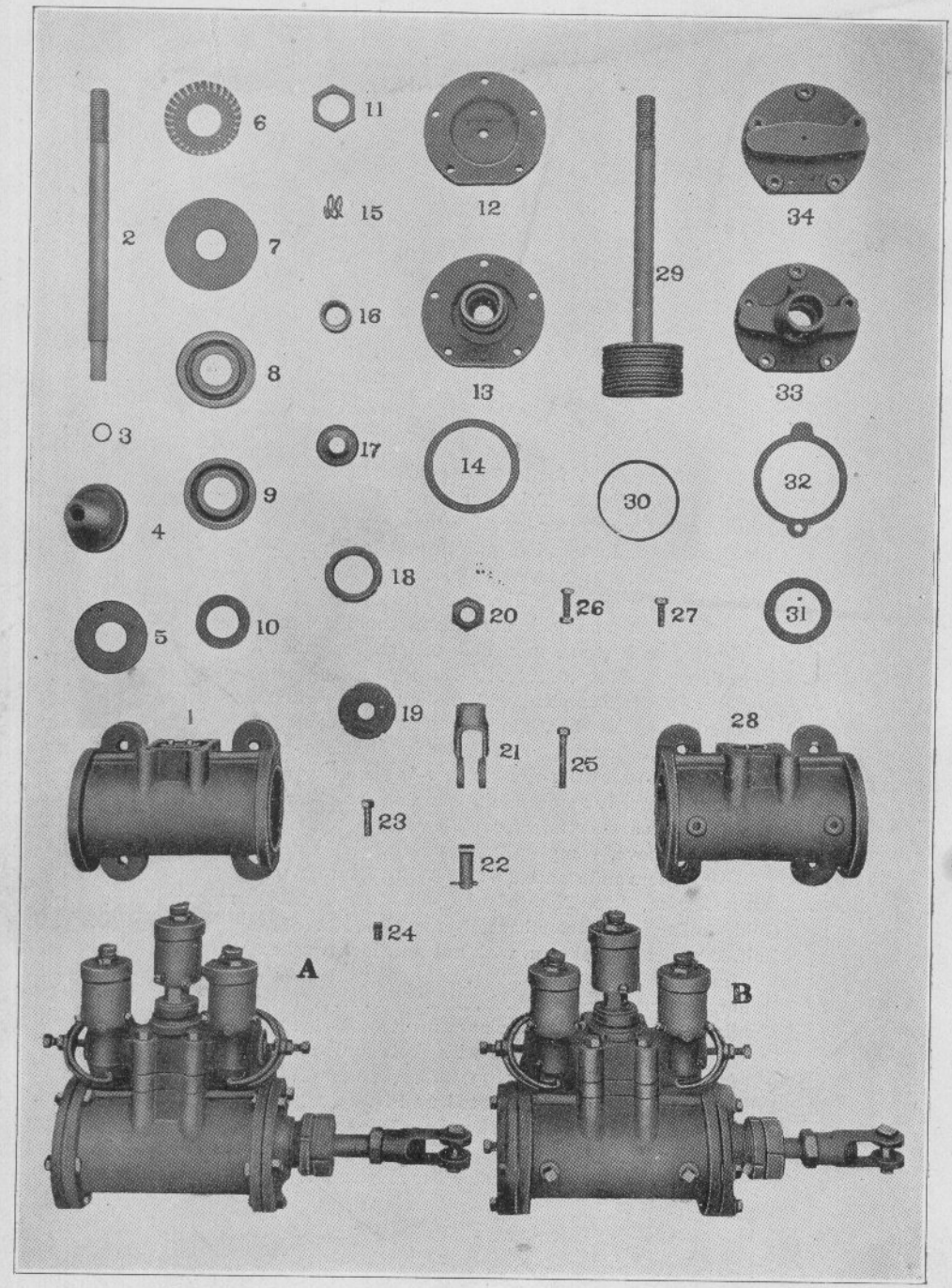
Order by Plate and Figure

Fig.		List Price
51	Filling Block, for slide bar	34
52	Lower Slide Bar only	2 70
53	Upper Slide Bar only	70
54	Rivet, ¼″ x 7/16″, for fastening lock Fig. 56 to upper slide bar. Price per hundred	2 20
55	Cotter, ¼″ x 1½″, for lock Fig. 56. Price per hundred	1 10
56	Lock for securing pin Fig. 4 in slide bar	40
6	Indication Box, complete, as shown	10 00
61	Indication Box only, with insulating plates and separator	2 70
62	Cover only, with insulating plate, for indication box	80
63	Contact Spring for indication box	28
64	Terminal Post, for indication box, complete, with nuts, washer and insulating bushing	30
65	Bolt for contact spring, complete, with nuts, washer, insulating bushing, and plate for connecting to terminal post	16
66	Rivet, 3/16″ x 1″, for fastening cover to indication box. Price per hundred	1 00
67	Spring for fastening cover to indication box, complete, with two rivets, 1/8″ x 3/8″, and pin, No. 30 x 7/16″.	24
68	Bushing, for wire openings in indication box	02
7	Contact Block, for slide bar of Fig. 1, complete, as shown, with insulating block, contact plate and rivets for fastening insulating block to contact block	94

ELECTRO-PNEUMATIC MOTION PLATE SWITCH AND LOCK MOVEMENT

Order by Plate and Figure

Fig.		List Price
8	Cap Screw, ¼" x 5/8", for fastening contact block to slide bar of Fig. 1. Price per hundred	2 00
9	Motion Plate, for detector bar movement	2 90
10	Guide Roller for lock rod of switch and lock movement	34
11	Guide Roller for slide bar Fig. 5	34
12	Base for switch and lock movement, complete, as shown, with studs, nuts and cotters, for guide rollers	7 40
12a	as above, complete, with motion plate, switch operating slide bar, guide rollers, cap, contact block with screws, and indication box, (1-12, 1-1, 1-5, 4-10, 4-11, 1-2, 1-7, 2-8, 1-6, Plate 0839)	53 00
13	Base for detector bar movement, complete, as shown, with studs and cotters, for guide rollers	5 40
13a	as above, complete, with crank, pin, cotter, bolt, rollers and straps, (1-13, 1-17, 1-18, 1-19, 1-15, 1-16, 4-14, 2-20, Plate 0839)	15 00
14	Guide Roller for detector bar movement	34
15	Bolt, complete, as shown, with nut and lock washer for crank Fig. 17	1 66
16	Roller, for crank Fig. 17	34
17	Crank only, for detector bar movement	3 00
17a	as above, complete, with bolt and roller, (1-17, 1-15, 1-16, Plate 0839)	5 30
18	Pin for fastening crank Fig. 17 to base Fig. 13	22
19	Cotter for fastening pin Fig. 18 to base Fig. 13. Price per hundred	1 00
20	Strap for guide rollers of detector bar movement	44



ELECTRO-PNEUMATIC SWITCH VALVE AND CYLINDERS

ELECTRO-PNEUMATIC SWITCH VALVE AND CYLINDERS

For Switch Valve and Details see Plate 0849

While this plate includes cylinders with metallic and leather packing the object in illustrating the latter is for convenience in ordering renewals, as on all new work we furnish cylinders with metallic packing unless otherwise specified.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

When ordering specify whether right or left hand cylinder is desired. The cylinders shown on the opposite plate are right hand.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	5-inch Cylinder and Valve, complete, with leather packing. When ordering specify whether right or left hand is desired. Right hand is shown.	158 00	
Aa	6-inch, as above	160 00	
Ab	6½-inch, as above	162 00	
Ac	7½-inch, as above	170 00	
B	5-inch Cylinder and Valve, complete, with metallic packing. When ordering specify whether right or left hand is desired. Right hand is shown.	166 00	
Ba	6-inch, as above	168 00	
Bb	6½-inch, as above	170 00	
Bc	7½-inch, as above	178 00	
1	5-inch Cylinder only, as shown, for leather packing	10 60	
1a	as above, complete, with heads, stuffing box, gaskets, bolts, nuts, piston complete, and oil plugs, (1-1, 1-12, 1-13a, 2-14, 4-27, 6-23, 1-2b, 2-24 Plate 0841)	30 00	
1b	6-inch Cylinder only, for leather packing	10 80	
1c	as above, complete, with heads, stuffing box, gaskets, bolts, nuts, piston complete, and oil plugs, (1-1b, 1-12a, 1-13c, 2-14a, 4-27, 6-23, 1-2c, 2-24, Plate 0841)	32 00	
1d	6½-inch Cylinder only, for leather packing	12 60	
1e	as above, complete, with heads, stuffing box, gaskets, bolts, nuts, piston complete, and oil plugs, (1-1d, 1-12b, 1-13e, 2-14b, 4-27, 6-23, 1-2d, 2-24, Plate 0841)	34 00	
1f	7½-inch Cylinder only, for leather packing	17 60	
1g	as above, complete, with heads, stuffing box, gaskets, bolts, nuts, piston complete, and oil plugs, (1-1f, 1-12c, 1-13g, 2-14c, 4-27, 6-23, 1-2e, 2-24, Plate 0841)	42 00	

ELECTRO-PNEUMATIC SWITCH VALVE AND CYLINDERS

For Switch Valve and Details see Plate 0849

Order by Plate and Figure

Fig.		List Price	
2	Piston Rod only, as shown, for leather packed cylinder	1 65	
2a	as above, complete, with screw jaw, lock nut, pin and cotter, (1-2, 1-21, 1-20, 1-22, Plate 0841)	2 64	
2b	Piston, for 5-inch leather packed cylinder, complete, with piston rod, piston head, followers, lead washer, leather packing, washers, nut and lock washer, (1-2a, 1-4, 1-8, 1-9, 2-6, 1-3, 2-7, 2-5, 1-11, 1-10, Plate 0841)	9 90	
2c	Piston, for 6-inch leather packed cylinder, complete, as above, (1-2a, 1-4a, 1-8a, 1-9a, 2-6a, 1-3, 2-7a, 2-5a, 1-11, 1-10, Plate 0841)	10 30	
2d	Piston for 6½-inch leather packed cylinder, complete, as above, (1-2a, 1-4b, 1-8b, 1-9b, 2-6b, 1-3, 2-7b, 2-5b, 1-11, 1-10, Plate 0841)	11 30	
2e	Piston for 7½-inch leather packed cylinder, complete, as above, (1-2a, 1-4c, 1-8c, 1-9c, 2-6c, 1-3, 2-7c, 2-5c, 1-11, 1-10, Plate 0841)	12 80	
3	Lead Washer for piston rod	02	
4	Piston Head, as shown, for 5-inch leather packed cylinder	2 00	
4a	as above, for 6-inch leather packed cylinder	2 20	
4b	as above, for 6½-inch leather packed cylinder	2 30	
4c	as above, for 7½-inch leather packed cylinder	2 50	
5	Washer, as shown, for piston of 5-inch leather packed cylinder	10	
5a	as above, for piston of 6-inch leather packed cylinder	10	
5b	as above, for piston of 6½-inch leather packed cylinder	12	
5c	as above, for piston of 7½-inch leather packed cylinder	12	
6	Spring Follower, as shown, for piston of 5-inch leather packed cylinder	12	
6a	as above, for piston of 6-inch leather packed cylinder	12	
6b	as above, for piston of 6½-inch leather packed cylinder	14	
6c	as above, for piston of 7½-inch leather packed cylinder	16	
7	Leather Packing, as shown, for piston of 5-inch leather packed cylinder	90	
7a	as above, for piston of 6-inch leather packed cylinder	1 00	
7b	as above, for piston of 6½-inch leather packed cylinder	1 10	
7c	as above, for piston of 7½-inch leather packed cylinder	1 30	

ELECTRO-PNEUMATIC SWITCH VALVE AND CYLINDERS

For Switch Valve and Details see Plate 0849

Order by Plate and Figure

Fig.		List Price	
8	Intermediate Piston Follower, as shown, for 5-inch leather packed cylinder	1 60	
8a	as above, for 6-inch leather packed cylinder	1 80	
8b	" " " 6½ " " " "	2 00	
8c	" " " 7½ " " " "	2 20	
9	End Piston Follower, as shown, for 5-inch leather packed cylinder	90	
9a	as above, for 6-inch leather packed cylinder	1 10	
9b	" " " 6½-inch " " "	1 20	
9c	" " " 7½-inch " " "	1 30	
10	Lock Washer, for piston head of leather packed cylinder	04	
11	Nut, for piston head of leather packed cylinder	56	
12	Back Head, as shown, for 5-inch leather packed cylinder	1 54	
12a	as above, for 6-inch leather packed cylinder	1 66	
12b	" " " 6½-inch " " "	1 88	
12c	" " " 7½-inch " " "	2 20	
13	Front Head only, as shown, for 5-inch leather packed cylinder	2 76	
13a	as above, complete, with stuffing box, (1-13, 1-15, 1-16, 1-17, 1-18, 1-19, Plate 0841)	4 76	
13b	Front Head only, for 6-inch leather packed cylinder	3 08	
13c	as above, complete, with stuffing box, (1-13b, 1-15, 1-16, 1-17, 1-18, 1-19, Plate 0841)	5 06	
13d	Front Head only, for 6½-inch leather packed cylinder	3 08	
13e	as above, complete, with stuffing box, (1-13d, 1-15, 1-16, 1-17, 1-18, 1-19, Plate 0841)	5 16	
13f	Front Head only, for 7½-inch leather packed cylinder	3 66	
13g	as above, complete, with stuffing box, (1-13f, 1-15, 1-16, 1-17, 1-18, 1-19, Plate 0841)	5 70	
14	Gasket, for head of 5-inch leather packed cylinder	12	
14a	as above, for head of 6-inch leather packed cylinder	14	
14b	as above, for head of 6½-inch leather packed cylinder	14	
14c	as above, for head of 7½-inch leather packed cylinder	16	
15	Spring, for stuffing box	30	
16	Gland, " " "	08	
17	Leather Packing, for stuffing box	44	
18	Lock Nut, for stuffing box	44	
19	Nut, for stuffing box	90	
20	Lock Nut, for screw jaw on piston rod	20	
21	Screw Jaw, for piston rod	72	

ELECTRO-PNEUMATIC SWITCH VALVE AND CYLINDERS

For Switch Valve and Details see Plate 0849

Order by Plate and Figure

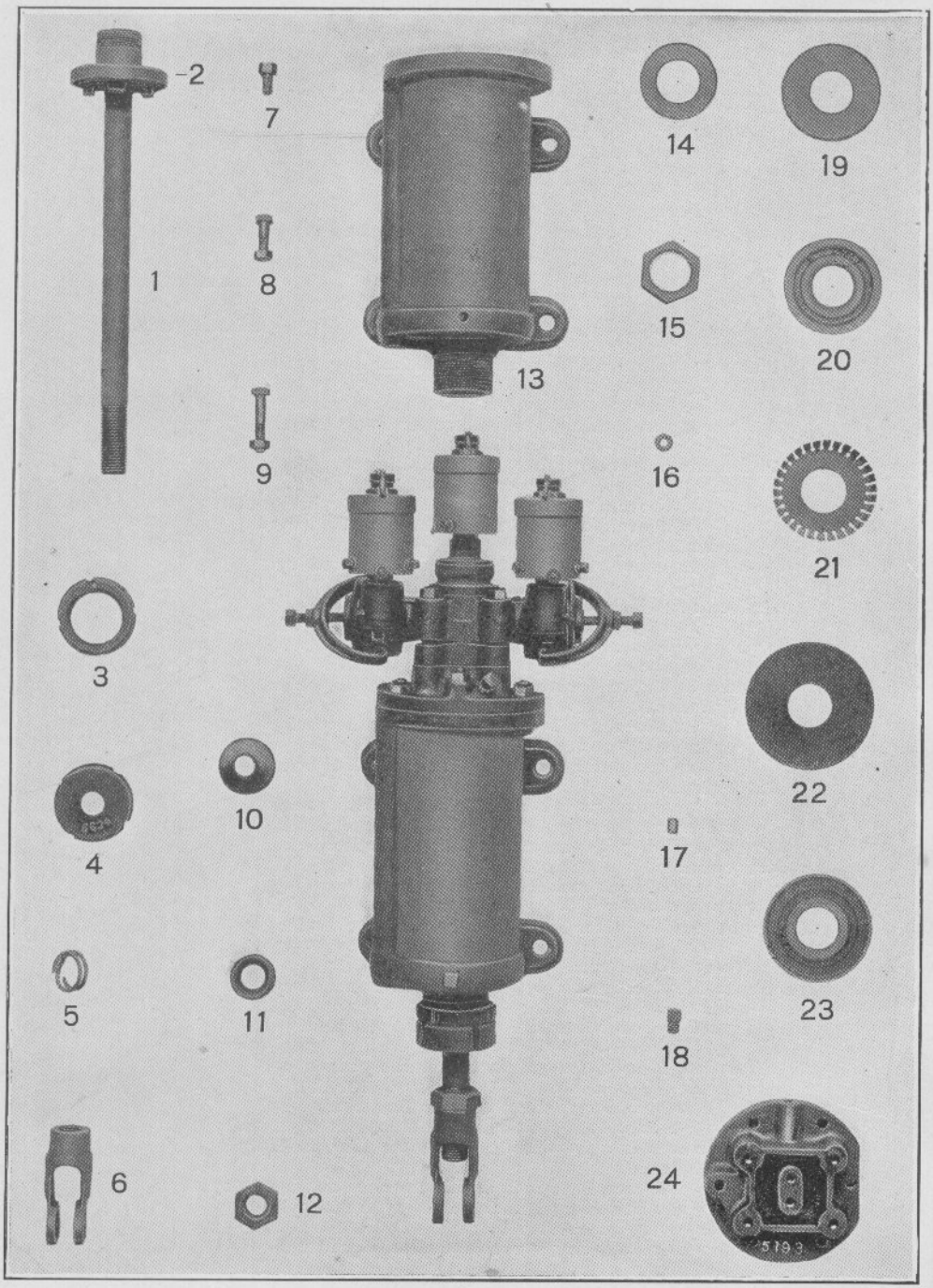
Fig.		List Price	
22	Pin, 7/8" x 2 3/8", with cotter, for screw jaw Fig. 21	10	
23	Bolt and Nut, 1/2" x 1 3/4", for fastening front or back head to leather packed cylinder	03	
24	Oil Plug, for cylinder	12	
25	Tap Bolt, 1/2" x 3 5/8", for fastening switch valve to cylinder	06	
26	Bolt and Nut, 1/2" x 2 3/8", for fastening front or back head to metallic packed cylinder	12	
27	Tap Bolt, 1/2" x 1 1/2", for fastening front or back head to cylinder. Price per hundred	3 00	
28	5-inch Cylinder only, as shown, for metallic packing	12 80	
28a	as above, complete, with heads, stuffing box, gaskets, bolts, nuts, piston complete, and oil plugs, (1-28, 1-34, 1-33a, 2-32, 4-27, 6-26, 1-29a, 4-24, Plate 0841)	39 00	
28b	6-inch Cylinder only, for metallic packing	13 20	
28c	as above, complete, with heads, stuffing box, gaskets, bolts, nuts, piston complete, and oil plugs, (1-28b, 1-34a, 1-33c, 2-32a, 4-27, 6-26, 1-29c, 4-24, Plate 0841)	41 00	
28d	6 1/2-inch Cylinder only, for metallic packing	14 30	
28e	as above, complete, with heads, stuffing box, gaskets, bolts, nuts, piston complete, and oil plugs, (1-28d, 1-34b, 1-33e, 2-32b, 4-27, 6-26, 1-29e, 4-24, Plate 0841)	43 00	
28f	7 1/2-inch Cylinder only, for metallic packing	16 00	
28g	as above, complete, with heads, stuffing box, gaskets, bolts, nuts, piston complete, and oil plugs, (1-28f, 1-34c, 1-33g, 2-32c, 4-27, 6-26, 1-29g, 4-24, Plate 0841)	51 00	
29	Piston and Piston Rod, as shown, with lead washer Fig. 3, for 5 inch metallic packed cylinder	9 40	
29a	as above, complete, with piston rings, gaskets, screw jaw, lock nut, pin and cotter, (1-29, 2-30, 2-31, 1-21, 1-20, 1-22, Plate 0841)	13 20	
29b	Piston and Piston Rod, with lead washer Fig. 3, for 6 inch metallic packed cylinder	8 50	
29c	as above, complete, with piston rings, gaskets, screw jaw, lock nut, pin and cotter, (1-29b, 2-30a, 2-31a, 1-21, 1-20, 1-22, Plate 0841)	13 20	
29d	Piston and Piston Rod, with lead washer Fig. 3, for 6 1/2 inch metallic packed cylinder	11 00	
29e	as above, complete, with piston rings, gaskets, screw jaw, lock nut, pin and cotter, (1-29d, 2-30b, 2-31b, 1-21, 1-20, 1-22, Plate 0841)	16 00	

ELECTRO-PNEUMATIC SWITCH VALVE AND CYLINDERS

For Switch Valve and Details see Plate 0849

Order by Plate and Figure

Fig.		List Price	
29f	Piston and Piston Rod, with lead washer Fig. 3, for 7½ inch metallic packed cylinder	13 20	
29g	as above. complete, with piston rings, gaskets, screw jaw, lock nut, pin and cotter, (1-29f, 2-30c, 2-31c, 1-21, 1-20, 1-22, Plate 0841)	18 30	
30	Piston Ring, as shown, for 5 inch metallic packed cylinder	1 00	
30a	as above, for 6 inch metallic packed cylinder	1 30	
30b	as above, for 6½ inch metallic packed cylinder	1 40	
30c	as above, for 7½ inch metallic packed cylinder	1 60	
31	Gasket, for 5 inch piston Fig. 29	46	
31a	as above, for 6 inch piston Fig. 29b	56	
31b	as above, for 6½ inch piston Fig. 29d	62	
31c	as above, for 7½ inch piston Fig. 29f	70	
32	Gasket, as shown, for head of 5 inch metallic packed cylinder	22	
32a	as above, for head of 6 inch metallic packed cylinder	24	
32b	as above, for head of 6½ inch metallic packed cylinder	26	
32c	as above, for head of 7½ inch metallic packed cylinder	30	
33	Front head only, as shown, for 5 inch metallic packed cylinder	4 20	
33a	as above, complete, with stuffing box, (1-33, 1-15, 1-16, 1-17, 1-18, 1-19, Plate 0841)	6 40	
33b	Front Head only, for 6 inch metallic packed cylinder	4 70	
33c	as above, complete, with stuffing box, (1-33b, 1-15, 1-16, 1-17, 1-18, 1-19, Plate 0841)	6 80	
33d	Front Head only, for 6½ inch metallic packed cylinder	5 00	
33e	as above, complete, with stuffing box, (1-33d, 1-15, 1-16, 1-17, 1-18, 1-19, Plate 0841)	7 30	
33f	Front Head only, for 7½ inch metallic packed cylinder	5 30	
33g	as above, complete, with stuffing box, (1-33f, 1-15, 1-16, 1-17, 1-18, 1-19, Plate 0841)	7 00	
34	Back Head, as shown, for 5 inch metallic packed cylinder	2 90	
34a	as above, for 6 inch metallic packed cylinder	3 10	
34b	as above, for 6½ inch metallic packed cylinder	3 30	
34c	as above, for 7½ inch metallic packed cylinder	3 70	



ELECTRO-PNEUMATIC SWITCH CYLINDER WITH LEATHER PACKING AND SWITCH VALVE APPLIED TO BACK CYLINDER HEAD

ELECTRO-PNEUMATIC SWITCH CYLINDER WITH LEATHER PACKING AND SWITCH VALVE APPLIED TO BACK CYLINDER HEAD

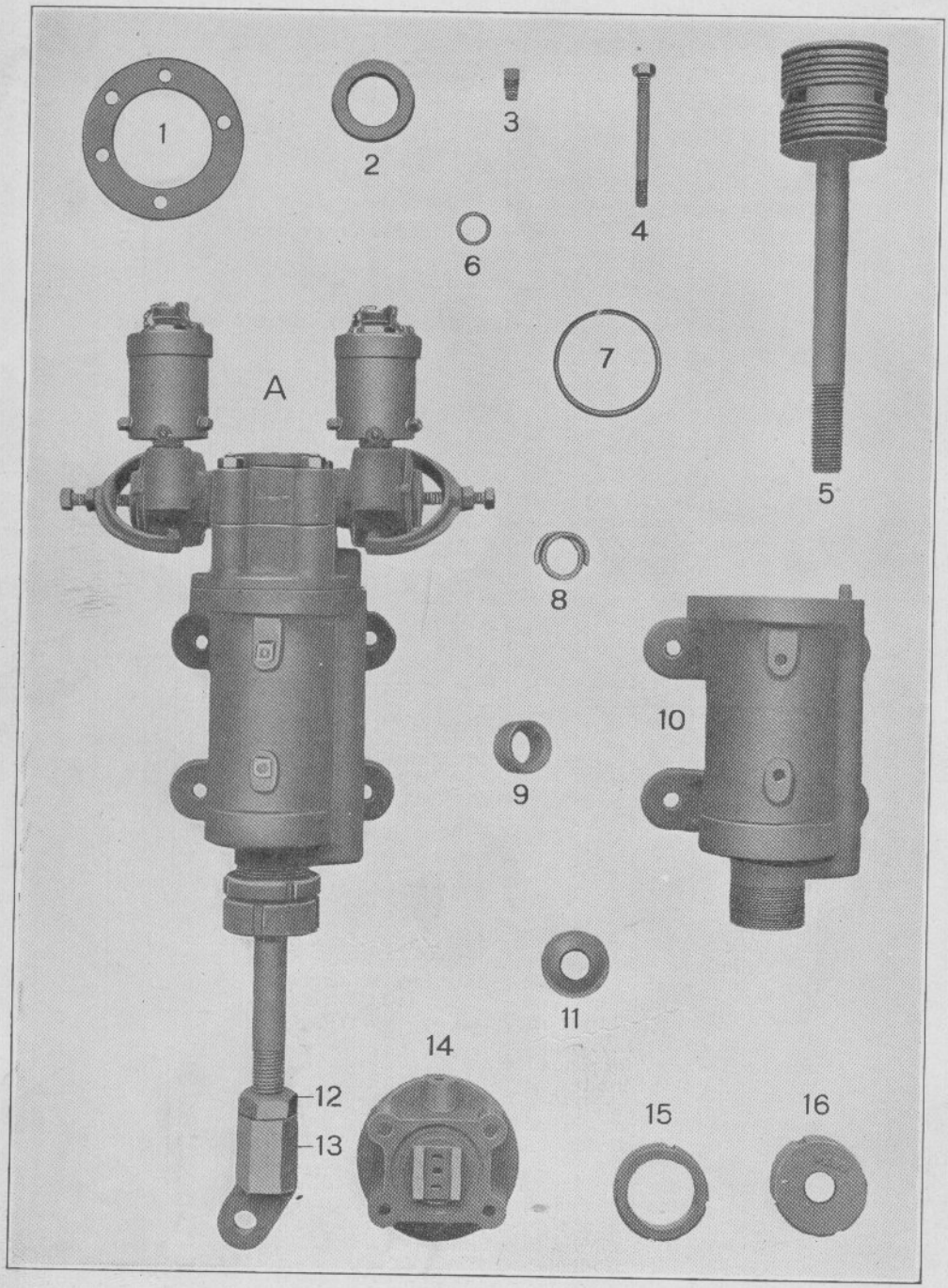
For Application see Plate 0839.

For Switch Valve see Plate 0849.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	5" x 9" Cylinder and Valve, complete, as shown, with leather packing. Specify resistance of magnets when ordering	168 00	
1	Piston Rod only, with lead washer	1 90	
1a	Piston, complete, with piston rod, piston head, followers, packing, washers, nut for piston head, lock washer, screw jaw, and lock nut, (1-1, 1-2, 1-20, 1-23, 2-21, 2-22, 2-19, 1-15, 1-14, 1-6a, 1-12, Plate 0843)	11 00	
2	Piston Head only	2 30	
3	Lock Nut for stuffing box	44	
4	Nut for stuffing box	90	
5	Spring for stuffing box	30	
6	Screw Jaw only, as shown, for piston rod	72	
6a	as above, complete, with pin and cotter	82	
7	Tap Bolt, ½" x 1¼", for fastening back head to cylinder. Price per hundred	3 00	
8	Bolt and Nut, ½" x 1⅞", for fastening back head to cylinder	12	
9	Bolt and Nut, ½" x 2⅝", for fastening back head to cylinder	12	
10	Leather Packing for stuffing box	44	
11	Gland for stuffing box	08	
12	Lock Nut for screw jaw on piston rod	20	
13	Cylinder, as shown, with gasket for back head	12 00	
13a	as above, complete, with head, stuffing box, piston, bolts, nuts and oil plug, (1-13, 1-24a, 1-4, 1-3, 1-5, 1-10, 1-11, 1-1a, 1-7, 4-8, 1-9, 1-18, Plate 0843)	44 00	
14	Lock Washer for piston head	06	
15	Nut for piston head	60	
16	Lead Washer for air ports in back cylinder head	06	
17	Sleeve for air ports in back cylinder head	08	
18	Oil Plug for cylinder	12	
19	Washer for piston	10	
20	End Follower for piston	90	
21	Spring Follower for piston	12	
22	Leather Packing for piston	90	
23	Intermediate Follower for piston	1 60	
24	Combined Back Cylinder Head and Valve Base only.	12 00	
24a	as above, complete, with oil plug, sleeves and washers for air ports, (1-24, 1-18, 3-17, 2-16, Plate 0843)	12 70	



ELECTRO-PNEUMATIC SWITCH CYLINDER WITH METALLIC PACKING AND SWITCH VALVE APPLIED TO BACK CYLINDER HEAD

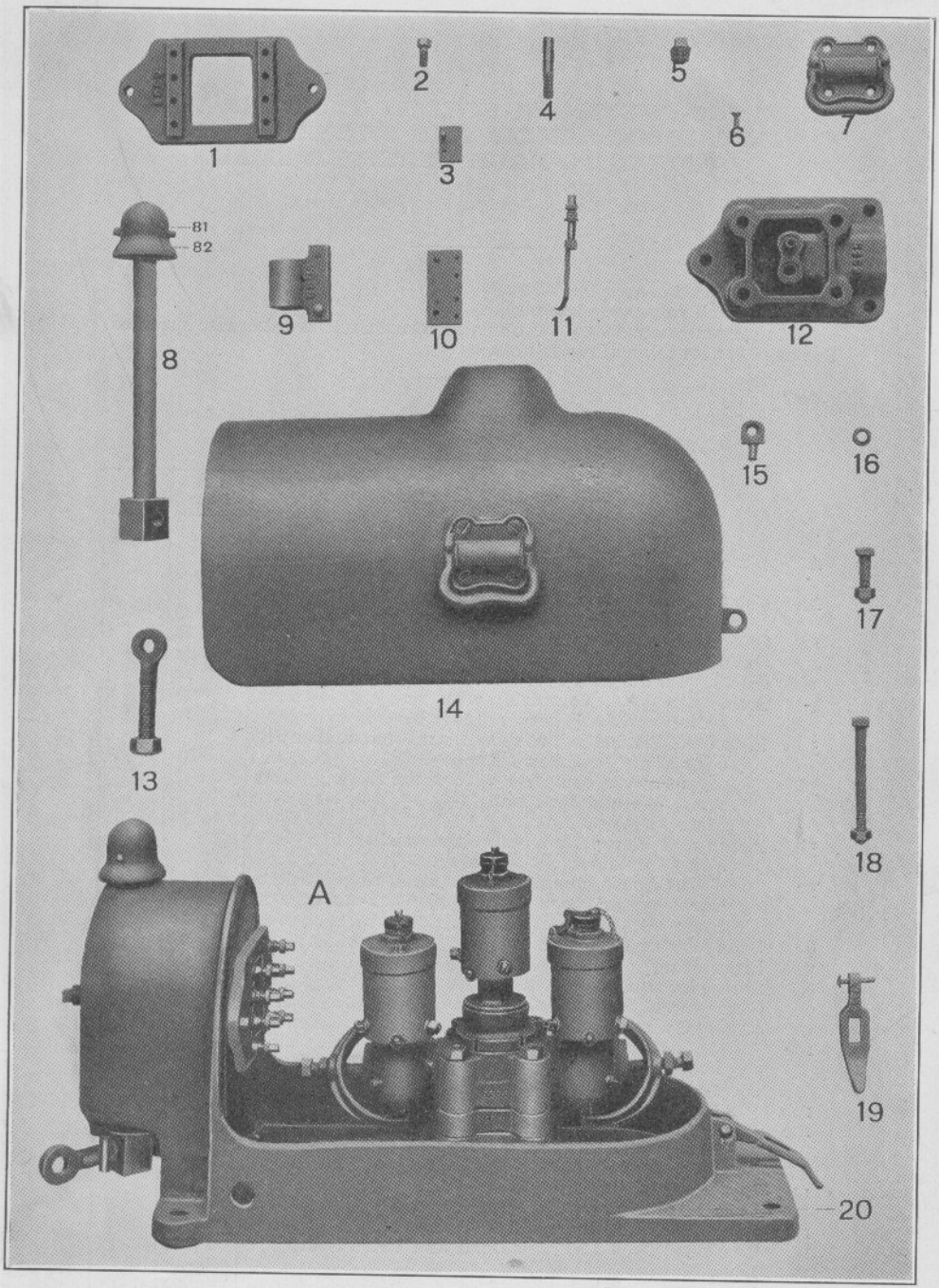
ELECTRO-PNEUMATIC SWITCH CYLINDER WITH METALLIC PACKING AND SWITCH VALVE APPLIED TO BACK CYLINDER HEAD

(For Direct Acting Purposes Only)

For application see plate 0829.
For switch valve see plate 0849.
Magnets are wound to 400 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	4″ x 4″ Cylinder and Valve, complete, as shown. Specify resistance of magnets when ordering	144 00	
Aa	4″ x 5″ Cylinder and Valve, complete. Specify resistance of magnets when ordering	144 00	
1	Gasket for end of cylinder	22	
2	Gasket for piston	44	
3	Oil Plug for cylinder	12	
4	Stud, ½″ x 5-½″, complete, with nut, for fastening switch valve and back cylinder head to cylinder	12	
5	Piston and Piston Rod, as shown, with lead washer Fig. 6 for 4″ x 4″ cylinder	8 30	
5a	as above, complete, with piston rings, gaskets, screw eye and lock nut, (1-5, 2-7, 2-2, 1-13, 1-12, Plate 0845)	14 30	
5b	Piston and Piston Rod, with lead washer Fig. 6 for 4″ x 5″ cylinder	7 00	
5c	as above, complete, with piston rings, gaskets, screw eye and lock nut, (1-5b, 2-7, 2-2, 1-13, 1-12, Plate 0845)	13 20	
6	Lead Washer for piston rod	02	
7	Piston Ring	1 00	
8	Spring for stuffing box	30	
9	Gland for stuffing box	08	
10	4″ x 4″ Cylinder only, as shown	11 40	
10a	as above, complete, with head, gasket, stuffing box, piston, studs and oil plugs, (1-10, 1-14, 1-1, 1-16, 1-15, 1-11, 1-9, 1-8, 1-5a, 4-4, 2-3, Plate 0845).	40 00	
10b	4″ x 5″ Cylinder only	11 34	
10c	as above, complete, with head, gasket, stuffing box, piston, stud sand oil plugs, (1-10b, 1-14, 1-1, 1-16, 1-15, 1-11, 1-9, 1-8, 1-5c, 4-4, 2-3, Plate 0845).	39 00	
11	Leather Packing for stuffing box	44	
12	Lock Nut for screw eye on piston rod	20	
13	Screw Eye for piston rod	1 00	
14	Combined Back Cylinder Head and Valve Seat	13 20	
15	Lock Nut for stuffing box	44	
16	Nut for stuffing box	90	



ELECTRO-PNEUMATIC SWITCH VALVE, CIRCUIT CONTROLLER AND CASE

(For use where it is not practicable to attach valve directly to cylinder).

ELECTRO-PNEUMATIC SWITCH VALVE, CIRCUIT CONTROLLER AND CASE

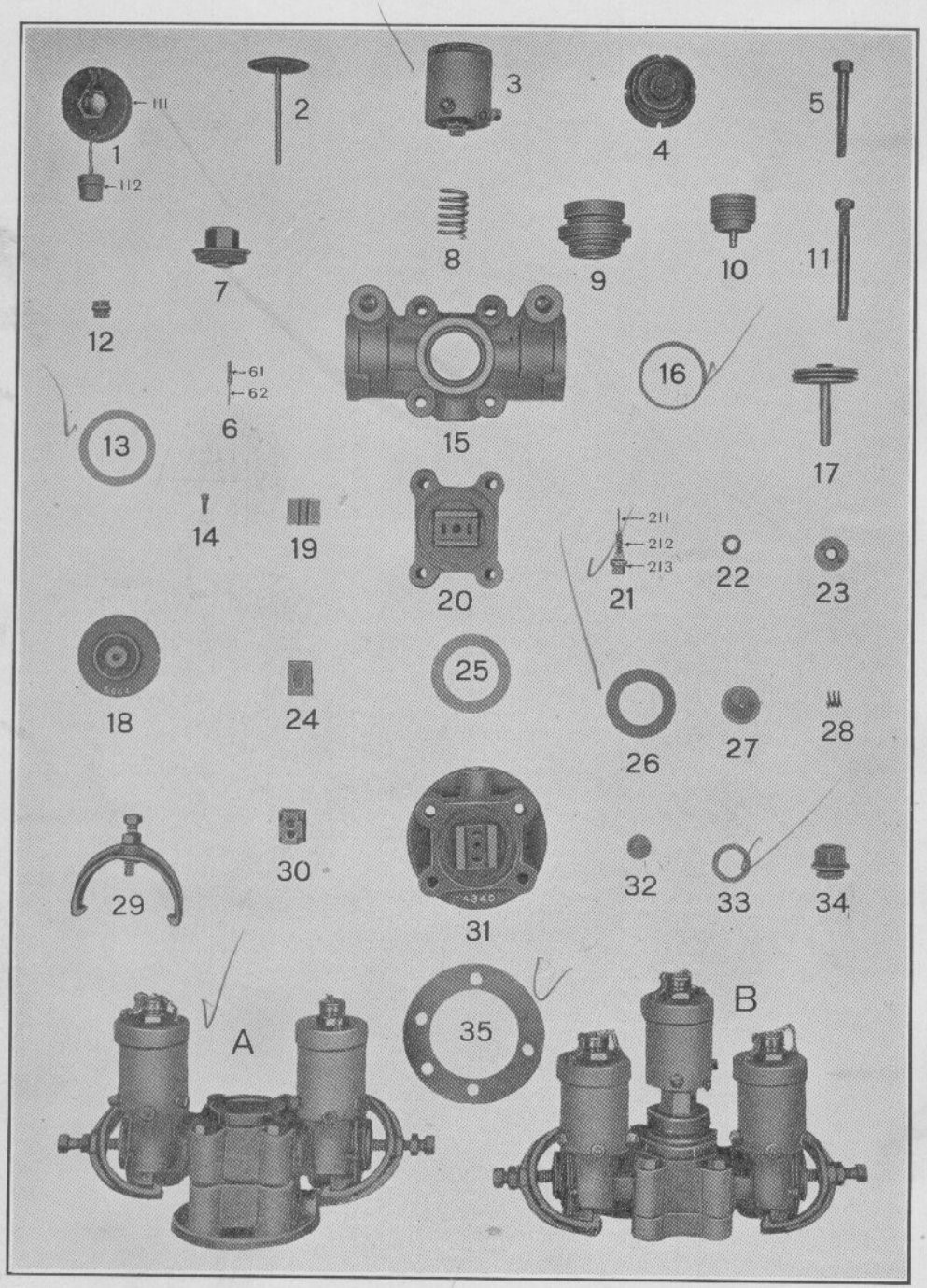
(For use where it is not practicable to attach valve directly to cylinder)

For switch valve see Plate 0849.

Magnets are wound to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

Order by Plate, Figure and Instructions Given Above.

Fig.		List Price	
A	Electro-Pneumatic Switch Valve, Circuit Controller and Case, complete, with cover and lock	180 00	
1	Base Plate, for circuit controller	2 20	
2	Cap Screw, 3/8"x7/8", for fastening base plate Fig. 1 to case. Price per hundred	3 00	
3	Contact Plate, for circuit controller, complete, with two rivets, 3/16"x5/8", for fastening to holder Fig. 10	56	
4	Pin, for stopping rotary movement of circuit controller shaft	08	
5	Plug, for case	02	
6	Flat Head Machine Screw, 1/4"x1/2", for fastening handle to cover. Price per hundred	1 10	
7	Handle for cover	90	
8	Shaft only, for circuit controller	4 30	
8a	as above, complete, with dowel pin and cap, (1-8, 1-81, 1-82, Plate 0847)	5 06	
81	Dowel Pin only, for fastening cap to circuit controller shaft	10	
82	Cap only, for circuit controller shaft	70	
9	Contact Bracket for circuit controller, complete, with dowel pin for fastening to shaft, and two rivets, 1/4"x13/16", for fastening holder Fig. 10	2 10	
10	Holder for contact plate of circuit controller	72	
11	Terminal Post and Contact Spring, for circuit controller, complete, as shown, with nuts, washers, insulating bushing and washers	1 00	
12	Valve Base, as shown	3 30	
13	Eye Bolt, complete, with lock nut, for circuit controller shaft	22	
14	Cover for case, complete, as shown, with handles, screws and staple, (2-7, 8-6, 1-15, Plate 0847)	15 00	
15	Staple for cover	12	
16	Lead Gasket for valve base	06	
17	Bolt and Nut, 1/2"x2", for fastening valve base to case. Price per hundred	5 00	
18	Bolt and Nut, 1/2"x5 1/8", for fastening valve to valve base. Price per hundred	8 00	
19	Hasp, complete, with rivet, 1/4"x1 7/16", for fastening to case	34	
20	Case only	12 00	



ELECTRO-PNEUMATIC SWITCH VALVE

ELECTRO-PNEUMATIC SWITCH VALVE

Magnets for switch valve in Fig. A are wound to 400 ohms resistance and in Fig. B to 120 ohms resistance unless otherwise specified. See page 171 for table of resistances.

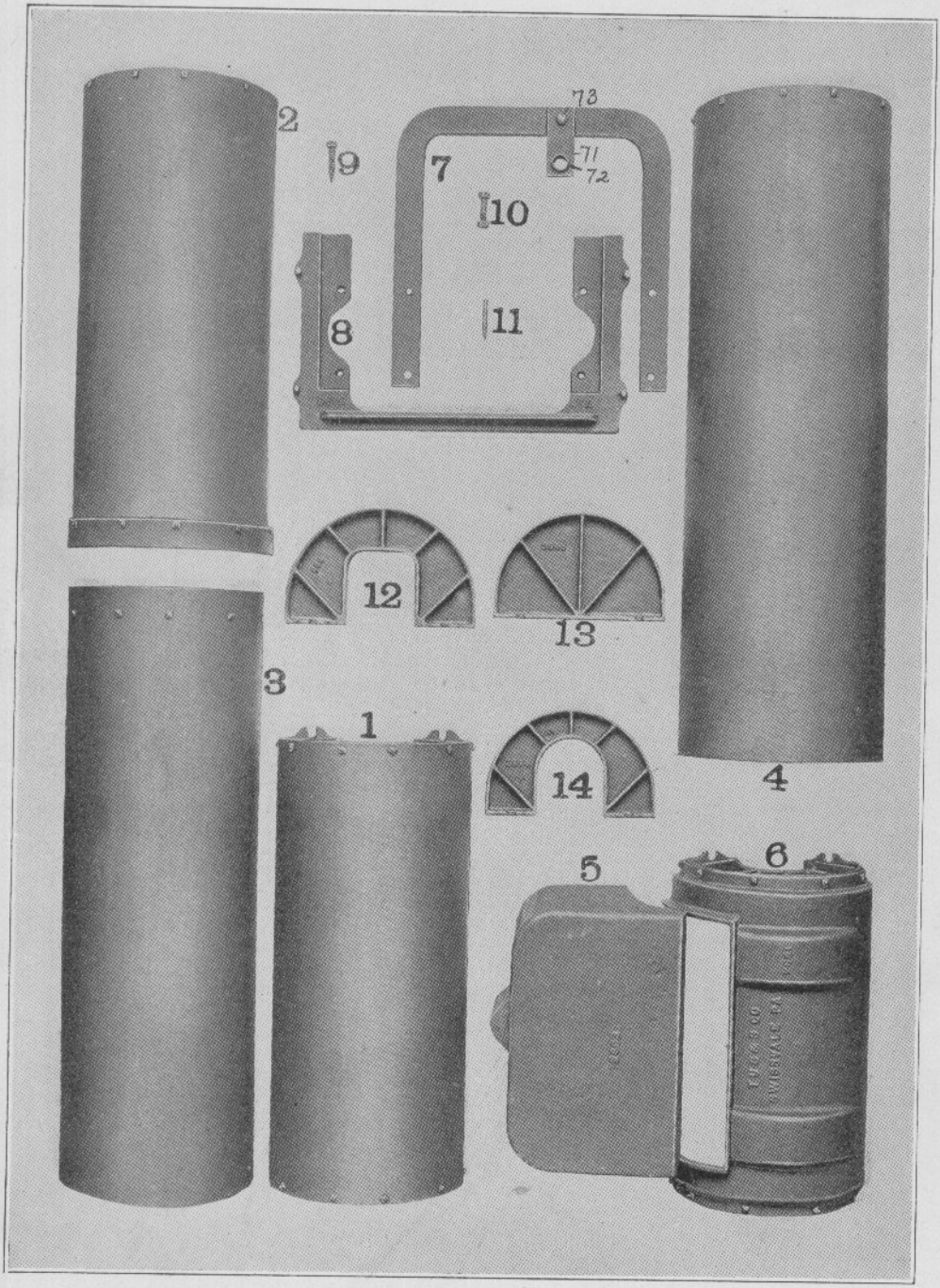
Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Switch Valve, complete, without lock magnet, used on end of cylinder	110 00	
B	as above, with lock magnet, used on side or end of cylinder	130 00	
1	Magnet Cap, complete, as shown, with plug and chain	1 68	
111	Magnet Cap only	1 28	
112	Plug and Chain only	40	
2	Armature, complete, with stem	3 00	
2a	Spring for releasing armature	16	
3	Magnet only. Specify resistance when ordering	13 80	
3a	as above, complete, with armature, spring for releasing armature and cap. Specify resistance when ordering. (1-3, 1-2, 1-2a, 1-1, Plate 0849)	18 00	
4	Plug for Fig. A, to take the place of lock cylinder	1 10	
5	Tap Bolt, ½″x3⅝″, for fastening valve chamber Fig. 15 and valve seat Fig. 20 to switch cylinder	06	
6	Pin Valve, complete, with spring, for lock magnet	72	
61	Spring only	34	

ELECTRO-PNEUMATIC SWITCH VALVE

Order by Plate and Figure

Fig.		List Price	
62	Pin Valve only	38	
7	Head for lock cylinder Fig. 9	2 16	
8	Spring for lock cylinder Fig. 9	36	
9	Lock Cylinder	3 50	
10	Piston for lock cylinder Fig. 9	3 20	
11	Stud, ½" x 5½", with nut, for fastening valve chamber Fig. 15 and cylinder head Fig. 31 to switch cylinder	12	
12	Pin Valve Guide for lock cylinder head Fig. 7	44	
13	Gasket for head of valve chamber	06	
14	Oil Plug for valve chamber	12	
15	Valve Chamber, complete, with two guides for pin valve Fig. 21 and two washers	12 00	
16	Piston Ring for switch valve piston Fig. 17	80	
17	Piston only, for switch valve	4 60	
17a	as above, complete, with piston rings, (1-17, 2-16, Plate 0849)	6 20	
18	Head for valve chamber	40	
19	Saddle for "D" valve	2 30	
20	Valve Seat for Fig. B	7 00	
21	Pin Valve, as shown, with spring and plug, for normal or reverse magnet	1 06	

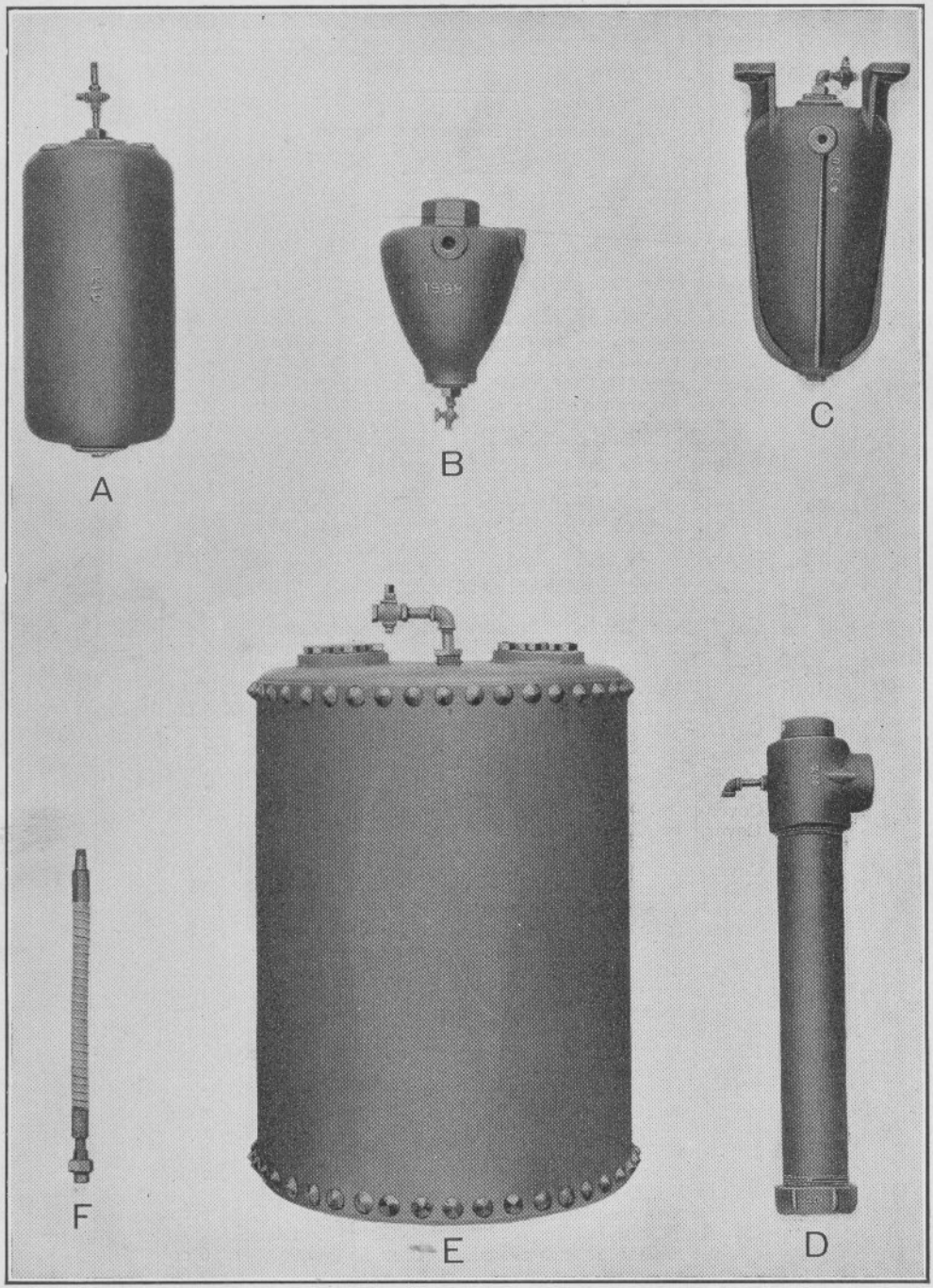


COVERS FOR ELECTRO-PNEUMATIC SWITCH CYLINDERS AND SWITCH AND LOCK MOVEMENTS

COVERS FOR ELECTRO-PNEUMATIC SWITCH CYLINDERS AND SWITCH AND LOCK MOVEMENTS

Order by Plate and Figure

Fig.		List Price	
A	Covers, complete, for valve, 7½ inch cylinder, and single switch and lock movement, (1-5, 1-6, 1-4, Plate 0851)	15 00	
Aa	Covers, complete, for valve, 5, 6, or 6½ inch cylinder, and single switch and lock movement, (1-5a, 1-6b, 1-4, Plate 0851)	15 00	
B	Covers, complete, for valve, 7½ inch cylinder, and tandem switch and lock movement, (1-5, 1-6, 1-2, 1-3, Plate 0851)	21 00	
Ba	Covers, complete, for valve, 6½ inch cylinder, and tandem switch and lock movement, (1-5a, 1-6b, 1-2, 1-3, Plate 0851)	21 00	
1	Cover, for single switch and lock movement without cylinder, complete, with two heads Fig. 12, bolts and nuts	6 30	
2	Short End of Cover, for tandem switch and lock movement, complete, with head Fig. 12, lap strip, bolts and nuts	5 90	
3	Long End of Cover, for tandem switch and lock movement, complete, with head Fig. 12, bolts and nuts.	6 60	
4	Cover, for single switch and lock movement with cylinder, complete, with head Fig. 12, bolts and nuts	8 00	
5	Cover, for switch valve, for 7½ inch cylinder	3 30	
5a	as above, for 5, 6, or 6½ inch cylinder	3 30	
6	Cover, for 7½ inch cylinder, complete, with heads, bolts and nuts, (1-14, 1-13, Plate 0851)	5 30	
6a	Cover only, for 7½ inch cylinder	3 30	
6b	Cover, for 5, 6, or 6½ inch cylinder, complete, with heads, bolts and nuts, (1-14, 1-13, Plate 0851)	4 80	
6c	Cover only, for 5, 6, or 6½ inch cylinder	2 90	
7	Yoke, for supporting switch valve cover, complete, with single hole cable strap, bushing and rivet, (1-71, 1-72, 1-73, Plate 0851)	2 42	
7a	as above, with double hole cable strap, (1-7, 1-71a, 2-72, 1-73, Plate 0851)	2 54	
71	Cable Strap only, with one hole	24	
71a	as above, with two holes	32	
72	Bushing for cable strap	26	
73	Rivet, ½"x¾", for fastening cable strap to yoke. Price per hundred	2 00	
8	Filler, as shown, for 7½ inch cylinder cover	2 10	
8a	as above, " 6½ " " "	1 66	
8b	" " " 6 " " "	1 32	
9	Lag Screw, ½"x2½", for fastening yoke and filler to wood base plate. Price per hundred.	2 00	
10	Bolt and Nut, ½"x2½", for fastening yoke and filler to iron base plate. Price per hundred	6 00	
11	Dowel Pin, for holding cover in place on iron base plate. Price per hundred.	6 00	
12	Head for movement cover.	66	
13	Back Head for cylinder cover	66	
14	Front Head for cylinder cover	70	

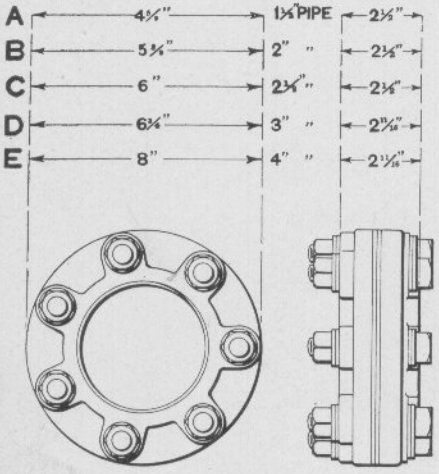


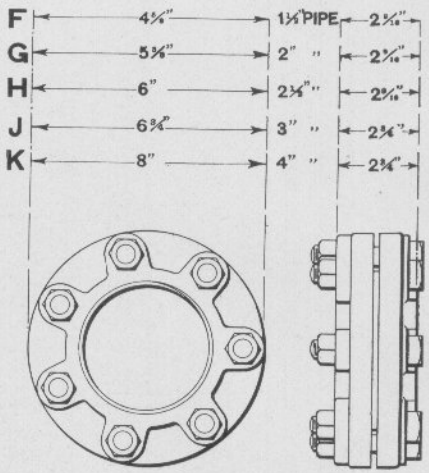
RESERVOIRS AND HOSE CONNECTIONS

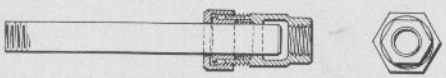
RESERVOIRS AND HOSE CONNECTIONS

Order by Plate and Figure

Fig.		List Price	
A	Auxiliary Reservoir, Standard Type, complete, as shown.	13 50	
B	Auxiliary Reservoir, Elevated Railroad Type, complete, as shown	7 80	
Ba	as above, with blow-off cock on top	7 30	
C	Combined Auxiliary Reservoir and Dwarf Signal Foundation, complete, as shown	10 80	
D	Auxiliary Reservoir, complete, as shown.	12 70	
E	Main Air Reservoir, complete, as shown. When ordering, specify size of air inlet and outlet.	120 00	
F	Hose connection, complete, as shown, with union.	2 30	
Fa	as above, without union	1 70	







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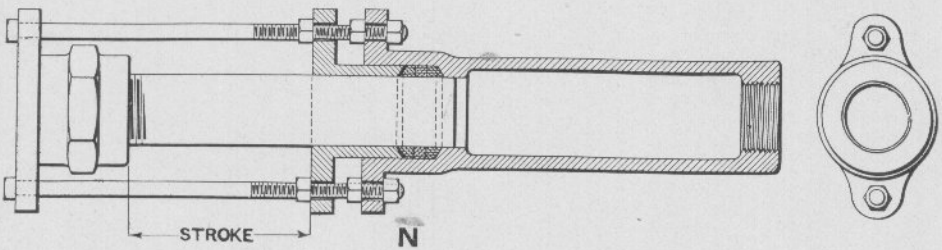
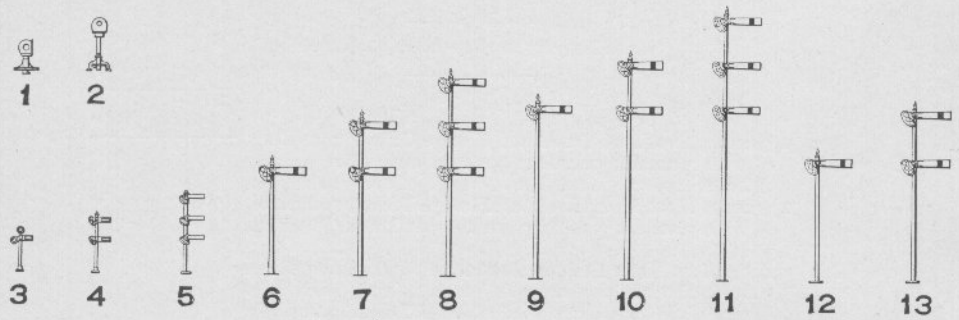


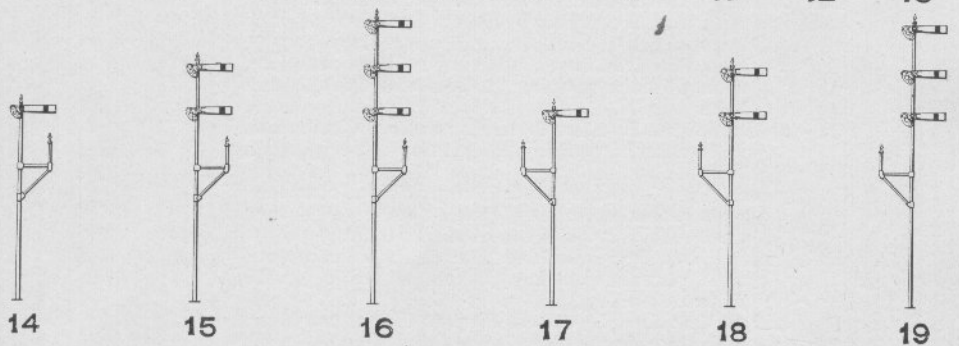
FLANGE UNIONS AND EXPANSION JOINTS

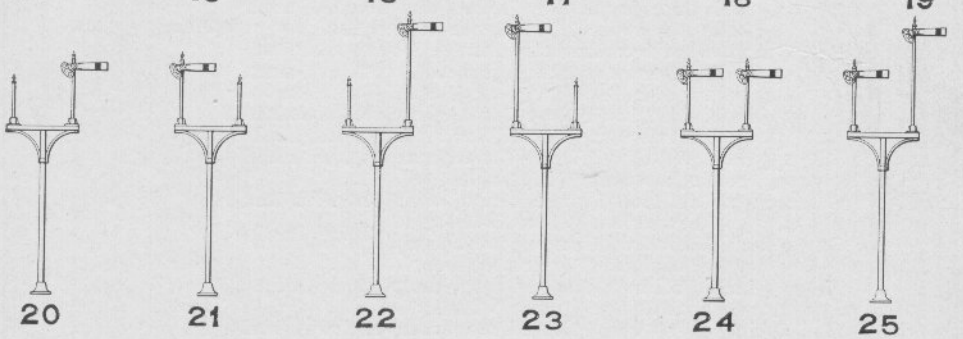
FLANGE UNIONS AND EXPANSION JOINTS

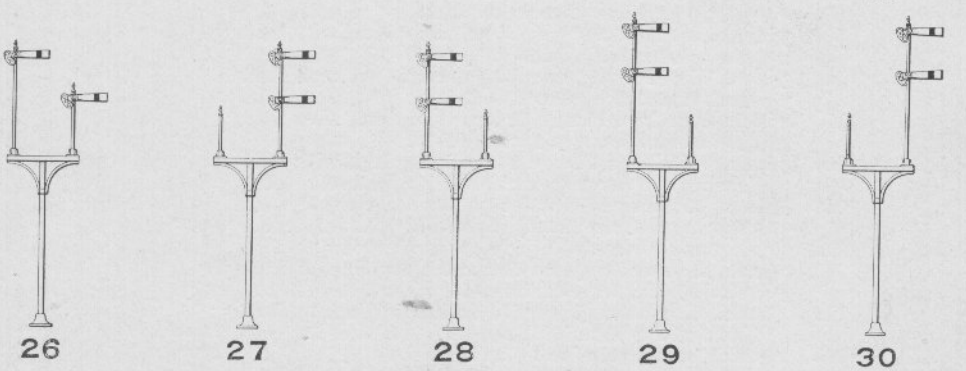
Order by Plate and Figure

Fig.		List Price	
A	1½ inch, Cast Iron Insulated Flange Union, complete, with phœnix packing gaskets and five ½ inch bolts	4 70	
Aa	1½ inch, Wrot Iron Insulated Flange Union, complete, with phœnix packing gaskets and four ½ inch bolts		
B	2 inch, Cast Iron Insulated Flange Union, complete, with phœnix packing gaskets and five ½ inch bolts	4 80	
Ba	2 inch, Wrot Iron Insulated Flange Union, complete, with phœnix packing gaskets and four ½ inch bolts		
C	2½ inch, Cast Iron Insulated Flange Union, complete, with phœnix packing gaskets and five ½ inch bolts	5 70	
Ca	2½ inch, Wrot Iron Insulated Flange Union, complete, with phœnix packing gaskets and four ½ inch bolts		
D	3 inch, Cast Iron Insulated Flange Union, complete, with phœnix packing gaskets and five ½ inch bolts	6 90	
Da	3 inch, Wrot Iron Insulated Flange Union, complete, with phœnix packing gaskets and five ⅝ inch bolts		
E	4 inch, Cast Iron Insulated Flange Union, complete, with phœnix packing gaskets and seven ½ inch bolts	8 60	
Ea	4 inch, Wrot Iron Insulated Flange Union, complete, with phœnix packing gaskets and five ⅝ inch bolts		
F	1½ inch, Cast Iron Flange Union, complete, with lead gasket and five ½ inch bolts	2 30	
Fa	1½ inch, Wrot Iron Flange Union, complete, with lead gasket and four ⅝ inch bolts		
G	2 inch, Cast Iron Flange Union, complete, with lead gasket and five ½ inch bolts	2 30	
Ga	2 inch, Wrot Iron Flange Union, complete, with lead gasket and four ⅝ inch bolts		
H	2½ inch, Cast Iron Flange Union, complete, with lead gasket and five ⅝ inch bolts	2 80	
Ha	2½ inch, Wrot Iron Flange Union, complete, with lead gasket and five ⅝ inch bolts		
J	3 inch, Cast Iron Flange Union, complete, with lead gasket and five ⅝ inch bolts	3 80	
Ja	3 inch, Wrot Iron Flange Union, complete, with lead gasket and five ⅝ inch bolts		
K	4 inch, Cast Iron Flange Union, complete, with lead gasket and seven ⅝ inch bolts	5 40	
Ka	4 inch, Wrot Iron Flange Union, complete, with lead gasket and seven ⅝ inch bolts		
M	¾ inch, Expansion Joint for condenser, complete, as shown, with nipple 9¼ inches long	3 70	
Ma	as above, with nipple 4½ inches long	3 40	
N	2 inch, Expansion Joint for main air line, 6 inch stroke, complete, as shown	9 50	
Na	2 inch, Expansion Joint for main air line, 14 inch stroke, complete	12 20	
Nb	2½ inch, as above, with 14 inch stroke	17 70	
Nc	3 inch, Expansion Joint for main air line, 10 inch stroke, complete	22 50	









DIAGRAMS OF SIGNALS

DIAGRAMS OF SIGNALS

The signals listed below include blades, glass, front and back spectacles, ladders and ladder foundations, anchor bolts and all other fittings shown on the following plates.

They do not include lamps, circuit controllers (except in Figs. 1 to 4 inclusive where a circuit controller forms a part of the mechanism), pole changers, number plates or reservoirs, which must be ordered separately when required. Any variations from the general dimensions shown on the following plates must be specifically called for when ordering.

Magnets are wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

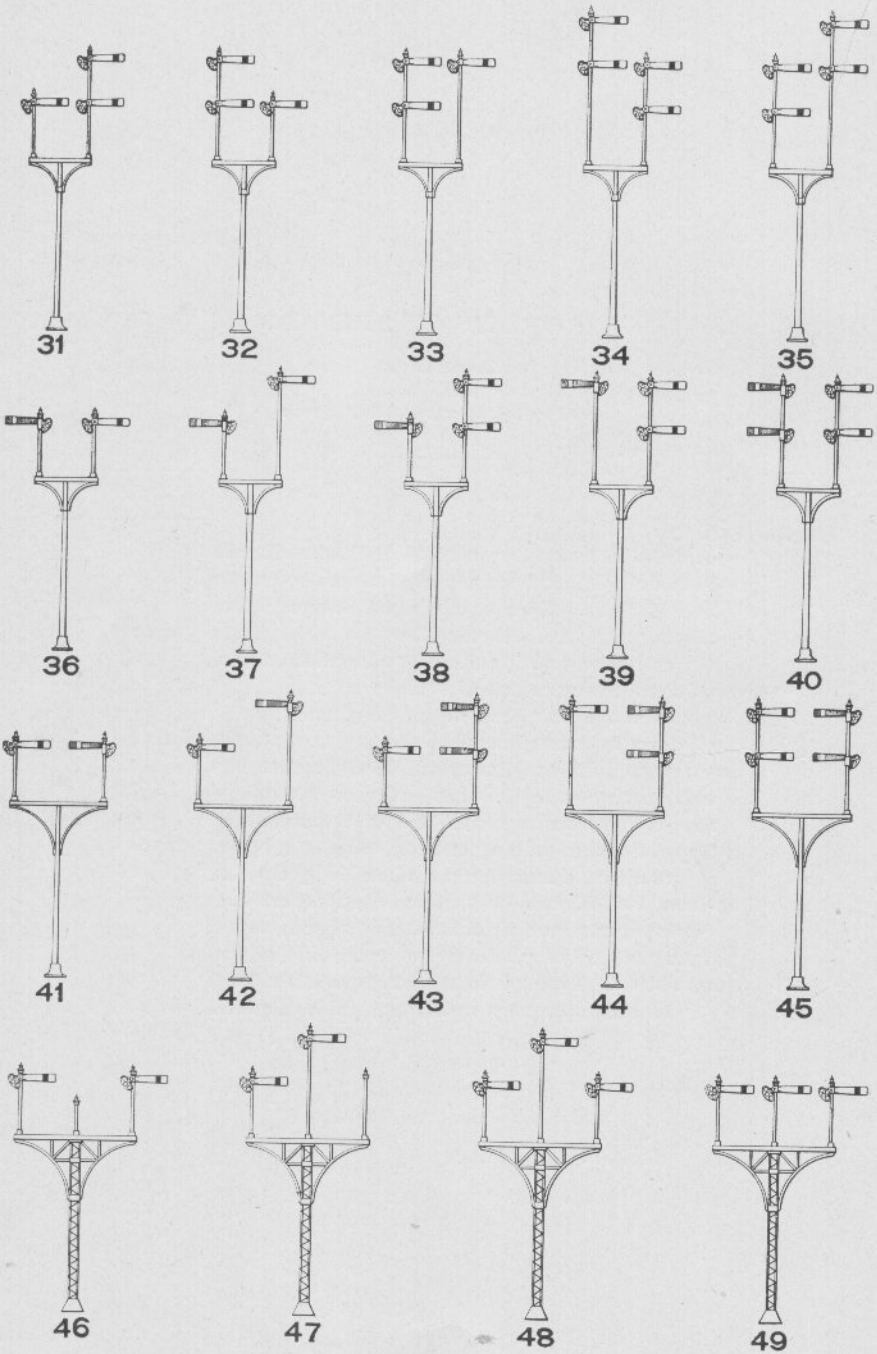
Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
1	Electro-Pneumatic Rotary Pot Signal, 1 foot 6¾ inches from base to the center of lens opening. See Plate 0887	100 00	
2	as above, 8 feet from base to the center of lens opening. See Plate 0887	108 00	
3	One Arm, 60°, Electro-Pneumatic Dwarf Signal. See Plate 0875	82 00	
4	Two Arm, as above. See Plate 0877	164 00	
6	One Arm, 60°, Electro-Pneumatic Bridge or Bracket Signal. See Plate 0867	165 00	
7	Two Arm, as above. See Plate 0867	288 00	
8	Three Arm, as above. See Plate 0867	454 00	

DIAGRAMS OF SIGNALS

Order by Plate and Figure

Fig.		List Price	
9	One-Arm, 60°, Electro-Pneumatic Ground Post Signal. See Plate 0861	233 00	
10	Two-Arm, as above. See Plate 0863	354 00	
11	Three-Arm, as above. See Plate 0865	537 00	
14	One-Arm, 60°, Electro-Pneumatic Cantilever Signal, dummy to right of post	262 00	
15	Two-Arm, as above	384 00	
16	Three-Arm, as above	566 00	
17	One-Arm, 60°, Electro-Pneumatic Cantilever Signal, dummy to left of post	262 00	
18	Two-Arm, as above	384 00	
19	Three-Arm, as above	566 00	
20	One-Arm, 60°, Electro-Pneumatic Pipe Post Bracket Signal, dummy on left hand side of post, 8 feet from top of platform to centre line of blade. Type of main post as per Plate 0869	454 00	
21	as above, dummy on right hand side of post	454 00	
22	One-Arm, 60°, Electro-Pneumatic Pipe Post Bracket Signal, dummy on left hand side of post, 14 feet from top of platform to centre line of blade. Type of main post as per Plate 0869	464 00	
23	as above, dummy on right hand side of post	464 00	



DIAGRAMS OF SIGNALS

DIAGRAMS OF SIGNALS

The signals listed below include blades, glass, front and back spectacles, ladders and ladder foundations, anchor bolts, and all other fittings shown on the following plates.

They do not include lamps, circuit controllers, pole changers, number plates, or reservoirs, which must be ordered separately when required.

Any variations from the general dimensions shown on the following plates must be specifically called for when ordering.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
31	Three-arm, 60°, Electro-Pneumatic Pipe Bracket Signal, two-arm doll on right hand side of post, one-arm doll on left hand side of post. Both dolls are 8 feet from top of platform to center line of bottom blade. Type of main post as per Plate 0869.	719 00	
32	as above, one-arm doll on right hand side of post, two-arm doll on left hand side of post...	719 00	
33	as above, one-arm doll on right hand side of post, 14 feet from top of platform to center line of blade; two-arm doll on left hand side of post, 8 feet from top of platform to center line of bottom blade.	730 00	
34	Four-arm, 60°, Electro-Pneumatic Pipe Bracket Signal, two-arm doll on right hand side of post, 8 feet from top of platform to center line of bottom blade ; two-arm doll on left hand side of post, 14 feet from top of platform to center line of bottom blade. Type of main post as per Plate 0869.....	854 00	
35	as above, two-arm doll on right hand side of post, 14 feet from top of platform to center line of bottom blade ; two-arm doll on left hand side of post, 8 feet from top of platform to center line of bottom blade.....	854 00	

DIAGRAMS OF SIGNALS

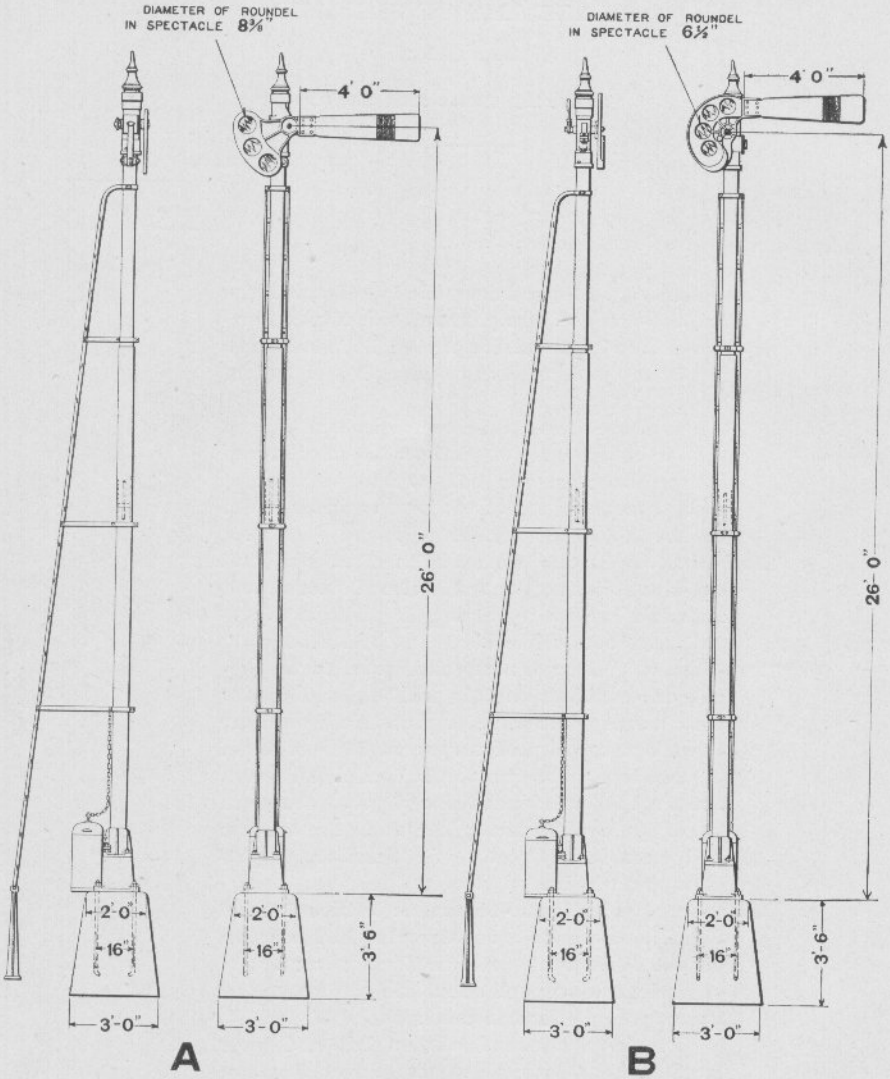
Order by Plate and Figure

Fig.		List Price	
36	Two-arm, 60°, Electro-Pneumatic Pipe Bracket Signal, both dolls 8 feet from top of platform to center line of blade. Type of main post as per Plate 0869	596 00	
37	as above, doll on right hand side of post, 14 feet from top of platform to center line of blade; doll on left hand side of post, 8 feet from top of platform to center line of blade	608 00	
38	Three-arm, 60°, Electro-Pneumatic Pipe Bracket Signal, two-arm doll on right hand side of post, one-arm doll on left hand side of post. Both dolls are 8 feet from top of platform to center line of bottom blade. Type of main post as per Plate 0869.	720 00	
39	as above, two-arm doll on right hand side of post, 8 feet from top of platform to center line of bottom blade; one-arm doll on left hand side of post, 14 feet from top of platform to center line of blade	730 00	
40	Four-Arm, 60°, Electro-Pneumatic Pipe Bracket Signal, two-arm doll on right hand side of post, two-arm doll on left hand side of post. Both dolls are 8 feet from top of platform to center line of bottom blade. Type of main post as per Plate 0869	844 00	
41	Two-Arm, 60°, Electro-Pneumatic Pipe Bracket Signal, one-arm doll on right hand side of post, one-arm doll on left hand side of post. Both dolls are 8 feet from top of platform to center line of blade	614 00	
42	as above, one-arm doll on right hand side of post, 14 feet from top of platform to center line of blade; one-arm doll on left hand side of post, 8 feet from top of platform to center line of blade	624 00	

DIAGRAMS OF SIGNALS

Order by Plate and Figure

Fig.		List Price	
43	Three-Arm, 60°, Electro-Pneumatic Pipe Bracket Signal, two-arm doll on right hand side of post, one-arm doll on left hand side of post. Both dolls are 8 feet from top of platform to center line of bottom blade	738 00	
44	as above, two-arm doll on right hand side of post, 8 feet from top of platform to center line of bottom blade; one-arm doll on left hand side of post, 14 feet from top of platform to center line of blade	748 00	
45	Four-Arm, 60°, Electro-Pneumatic Pipe Bracket Signal, two-arm dolls on right and left hand sides of post. Both dolls are 8 feet from top of platform to center line of bottom blade	860 00	
46	Two-Arm, 60°, Electro-Pneumatic Lattice Bracket Signal, one-arm dolls on right and left hand sides of post; dummy on middle of post. Both dolls are 8 feet from top of platform to center line of blade.		
47	as above, dummy on right hand side of post, one-arm doll on left hand side of post, 8 feet from top of platform to center line of blade; one-arm doll on middle of post, 14 feet from top of platform to center line of blade		
48	Three-Arm, 60°, Electro-Pneumatic Lattice Bracket Signal, one-arm dolls on left and right hand sides of post, 8 feet from top of platform to center line of blade; one-arm doll on middle of post, 14 feet from top of platform to center line of blade		
49	as above, one-arm dolls on left and right hand sides and middle of post, 8 feet from top of platform to center line of blade		



ONE ARM ELECTRO-PNEUMATIC GROUND SIGNALS

ONE ARM ELECTRO-PNEUMATIC GROUND SIGNALS

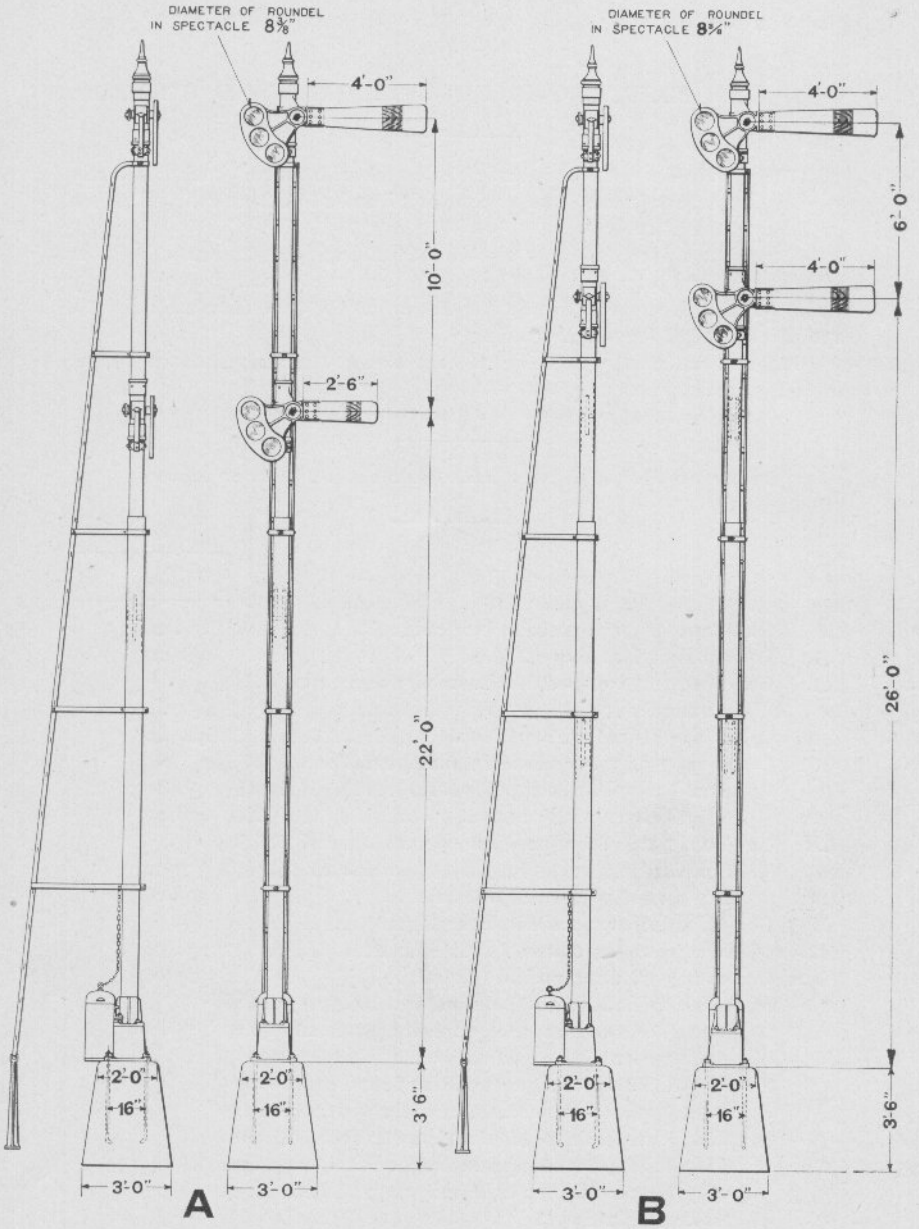
The signals listed below include blades, glass, front and back spectacles ladders and ladder foundations, anchor bolts, and all other fittings shown on the opposite plate.

They do not include lamps, circuit controllers, pole changers, number plates, or reservoirs, which must be ordered separately when required. Any variation from the general dimensions shown on the opposite plate must be specifically called for when ordering.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	One-arm, 60°, two-position home signal	233 00	
Aa	Distant signal, as above	232 00	
Ab	One-arm, 75°, two-position home signal, Penna. R. R. Standard	251 00	
Ac	as above, with pedestal	422 00	
Ad	One-arm, 75°, two-position distant signal, Penna. R.R. Standard	250 00	
Ae	as above with pedestal	420 00	
Af	One-arm, 75°, three-position signal, Penna. R. R. Standard	333 00	
Ag	as above, with pedestal	513 00	
B	One-arm, 90°, two-position home signal	235 00	
Ba	Distant signal, as above	234 00	
Bb	One-arm, 90°, three-position signal	317 00	
	For each foot added to the standard heights of the signals shown on the opposite plate, add $2.20 to list price.		
	Details of the above signals will be found on the following plates: Mechanisms, Plate 0897; Bearings and Bases, Plates 0899 and 0901; Post Fittings, Plate 0903; Front Spectacles and Blades, Plate 0905; Back Spectacles, Plate 0907; Circuit Controllers, Plate 0911.		



TWO ARM ELECTRO-PNEUMATIC GROUND SIGNALS

TWO ARM ELECTRO-PNEUMATIC GROUND SIGNALS

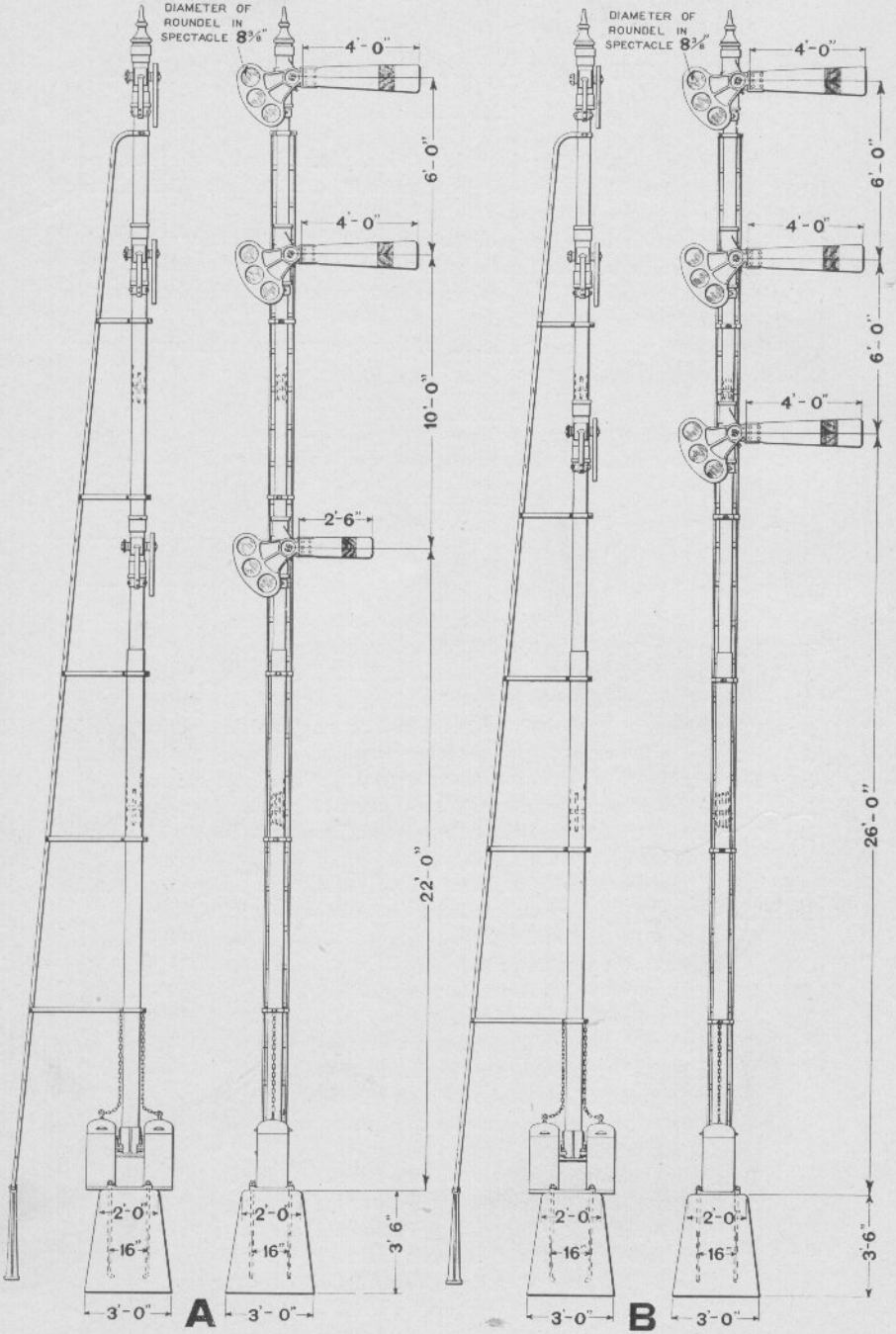
The signals listed below include blades, glass, front and back spectacles, ladders and ladder foundations, anchor bolts and all other fittings shown on the opposite plate.

They do not include lamps, circuit controllers, pole changers, number plates or reservoirs, which must be ordered separately when required. Any variation from the general dimensions shown on the opposite plate must be specifically called for when ordering.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Two-arm, 60°, two-position home and route signal	343 00	
Aa	Two-arm, 75°, two-position home and route signal, Penna. R. R. Standard	376 00	
Ab	as above, with pedestal	556 00	
Ac	Two-arm, 90°, two-position home and route signal	348 00	
Ad	as above, top arm three-position	430 00	
B	Two-arm, 60°, two-position home signal	354 00	
Ba	as above, home and distant signal	353 00	
Bb	Two-arm, 75°, two-position home signal, Penna. R. R. Standard	392 00	
Bc	as above, with pedestal	572 00	
Bd	Two-arm, 75°, two-position home and distant signal, Penna. R. R. Standard	391 00	
Be	as above, with pedestal	571 00	
Bf	Two-arm, 90°, two-position home signal	359 00	
Bg	as above, home and distant signal	358 00	
Bh	Two-arm, 90°, home signal, top arm three-position	441 00	
Bj	Two-arm, 90°, three-position home signal	518 00	
	For each foot added to the standard heights of the signals shown on the opposite plate, add $2.60 to list price.		
	Details of the above signals will be found on the following plates: Mechanisms, Plate 0897; Bearings and Bases, Plate 0899; Post Fittings, Plate 0903; Front Spectacles and Blades, Plate 0905; Back Spectacles, Plate 0907; Circuit Controllers, Plate 0911		



THREE ARM ELECTRO-PNEUMATIC GROUND SIGNALS

THREE ARM ELECTRO-PNEUMATIC GROUND SIGNALS

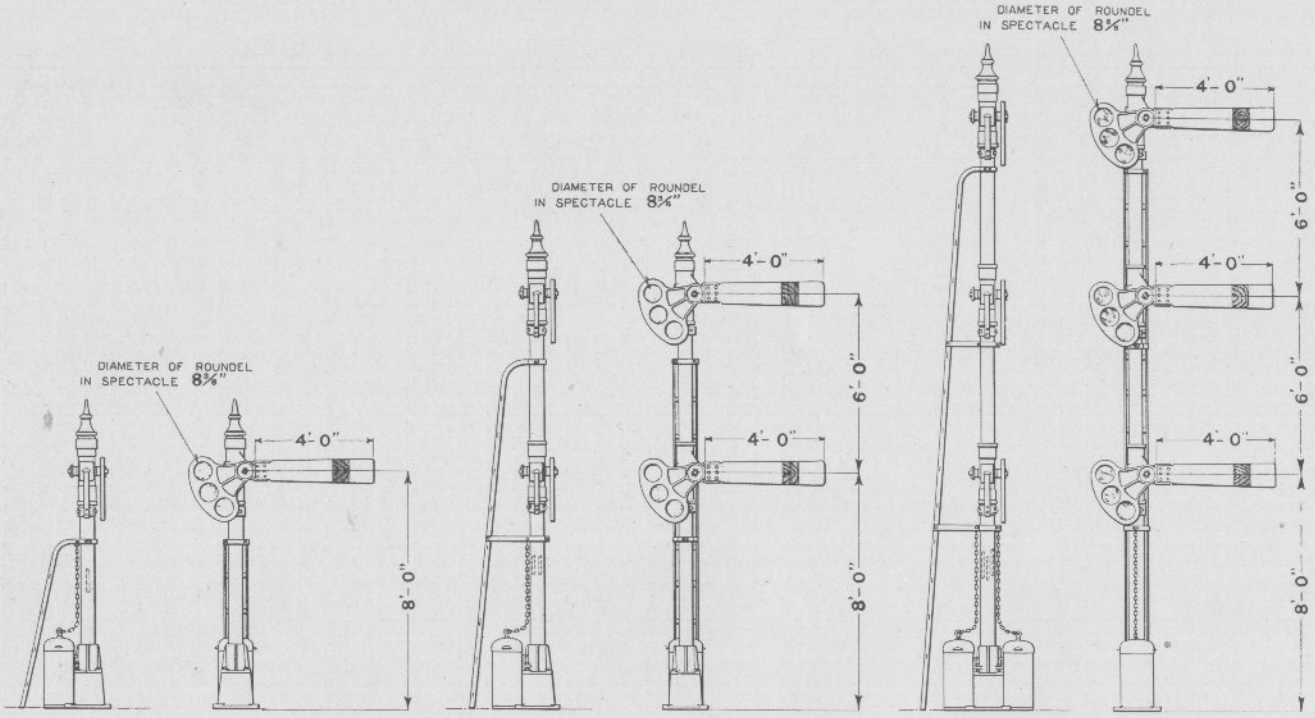
The signals listed below include blades, glass, front and back spectacles, ladders and ladder foundations, anchor bolts and all other fittings shown on the opposite plate.

They do not include lamps, circuit controllers, pole changers, number plates or reservoirs, which must be ordered separately when required. Any variation from the general dimensions shown on the opposite plate must be specifically called for when ordering.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above.

Fig.		List Price	
A	Three-arm, 60°, two-position home and route signal.	537 00	
Aa	Three-arm, 75°, two-position home and route signal, Penna. R. R. Standard	570 00	
Ab	as above, with pedestal	744 00	
Ac	Three-arm, 90°, two-position home and route signal	543 00	
Ad	as above, top arm three-position	625 00	
B	Three-arm, 60°, two-position home signal	537 00	
Bb	as above, two home and one distant	536 00	
Bc	as above, one home and two distant	535 00	
Bd	Three-arm, 75°, two-position home signal, Penna. R. R. Sandard	592 00	
Be	as above, with pedestal	750 00	
Bf	Three-arm, 75°, two-position two home and one distant, Penna. R. R. Standard	591 00	
Bg	as above, with pedestal	749 00	
Bh	Three-arm, 75°, two-position one home and two distant, Penna. R. R. Standard	590 00	
Bj	as above, with pedestal	748 00	
Bk	Three-arm, 90°, two-position home signal	543 00	
Bm	as above, top arm three-position	625 00	
Bn	Three-arm, 90°, two-position two home and one distant	542 00	
Bp	as above, two distant and one home	541 00	
	For each foot added to the standard heights of the signals shown on the opposite plate, add $2.80 to list price.		
	Details of the above signals will be found on the following plates: Mechanisms, Plate 0897; Bearings and Bases, Plate 0899; Post Fittings, Plate 0903; Front Spectacles and Blades, Plate 0905; Back-Spectacles, Plate 0907; Circuit Controllers, Plate 0911.		



ONE, TWO AND THREE ARM ELECTRO-PNEUMATIC BRIDGE OR BRACKET SIGNALS

PLATE 0867

ONE, TWO AND THREE ARM ELECTRO-PNEUMATIC BRIDGE OR BRACKET SIGNALS

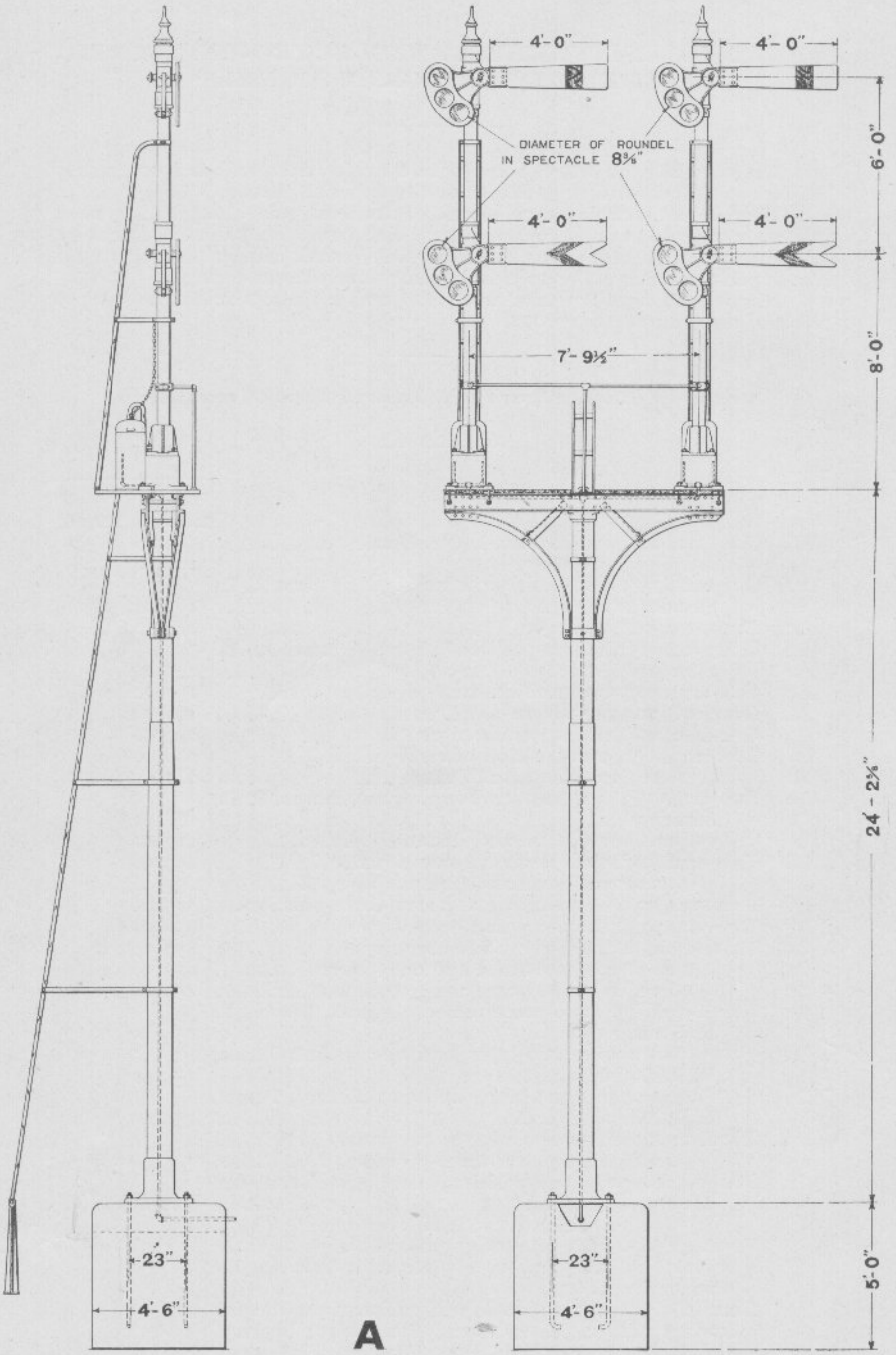
The signals listed below include blades, glass, front and back spectacles, ladders and all other fittings shown on the opposite plate.

They do not include lamps, circuit controllers, pole changers, number plates, channel irons or reservoirs, which must be ordered separately when required. Any variation from the general dimensions shown on the opposite plate must be specifically called for when ordering.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	One-arm, 60°, two-position home signal	165 00	
Aa	Distant Signal, as above	164 00	
Ab	One-arm, 75°, two-position home signal, Penna R. R. Standard	165 00	
Ac	Distant signal, as above	164 00	
Ad	One-arm, 75°, three-position signal, Penna. R. R. Standard	247 00	
Ae	One-arm, 90°, two-position home signal	167 00	
Af	Distant Signal, as above	166 00	
Ag	One-arm, 90°, three-position signal	249 00	
B	Two-arm, 60°, two-position home signal	288 00	
Ba	as above, home and distant	287 00	
Bb	Two-arm, 75°, two-position home signal, Penna. R. R. Standard	288 00	
Bc	as above, home and distant	287 00	
Bd	Two-arm, 90°, two-position home signal	293 00	
Be	as above, home and distant	292 00	
Bf	Two-arm, 90°, home signal, top arm three-position	375 00	
Bg	Two-arm, 90°, three-position home signal	452 00	
C	Three-arm, 60°, two-position home signal	454 00	
Ca	as above, two home and one distant	453 00	
Cb	as above, one home and two distant	452 00	
Cc	Three-arm, 75°, two-position home signal, Penna. R. R. Standard	454 00	
Cd	as above, two home and one distant, Penna. R. R. Standard	453 00	
Ce	as above, one home and two distant, Penna. R. R. Standard	452 00	
Cf	Three-arm, 90°, two-position home signal	461 00	
Cg	as above, top arm three-position	543 00	
Ch	Three-arm, 90°, two-position, two home and one distant	460 00	
Cj	as above, two distant and one home	459 00	
	For each foot added to the standard heights of the signals on the opposite plate, add $2.20 to list price.		
	Details of the above signals will be found on the following plates: Mechanisms, Plate 0897; Bearings and Bases, Plate 0899; Post Fittings, Plate 0903; Front Spectacles and Blades, Plate 0905; Back Spectacles, Plate 0907; Circuit Controllers, Plate 0911.		



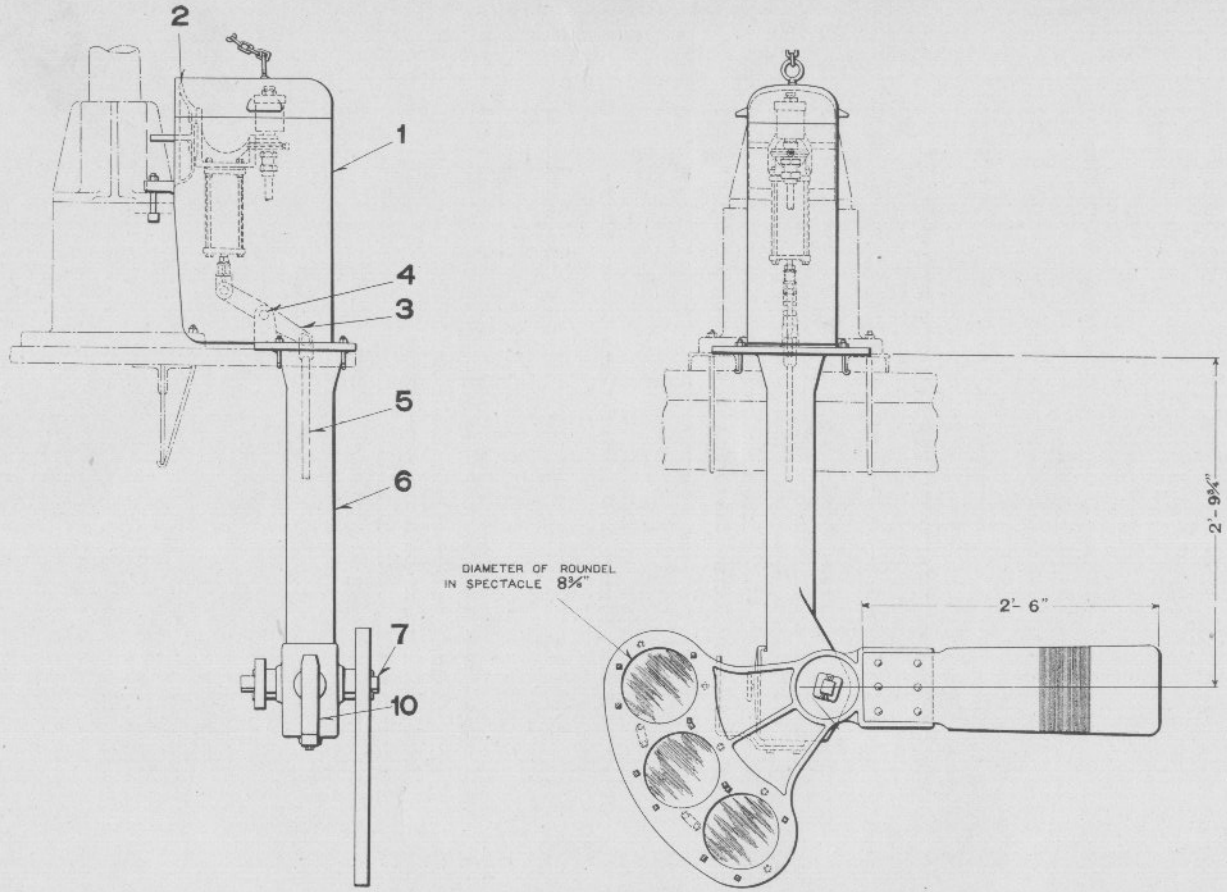
ELECTRO-PNEUMATIC BRACKET SIGNAL

ELECTRO-PNEUMATIC BRACKET SIGNAL

Bracket signal combinations are too numerous to list. We therefore merely list below the complete main bracket post without the upper posts or fittings. By adding the prices of the posts shown on Plate 0867, to the price of the main post listed below, the amount of any ordinary combination can readily be obtained. Some of the combinations most generally used are shown on Plates 0857 and 0859

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Main Bracket Post, complete, with cross-trees, platform, channel irons, hand rails, ladder and ladder foundation, anchor bolts and pipe fittings. (No upper posts)	266 00	
Aa	as above, with pedestal, Penna. R. R. Standard	438 00	



A

ONE ARM ELECTRO-PNEUMATIC SUSPENDED ROUTE SIGNAL

ONE-ARM ELECTRO-PNEUMATIC SUSPENDED ROUTE SIGNAL

This signal is designed to be attached to the base of an existing bridge or bracket signal as shown on the opposite plate.

If required as a separate signal the fact must be stated when ordering, so that a special support can be furnished.

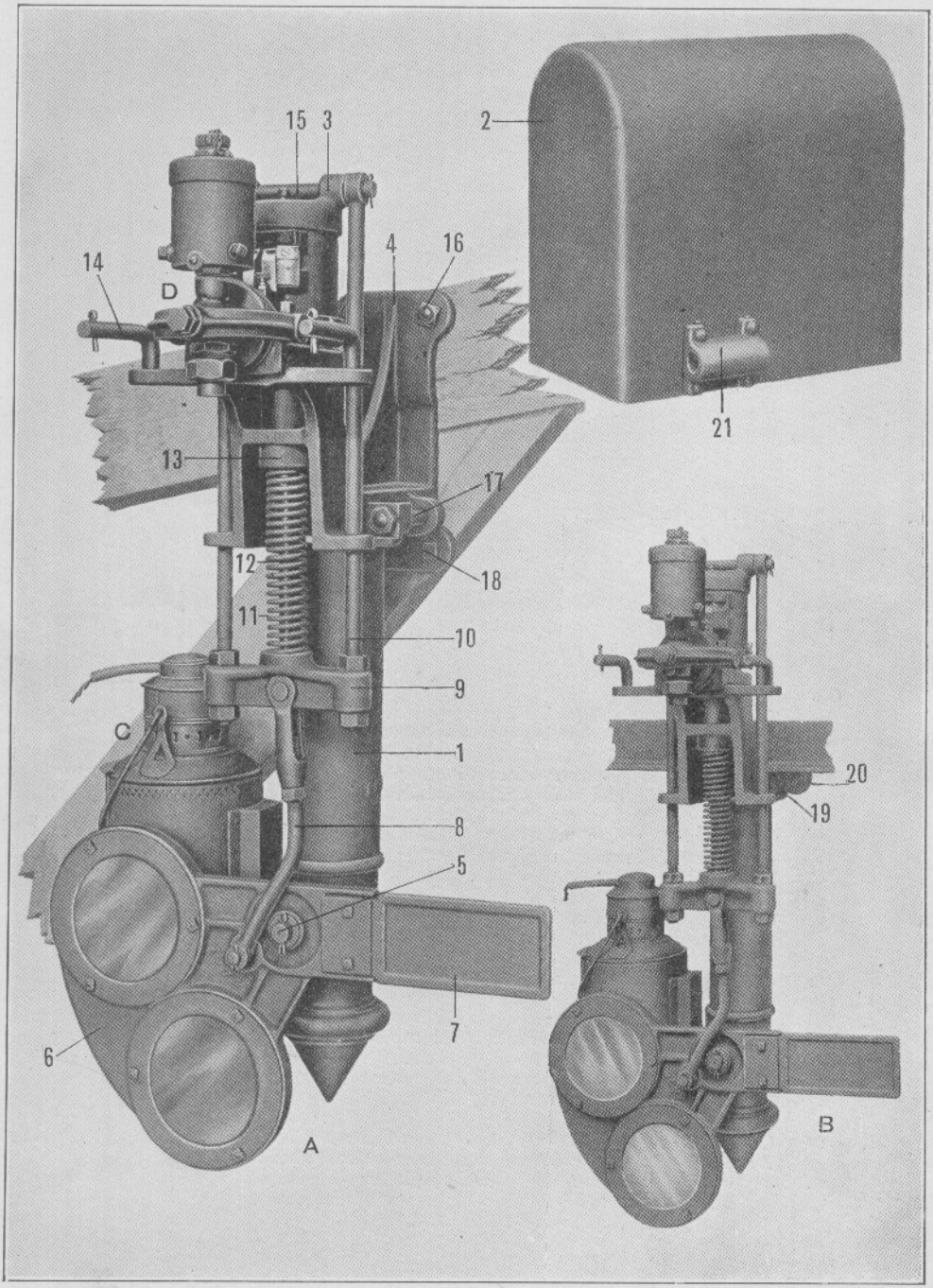
The signals listed below include blades, glass, front and back spectacles, anchor bolts and all other fittings shown on the opposite plate.

They do not include lamps, circuit controllers, number plates, channel irons or reservoirs, which must be ordered separately when required. Any variation from the general dimensions shown on the opposite plate must be specifically called for when ordering.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Suspended Route Signal, 60°, two-position	120 00	
Aa	Suspended Route Signal, 75°, two-position, Penna. R. R. Standard	120 00	
Ab	as above, three-position, Penna. R. R. Standard	200 00	
Ac	Suspended Route Signal, 90°, two-position	120 00	
1	Movement Cover, complete, with chain	10 24	
2	Cylinder Bracket, complete, with bolts and nuts, for fastening bracket to signal base	4 62	
3	Lever only	6 00	
4	Shaft, with cotters, for Fig. 3	14	
5	Up and Down Rod, complete, with jaw, pins, nut, and cotters	2 00	
6	Post only	16 50	
6a	as above, complete, with hand hole plate, handle and clamp, adjusting screw with lock nut, journals, semaphore shaft with washers and cotters, semaphore crank, and lamp bracket with bolts and nuts	25 30	
7	Semaphore Shaft, with journals and cotters	3 90	
8	Journal for semaphore shaft	1 30	
9	Semaphore Crank	1 00	
10	Lamp Bracket, complete, with bolts and nuts	1 00	
	Details of the above signals that are not listed above will be found on the following plates: Mechanisms, Plate 0897, Front Spectacles and Blades, Plate 0905; Back Spectacles, Plate 0907.		



60 DEGREE ELECTRO-PNEUMATIC SUSPENDED STARTING SIGNALS

60 DEGREE ELECTRO-PNEUMATIC SUSPENDED STARTING SIGNALS

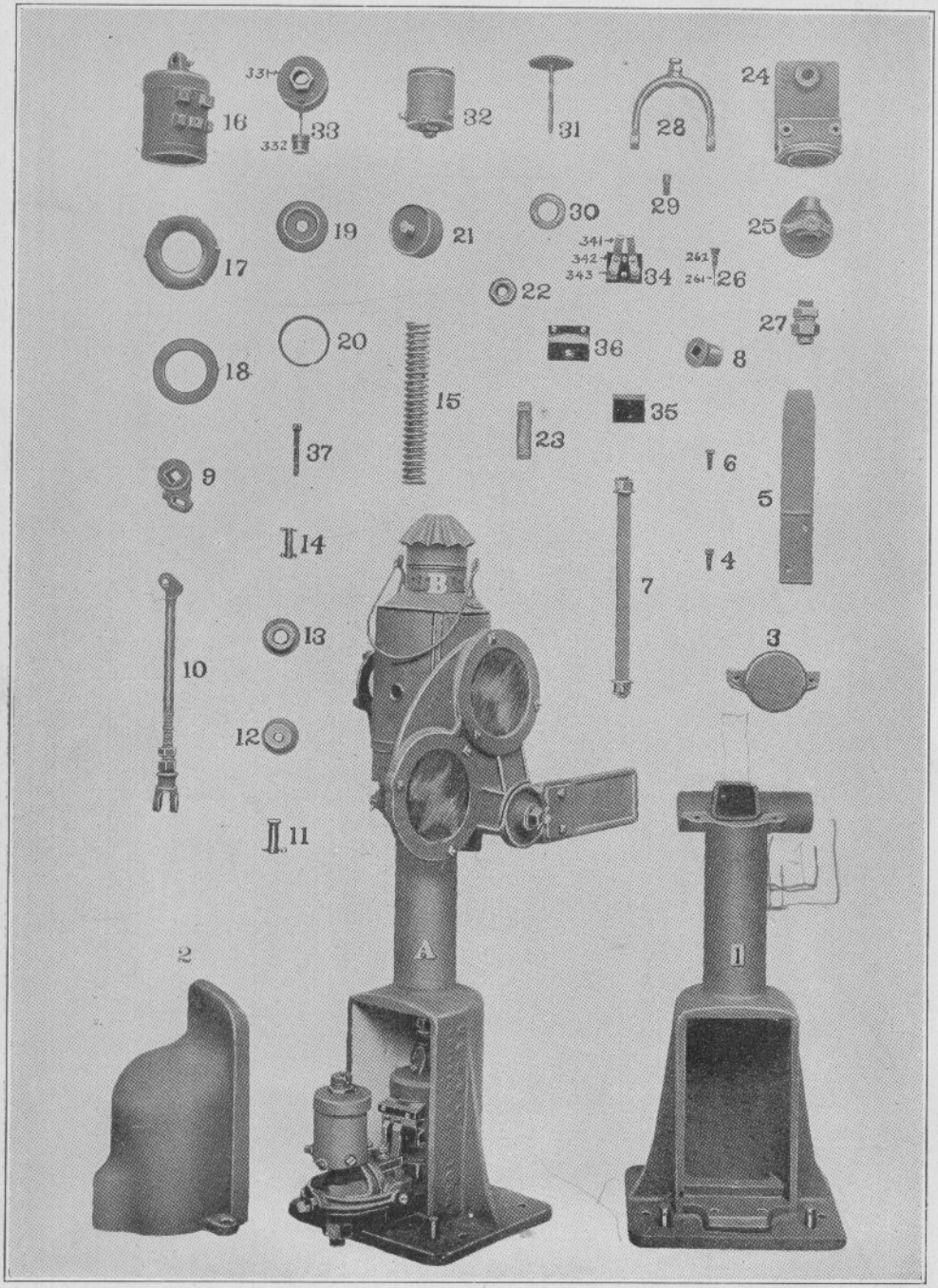
The signals listed below include blades, glass, front spectacles, and all other fittings shown on the opposite plate.

They do not include lamps, number plates or reservoirs which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Suspended Starting Signal, for wood structure, complete, without lamp	86 00	
B	Suspended Starting Signal, for iron structure, complete, without lamp	88 00	
D	Magnet and Valve, complete. Specify resistance when ordering. (For details see Plate 0875)	30 00	
1	Post only	6 30	
2	Mechanism Cover	5 20	
3	Cylinder only	6 40	
3a	as above, complete, with oil plug, base, cap, gasket, piston, hollow piston rod, piston rings, cage for piston rings, nut, and circuit breaker complete	26 00	
4	Base Casting for wood structure	1 60	
5	Semaphore Shaft, complete, with washers and cotters	44	
6	Front Spectacle, with rings and bolts	1 50	
7	Rubber Blade, with plate and bolts	90	
8	Connecting Link	1 10	
9	Yoke	78	
10	Up and Down Rod, with nuts	70	
11	Spring	40	
12	Guide Rod	14	
13	Collar for Fig. 12	12	
14	Stud for fastening cover to base casting	12	
15	Shaft for connecting Figs. 3 and 10	12	
17	Bolt and Nut, $\frac{5}{8}$" x 5$\frac{1}{2}$", for fastening signal post to base casting	12	
20	Clip or Gib for bolt that fastens suspended starting signal to iron structure	12	
21	Lug for mechanism cover	24	



ONE ARM ELECTRO-PNEUMATIC DWARF SIGNAL

ONE ARM ELECTRO-PNEUMATIC DWARF SIGNAL

The signals listed below include blades, glass, front and back spectacles and all other fittings shown on the opposite plate.

They do not include lamps, number plates or reservoirs, which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	One-Arm, 60° Electro-Pneumatic Dwarf Signal, complete, without lamp, 1 foot 10½ inches from base to center of semaphore shaft	82 00	
Aa	as above, 90°, 2 feet 1⅞ inches from base to center of semaphore shaft	86 00	
B	Lamp for above	6 60	
1	Combined Post and Base for 60° dwarf signal	9 40	
1a	as above, for 90° dwarf signal	10 00	
2	Mechanism Cover	1 80	
3	Cap for combined post and base	44	
4	Cap Screw, ⅜"x1", for fastening cap to base. Price per hundred	3 00	
5	Lamp Bracket	24	
5a	Lamp Bracket, complete, with tap bolts, (1-5, 2-6, Plate 0875)	30	
6	Tap Bolt, ⅜"x⅞", for fastening lamp bracket to base. Price per hundred	2 00	
7	Semaphore Shaft, with nuts, washers and cotters	80	
7a	Front Spectacle, 60°, with rings and bolts	1 76	
7b	Front Spectacle, 90°, with rings and bolts	3 70	
7c	Back Spectacle, with ring and bolts	52	
7d	Rubber Blade, with plate and bolts	76	
8	Journal for semaphore shaft	66	
9	Semaphore Crank for 60° dwarf signal	46	
9a	as above, for 90° dwarf signal	46	

ONE ARM ELECTRO-PNEUMATIC DWARF SIGNAL

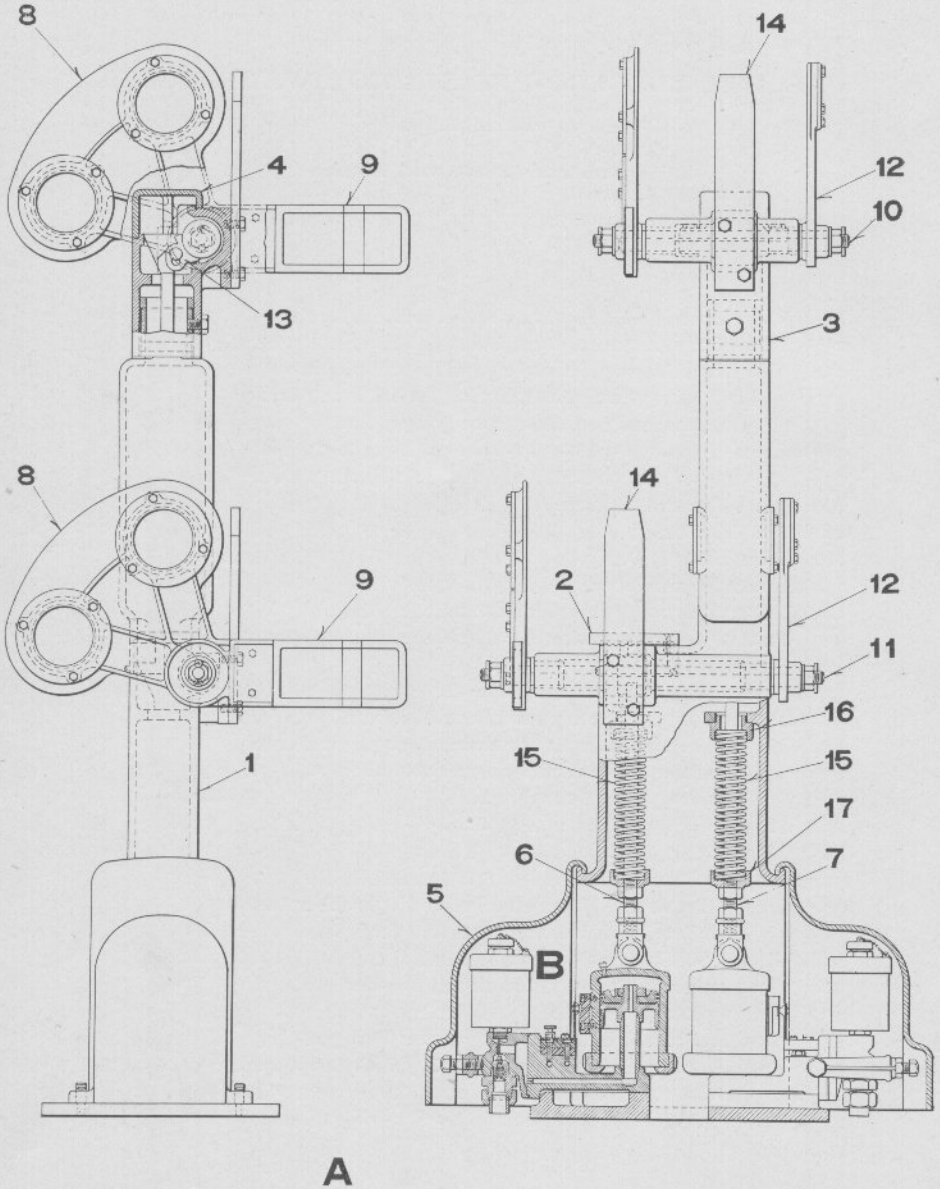
Order by Plate and Figure

Fig.		List Price	
10	Up and Down Rod, complete, with jaw, pin, nuts and cotter, for one-arm 60° signal	1 10	
10a	as above, for 90° signal	1 10	
11	Pin, 5/8"x1 3/4", with cotter, for jaw on up and down rods	08	
12	Spring Socket, lower	08	
13	Spring Socket, upper	06	
14	Pin, 1/2"x1 13/16", with washers and cotters, for joining semaphore crank and up and down rod	08	
15	Spring for 60° dwarf signal	40	
15a	as above for 90°, dwarf signal	40	
16	Cylinder only, with oil plug, for 60° dwarf signal	5 30	
16a	as above, complete, with cap, gasket, piston, piston rings, cage for piston rings, nut, and circuit breaker complete, (1-16, 1-17, 1-18, 1-21, 2-20, 1-19, 1-22, Plate 0875)	24 00	
16b	Cylinder only, with oil plug, for 90° dwarf signal	5 30	
16c	as above, complete, with cap, gasket, piston, piston rings, cage for piston rings, nut, and circuit breaker, complete, (1-16b, 1-17, 1-18, 1-21, 2-20, 1-19, 1-22, Plate 0875)	24 00	
17	Cap for Cylinder	1 10	
18	Leather Gasket for cylinder cap	22	
19	Cage for piston rings	2 00	
20	Piston ring	66	
21	Piston	2 42	
21a	Piston, complete, with piston rings, cage for piston rings and nut, (1-21, 2-20, 1-19, 1-22. Plate 0875).	6 00	
22	Nut for fastening cage for piston rings to piston	36	
23	Hollow Piston Rod and Air Inlet for 60° dwarf signal	22	
23a	as above, for 90° dwarf signal	34	

ONE ARM ELECTRO-PNEUMATIC DWARF SIGNAL

Order by Plate and Figure

Fig.		List Price	
24	Valve Base	3 30	
25	Valve Body	3 08	
25a	Valve and Magnet, complete, with union, pin valve and spring, armature, spring for releasing armature, and magnet cap. Specify resistance of magnet. (1-25, 1-32, 1-27, 1-26, 1-31, 1-30, 1-33, Plate 0875)	30 00	
26	Pin Valve and Spring	72	
261	Pin Valve only	38	
262	Spring only	34	
27	Union for valve body	1 72	
28	Yoke, with tap bolt and lock nut	50	
29	Stud for fastening yoke to valve base	08	
30	Spring for releasing armature	16	
31	Armature, with stem, complete	3 00	
32	Magnet only. Specify resistance	13 80	
32a	Magnet, complete, with armature, spring for releasing armature, and cap. Specify resistance. (1-32, 1-31, 1-30, 1-33, Plate 0875)	18 00	
33	Magnet Cap, with chain and plug	1 68	
331	Magnet Cap only	1 28	
332	Plug and Chain only	40	
34	Circuit Breaker Springs attached to hard rubber base, complete, with binding posts and screws	1 60	
341	Circuit Breaker Spring only	24	
342	Hard Rubber Base only, for circuit breaker	70	
343	Binding Post, complete	18	
35	Hard Rubber Block, for placing under Fig. 34	34	
36	Hard Rubber Contact Block, with brass strip, and screws for attaching to cylinder	1 24	
37	Tap Bolt, $\frac{3}{8}''$x2$\frac{1}{2}''$, for fastening valve body to base	04	



TWO ARM ELECTRO-PNEUMATIC DWARF SIGNAL

TWO ARM ELECTRO-PNEUMATIC DWARF SIGNAL

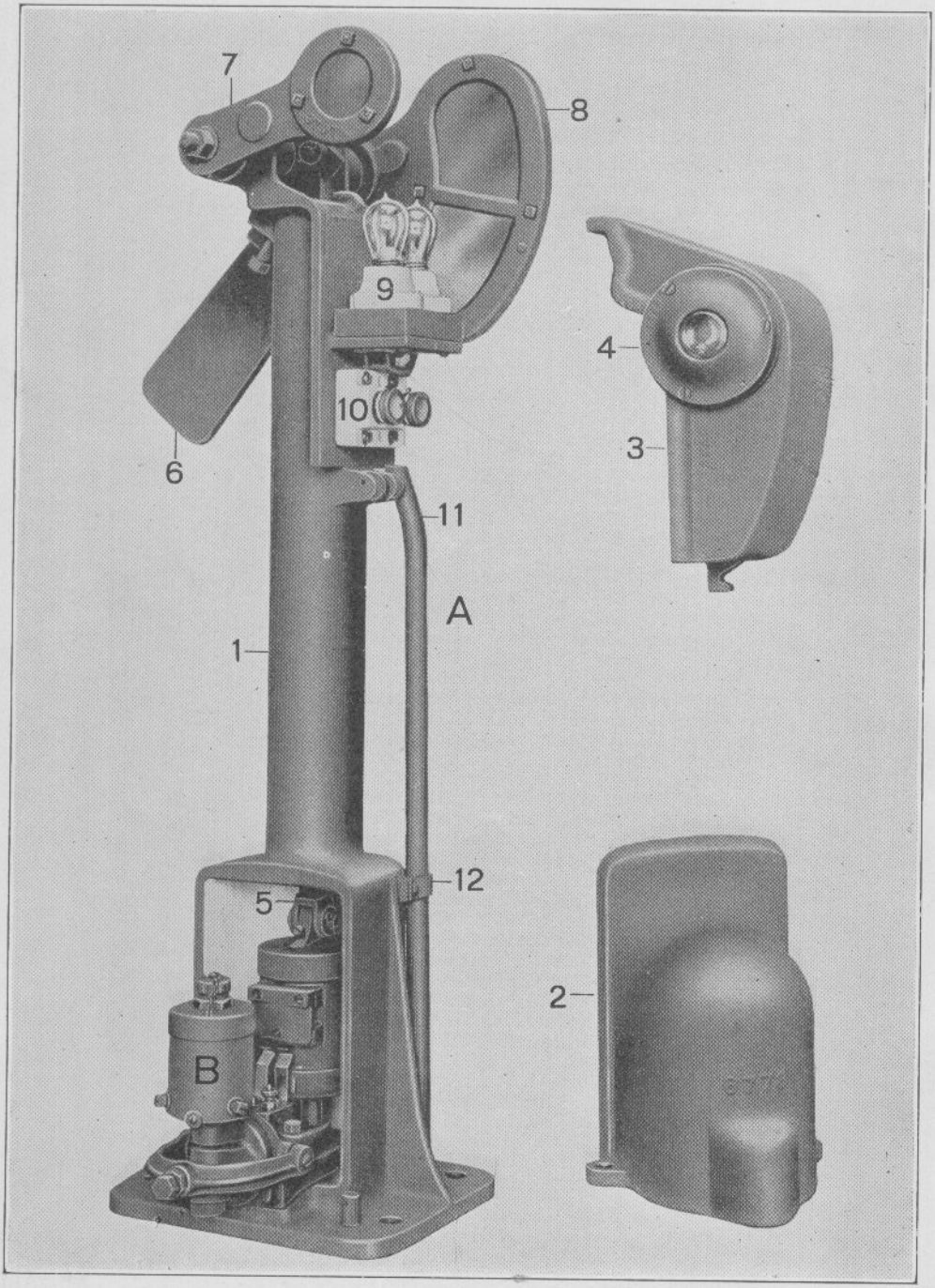
The signals listed below include blades, glass, front and back spectacles, and all other fittings shown on the opposite plate.

They do not include lamps, number plates, or reservoirs which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Two-Arm, 60°, Electro-Pneumatic Dwarf Signal, complete, without lamp, 1 foot 10½ inches from base to center line of bottom blade and 1 foot 10½ inches between blades	164 00	
Aa	as above, 90°, 2 feet 1⅞ inches from base to center line of bottom blade, 1 foot 10½ inches between blades	166 00	
B	Single Mechanism, complete; for details see Plate 0875. Specify resistance of magnet	54 00	
1	Combined Post and Base, for signal, 1 foot 10½ inches from base to center line of bottom blade	21 00	
1a	as above, for signal, 2 feet 1⅞ inches from base to center line of bottom blade	22 00	
2	Cap for covering semaphore crank of bottom blade	40	
3	Semaphore Bearing for top blade	3 52	
4	Cap for top bearing	44	
5	Mechanism cover	1 80	
6	Up and Down Rod, complete, with jaw, pin, nuts and cotter, for bottom blade of signal, 1 foot 10½ inches from base to center line of bottom blade	1 10	
6a	as above, for signal, 2 feet 1⅞ inches from base to center line of bottom blade	1 22	
7	Up and Down Rod, complete, with jaw, pin, nuts and cotter, for top blade of signal, 1 foot 10½ inches from base to center line of bottom blade	1 10	
7a	as above, for signal, 2 feet 1⅞ inches from base to center line of bottom blade	1 22	
8	Front Spectacle, 60°, with rings and bolts	1 40	
8a	Front Spectacle, 90°, with rings and bolts	3 70	
9	Rubber Blade, with plate and bolts	1 10	
10	Semaphore Shaft, with nuts, washers and cotters, for top blade	80	
10a	Journal for semaphore shaft	66	
11	Semaphore Shaft, with nuts, washers and cotters, for bottom blade	60	
12	Back Spectacle, with ring and bolts	82	
13	Semaphore Crank for 60° dwarf signal	46	
13a	as above, for 90° dwarf signal	56	
14	Lamp Bracket	26	
15	Spring for 60° dwarf signal	90	
15a	as above, for 90° dwarf signal	90	
16	Spring Socket, top	10	
17	Spring Socket, bottom	10	
	For other details see Plate 0875.		



ONE ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL

ONE ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL

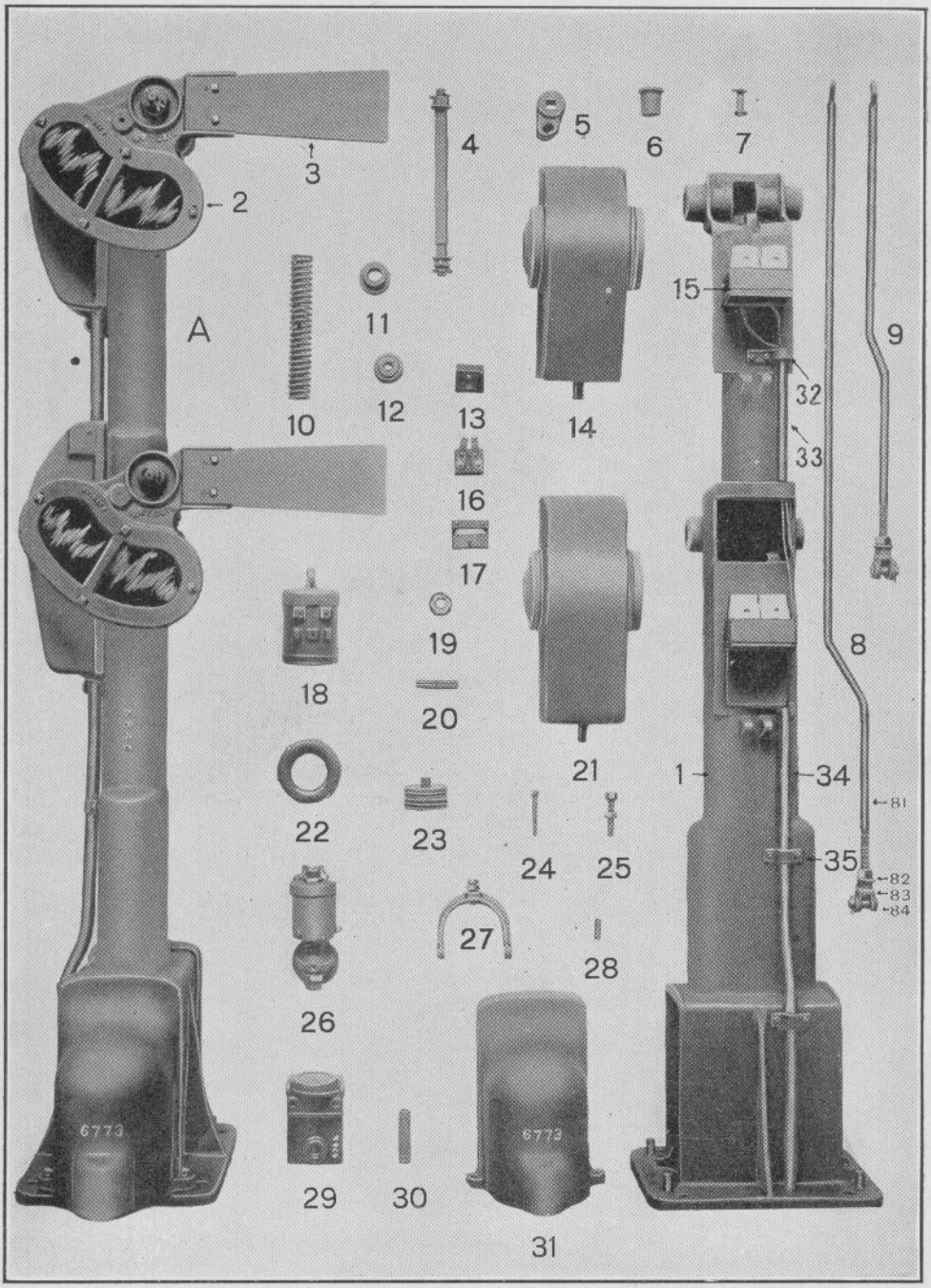
The signals listed below include blades, glass, front and back spectacles, and all other fittings shown on the opposite plate.

They do not include number plates or reservoirs, which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	One-Arm 60° Electro-Pneumatic Dwarf Signal, complete, electrically lighted, 3 feet 3 inches from base to center line of blade	92 00	
Aa	as above, for oil lighting, including special lamp	100 00	
Ab	One-Arm 60° Electro-Pneumatic Dwarf Signal, complete, electrically lighted, 5 feet 4 inches from base to center line of blade	94 00	
Ac	as above, for oil lighting, including special lamp	102 00	
B	Mechanism complete, for details see Plate 0875. Specify resistance of magnet	54 00	
1	Combined Post and Base, for signal, 3 feet 3 inches from base to center line of blade	12 00	
1a	as above, for signal, 5 feet 4 inches from base to center line of blade	14 50	
2	Mechanism Cover	1 80	
3	Lamp Cover, complete, with lens rings and lenses	6 30	
3a	Special Oil Lamp	16 50	
4	Lens Ring, complete, for lamp cover, (no lens)	2 00	
5	Up and Down Rod, complete, with jaw, pin, nuts and cotter, for signal, 3 feet 3 inches from base to center line of blade	1 80	
5a	as above, for signal, 5 feet 4 inches from base to center line of blade	2 00	
6	Blade, (wood)	70	
61	Carriage Bolt, ¼"x1", for blade. Price per hundred	2 00	
7	Back Spectacle, with ring and bolts	70	
8	Front Spectacle with rings and bolts	1 30	
81	Semaphore Shaft, with nuts, washers and cotters	1 22	
82	Journal for semaphore shaft	66	
83	Semaphore Crank, with pin, washers and cotters	52	
9	Lamp Socket and block	1 46	
9a	Lamp Socket, complete, with screws and lamps. When ordering specify voltage	2 64	
10	Plug Cut-Out, with plugs	1 36	
11	Pipe for wire connections to lamps	66	
12	Pipe Clamp, with screws	20	



TWO ARM 60 DEGREE ELECTRO-PNEUMATIC
DWARF SIGNAL

TWO ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL

The signals listed below include blades, glass, front and back spectacles and all other fittings shown on the opposite plate.

They do not include number plates or reservoirs, which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Two-arm, 60°, Electro-Pneumatic Dwarf Signal, complete, electrically lighted, 3 feet 6 inches from base to center line of bottom blade, 1 foot 10 inches between center lines of blades	200 00	
Aa	as above, for oil lighting, including special lamp	216 00	
1	Combined Post and Base	27 50	
2	Front Spectacle, with rings and bolts	1 30	
2a	Back Spectacle, with ring and bolts	70	
3	Blade, (wood)	70	
31	Carriage Bolt, ¼" x 1", for blade. Price per hundred.	2 00	
4	Semaphore Shaft, with nuts, washers and cotters	1 22	
5	Semaphore Crank	44	
6	Journal for semaphore shaft	66	
7	Pin, with washers and cotters for semaphore crank	08	
8	Up and Down Rod for top arm, complete, with jaw, pin, nuts and cotter	2 00	

TWO ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL

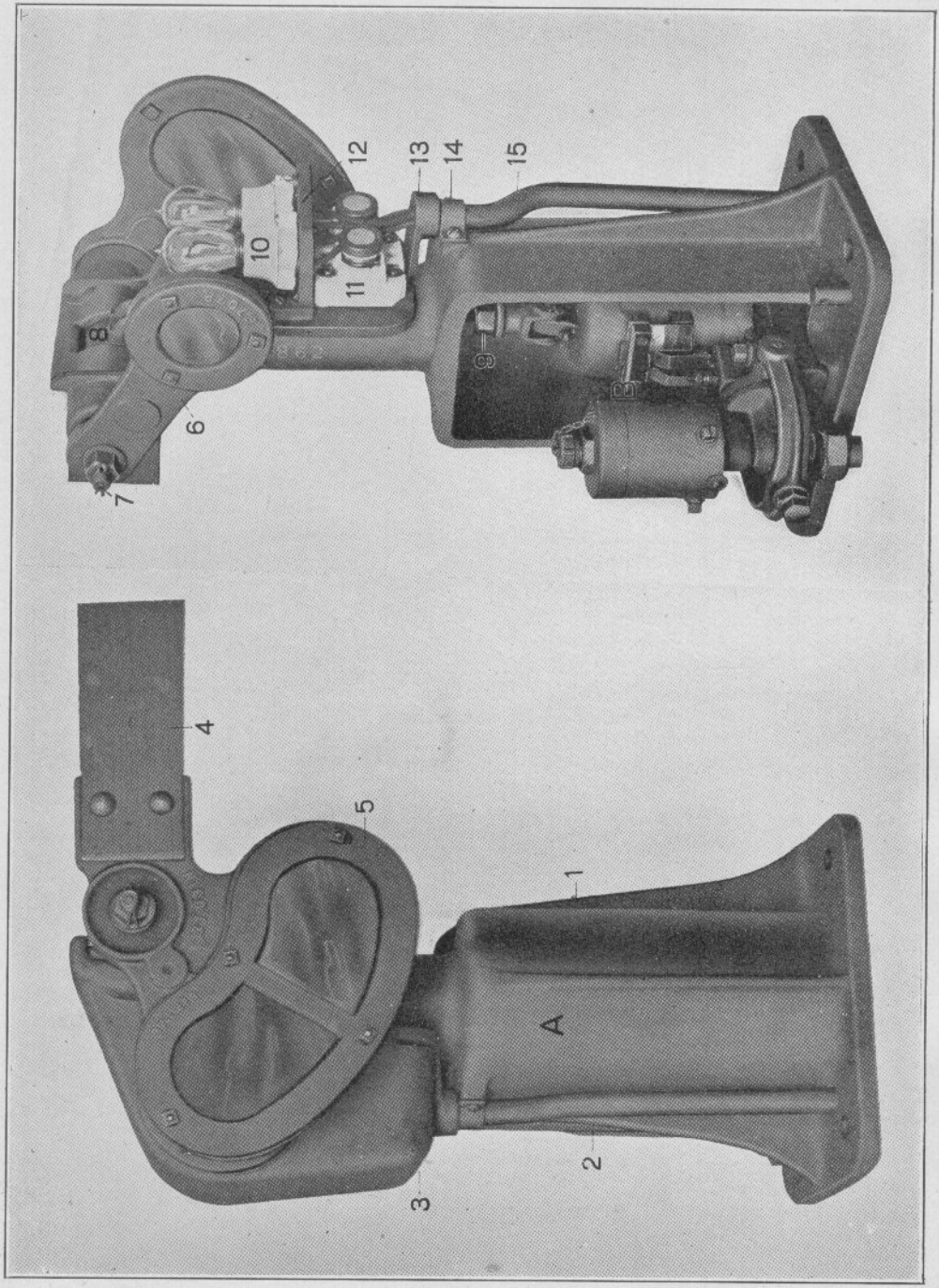
Order by Plate and Figure

Fig.		List Price
81	Up and Down Rod only	1 32
82	Lock Nut	04
83	Jaw only	50
84	Pin, 5/8" x 1 3/4", with cotter, for jaw Fig. 83	08
9	Up and Down Rod for bottom arm, complete, with jaw, pin, nuts and cotter	1 80
10	Spring	40
11	Spring Socket, top	06
12	Spring Socket, bottom	08
13	Hard Rubber Block for placing under Fig. 16	34
14	Lamp Cover, complete, with lens rings and lenses for top lamp	6 30
14a	Special Oil Lamp, complete, for top arm	16 50
15	Lamp Socket and Block	1 46
15a	Lamp Socket and Block, complete, with screws and lamps. When ordering specify voltage	2 64
16	Circuit Breaker Springs attached to hard rubber base, complete, with binding posts and screws	1 60
17	Hard Rubber Contact Block, with brass strip and screws for attaching to cylinder	1 24
18	Cylinder only, with oil plug	5 30
19	Nut for fastening cage for piston rings to piston	36
20	Cage for piston rings	2 00

TWO ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL

Order by Plate and Figure

Fig.		List Price	
20a	Piston Ring	66	
21	Lamp Cover, complete, with lens rings and lenses for bottom lamp	6 20	
21a	Special Oil Lamp, complete, for bottom arm	16 50	
22	Cap for cylinder	1 10	
22a	Leather Gasket for cylinder cap	22	
23	Piston	2 42	
23a	Piston, complete, with piston rings, cage for piston rings and nut, (1-23, 2-20a, 1-20, 1-19, Plate 0881).	6 00	
24	Tap Bolt, 3/8" x 2½", for fastening valve body to base	04	
25	Tap Bolt, ½" x 2½", with lock nut, for adjusting blade	06	
26	Valve and Magnet, complete, as shown. Specify resistance of magnet	30 00	
27	Yoke with tap bolt and lock nut	50	
28	Stud for fastening yoke to valve base	06	
29	Valve Base	3 30	
30	Hollow Piston Rod and Air Inlet	22	
31	Mechanism Cover	1 80	
32	Pipe Clamp, with screws, for Fig. 33	26	
33	Pipe for wire connections to top lamps	12	
34	Pipe for wire connections to bottom lamps	62	
35	Pipe Clamp, with screws, for Fig. 34	22	



ONE ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL

ONE ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL.

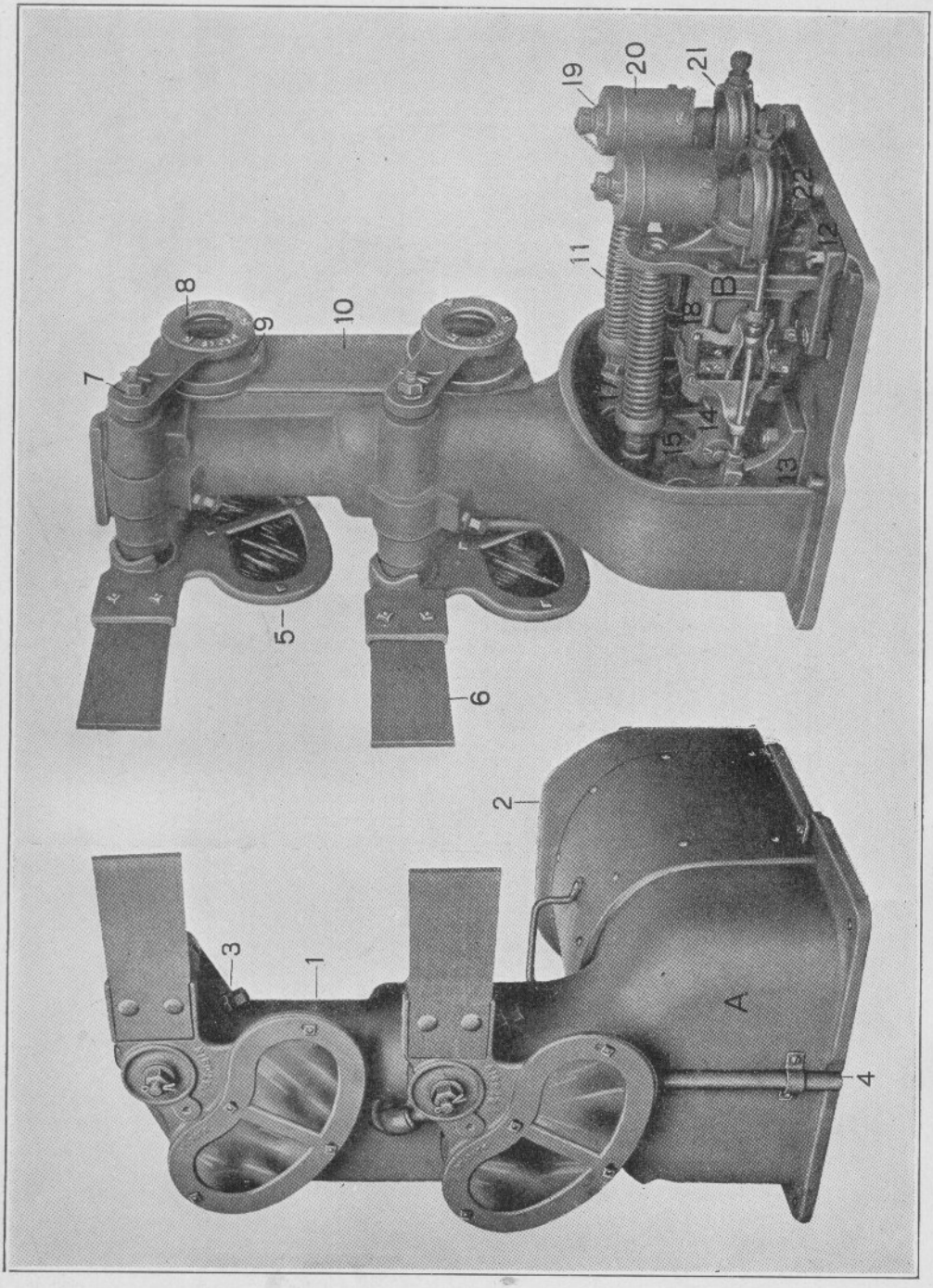
The signals listed below include blades, glass, front and back spectacles, and all other fittings shown on the opposite plate.

They do not include number plates or reservoirs, which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	One-Arm, 60°, Electro-Pneumatic Dwarf Signal, complete, electrically lighted, 1 foot 11 inches, from base to center line of blade	94 00	
Aa	as above, for oil lighting, including special lamp	102 00	
B	Mechanism, complete, for details see Plate 0875. Specify resistance of magnet	54 00	
1	Combined Post and Base	10 60	
2	Mechanism Cover	1 80	
3	Lamp Cover, complete, with lens rings and lenses	6 30	
3a	Special Oil Lamp	16 50	
4	Blade, (wood)	70	
41	Carriage Bolt, ¼″ x 1″, for blade. Price per hundred	2 00	
5	Front Spectacle, with rings and bolts	1 30	
6	Back Spectacle, with ring and bolts	70	
7	Semaphore Shaft, with nuts, washers and cotters	1 22	
7a	Journal for semaphore shaft	66	
8	Semaphore Crank, with pin, washers and cotters	56	
9	Up and Down Rod, complete, with jaw, pin, nuts and cotters	1 40	
10	Lamp Socket only	1 46	
10a	Lamp Socket, complete, with screws and lamps. When ordering specify voltage	2 64	
11	Plug Cut-Out, with plugs	1 36	
12	Lamp Bracket	74	
13	Filler, fastened to end of pipe for wire connections	24	
14	Pipe Clamp, with screws	22	
15	Pipe for wire connections to lamp	32	



TWO ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL

TWO ARM 60 DEGREE ELECTRO-PNEUMATIC DWARF SIGNAL

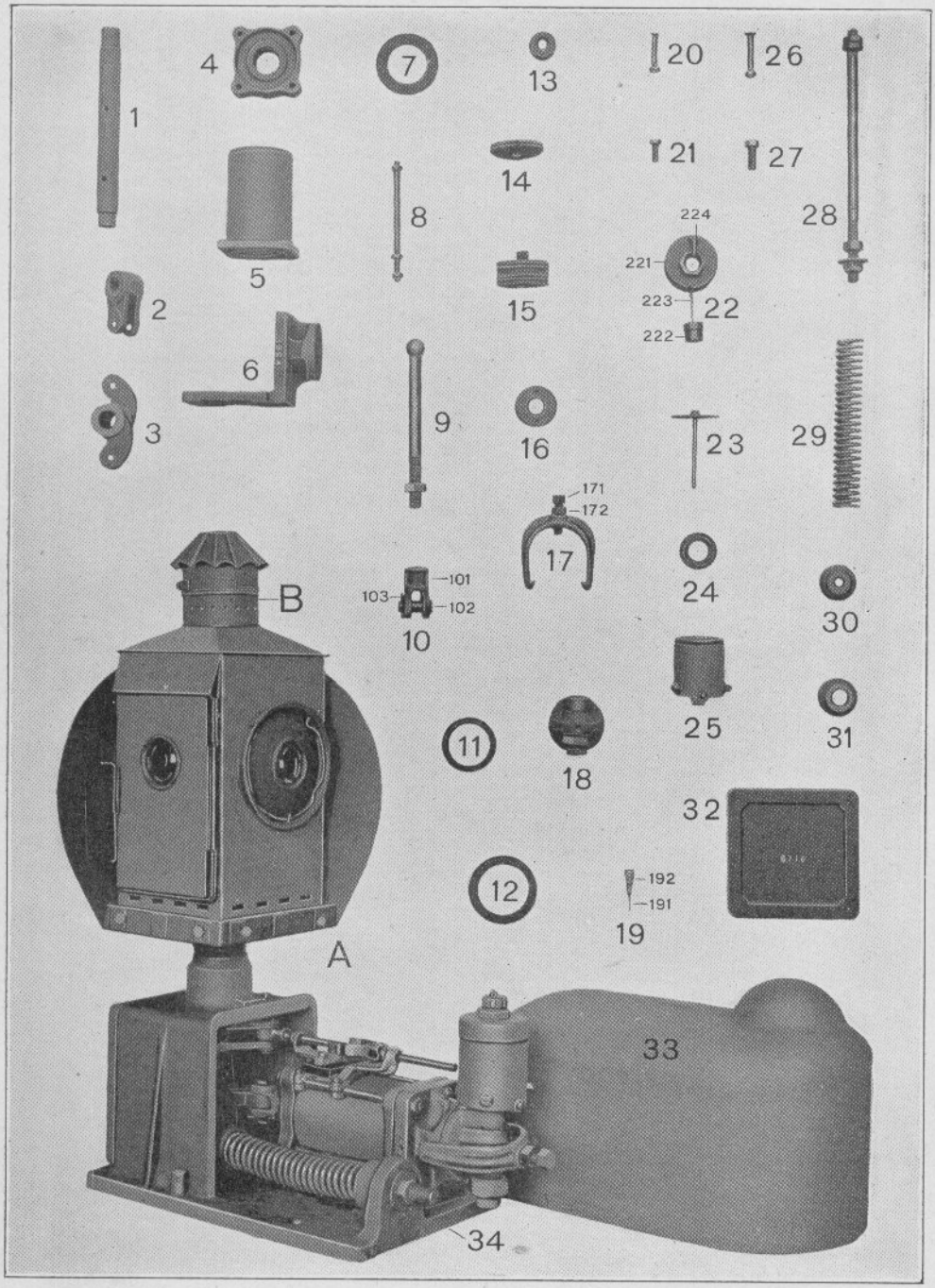
The signals listed below include blades, glass, front and back spectacles and all other fittings shown on the opposite plate.

They do not include number plates or reservoirs which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Two-Arm, 60°, Electro-Pneumatic Dwarf Signal, complete, electrically lighted, 1 foot 5¼ inches to center line of bottom blade and 1 foot between center lines of blades	210 00	
Aa	as above, for oil lighting, including special lamp	224 00	
B	Mechanism, complete, with circuit controller, for one arm. Specify resistance of magnet	68 00	
1	Combined Post and Base	24 00	
2	Mechanism Cover	10 00	
3	Tap Bolt and Lock Nut for adjusting blade	06	
4	Pipe for wire connections to lamps	66	
5	Front Spectacle, with rings and bolts	1 30	
6	Blade, (wood)	50	
61	Carriage Bolt, ¼" x 1", for blade. Price per hundred	2 00	
7	Semaphore Shaft, with nuts, washers and cotters	1 22	
71	Journal for semaphore shaft	66	
72	Semaphore Crank, with pin, washers and cotters	56	
8	Back Spectacle, with ring and bolts	70	
9	Lens Ring, complete, for lamp cover. (No lens)	2 00	
10	Lamp Cover, complete, with lens rings and lenses	9 60	
10a	Special Oil Lamp	16 50	
101	Lamp Socket only	1 46	
102	Lamp Socket, complete, with screws, block and lamps. When ordering specify voltage	2 64	
103	Plug Cut-Out, with plugs	1 36	
11	Spring	40	
12	Mechanism Base only	4 20	
13	Base only, for operating shaft	2 80	
14	Piston Rod, complete, with piston, piston rings, jaw, pin and cotter	8 60	
15	Operating Crank at base of pole	92	
16	Up and Down Rod for top arm	2 10	
16a	as above, for bottom arm	2 00	
17	Spring Rod, complete, with spring socket, jaw, pin, nut and cotter	1 22	
18	Cylinder, complete, with piston, piston rod, valve and magnet. When ordering specify resistance of magnet	34 00	
19	Magnet Cap, with plug and chain	1 68	
20	Valve and Magnet, complete, with union, pin valve and spring, armature, spring for releasing armature, and magnet cap. Specify resistance of magnet	30 00	
21	Yoke, with tap bolt and lock nut for fastening valve body to valve base	50	
22	Union for valve body	1 72	



ELECTRO-PNEUMATIC ROTARY POT SIGNAL

ELECTRO-PNEUMATIC ROTARY POT SIGNAL

The signal listed below does not include lamp, number plate or reservoir, which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Electro-Pneumatic Rotary Pot Signal, complete, with mechanism cover, no lamp, 1 foot 6¾ inches from base to center of lens of lamp..	100 00	
	For each foot added to the standard height given, add $1.10 to list price. Maximum height 8 feet.		
B	Lamp for above		
1	Shaft	1 10	
1a	Shaft, with cranks and bolts, (1-1, 1-2, 1-3, 1-20, 1-26, Plate 0887)	6 20	
2	Crank for operating circuit controller	1 90	
3	Crank for piston and spring	3 12	
4	Cylinder Head	66	
5	Cylinder only	6 10	
5a	Cylinder, complete, no valve, (1-5, 1-4, 1-7, 1-6, 1-12, 4-8, 1-9, 1-10, 1-13, 1-14, 1-15, 2-151, 1-16, Plate 0887)	26 00	
6	Cylinder Base	3 64	
7	Leather Gasket for cylinder head	22	
8	Stud, with nuts for fastening head and base to cylinder,	14	
9	Piston Rod, with nut	60	
9a	as above, with jaw, pin and cotter, (1-9, 1-10, Plate 0887)	1 22	
9b	as above, with piston, complete, (1-9a, 1-13 1-14, 1-15, 2-151, 1-16, Plate 0887)	8 90	
10	Jaw for piston rod, with pin and cotter	66	

ELECTRO-PNEUMATIC ROTARY POT SIGNAL

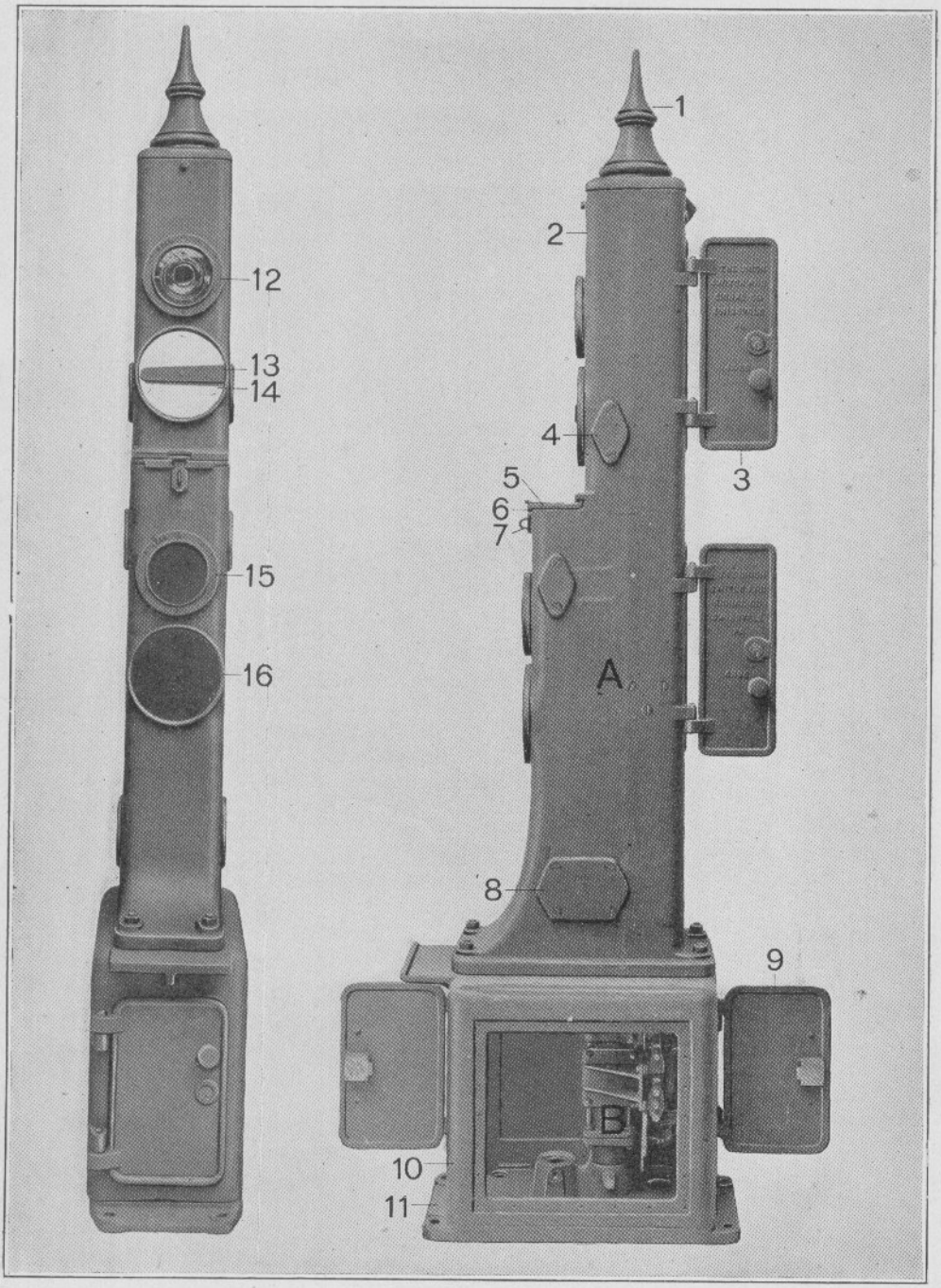
Order by Plate and Figure

Fig.		List Price	
101	Jaw only	60	
102	Pin, 5/8"x 1¾", for jaw Fig. 101	08	
103	Split cotter, 3/16"x1½", for pin Fig. 102. Price per hundred	1 10	
11	Fibre Gasket for valve body	04	
12	Fibre Gasket for cylinder base	04	
13	Nut for fastening cage for piston rings to piston	36	
14	Cage for piston rings	2 00	
15	Piston	3 80	
15a	Piston, complete, with piston rings, cage for piston rings, and nuts, (1-15, 2-151, 1-14, 1-13, 1-16, Plate 0887)	8 40	
151	Piston Ring	66	
16	Ring Nut for holding piston rod in piston	70	
17	Yoke, with tap bolt and lock nut for fastening valve body to signal base	56	
171	Tap Bolt for yoke	06	
172	Lock Nut for yoke	04	
18	Valve Body	4 20	
18a	Valve and Magnet, complete, with union, pin valve and spring, armature, spring for releasing armature, and magnet cap. Specify resistance of magnet. (1-18, 1-25, 1-181, 1-19, 1-23, 1-24, 1-22, Plate 0887)	30 00	
181	Union for valve body	1 72	
19	Pin Valve and Spring	72	
191	Pin Valve only	38	
192	Spring only	34	
20	Bolt and Nut, 3/8"x 2½", countersunk head, for fastening Fig. 3 to Fig. 1. Price per hundred	6 00	

ELECTRO-PNEUMATIC ROTARY POT SIGNAL

Order by Plate and Figure

Fig.		List Price	
21	Tap bolt, $\frac{3}{8}$"x 1", for fastening hand hole plate to base. Price per hundred	2 00	
		1 68	
22	Magnet Cap, with chain and plug	1 28	
221	Magnet Cap only	40	
222	Plug only.		
223	Chain for plug.		
23	Armature, with stem, complete	3 00	
24	Spring for releasing armature	16	
25	Magnet only. Specify resistance	13 80	
25a	Magnet, complete, with armature, spring for releasing armature, and cap. Specify resistance of magnet. (1-25, 1-23, 1-24, 1-22, Plate 0887)	18 00	
26	Bolt and Nut, $\frac{3}{8}$"x $2\frac{3}{16}$", countersunk head, for fastening Fig. 2 to Fig. 1. Price per hundred	6 00	
27	Tap Bolt, $\frac{1}{2}$"x$1\frac{1}{4}$", for fastening cylinder base to signal base. Price per hundred	3 00	
28	Bolt, $\frac{5}{8}$"x$14\frac{1}{2}$", with nuts and washer, for spring Fig 29	26	
28a	as above, complete, with spring, spring sockets, jaw, pin and cotter, (1-28, 1-29, 1-30, 1-31, 1-281, Plate 0887)	1 44	
281	Jaw, with pin and cotter for Fig. 28	62	
29	Spring	40	
30	Spring Socket for magnet end of spring	08	
31	Spring Socket for shaft end of spring	06	
32	Hand Hole Plate	66	
33	Mechanism Cover	4 40	
34	Signal Base	12 00	



ELECTRO-PNEUMATIC SINGLE SLIDE SIGNAL

ELECTRO-PNEUMATIC SINGLE SLIDE SIGNAL

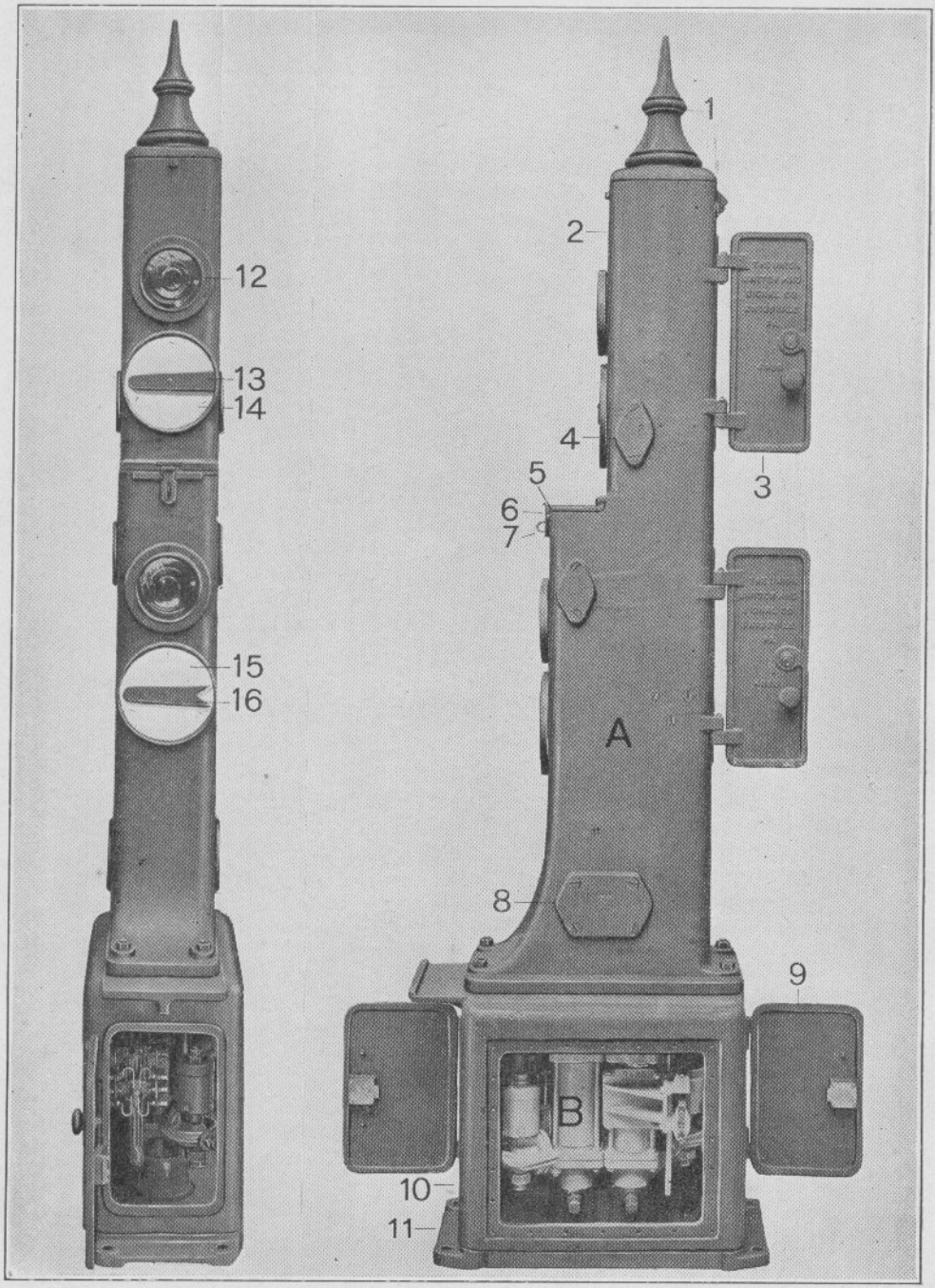
The signals listed below include lenses and lamps.

They do not include number plates or reservoirs, which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price
A	Single Slide, Home Signal, complete, as shown, electrically lighted	216 00
Aa	Distant Signal, as above	215 00
B	Mechanism, complete. Specify resistance	68 00
1	Pinnacle	2 00
2	Post	26 00
3	Door, complete, with lock and knob for post	7 20
4	Single Guide for slide	44
41	Home Signal Slide, complete, with glass	21 00
5	Intermediate Post Cover, complete, with hasp	80
6	Hasp. }	12
7	Staple. }	
8	Double Guide for slide	1 00
9	Door, complete, with lock and knob for mechanism case	7 50
10	Mechanism Case only	42 00
101	Bolt and Nut, $\frac{5}{8}$" x 3", for fastening post to mechanism case. Price per hundred	10 00
11	Base	7 00
111	Bolt and Nut, $\frac{3}{4}$" x 2$\frac{1}{2}$", for fastening mechanism case to base. Price per hundred	12 00
12	Lens Ring, complete, with clear lens	1 32
121	Lamp Socket only	*1 46
122	Lamp Socket, complete, with support, screws and lamps. When ordering specify voltage	2 64
123	Plug Cut-Out, with plugs	1 36
13	Indicator Blade only, for home signal	66
13a	as above, for distant signal	78
14	Indicator Blade Disc, complete, with indicator and connections	2 64
15	Lens Ring with sheet iron disc	80
16	Indicator Blade Disc, blank	44



ELECTRO-PNEUMATIC DOUBLE SLIDE SIGNAL

ELECTRO-PNEUMATIC DOUBLE SLIDE SIGNAL

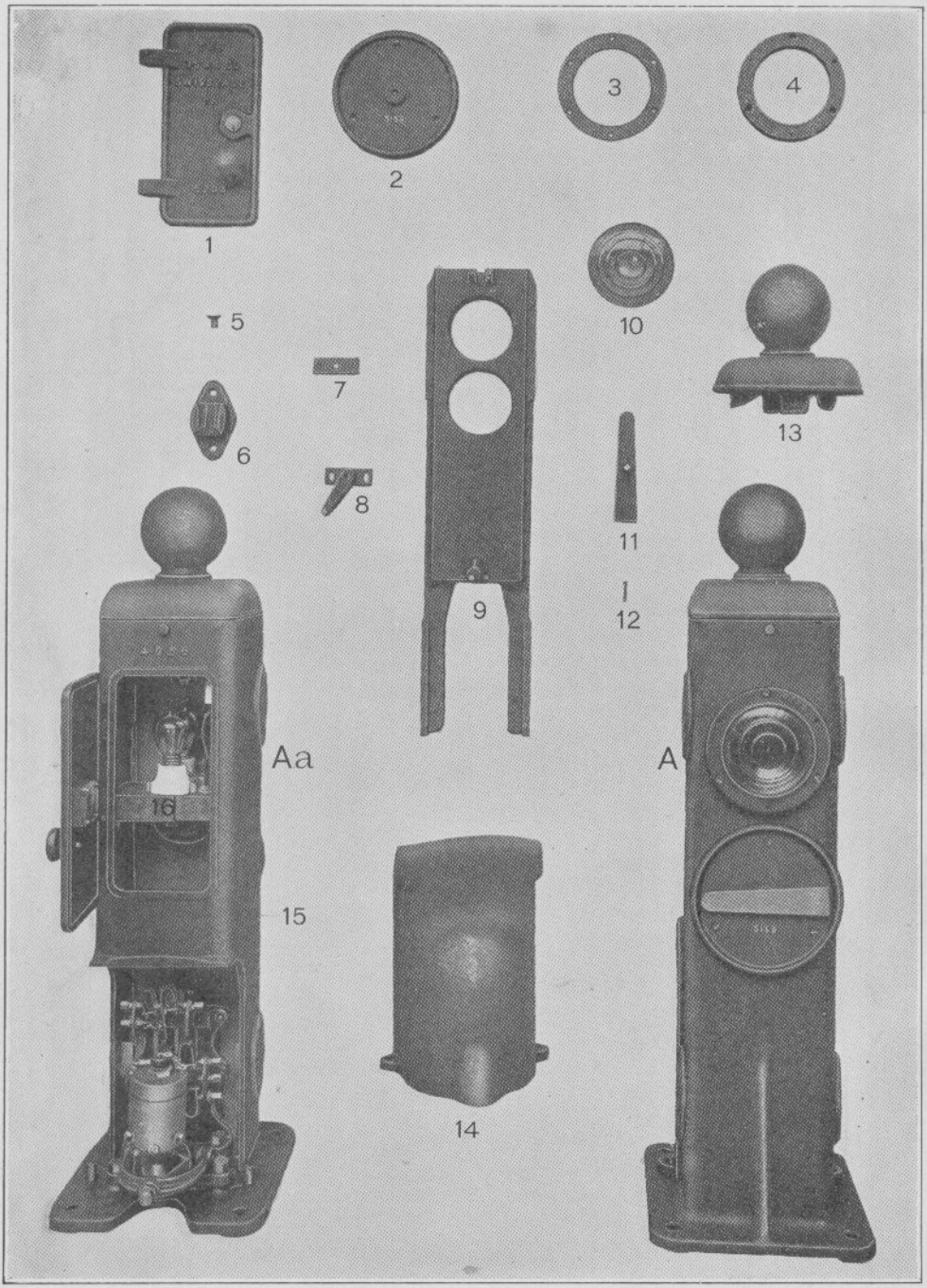
The signals listed below include lenses and lamps.

They do not include number plates or reservoirs, which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Double Slide, Home and Distant Signal, complete, as shown, electrically lighted	310 00	
Aa	Double Slide Home Signal, complete, electrically lighted	312 00	
B	Mechanism, complete, for single slide. When ordering specify resistance	68 00	
1	Pinnacle	2 00	
2	Post	26 00	
3	Door, complete, with lock and knob for post	7 20	
4	Single Guide for slide	44	
41	Home Signal Slide, complete, with glass	21 00	
5	Intermediate Post Cover, complete, with hasp	80	
6 7	Hasp. Staple.	12	
8	Double Guide for slide	1 00	
81	Distant Signal Slide, complete, with glass	18 50	
9	Door, complete, with lock and knob for mechanism case	7 50	
10	Mechanism Case, only	42 00	
101	Bolt and Nut, $\frac{5}{8}$" x 3", for fastening post to mechanism case. Price per hundred	10 00	
11	Base	7 00	
111	Bolt and Nut, $\frac{3}{4}$" x 2$\frac{1}{2}$", for fastening mechanism case to base. Price per hundred	12 00	
12	Lens Ring, complete, with clear lens	1 32	
121	Lamp Socket only	1 46	
122	Lamp Socket, complete, for home signal blade, with support, screws and lamps. When ordering specify voltage	2 64	
123	as above, for distant signal	2 64	
124	Plug Cut-Out, with plugs	1 36	
13	Indicator Blade only, for home signal	66	
14	Indicator Blade Disc, complete, with home indicator and connections	2 64	
15	Indicator Blade Disc, complete, with distant indicator and connections	2 76	
16	Indicator Blade only, for distant signal	80	



ELECTRO-PNEUMATIC DWARF SLIDE SIGNAL

ELECTRO-PNEUMATIC DWARF SLIDE SIGNAL

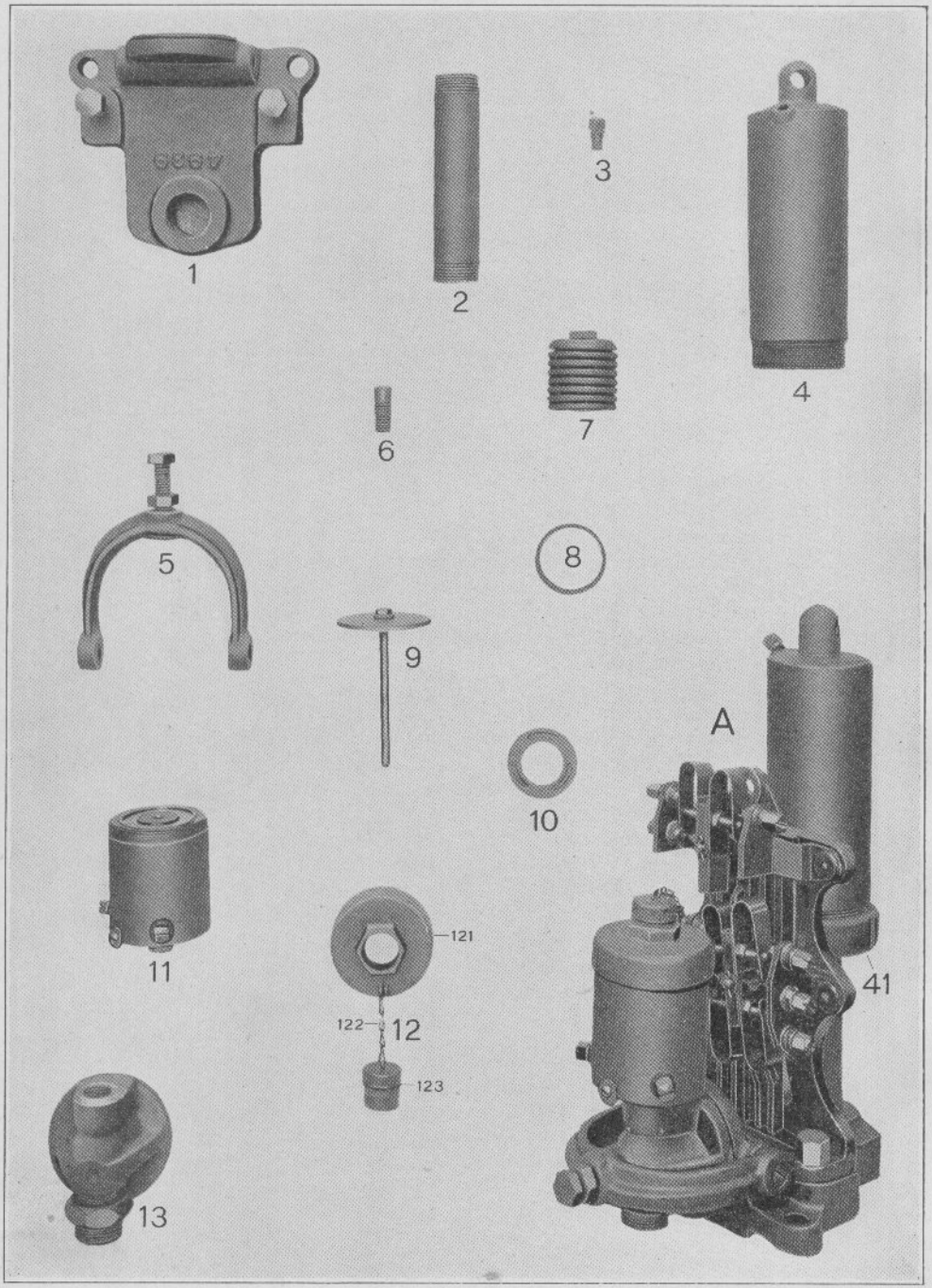
The signal listed below includes lenses and lamps.

It does not include number plate or reservoir, which must be ordered separately when required.

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Single Slide Dwarf Signal, complete, as shown, electrically lighted	118 00	
B	Mechanism, complete. For details see Plate 0895. When ordering specify resistance	68 00	
1	Door, complete, with lock and knob	7 20	
2	Indicator Blade Disc only	66	
2a	Indicator Blade Disc, complete, with indicator and connections	2 64	
3	Lens Ring, inner	14	
4	Lens Ring, outer	30	
4a	Lens Ring, complete, with screws and clear lens	1 32	
5	Flat Head Machine Screw, ½"x⅞", for fastening guide for slide to case. Price per hundred	4 00	
6	Guide for slide	44	
7	Adjusting Plate for indicator	26	
8	Arm for operating indicator	44	
81	Stud for indicator blade	14	
9	Slide only	7 70	
9a	Slide, complete, with glass	10 00	
10	Lens (Clear)	66	
11	Indicator Blade only	66	
12	Split Cotter, ⅛"x¾", for stud Fig. 81 Price per hundred	1 00	
13	Pinnacle	2 00	
14	Mechanism Cover	2 90	
15	Post only	13 00	
16	Lamp Socket, complete, with support, screws and lamps. When ordering specify voltage	2 64	
161	Lamp Socket only	1 46	
162	Plug Cut-Out, with plugs	1 36	



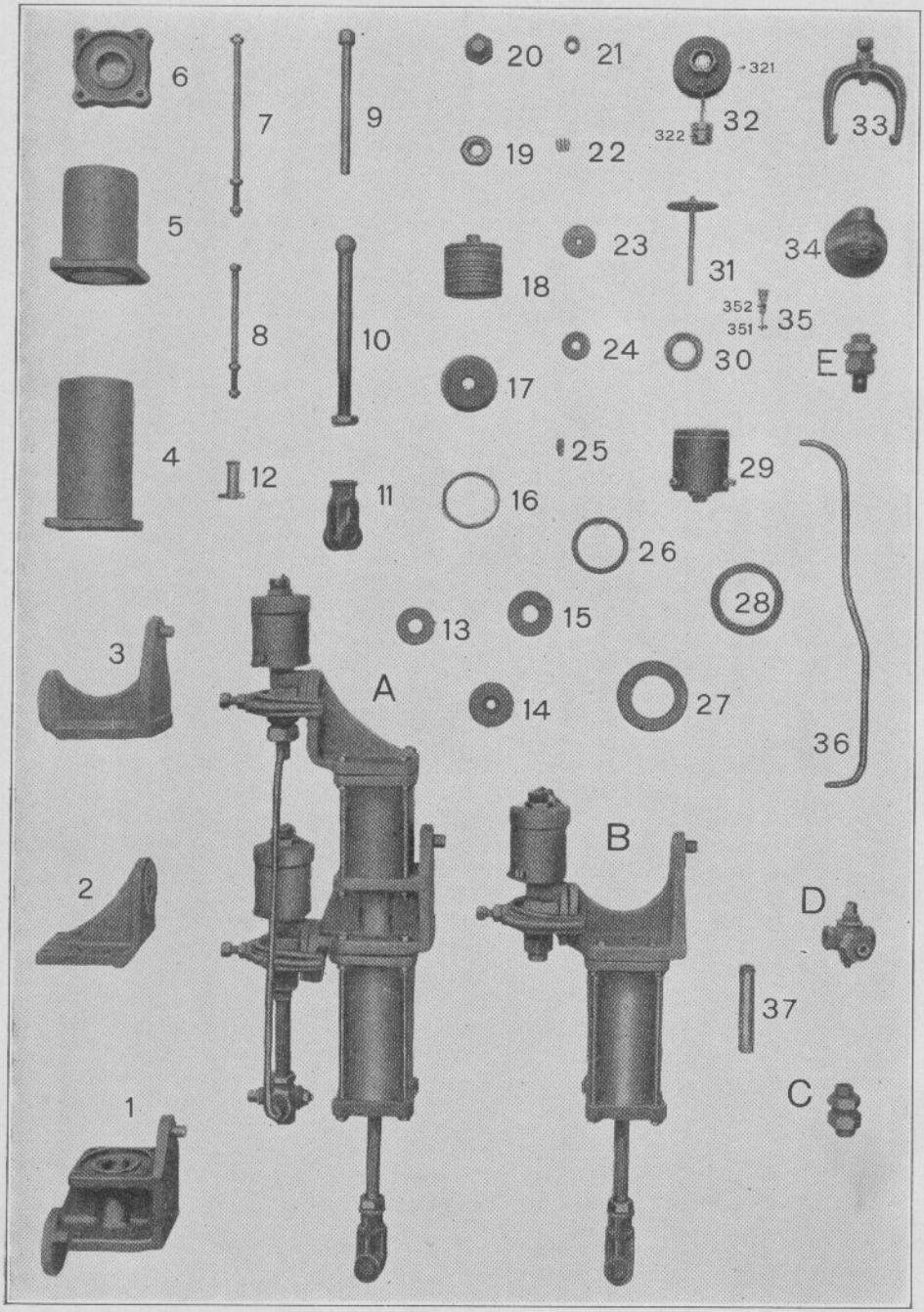
ELECTRO-PNEUMATIC DWARF SLIDE SIGNAL MECHANISM AND DETAILS

ELECTRO-PNEUMATIC DWARF SLIDE SIGNAL MECHANISM AND DETAILS

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Mechanism, complete, as shown. When ordering specify resistance	68 00	
1	Mechanism Base	3 50	
2	Hollow Piston Rod and Air Inlet	1 22	
3	Plug for oil hole in cylinder	12	
4	Cylinder only	7 00	
41	Cap for cylinder	90	
42	Leather Gasket for cylinder cap	22	
5	Yoke, with tap bolt and lock nut for fastening valve body to base	50	
6	Stud for fastening yoke to valve base	06	
7	Piston only	2 80	
7a	Piston, complete, with piston ring and piston rod, (1-7, 1-8, 1-2, Plate 0895)	5 00	
8	Piston Ring	66	
9	Armature and Stem, complete	3 00	
10	Spring for releasing armature	16	
11	Magnet only. Specify resistance	13 80	
11a	Magnet, complete, with armature, spring for releasing armature, and cap. Specify resistance. (1-11, 1-9, 1-10, 1-12 Plate 0895)	18 00	
12	Magnet Cap, with chain and plug	1 68	
121	Magnet Cap only	1 28	
122 123	Chain. Plug.	40	
13	Valve Body, with union	4 20	
13a	Valve and Magnet, complete, with union, pin valve and spring, armature, spring for releasing armature and magnet cap. When ordering specify resistance of magnet. (1-13, 1-11, 1-131, 1-9, 1-10, 1-12, Plate 0895)	30 00	
131	Pin Valve and Spring	72	



MECHANISMS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

MECHANISMS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure and Instructions Given Above.

Fig.		List Price	
A	Three-Position Signal Mechanism, complete, as shown. When ordering specify resistance	130 00	
B	Two-Position Signal Mechanism, complete, as shown When ordering specify resistance	52 00	
C	Nut and Union for valve body, as shown, for a two-position signal movement or the bottom cylinder of a three-position signal movement	1 72	
D	Cock and Union, as shown, for a three-position signal movement	4 52	
E	Nut and Union for valve body, as shown, for the top cylinder of a three-position signal movement	2 36	
1	Cylinder Bracket for a three-position signal movement	16 00	
2	Top Cylinder Head for a three-position signal movement	4 80	
3	Cylinder Head and Bracket for a two-position signal movement	3 42	
4	Cylinder, 3" x 7¾", for a two-position signal movement, or the bottom cylinder of a three-position signal movement	6 00	
5	Cylinder, 3" x 5½", for the top cylinder of a three-position signal movement	6 00	
6	Bottom Cylinder Head for a two or three-position signal movement	66	
7	Stud, ⅜" x 9¾", with three nuts, for fastening head and base to cylinder of a two-position signal movement, or the bottom cylinder of a three-position signal movement	14	
8	Stud, ⅜" x 7¼", and three nuts, for fastening head and bracket to the top cylinder of a three-position signal movement	14	

MECHANISMS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

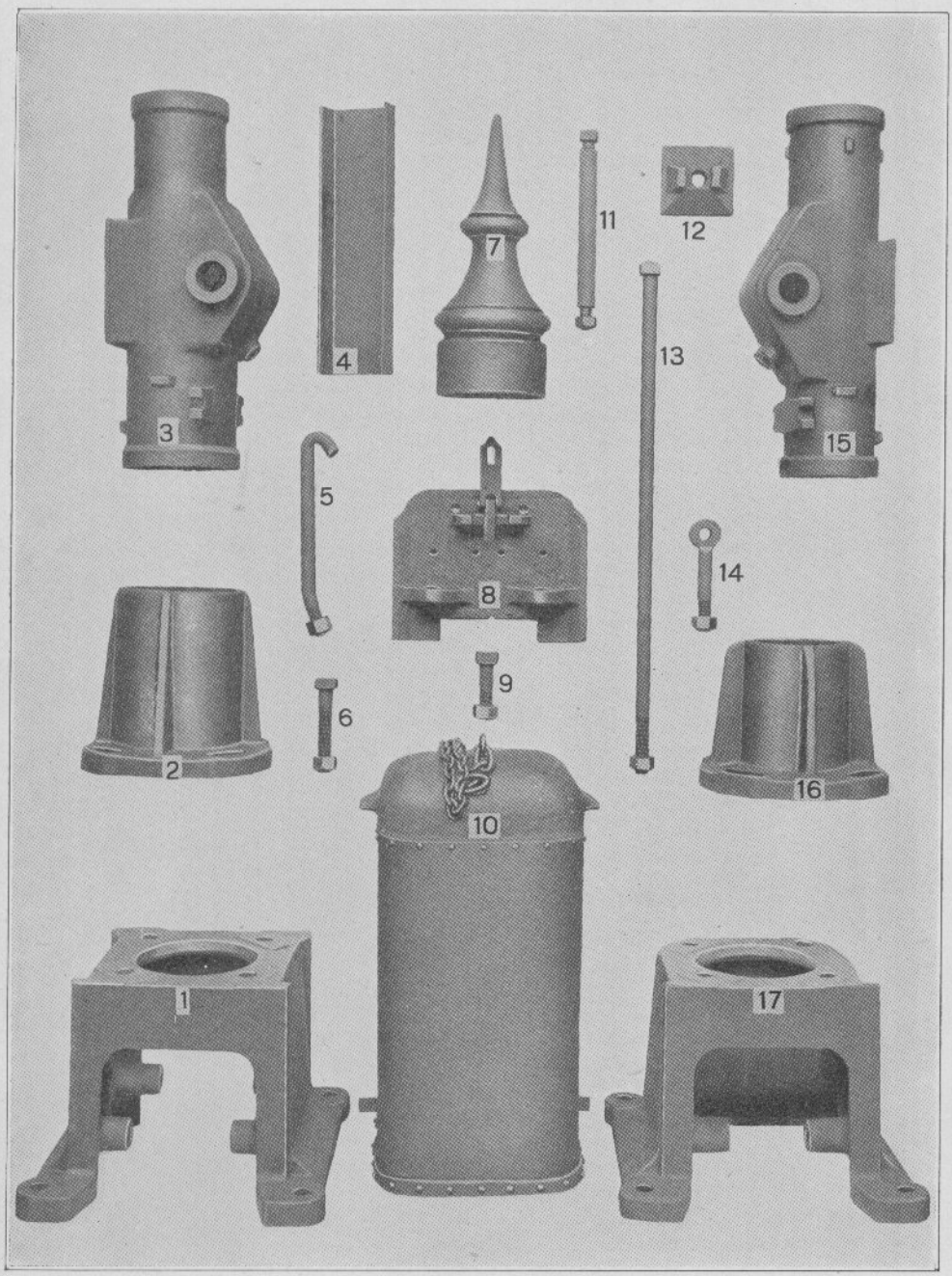
Order by Plate and Figure

Fig.		List Price	
9	Piston Rod for the top cylinder of a three-position signal movement	1 32	
10	Piston Rod and Lock Nut for a two-position signal movement or the bottom cylinder of a three-position signal movement	56	
10a	as above, with jaw, pin and cotter, (1-10, 1-11, 1-12, Plate 0897)	1 22	
11	Jaw for Fig. 10	60	
12	Pin and Cotter for jaw	08	
13	Washer for piston rod to cover opening in bottom cylinder head	04	
14	Ring Nut for holding piston rod in piston of top cylinder of a three-position signal movement	88	
15	Ring Nut for holding piston rod in piston for a two-position signal movement, or for the bottom cylinder of a three-position signal movement	70	
16	Piston Ring	66	
17	Cage for piston rings	2 00	
18	Piston only, for a two-position signal movement, or for the top or bottom cylinder of a three-position signal movement	3 80	
18a	Piston, complete, for a two-position signal movement, or for the bottom cylinder of a three-position signal movement, with piston rings, cage for piston rings, and nuts, (1-18, 2-16, 1-17, 1-15, 1-19 or 1-20, Plate 0897)	11 60	
18b	Piston, complete, for top cylinder of a three-position signal movement, with piston rings, cage for piston rings, and nuts, (1-18, 2-16, 1-17, 1-14, 1-19, Plate 0897)	12 00	
19	Nut for fastening cage for piston rings to piston, used in the two-position signal movement, or the top cylinder of a three-position signal movement	36	

MECHANISMS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

Order by Plate and Figure

Fig.		List Price	
20	Nut for fastening cage for piston rings to piston, used in the bottom cylinder of a three-position signal movement	1 70	
21	Gland for cylinder bracket Fig. 1	14	
22	Spring used in stuffing box in cylinder bracket Fig. 1	18	
23	Leather Packing for stuffing box in cylinder bracket Fig. 1	14	
24	Nut for stuffing box in cylinder bracket Fig. 1	48	
25	Oil Plug for cylinders	06	
26	Fibre Gasket for valve body	04	
27	Leather Gasket for bottom cylinder heads	22	
28	Fibre Gasket for top cylinder heads	04	
29	Magnet only. Specify resistance	13 80	
29a	Magnet, complete, with armature, spring for releasing armature, and cap, (1-29, 1-31, 1-30, 1-32, Plate 0897)	18 00	
30	Spring for releasing armature	16	
31	Armature, with stem complete	3 00	
32	Magnet Cap, with plug and chain	1 68	
321	Magnet Cap only	1 28	
322	Plug and Chain for magnet cap	40	
33	Yoke, with tap bolt and lock nut, for fastening valve body to signal mechanism	56	
34	Valve Body only	3 08	
34a	Valve and Magnet, with union, pin valve and spring, armature, spring for releasing armature, and magnet cap. Specify resistance of magnet. (1-34, 1-C, 1-35, 1-31, 1-30, 1-29, 1-32, Plate 0897)	30 00	
35	Pin Valve and Spring	72	
351	Pin Valve only	38	
352	Pin Valve Spring only	34	
36	Pipe Connection between the top and bottom cylinders of a three-position signal movement	1 70	
37	Air Inlet for the bottom cylinder of a three-position signal movement	22	

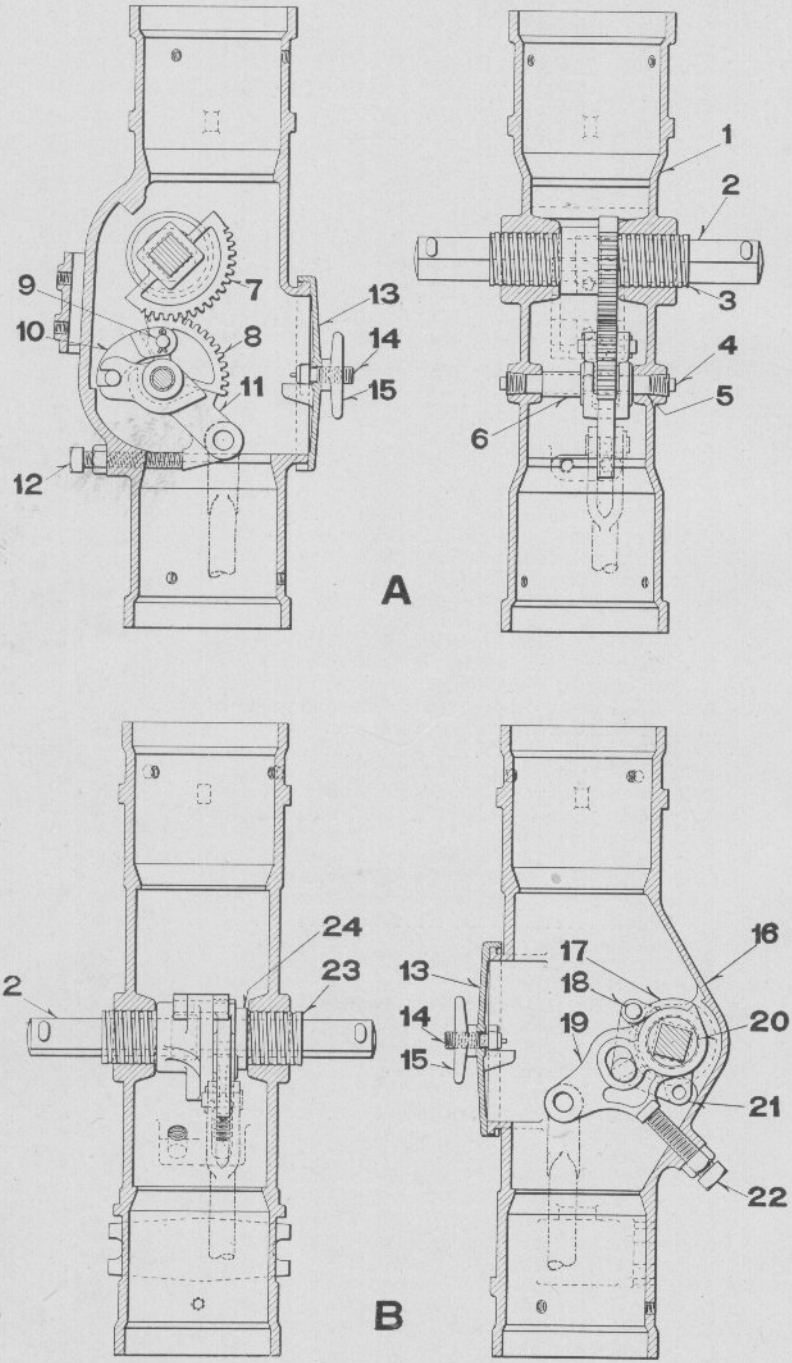


PINNACLES, BEARINGS, BASES, ETC., FOR ELECTRO-PNEUMATIC HIGH SIGNALS

PINNACLES, BEARINGS, BASES, ETC., FOR ELECTRO-PNEUMATIC HIGH SIGNALS

Order by Plate and Figure

Fig.		List Price	
1	Base Casting, with shafts and pipe plugs, for a three-arm bridge or ground signal	21 00	
2	Socket for six inch pipe for a three-arm bridge or bracket signal	8 80	
2a	Socket for seven inch pipe for a three-arm ground signal	11 00	
3	Semaphore Bearing only, 60°, for the bottom arm of a three-arm signal	11 00	
3a	as above, 75°	11 00	
3b	Semaphore Bearing, 60°, complete, with hand hole plate, clamp for hand hole plate, semaphore shaft, crank, journals, separator, tap bolt with lock nut, set screws, and cotters	19 00	
3c	as above, 75°, complete	19 00	
4	Channel Iron, 5 " x 2 ", for a bracket or bridge signal. Specify length when ordering. Price per foot	44	
5	Hook Bolt and Nut, 1 " x 14¾ ", for fastening signal and channel irons to signal bridge	46	
6	Bolt and Nuts, 1 " x 6¼ ", for fastening pipe socket and cylinder bracket to base	24	
7	Pinnacle	2 48	
8	Cylinder Bracket	3 30	
9	Bolt and Nut, 1 " x 3¾ ", for fastening pipe socket to base	14	
10	Mechanism Cover for a two-position signal	8 80	
10a	Mechanism Cover for a three-position signal	14 30	
11	Bolt, ⅞" x 1'-4", with nut and separator for securing eye bolt Fig. 14, to cross tree of bracket signals	32	
12	Foundation Plate for 1 inch bolt	40	
12a	Foundation Plate for 1½ inch bolt	52	
13	Bolt and Nut, 1 " x 3'-10 ", for signal foundation	90	
13a	Bolt and Nut, 1½ " x 9'-8 ", for signal foundation, with pedestal	5 00	
14	Eye Bolt, 1 " x 8 ", for fastening signal base to cross tree of bracket signals	42	
15	Semaphore Bearing only, 60°, for one and two-arm signals, and the top and middle arms of a three-arm signal	8 00	
15a	as above, 75°	8 00	
15b	Semaphore Bearing, 60°, complete, with hand hole plate, clamp for hand hole plate, shaft, crank, journals, separator, tap bolt with lock nut, set screws, and cotters	18 00	
15c	as above, 75°, complete	18 00	
16	Socket for six inch pipe for a one or two-arm ground signal	8 80	
16a	Socket for five inch casing for a one or two-arm bridge or bracket signal	7 20	
17	Base Casting for a one or two-arm ground, bridge, or bracket signal, with shaft and pipe plugs	16 50	



MECHANICALLY LOCKED SEMAPHORE BEARINGS
FOR ELECTRO-PNEUMATIC HIGH SIGNALS

MECHANICALLY LOCKED SEMAPHORE BEARINGS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

Order by Plate and Figure

Fig.		List Price	
A	Mechanically Locked Semaphore Bearing, for a 90°, one or two-arm signal, complete, as shown	20 00	
Aa	as above, for the bottom arm of a 90°, three-arm signal, complete	22 00	
B	as above, for a 60° or 75°, one or two-arm signal, complete, as shown	18 00	
Ba	as above, for the bottom arm of a 60° or 75°, three-arm signal, complete	21 00	
1	Semaphore Bearing, for a 90°, one or two-arm signal	8 80	
1a	as above, for the bottom arm of a 90°, three-arm signal	8 80	
2	Semaphore Shaft, for a 60°, 75° or 90°, one or two-arm signal	1 22	
2a	as above, for the bottom arm of a 60°, 75° or 90°, three-arm signal	1 22	
3	Journal, for semaphore shaft for a 90°, one or two-arm signal	1 32	
3a	as above, for the bottom arm of a 90° three-arm signal	*2 10	
4	Pipe Plug for semaphore bearing	04	

MECHANICALLY LOCKED SEMAPHORE BEARINGS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

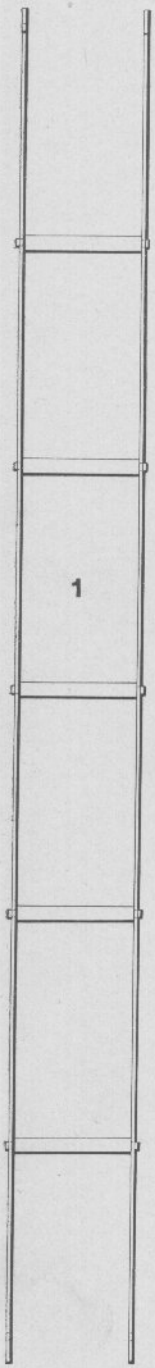
Order by Plate and Figure

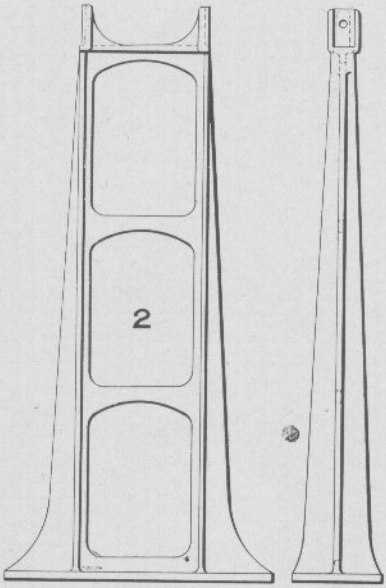
Fig.		List Price	
5	Shaft for semaphore crank, for a one or two-arm signal	10	
5a	as above, for the bottom arm of a three-arm signal	08	
6	Separator for semaphore crank shaft Fig. 5.	06	
6a	as above, for semaphore crank shaft Fig. 5a.	08	
7	Segment for semaphore shaft	1 60	
8	Segment for semaphore crank	1 50	
9	Pin, ½"x2⅜", complete, with cotters for fastening pawl to semaphore crank segment	14	
10	Pawl for semaphore crank segment	40	
11	Semaphore Crank	66	
12	Tap Bolt and Lock Nut, ⅝"x4", for adjusting semaphore	18	
13	Hand-hole Plate, for a 60°, 75° or 90°, one or two-arm signal	34	
13a	as above, for the bottom arm of a 60°, 75° or 90°, three-arm signal	68	
14	Clamp for hand-hole plate Fig. 13, for a one or two-arm signal	12	
14a	as above, for hand-hole plate Fig. 13a, for the bottom arm of a three-arm signal	34	

MECHANICALLY LOCKED SEMAPHORE BEARINGS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

Order by Plate and Figure

Fig.		List Price	
15	Handle for hand hole plate Fig. 13 or 13a	16	
16	Semaphore Bearing for a 60° or 75°, one or two-arm signal	7 50	
16a	as above, for the bottom arm of a 60° or 75°, three-arm signal	11 00	
17	Pawl for male half of semaphore crank	44	
18	Pin, ½"x2⅜", for fastening pawl to male half of semaphore crank	06	
19	Female Half of semaphore crank	56	
20	Bushing for female half of semaphore crank	2 10	
21	Male Half of semaphore crank	1 10	
22	Tap Bolt and Lock Nut, ¾"x3¼", for adjusting semaphore	10	
23	Journal for semaphore shaft for a 60° or 75°, one or two-arm signal	1 32	
23a	as above, for the bottom arm of a 60° or 75°, three-arm signal	2 10	
24	Separator for semaphore shaft for a 60° or 75°, one or two-arm signal	06	
24a	as above, for the bottom arm of a 60° or 75°, three-arm signal	06	





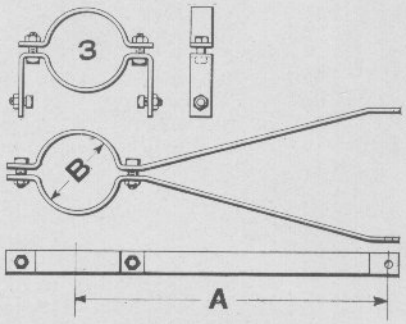
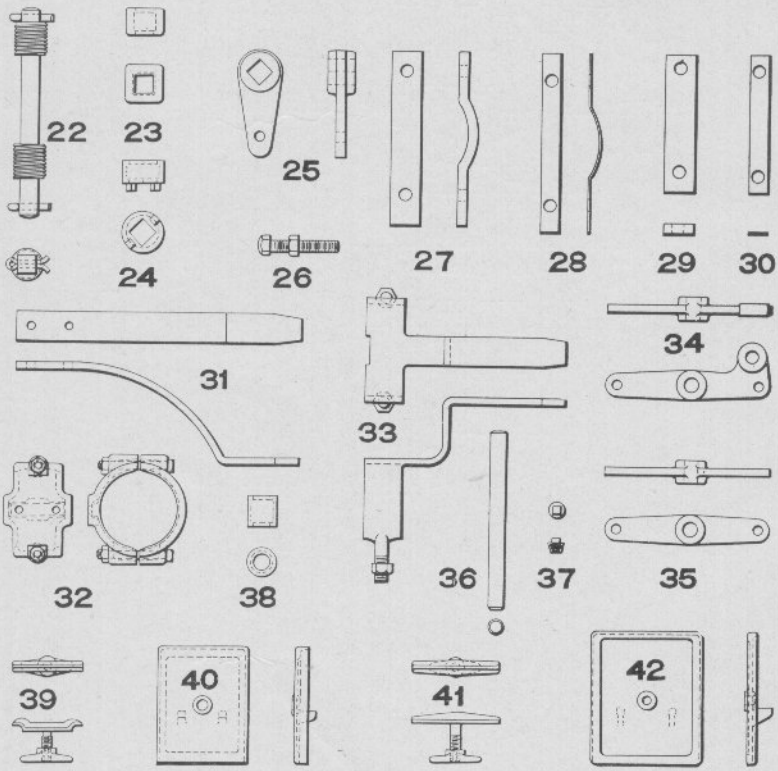


FIG.	A	B	FIG.	A	B
4	1'– 4½"	5¼"	13	2'– 5⅝"	7⅝"
5	1'– 11½"	6⅛"	14	2'–11⅜"	7⅝"
6	2'– 6⅛"	6¼"	15	3'– 5¼"	7⅝"
7	1'– 4⅜"	5¼"	16	1'– 6⅝"	5¼"
8	1'– 11¾"	5¼"	17	1'– 4¼"	5¼"
9	2'– 7⅛"	6¼"	18	1'– 9⅝"	6⅝"
10	3'– 2"	6⅝"	19	1'– 9¾"	8¾"
11	1'– 5½"	5¼"	20	2'–11"	9¾"
12	2'– 0"	6¼"	21	3'–11⅞"	9¾"



FITTINGS FOR ELECTRO-PNEUMATIC HIGH SIGNALS.

FITTINGS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

Order by Plate and Figure

Fig.		List Price	
1	Ladder only, as shown. Specify length when ordering. Price per foot	32	
2	Ladder Foundation, complete, with bolts for fastening ladder to foundation	5 60	
3	Top Clamp, complete, as shown, for ladder, with bolts.	54	
4	Top Ladder Stay for a one-arm ground signal	76	
5	Middle Ladder Stay for a one-arm ground signal	88	
6	Bottom Ladder Stay for a one-arm ground signal	1 00	
7	Top Ladder Stay for a two-arm ground signal	76	
8	Second Ladder Stay for a two-arm ground signal	86	
9	Third Ladder Stay for a two-arm ground signal	1 00	
10	Bottom Ladder Stay for a two-arm ground signal	1 10	
11	Top Ladder Stay for a three-arm ground signal	76	
12	Second Ladder Stay for a three-arm ground signal	98	
13	Third Ladder Stay for a three-arm ground signal	1 00	
14	Fourth Ladder Stay for a three-arm ground signal	1 08	
15	Bottom Ladder Stay for a three-arm ground signal	1 18	
16	Ladder Stay for a two-arm bridge signal	82	
17	Top Ladder Stay for a three-arm bridge signal	76	
18	Bottom Ladder Stay for a three-arm bridge signal	88	
19	Top Ladder Stay for a bracket signal	90	
20	Middle Ladder Stay for a bracket signal	1 12	
21	Bottom Ladder Stay for a bracket signal	1 30	

FITTINGS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

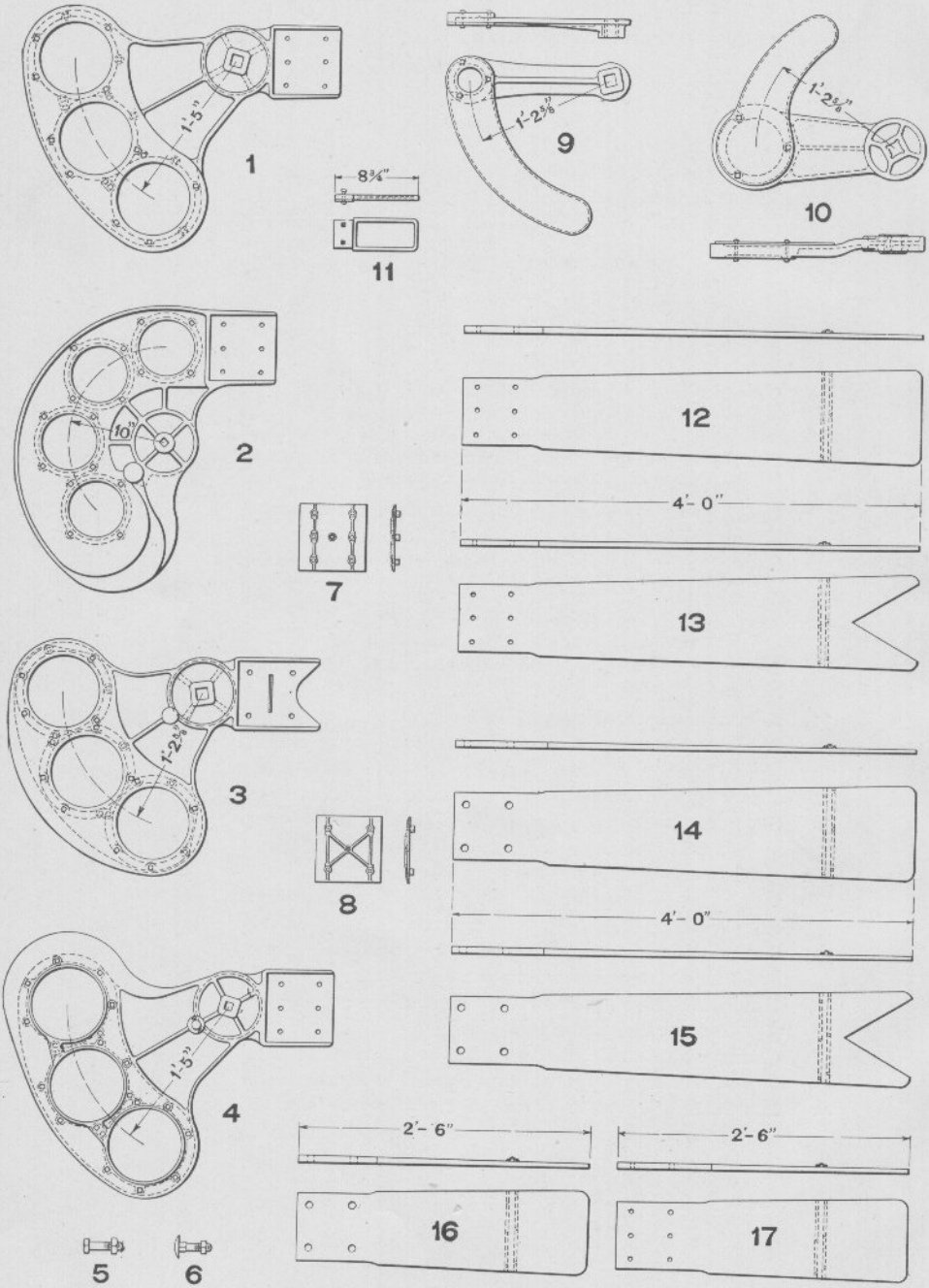
Order by Plate and Figure

Fig.		List Price	
22	Semaphore Shaft, complete, as shown, with journals and cotters, for a one or two-arm semaphore signal	3 90	
22a	as above, for the bottom arm of a three-arm signal	5 30	
23	Separator, as shown, for semaphore shaft, to take the place of back spectacle	20	
24	Separator, as shown, for semaphore shaft for a one or two-arm semaphore signal	14	
24a	as above, for the bottom arm of a three-arm signal	24	
25	Semaphore Crank, as shown	1 00	
26	Cap Screw and Lock Nut, ¾" x 4½", as shown, for adjusting blade	24	
27	Outside Semaphore Stop, as shown, for the bottom arm of a three-arm signal. Penna. R. R. Standard	78	
28	Nut Lock Plate, as shown, for above	12	
29	Outside Semaphore Stop, as shown, for a one or two-arm signal. Penna. R. R. Standard	40	
30	Nut Lock Plate, as shown, for above	06	
31	Lamp Bracket, as shown, used with pipe clamp Fig. 32, for a one or two-arm signal	52	
31a	as above, for the bottom arm of a three-arm signal	60	

FITTINGS FOR ELECTRO-PNEUMATIC HIGH SIGNALS

Order by Plate and Figure

Fig.		List Price	
32	Pipe Clamp, complete, as shown, with bolts for lamp bracket for a one or two-arm signal	1 00	
32a	as above, for the bottom arm of a three-arm signal	94	
33	Lamp Bracket, as shown, for a one or two-arm signal. Penna. R. R. Standard	5 20	
33a	as above, for the bottom arm of a three-arm signal	5 80	
34	Lever, as shown, for signal base. Penna. R. R. Standard	1 54	
35	Lever, as shown, for signal base	1 10	
36	Shaft, as shown, for base of a one, two or three-arm signal	30	
37	Pipe Plug for above	04	
38	Separator, as shown, for shaft in base of a one-arm signal	14	
38a	as above, for a two-arm signal	12	
38b	as above, for the top blade of a three-arm signal	16	
39	Clamp with handle, as shown, for hand hole plate Fig. 40 for a one or two-arm signal	28	
40	Hand Hole Plate, as shown, for semaphore bearing for a one or two-arm signal	34	
41	Clamp with Handle, as shown, for hand hole plate Fig. 42 for the bottom arm of a three-arm signal	50	
42	Hand Hole Plate, as shown, for semaphore bearing for the bottom arm of a three-arm signal	68	



FRONT AND BACK SPECTACLES, AND SIGNAL BLADES

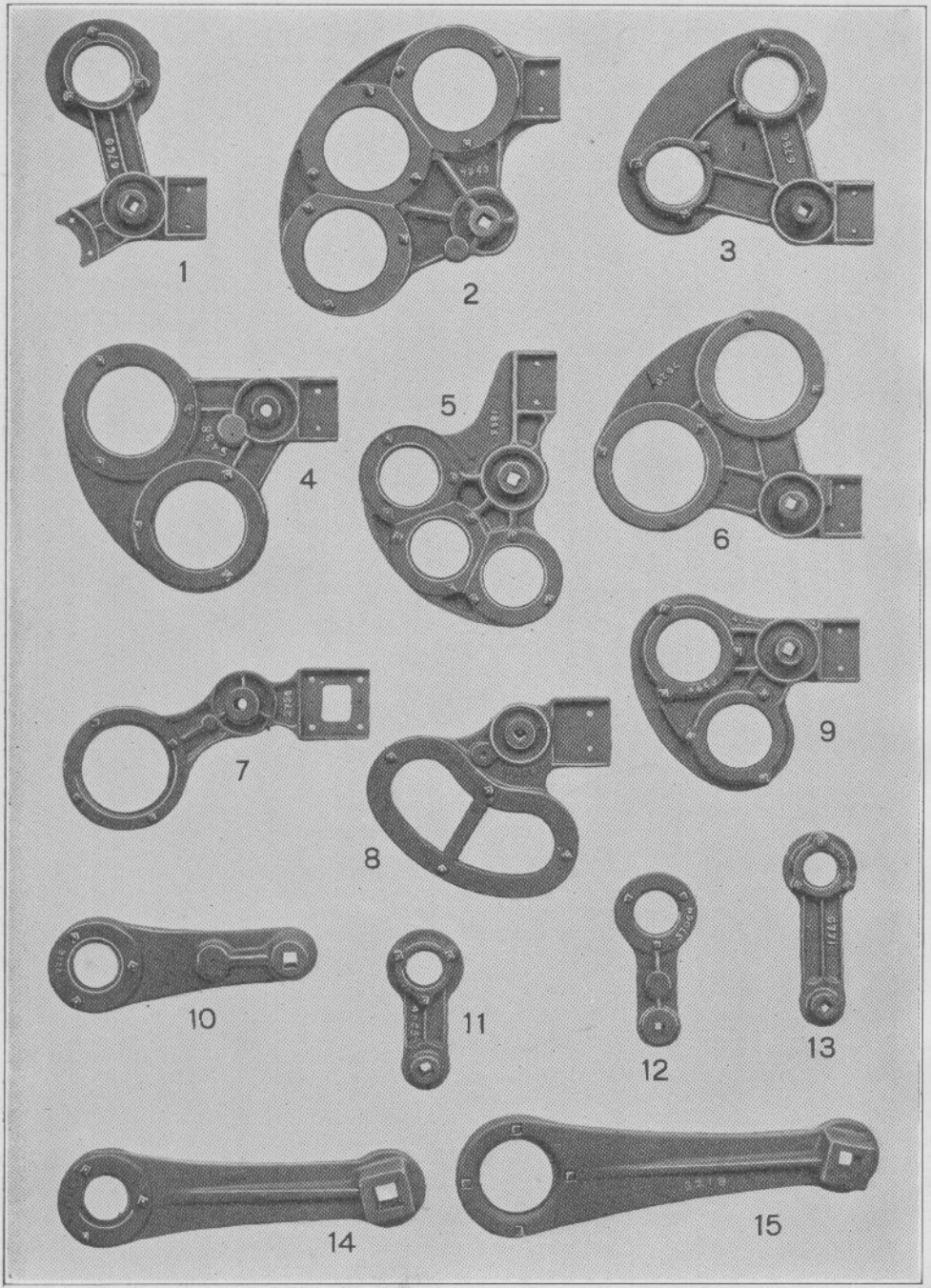
FRONT AND BACK SPECTACLES AND SIGNAL BLADES

No glass included in this list.

Wood Blades are given one priming coat of white lead before shipment, unless otherwise specified.

Order by Plate and Figure

Fig.		List Price	
1	Three Light, 60° Spectacle, with rings and bolts, for 8⅜-inch glass. U. S. & S. Co's Standard	8 40	
2	Four Light, 90° Spectacle, with rings and bolts, for 6½-inch glass. U. S. & S. Co's Standard	9 40	
3	Three Light, 75° Spectacle, with rings and bolts, for 8⅜-inch glass. Penna. R. R. Standard	7 50	
4	Three Light, 60° Spectacle, with rings and bolts, for 8⅜-inch glass. N. Y. C. & H. R. R. R. Standard.	9 00	
5	Bolt and Nut, ⅜"x1¾", for fastening blade to spectacle, used with blade plate. Price per hundred	3 00	
6	Carriage Bolt and Nut, ⅜"x1½", for fastening blade to spectacle. Price per hundred	6 00	
6a	as above, ⅜"x2". Price per hundred	7 00	
7	Blade Plate for Figs. 12, 13 and 17	36	
8	Blade Plate for Figs. 14, 15 and 16. Penna. R. R. Standard	28	
9	Back Spectacle, with shield and bolts. Penna. R. R. Standard	2 00	
10	Counterweight, with shield and bolts. Penna. R. R. Standard	3 70	
11	Rubber Dwarf Signal Blade, with plate and bolts	76	
12	Home Signal Blade, used with Figs. 1, 2 and 4	2 20	
12a	as above, complete, with bolts and nuts, (1-12, 6-6, Plate 0905)	2 56	
12b	as above, complete, with blade plate, bolts, nuts, and wood screw, (1-12, 1-7, 6-5, Plate 0905)	2 76	
13	Distant Signal Blade, used with Figs. 1, 2 and 4	2 20	
13a	as above, complete, with bolts and nuts, (1-13, 6-6, Plate 0905)	2 56	
13b	as above, complete, with blade plate, bolts, nuts, and wood screw,(1-13, 1-7, 6-5, Plate 0905)	2 76	
14	Home Signal Blade, used with Fig. 3. Penna R. R. Standard	2 20	
14a	as above, with blade plate, bolts, nuts, and wood screw, (1-14, 1-8, 4-5, Plate 0905)	2 62	
15	Distant Signal Blade, used with Fig. 3. Penna R. R. Standard	2 20	
15a	as above, with blade plate, bolts, nuts, and wood screw, (1-15, 1-8, 4-5, Plate 0905)	2 62	
16	Route Signal Blade, used with Fig. 3. Penna. R. R. Standard	2 00	
16a	as above, with blade plate, bolts, nuts, and wood screw, (1-16, 1-8, 4-5 Plate 0905)	2 42	
17	Route Signal Blade, used with Figs. 1, 2 and 4	2 00	
17a	as above, with bolts and nuts, (1-17, 6-6, Plate 0905)	2 36	
17b	as above, with blade plate, bolts, nuts, and wood screw, (1-17, 1-7, 6-5, Plate 0905)	2 56	



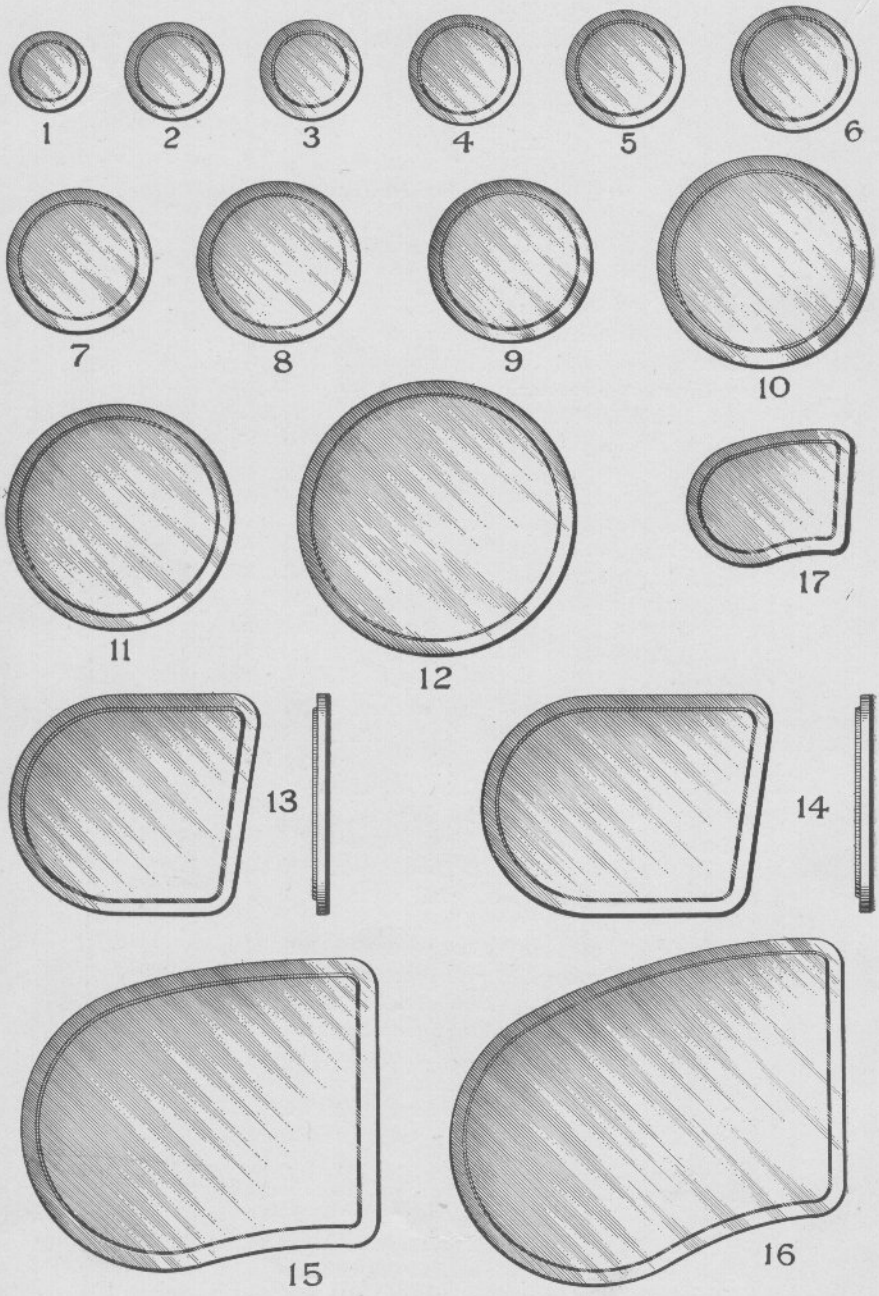
FRONT AND BACK SPECTACLES FOR DWARF SIGNALS AND BACK SPECTACLES FOR HIGH SIGNALS

FRONT AND BACK SPECTACLES FOR DWARF SIGNALS AND BACK SPECTACLES FOR HIGH SIGNALS

No glass included in this list.

Order by Plate and Figure

Fig.		List Price	
1	One Light, 60°, Spectacle, with ring and bolts, for 3½ inch glass	1 00	
2	Three Light, 90°, Spectacle, with rings and bolts, for 5⅜ inch glass	3 30	
3	Two Light, 60°, Spectacle, with rings and bolts, for 3½ inch glass	1 40	
4	Two Light, 60°, Spectacle, (for suspended starting signal), with rings, bolts, stud, washer, and cotter, for 5⅜ inch glass	1 40	
5	Three Light, 90°, Spectacle, with rings and bolts, for 3½ inch glass	2 00	
6	Two Light, 60°, Spectacle, with rings and bolts, for 5⅜ inch glass	1 76	
7	One Light, 60°, Spectacle (for suspended starting signal), with ring, bolts, stud, washer, and cotter, for 5⅜ inch glass	1 00	
8	Two Light, 60°, Spectacle, with ring and bolts for glass No. 17	1 32	
9	Two Light, 60°, Spectacle, with rings and bolts for 4 inch glass	1 20	
10	Back Spectacle, 10 inch radius, with ring and bolts for 3 inch glass, used with spectacle Fig. 2, Plate 0905	86	
11	Back Spectacle, 5¼ inch radius, with ring and bolts, for 2⅜ inch glass used with spectacles Figs. 5 and 9, Plate 0907	60	
12	Back Spectacle, 6 inch radius, with ring and bolts, for 3 inch glass, used with spectacle Fig. 8, Plate 0907	84	
13	Back Spectacle, 7⅜ inch radius, with ring and bolts, for 2⅜ inch glass, used with spectacles Figs. 1, 2, 3, and 6, Plate 0907	60	
14	Back Spectacle, 1 foot 2⅝ inch radius, with ring and bolts, for 3 inch glass, used with spectacle Fig. 3, Plate 0905	1 70	
15	Back Spectacle, 1 foot 5 inch radius, with ring and bolts, for 3 inch glass, used with spectacle Fig. 1, Plate 0905	2 20	



MOULDED SEMAPHORE GLASS

MOULDED SEMAPHORE GLASS

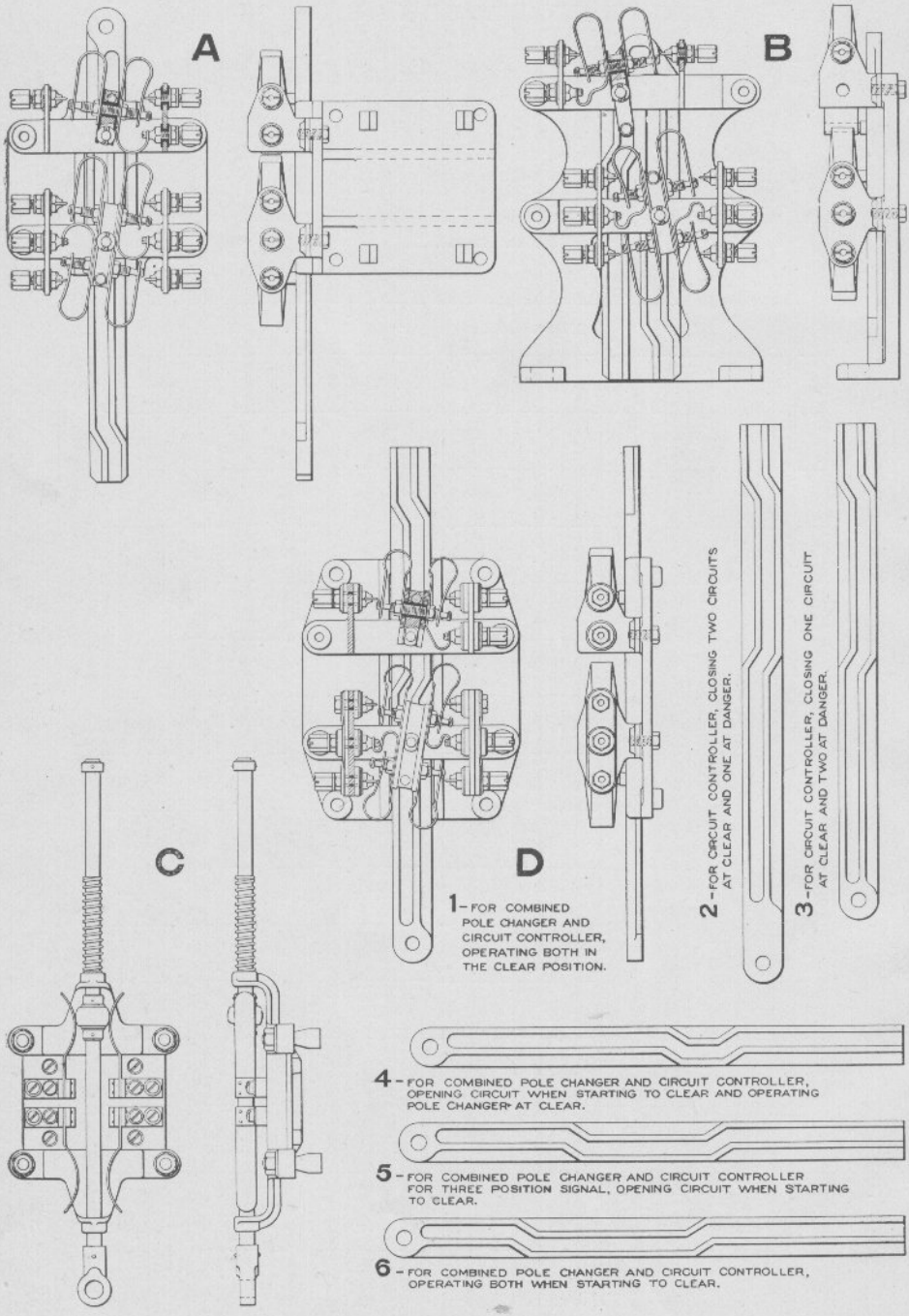
Made of Kopp Solid-Color Glass

All Kopp solid-color signal glass furnished by us is subject to photometric and spectroscopic tests within close limits.

The opposite plate represents the most commonly used moulded glass, which we can furnish of Kopp Solid-Color Glass on short notice.

Order by Plate and Figure

No.	Moulded Semaphore Glass	Diam.	Red	Green	Yellow	Blue	Purple
1		2⅜″	$ 44	$ 22	$ 22	$ 22	$ 22
2		2⅞″	54	28	28	28	28
3		3″	54	28	28	28	28
4		3½″	66	32	32	32	32
5		3¾″	66	38	38	38	38
6		4″	66	38	38	38	38
7		4⅜″	76	44	44	44	44
8		5″	82	54	54	54	54
9		5⅜″	82	54	54	54	54
10		6½″	1 36	76	76	76	76
11		6⅞″	1 48	82	82	82	82
12		8⅜″	2 04	1 36	1 36	1 36	1 36
13	P. R. R. Sema. Glass No. 3,045		1 76	76	76	76	76
14	P. R. R. Sema. Glass No. 3,047		2 16	1 08	1 08	1 08	1 08
15	N. Y. C. & H. R. R. R. Upper Sema. Glass...		4 06	2 04	2 04	2 04	2 04
16	N. Y. C. & H. R. R. R. Lower Sema. Glass...		4 72	2 38	2 38	2 38	2 38
17	Dwarf Signal Glass.....		82	54	54	54	54



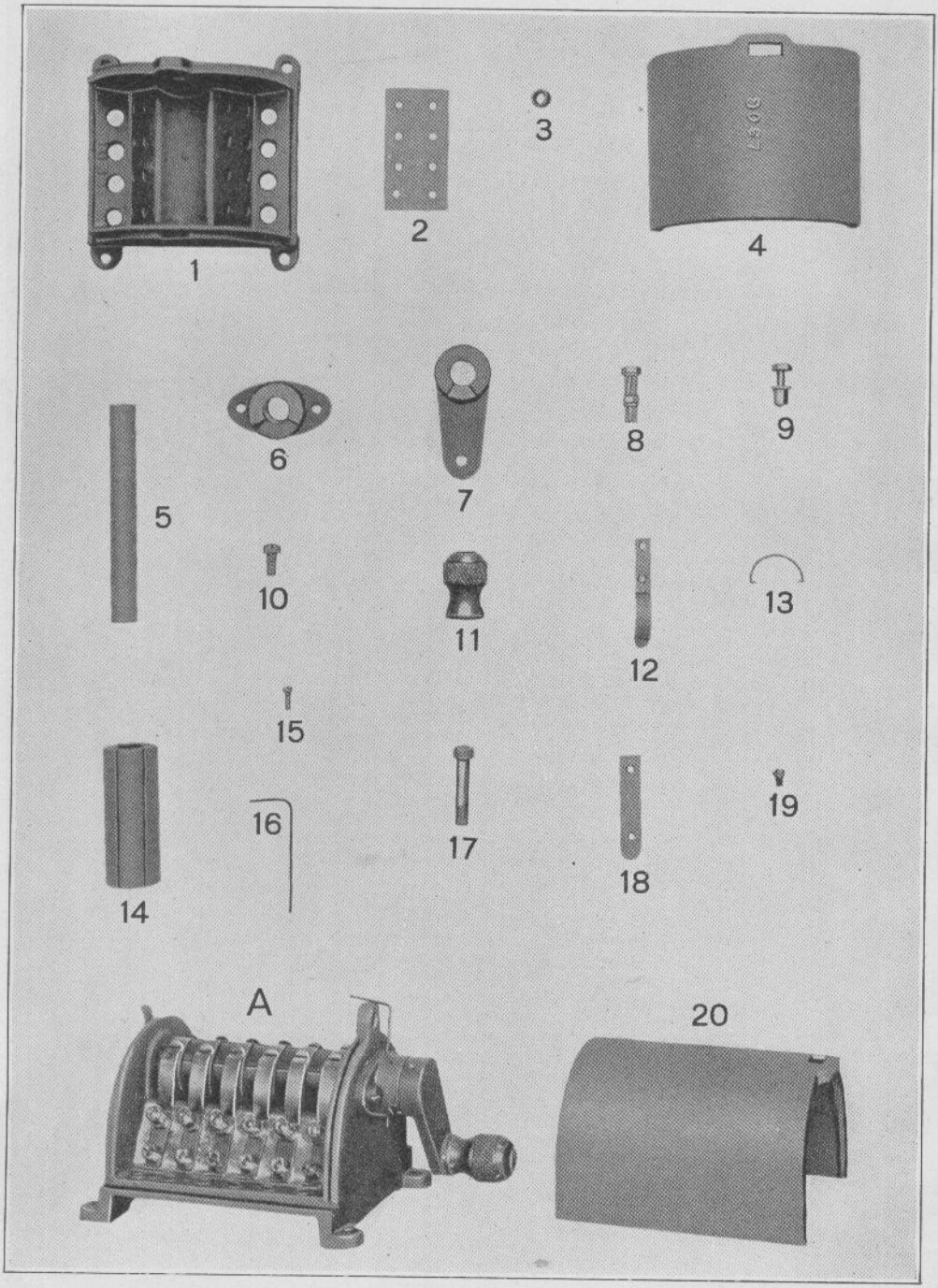
POLE CHANGERS AND CIRCUIT CONTROLLERS

POLE CHANGERS AND CIRCUIT CONTROLLERS

Orders for repair parts of the instruments shown on the opposite plate should always be accompanied by samples of the parts required.

Order by Plate, Figure and Instructions Given Above

Fig.		List Price	
A	Combined Motion Plate Pole Changer and Circuit Controller, complete, as shown, for the Electro-Pneumatic slide signals shown in Plates 0889 and 0891, with motion plate to close one circuit in the clear, and one circuit in the danger position	14 50	
B	Combined Motion Plate Pole Changer and Circuit Controller, complete, as shown, for the Electro-Pneumatic dwarf slide signal shown on Plate 0893, with motion plate to close one circuit in the clear, and one circuit in the danger position	14 50	
C	Signal Circuit Controller, complete, as shown, with one circuit closed in the clear, and another circuit closed in the danger position	9 40	
D1	Combined Motion Plate Pole Changer and Circuit Controller, complete, as shown, U. S. & S. Co.'s standard, with motion plate to close one circuit in the clear, and one circuit in the danger position	13 20	
D2	Motion Plate Circuit Controller, complete, U. S. & S. Co.'s standard, with motion plate to close two circuits in the clear, and one circuit in the danger position	13 20	
D3	as above, with motion plate to close one circuit in the clear, and two circuits in the danger position	13 20	
D4	Combined Motion Plate Pole Changer and Circuit Controller, complete, U. S. & S. Co.'s standard, with motion plate to open circuit when signal starts to clear and operating pole changer in the clear position	13 20	
D5	as above, complete, for a three-position signal, U. S. & S. Co.'s standard, with motion plate to close one circuit in the clear, and one circuit in the danger position	13 20	
D6	as above, complete, for a two-position signal U. S. & S. Co.'s standard, with motion plate operating circuit controller and pole changer when signal starts to clear	13 20	
1	Motion Plate only for Fig. D1		90
2	as above, for Fig. D2		90
3	as above, for Fig. D3		90
4	as above, for Fig. D4		90
5	as above, for Fig. D5		90
6	as above, for Fig. D6		90



HORIZONTAL ROTARY CIRCUIT CONTROLLER

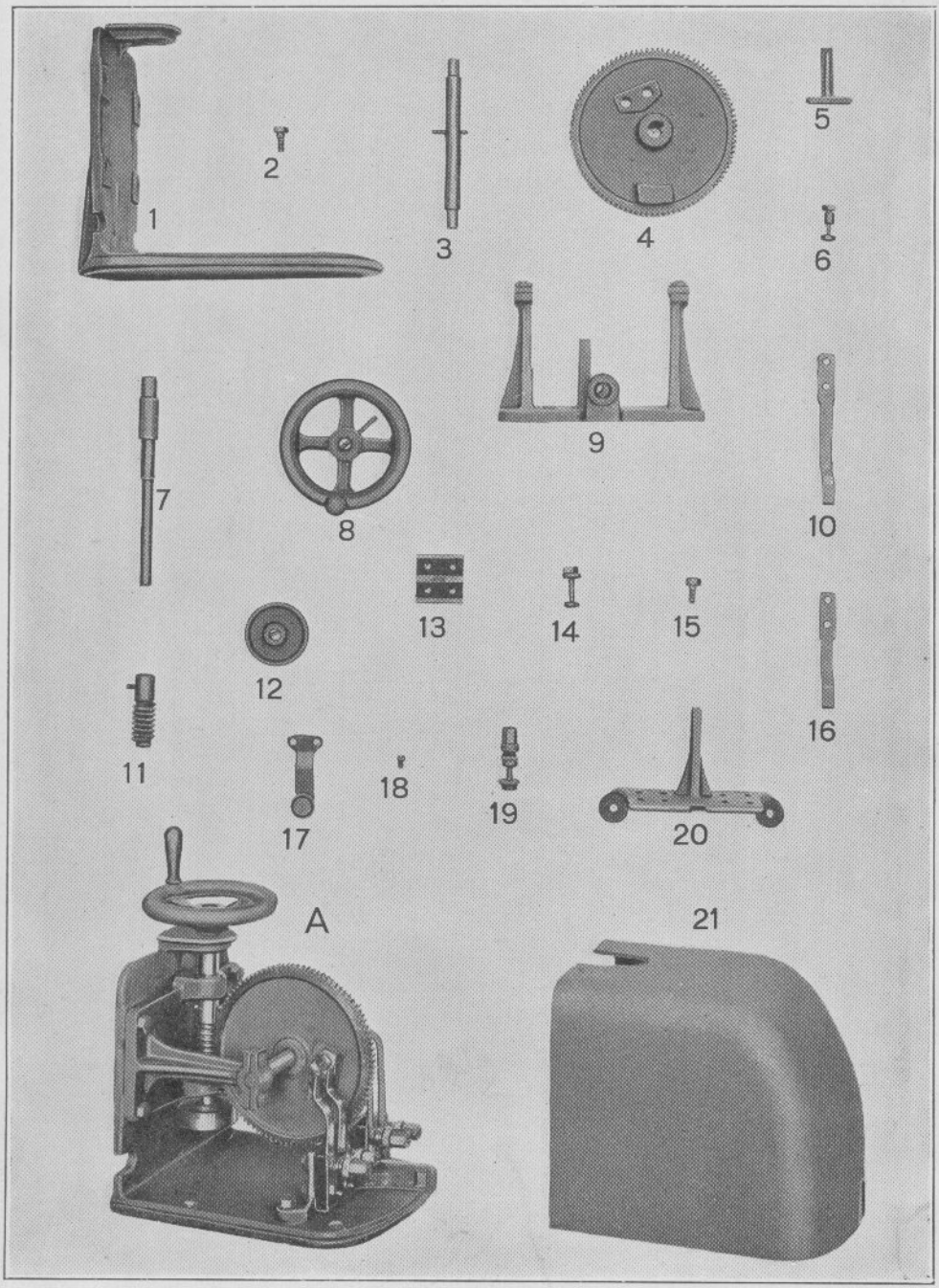
(Emergency Hand Release)

HORIZONTAL ROTARY CIRCUIT CONTROLLER

(Emergency Hand Release)

Order by Plate and Figure

Fig.		List Price
A	6-Way Horizontal Rotary Circuit Controller, complete, with padlock and cover	31 00
Aa	4-Way, complete, as above	25 50
1	Base for 4-way, as shown	4 00
1a	as above, for 6-way	4 40
2	Insulating Plate for 4-way, as shown	34
2a	as above, for 6-way	44
3	Bushing as shown, for wire openings in base	04
4	Cover for 4-way, as shown	90
5	Shaft for 4-way, as shown	34
5a	as above, for 6-way	44
6	Bearing only, as shown	1 00
7	Lever only	90
7a	as above, complete, with handle, screw and pin	2 30
8	Terminal Post, complete, with washers, insulating bushing, and nuts	30
9	Bolt, No. 10-32 x ¾", with nut, washer, and insulating bushing, for fastening contact spring to base	16
10	Machine Screw, ¼" x 7/16", as shown, for fastening bearing to base. Price per hundred	2 00
11	Handle only, as shown, for lever Fig. 7	1 22
12	Contact Spring, as shown	24
13	Contact Band, as shown, for contact roller	16
14	Contact Roller, as shown, for 4-way	1 44
14a	as above, for 6-way	1 90
15	Machine Screw, No. 6–32 x 7/16", as shown, for fastening contact roller to shaft. Price per hundred.	2 00
17	Machine Screw, 5/16" x 19/16", as shown, for fastening handle to lever. Price per hundred	8 00
18	Spring, as shown, for fastening cover to base	22
19	Machine Screw, No. 10–32 x ¼", as shown, for fastening spring Fig. 18, to base. Price per hundred	2 00
20	Cover for 6-way, as shown	1 02



HAND RELEASE CIRCUIT CONTROLLER

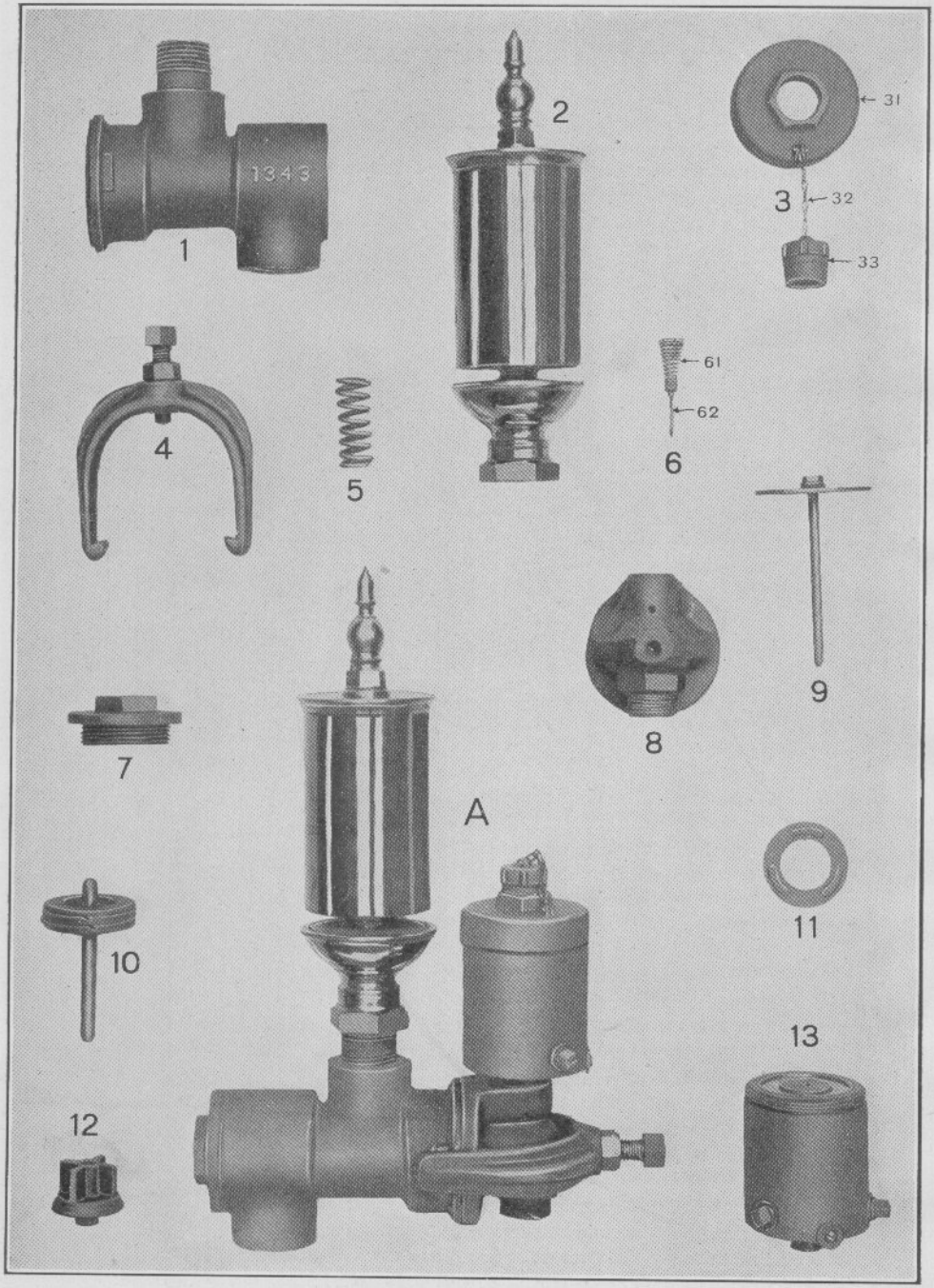
(Wall Type)

HAND RELEASE CIRCUIT CONTROLLER
(Wall Type)

This hand release takes one minute to operate, and can be used either vertically, as shown, or horizontally.

Order by Plate and Figure

Fig.		List Price	
A	Hand Release Circuit Controller, complete, with lock and cover	35 00	
1	Base, as shown	3 70	
2	Tap Bolt, ¼" x ⅝", as shown, for fastening worm wheel bracket to base. Price per hundred	2 20	
3	Shaft, as shown, with dowel pin	50	
4	Worm Wheel, as shown	5 00	
5	Contact Bracket, complete, with insulating plate, for worm wheel	84	
6	Bolt, No. 10–32 x 1", complete, as shown, with nut and insulating bushing, for fastening contact brackets to worm wheel	16	
7	Worm Shaft, as shown	1 70	
8	Wheel, complete, as shown, with handle and dowel pin	2 40	
9	Worm Wheel Bracket, complete, as shown, with caps and screws	3 70	
10	Long Contact Spring, as shown	90	
11	Worm, complete, as shown, with dowel pin	4 50	
12	Brake Wheel, complete, as shown, with dowel pin	80	
13	Base only, as shown, for contact springs	44	
14	Bolt, No. 10–32 x ⅞", complete, with nut, washer, insulating bushing and washer, for fastening contact springs, and base Fig. 13 to bracket Fig. 20.	16	
15	Tap Bolt, ¼ x ⅝", as shown, for fastening bracket Fig. 20 to base. Price per hundred	2 00	
16	Short Contact Spring, as shown	90	
17	Brake, complete, as shown, with spring and nuts	50	
18	Machine Screw, No. 10–32 x ¼", as shown, for fastening brake to worm wheel bracket. Price per hundred	2 00	
19	Terminal Post, complete, with nuts, washers, insulating bushing and washers	30	
20	Bracket only, for contact springs, as shown	1 32	
21	Cover, as shown	1 32	



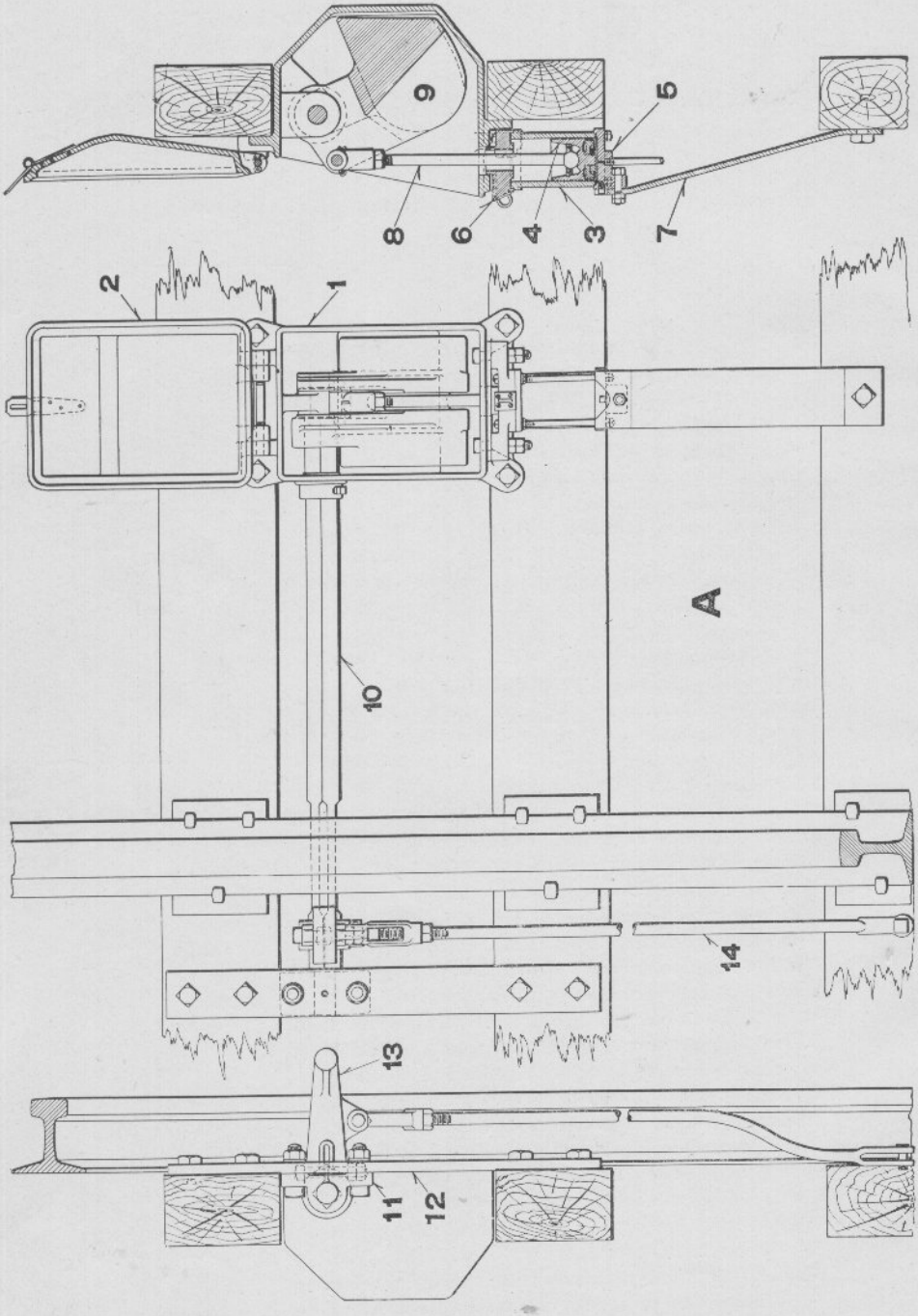
ELECTRO-PNEUMATIC WHISTLE AND VALVE.

ELECTRO-PNEUMATIC WHISTLE AND VALVE

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure, and Instructions Given Above

Fig.		List Price	
A	Whistle and Valve, complete, as shown, to sound when magnet is energized. Specify resistance of magnet	72 00	
Aa	as above, without whistle. Specify resistance of magnet	64 00	
Ab	Whistle and Valve, complete, as shown, to sound when magnet is de-energized. Specify resistance of magnet	72 00	
Ac	as above, without whistle. Specify resistance of magnet	64 00	
1	Valve Chamber, as shown, with nipple	14 50	
1a	as above, complete, with nut, check valve, spring, piston, and gaskets, (1-1, 1-7, 1-12, 1-5, 1-10, Plate 0917)	31 00	
2	Whistle, complete, as shown, for 1 inch pipe	7 50	
3	Magnet Cap, complete, as shown, with chain and plug	1 68	
31	Magnet Cap only	1 28	
32	Chain only		
33	Plug only	40	
4	Yoke, complete, as shown, with tap bolt and lock nut, for fastening valve body to valve chamber	56	
5	Spring, as shown, for check valve	46	
6	Pin Valve and Spring, complete, as shown	72	
61	Spring only	34	
62	Pin Valve only	38	
7	Nut for valve chamber, as shown	2 20	
8	Valve Body, as shown, with union	4 20	
8a	Valve Body and Magnet, complete, with pin valve and spring, armature, spring for releasing armature, and magnet cap. Specify resistance when ordering. (1-8, 1-13, 1-6, 1-9, 1-11, 1-3, Plate 0917)	30 00	
9	Armature, complete, as shown, with stem	3 00	
10	Piston, complete, as shown, with piston rings	6 60	
11	Spring for releasing armature, as shown	16	
12	Check Valve, as shown	2 70	
13	Magnet only, as shown. Specify resistance when ordering	13 80	
13a	Magnet, complete, with armature, spring for releasing armature, and cap. Specify resistance when ordering. (1-13, 1-9, 1-11, 1-3, Plate 0917)	18 00	



ELECTRO-PNEUMATIC AUTOMATIC TRAIN STOP

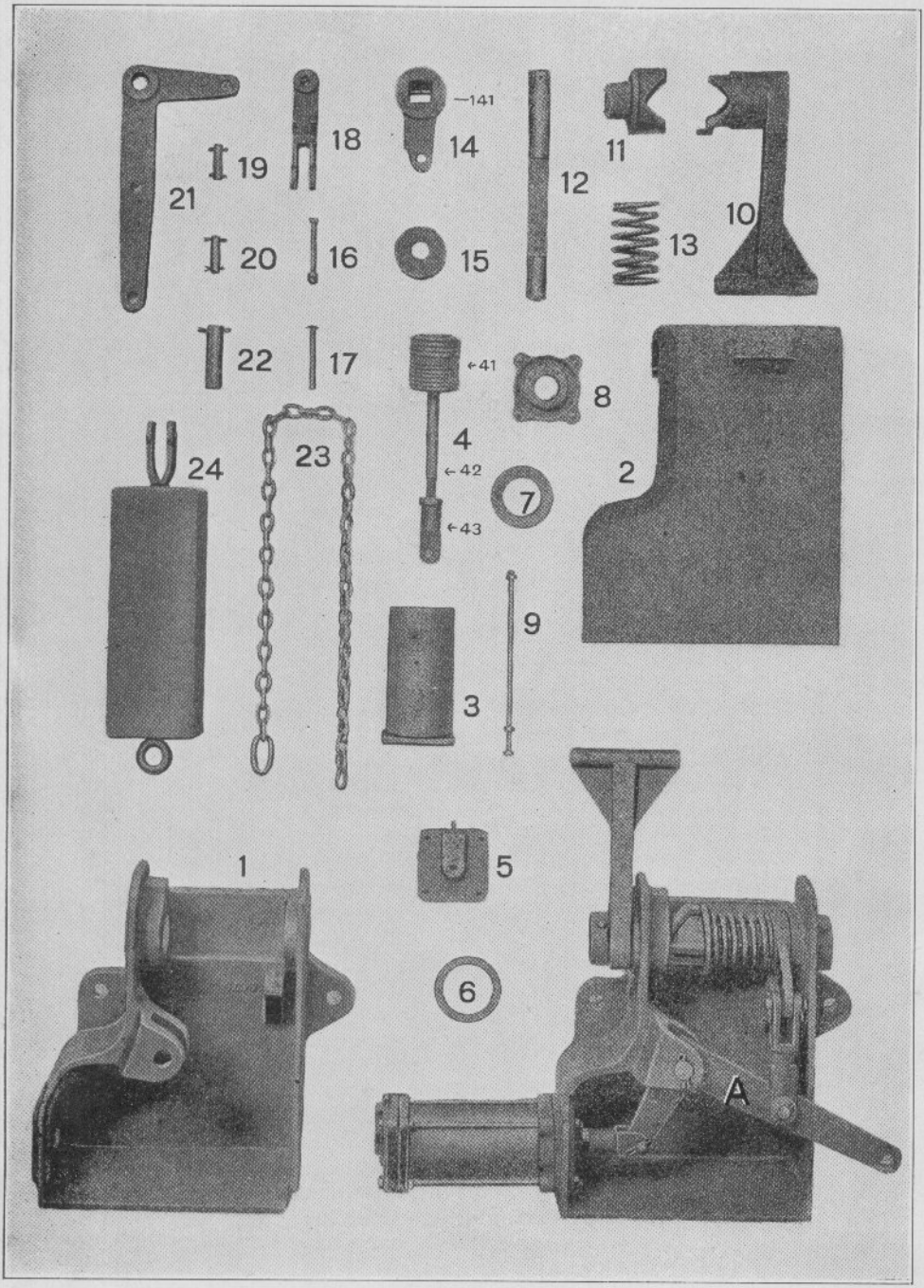
Style "A"

ELECTRO-PNEUMATIC AUTOMATIC TRAIN STOP

Style "A"

Order by Plate and Figure

Fig.		List Price	
A	Electro-Pneumatic Automatic Train Stop, complete, as shown, with rocking shaft, stop arm, bearing, plate, guard, bolts and lag screws; without connecting rod Fig. 14	110 00	
1	Counterweight Box only	10 00	
1a	as above, complete, with cylinder, cylinder heads, piston, piston rod, counterweight and cover, (1-1, 1-3, 1-5, 1-6, 1-4, 1-8, 1-9, 1-2, Plate 0919)	40 00	
2	Cover, for above, complete, with hasp, hinge, pin and cotters	3 80	
3	Cylinder only	6 00	
4	Piston, for cylinder, complete, with cage for piston rings, piston rings and ring nuts	10 50	
5	Front Cylinder Head, complete, with oil plug, gasket, and studs with nuts for fastening front-head and cylinder to back cylinder head	2 10	
6	Back Cylinder Head, complete, with staple, gaskets, and bolts with nuts for fastening to box Fig. 1	3 10	
7	Guard for cylinder, complete, with lag screw and bolt	2 32	
8	Piston Rod, complete, with screw jaw, nut, pin and cotter	1 90	
9	Counterweight only	13 00	
10	Shaft only	5 90	
10a	as above, complete, with collar and set screw, stop arm, bearing, and bearing plate with lag screws	12 00	
11	Bearing for shaft, complete, with bolts, nuts and lock washers	1 50	
12	Bearing Plate, complete, with lag screws	2 10	
13	Stop Arm, complete, with bolt and nuts	1 90	
14	Connecting Rod, complete, with screw jaw, nut, pins and cotters; for operating a circuit controller	1 66	



ELECTRO-PNEUMATIC AUTOMATIC TRAIN STOP

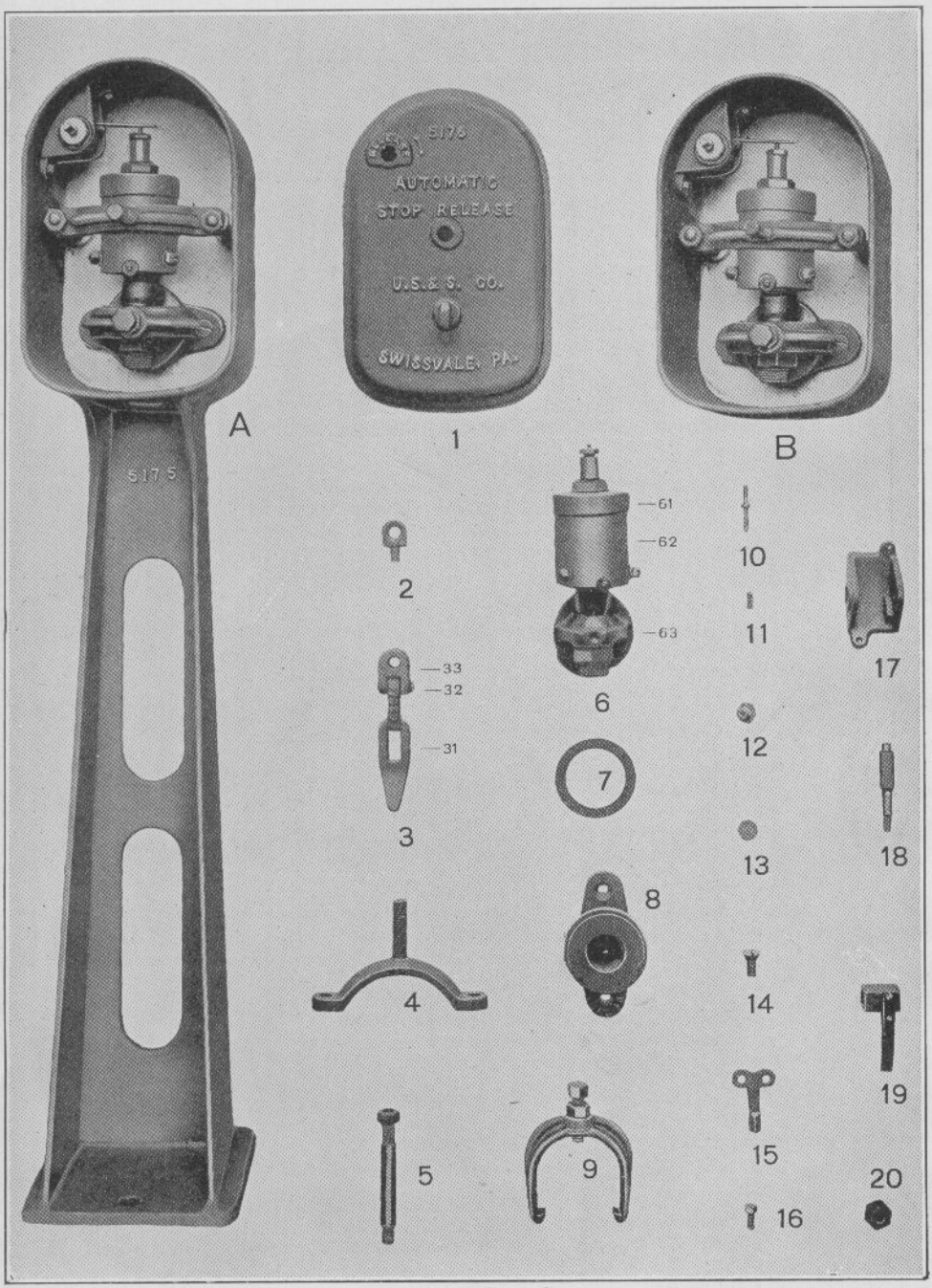
Style "B"

ELECTRO-PNEUMATIC AUTOMATIC TRAIN STOP

Style "B"

Order by Plate and Figure

Fig.		List Price	
A	Train Stop, complete, with cover, counterweight and chain	108 00	
1	Case, as shown	9 70	
2	Cover, as shown	5 00	
3	Cylinder only, as shown	6 00	
3a	Cylinder, complete, with heads, gaskets, piston and piston rod, and studs, (1-3, 1-5, 1-8, 1-6, 2-7, 1-4, 4-9, Plate 0921)	22 00	
4	Piston and Piston Rod, complete, as shown, with cage for piston rings, piston rings, nuts, and screw jaw.	9 50	
41	Piston, only, with cage for piston rings, piston rings and nuts	7 70	
42	Piston Rod only, with lock nut	1 32	
43	Screw Jaw only	80	
43a	Screw Jaw, complete, with pin and cotters, (1-43, 1-19, Plate 0921)	88	
5	Back Head for cylinder, complete, as shown, with oil plug	2 02	
6	Gasket for back cylinder head Fig. 5	04	
7	Gasket for front cylinder head Fig 8	22	
8	Front Head for cylinder	66	
9	Stud, 3/8" x 11", complete, as shown, with three nuts for fastening cylinder to case	14	
10	Stop Arm, as shown	5 00	
11	Clutch, as shown	66	
12	Shaft, as shown	2 10	
12a	Shaft, complete, with collars, bolt and rivet, (1-12, 2-15, 1-16, 1-17, Plate 0921)	3 30	
13	Spring for shaft, as shown	80	
14	Crank for shaft, complete, as shown, with dowel pin.	50	
141	Dowel pin, 1/4" x 3 1/8", for crank. Price per hundred.	6 00	
15	Collar for shaft	1 00	
16	Bolt, 3/8" x 3 1/2", complete, as shown, with nuts, for fastening collar to shaft	06	
17	Button Head Rivet, 3/8" x 3 1/4", as shown, for fastening collar to shaft. Price per hundred	2 00	
18	Link only, as shown, for joining cranks, Figs. 14 and 21.	66	
18a	Link, complete, with pins and cotters, (1-18, 2-20, Plate 0921)	80	
19	Pin and Cotters, 5/8" x 1 7/8", as shown, for screw jaw Fig. 43	08	
20	Pin and Cotters, 5/8" x 2 3/16", as shown, for Figs. 18 and 24	08	
21	Crank, 12 1/2" x 5", as shown	2 20	
22	Pin and Cotters, 1" x 3 5/8", for fastening crank Fig. 21 to case.	16	
23	3/8-inch Chain, 3' 9" long, as shown for counterweight Fig. 24	80	
24	Counterweight, with pin Fig. 20	6 60	



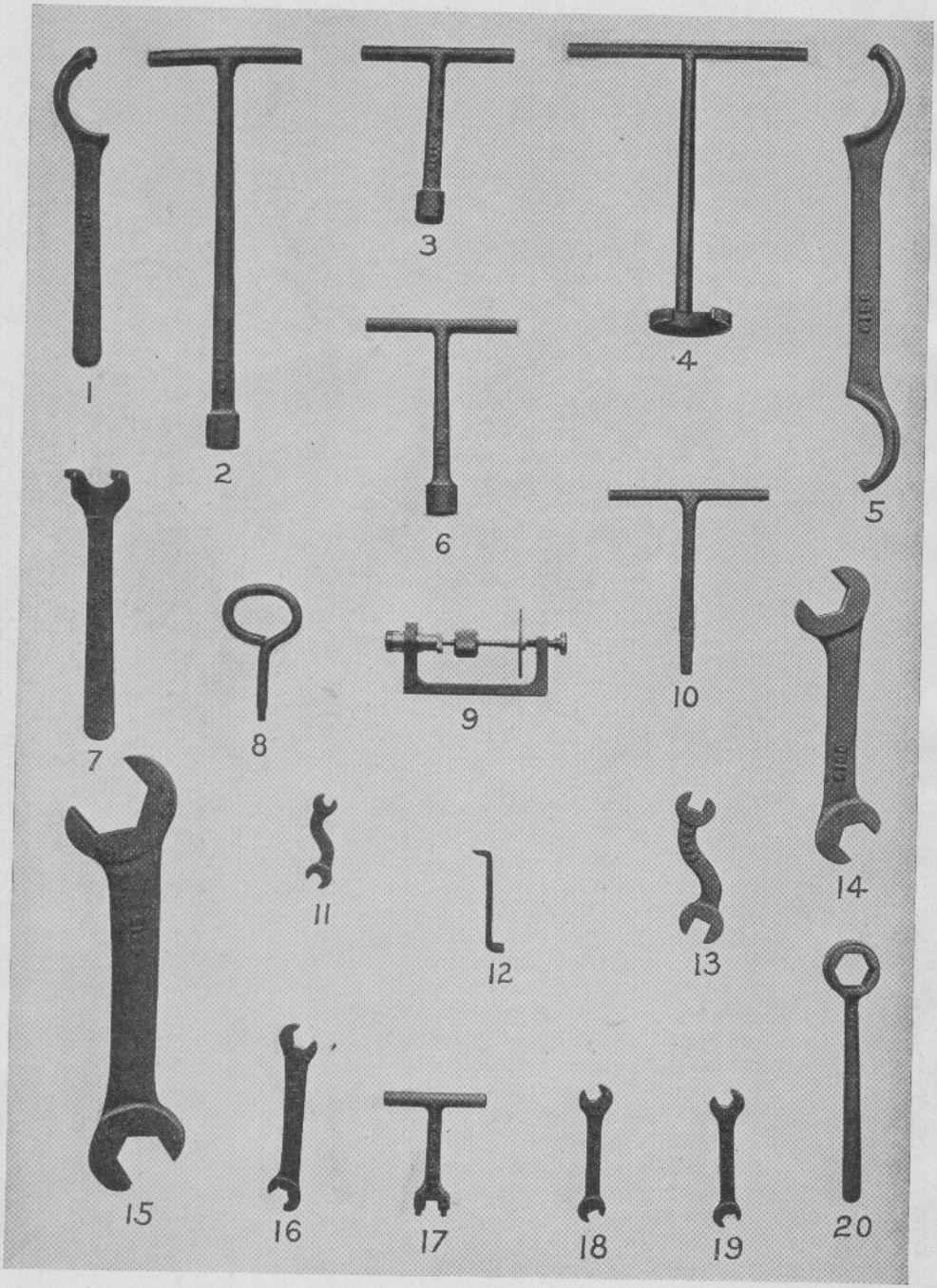
RELEASE FOR ELECTRO-PNEUMATIC AUTOMATIC TRAIN STOP

RELEASE FOR ELECTRO-PNEUMATIC AUTOMATIC TRAIN STOP

Magnets are usually wound to 16, 120 and 400 ohms resistance, as per table of resistances on page 171.

Order by Plate, Figure, and Instructions Given Above

Fig.		List Price	
A	Release for Train Stop (pedestal type), complete, with door, hasp, and hinge. Specify resistance of magnet	50 00	
A1	Combined Pedestal and Case only	10 70	
B	Release for Train Stop (hanging type), complete, with door, hasp, and hinge. Specify resistance of magnet	47 00	
B1	Case only	6 60	
1	Door, complete, as shown, with staple	1 70	
2	Staple for door	06	
3	Hasp and Hinge, complete, as shown with rivet	44	
31	Hasp only	08	
32	Rivet, ¼"x½". Price per hundred	1 00	
33	Nut only	18	
4	Yoke for fastening door to case	66	
5	Stud and Nut, complete, as shown, for fastening yoke Fig. 4 to case	14	
6	Magnet and Valve, complete, as shown. Specify resistance when ordering	30 00	
61	Magnet Cap, complete, with nut, pin, and spring, (1-12, 1-10, 1-11, Plate 0923)	1 68	
62	Magnet only. Specify resistance when ordering	13 80	
63	Valve Body, with union	4 20	
7	Gasket for valve body	06	
8	Valve Base, as shown	1 32	
9	Yoke, complete, as shown, with tap bolt and lock nut, for fastening valve to valve base	56	
10	Pin, as shown, for emergency release	16	
11	Spring, as shown, for pin Fig. 10	34	
12	Nut, as shown, for magnet cap	12	
13	Strainer for valve union	06	
14	Machine Screw, ⅜"x¾", as shown, for fastening valve base to case. Price per hundred	1 00	
15	Key, as shown, for emergency release	1 10	
16	Cap Screw, ¼"x¾", as shown, for fastening key shaft bracket to case. Price per hundred	2 00	
17	Key Shaft Bracket, as shown	40	
18	Key Shaft, as shown	22	
19	Spring Support, complete, as shown, with spring, screw and rivet, for emergency release	1 10	
20	Bushing for key shaft	16	



TOOLS FOR ELECTRO-PNEUMATIC CYLINDERS, VALVES, AND MAGNETS

TOOLS FOR ELECTRO-PNEUMATIC CYLINDERS, VALVES, AND MAGNETS

Order by Plate and Figure

Fig.		List Price	
A	Hardwood Case containing all the tools shown on the opposite plate, complete	74 00	
1	Spanner Wrench for piston of switch cylinder	50	
2	Socket Wrench, with long shank, for ½ inch tap bolt	70	
3	Socket Wrench for ⅜ inch tap bolt	50	
4	Wrench for removing magnet socket	5 10	
5	Spanner Wrench for stuffing box nuts of switch cylinder, and lock cylinder of switch valve	60	
6	Socket Wrench, with short shank, for ½ inch tap bolt	50	
7	Pin Wrench for removing ring nut that fastens piston rod to signal cylinder piston	3 00	
8	Eye Bolt for removing piston of switch valve	60	
9	Reseating Tool for armature stem, complete	29 00	
10	"T" Head Screw Driver	2 10	
11	"S" Wrench for oil plug and ¼ inch hex. nut	50	
12	Angle Screw Driver	1 30	
13	"S" Wrench for oil plugs	40	
14	Wrench for valve body union and magnet cap	80	
15	Wrench for piston lock nut in switch cylinder, and 1¼ inch hex. nut	1 30	
16	Wrench for ½ inch tap bolt and nut	50	
17	Pin Wrench for packing nut of switch valve	60	
18	Wrench for armature stem nut, and pin valve guide in switch valve	50	
19	Wrench for ⅜ inch cap screw and nut	50	
20	Wrench for piston lock nut in signal cylinder	50	

STANDARD RESISTANCES AND OPERATING VOLTAGES OF MAGNETS FOR ELECTRO-PNEUMATIC APPLIANCES

APPLIANCES	Standard Resistance	Normal Operating E. M. F.	Minimum Operat'g E. M. F.
	OHMS	VOLTS	VOLTS
(1) Magnets for signals usually automatic or semi-automatic.	16.	2.25	1.37
(2) Magnets for signals usually semi-automatic or non-automatic.	120.	5.65	3.75
(3) Magnets for signals, similar to No. 2	400.	11.	7.2
(4) Indication and lock magnets for Electro-Pneumatic machines.	120.	8.	5.3
(5) Switch valve magnets for interlocking plants.	120.	5.65	3.75
(6) Switch valve magnets for push button plants.	400.	11.	7.2

NOTE:—An external resistance of 120 ohms is inserted in the controlling circuits of all single switches at interlocking plants, to equal the total resistance of cross-over circuits where two 120-ohm operating magnets are connected in series.

Where two switches are operated from one push button, they are connected in multiple.

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