



CATALOGUE OF
INTERLOCKING
and SIGNALING
DEVICES

1902

SECTION 1
MECHANICAL
INTERLOCKING
MACHINES AND
GROUND LEVER
STANDS

The
Union Switch & Signal Co.
Swissvale Pa.

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.**

**Electro-Pneumatic, Electric and Mechanical Interlockings
to suit conditions.**

Plans and Estimates on Application.

**General Offices and Works
SWISSVALE, PA.**

**New York
Central Bldg.**

**Chicago
Monadnock Bldg.**

**St. Louis
Frisco Bldg.**

The Union Switch & Signal Company's Publishing Department,
Swissvale, Pa.
Murdoch, Kerr & Co., Pittsburg, Pa.

SECTION 1

MECHANICAL INTERLOCKING MACHINES

AND

GROUND LEVER STANDS

Reprint of First Edition

1907

PREFACE.

SO many changes and improvements have been made in Signaling Appliances since our last General Catalogue was issued in 1894, that we find it necessary to almost entirely revise that edition; and, in order to place the information before our customers as quickly as possible, we have decided to issue our revised catalogue and price list in sections as rapidly as we can collect the necessary data. The sections will comprise the following classes of material:

SECTION 1. Plates 150 to 199. Mechanical Interlocking Machines and Ground Lever Stands complete and in detail.

SECTION 2. Plates 200 to 299. Connections from operating levers to Derails, Switches, Signals, Locks, etc., including Pipe and Wire with supports and foundations. Cranks, Rocker Shafts, Compensators, etc., with foundations.

SECTION 3. Plates 300 to 399. Locking and operating devices, including Switch and Lock Movements, Facing Point Locks, Bolt Locks, Front and Lock Rods, Bridge Locks, Bridge Couplers, Detector Bars, Selectors, etc.

SECTION 4. Plates 400 to 499. Interlocking Signals, including Wooden and Iron post type arranged for pipe or wire connections, Bracket Signals, Dwarf Signals, Pot Signals. Various types of spectacle castings, blades, lamps, etc.

SECTION 5. Plates 500 to 599. Station Signals, used as Train Order or Telegraph Block Signals.

In this edition the list prices are shown opposite each item, and the list of combined parts which can be ordered as complete items has been greatly increased.

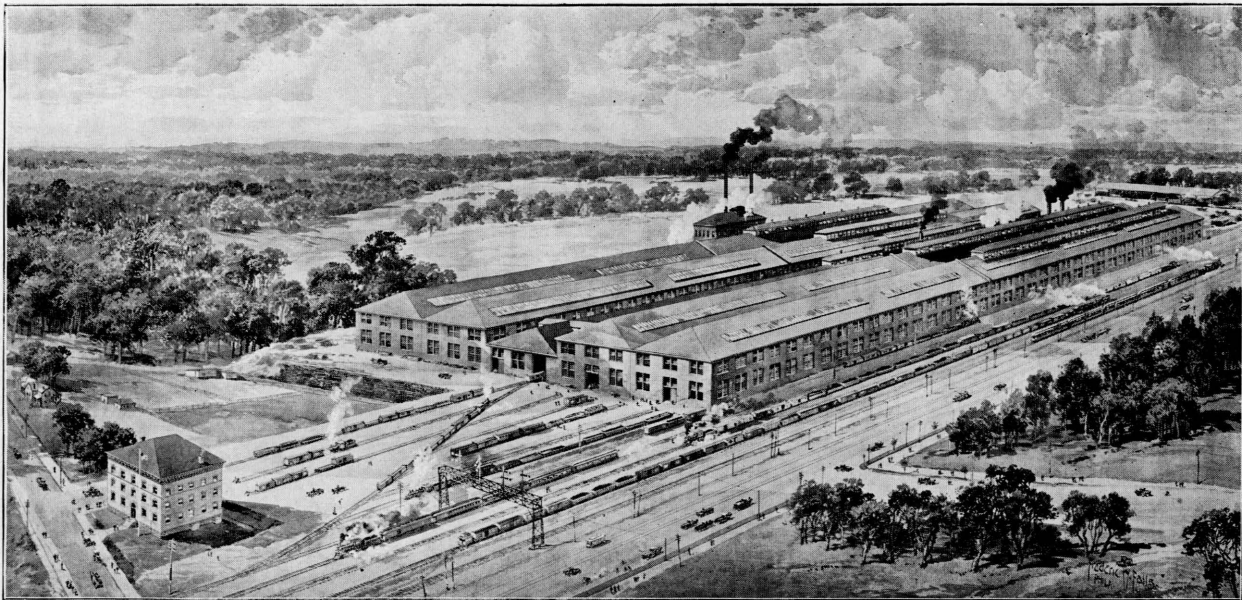
As the general principles of Railroad Signaling are much better understood now than in 1894, and as our Special Appliances have been, or will be, treated of in descriptive bulletins, this catalogue will contain only such brief descriptions and notes as are essential to the proper ordering of the material shown therein.

While this catalogue when completed will supersede our 1894 edition, there will be many appliances that we formerly built, which are now almost entirely superseded by later designs, and in consequence will not be illustrated herein.

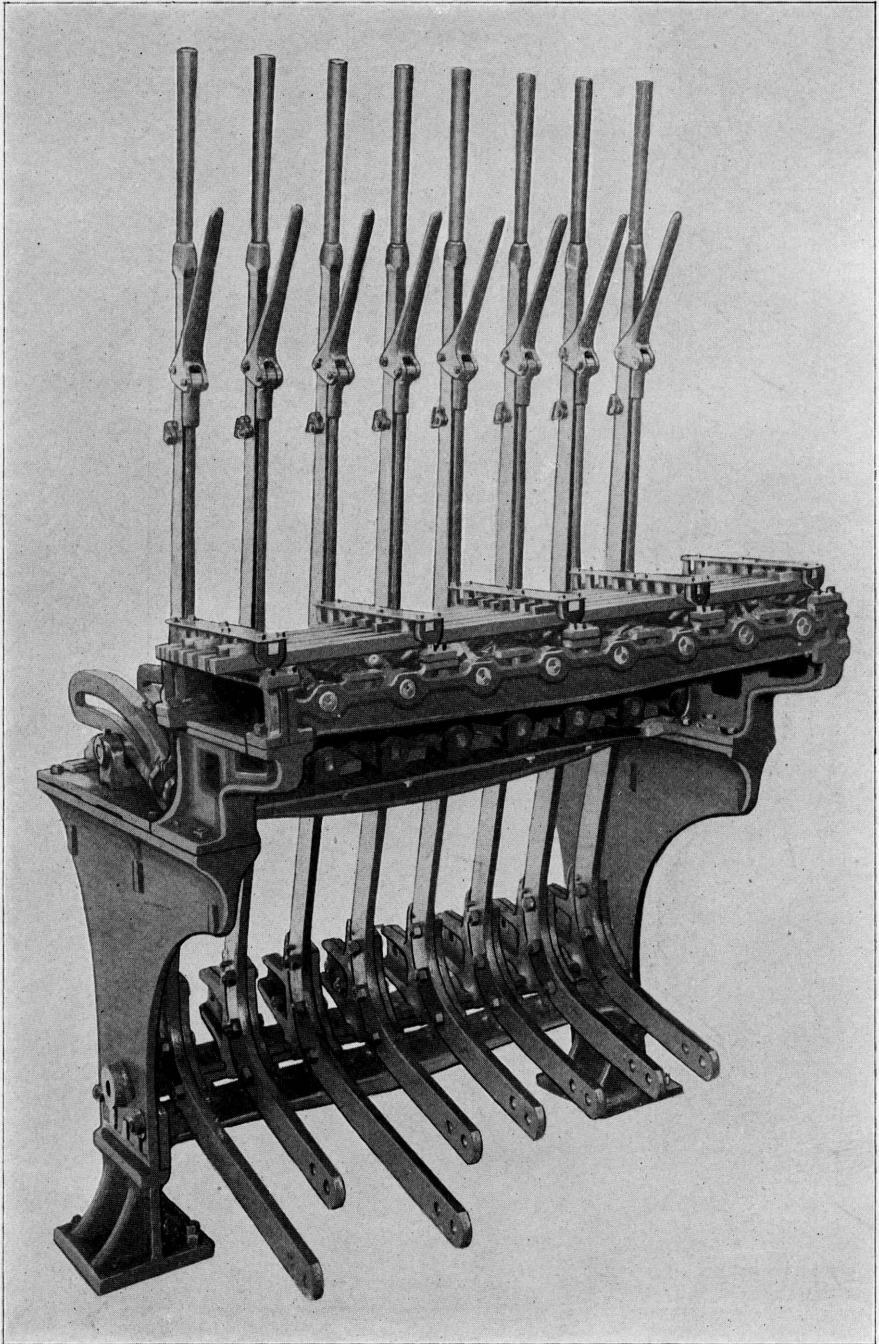
To such of our patrons as desire these earlier appliances—either complete or in detail—we beg to state that all orders based on our 1894 catalogue will receive our best attention, and we shall be glad to furnish copies of that catalogue as long as our supply lasts.

Having lately built entirely new shops (illustrated on the opposite page) of more than double the capacity of our former ones and equipped them with the most modern machinery and appliances, we have no hesitation in saying that we are prepared to guarantee satisfaction to our customers—no order being too large for our facilities, or too small for our careful attention.

The Union Switch & Signal Company.



**Office and Works of the Union Switch & Signal Company, at Swissvale, Pa.,
on Main Line Pennsylvania Railroad**



The Saxby & Farmer Interlocking Machine Arranged for Vertical Leadout

The Saxby & Farmer Interlocking Machine Arranged for Vertical Leadout.

For Machine Arranged for Horizontal Leadout see Plate 151.

The experience of the past twelve years during which practically no changes have been found necessary in this design of machine, enables us to continue recommending it as the best type of interlocking machine in the market.

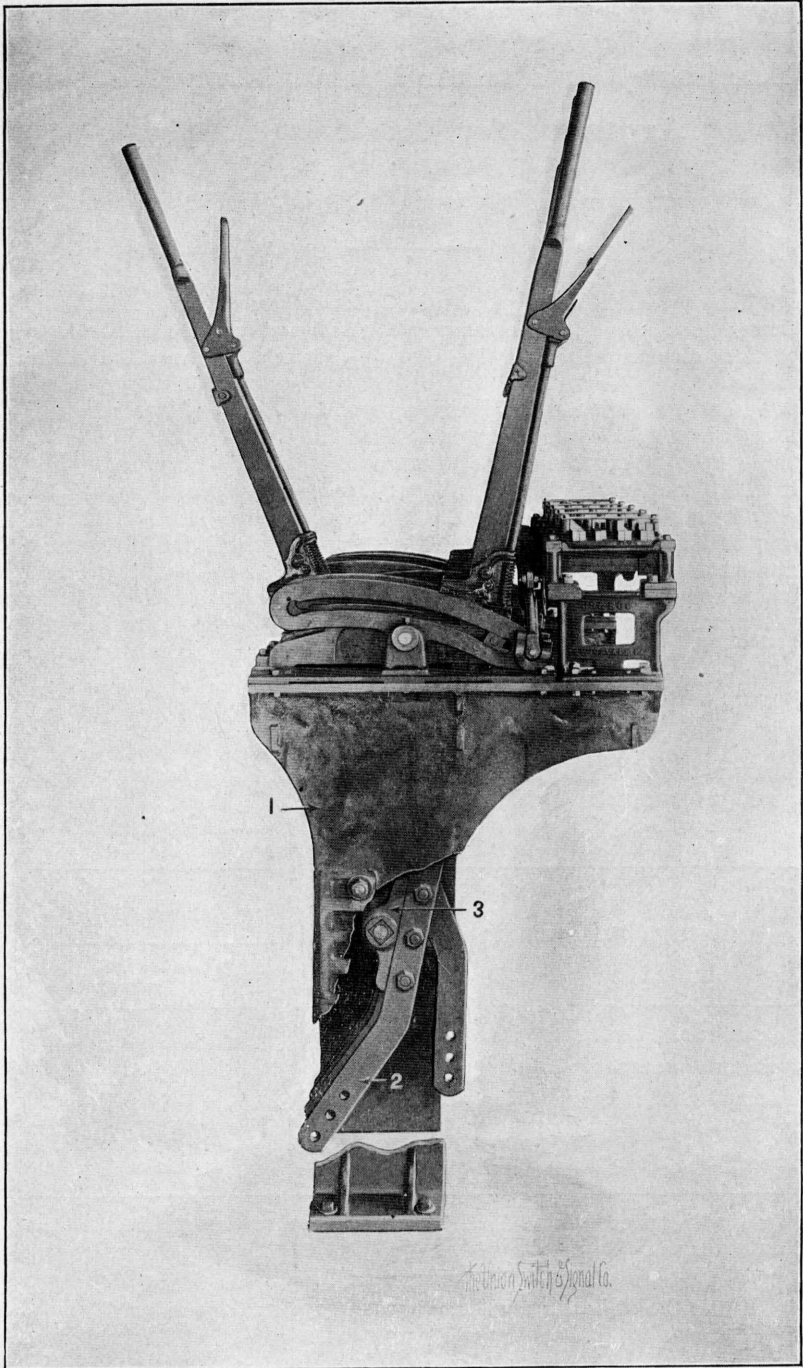
In ordering interlocking machines, a signaled and numbered track plan showing the functions of each lever, the route or routes to be governed by each signal, and the kind of connections (whether pipe or wire) which will be employed by the latter, should accompany the order. If any combinations in the locking are required which would not ordinarily be included, they should be called for in the order, or a locking sheet furnished in addition to the above information. Order should clearly state the number of levers and spare spaces desired, and whether machine is to be arranged for vertical or horizontal leadout.

List prices of Saxby & Farmer Machines, for either vertical or horizontal leadout, Plates 150 and 151, complete with locking, jaws, shackles, pins, bolts and cotters.

CAPACITY OF MACHINE FRAME.	LIST PRICE.	
	PER LEVER.	PER SPARE SPACE.
Four to twelve lever frame	\$48 00	\$19 00
Sixteen to twenty-four lever frame	50 00	19 00
Twenty-eight to forty-eight lever frame	52 00	19 00
Fifty-two to seventy-two lever frame	54 00	21 00
Seventy-six to one-hundred lever frame	56 00	22 00

Special prices furnished on application for machines of over one hundred levers.

For list of details see Plates 151, 152, 153, 154, 155 and 156.



The Saxby & Farmer Interlocking Machine arranged for Horizontal Leadout

The Saxby & Farmer Interlocking Machine Arranged for Horizontal Leadout.

This machine is designed for use in the ground floor of buildings, or on the deck level of drawbridges. It differs only from the machine shown on Plate 150 in the design of the levers, legs, and lever shoes, and consequently with these exceptions all details shown on Plates 152, 153, 154, 155 and 156 are applicable to it.

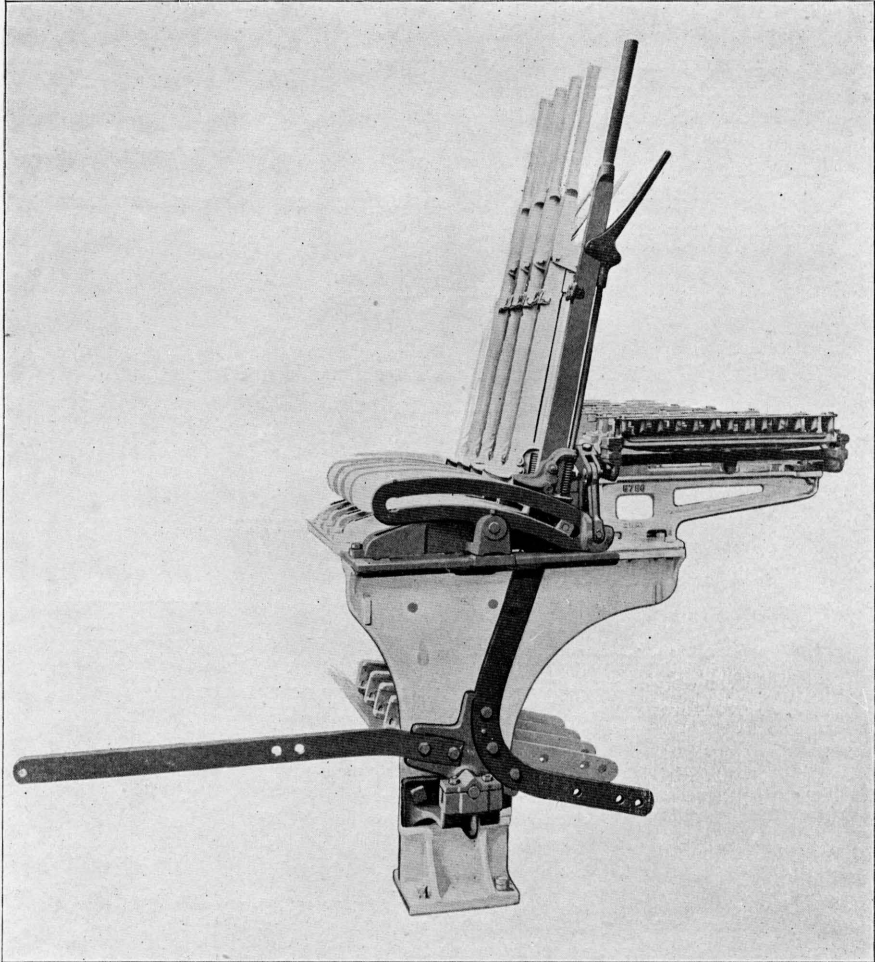
For prices of complete machines and directions for ordering see Plate 150.

Detail Parts Applicable to Machines for Horizontal Leadout Only.

ORDER BY PLATE, NUMBER AND LETTER

No.		List Price.
1	Leg for horizontal leadout machine	\$15 18
2	Lever only for same	6 36
2a	Lever for same with latch complete (1-23, 1-24, 1-26, 1-27, 1-28 Pl. 154) (1-26, 2-23, 1-32, 3-34, 3-36 Pl. 155)	10 50
2b	Lever for same with latch, quadrant, rocking link, lever shoe, pins and bolts(1-3, Pl. 151) (1-23, 1-24, 1-26, 1-27, 1-28, 1-20, 1-21, 1-25 Pl. 154) (1-29, 1-18, 1-10, 1-30, 1-26, 1-27, 2-23, 1-33, 1-35, 1-36, 3-34, 3-36, 3-8, 1-28 Pl. 155)	20 82
3	Lever shoe only for Horizontal leadout machine . . .	1 65
3a	Lever shoe for above with lever bolts (3-7, Pl. 155). . .	1 92

For list of other Details, see Plates 152, 153, 154, 155 and 156.



**End of a Saxby & Farmer Interlocking Machine showing the addition
of one extra lever**

NOTE.—The heavily shaded parts illustrate the extra lever and parts
necessary for its application.

The Saxby & Farmer Interlocking Machine.

Special Fittings for adding an extra lever to the end of an existing machine.

It frequently happens that an extra lever must be added to one or both ends of an existing interlocking machine, and we illustrate on the opposite page parts necessary for making such additions. Two sets of these fittings can also be applied to either side of a single leg and used as a separate two-lever machine.

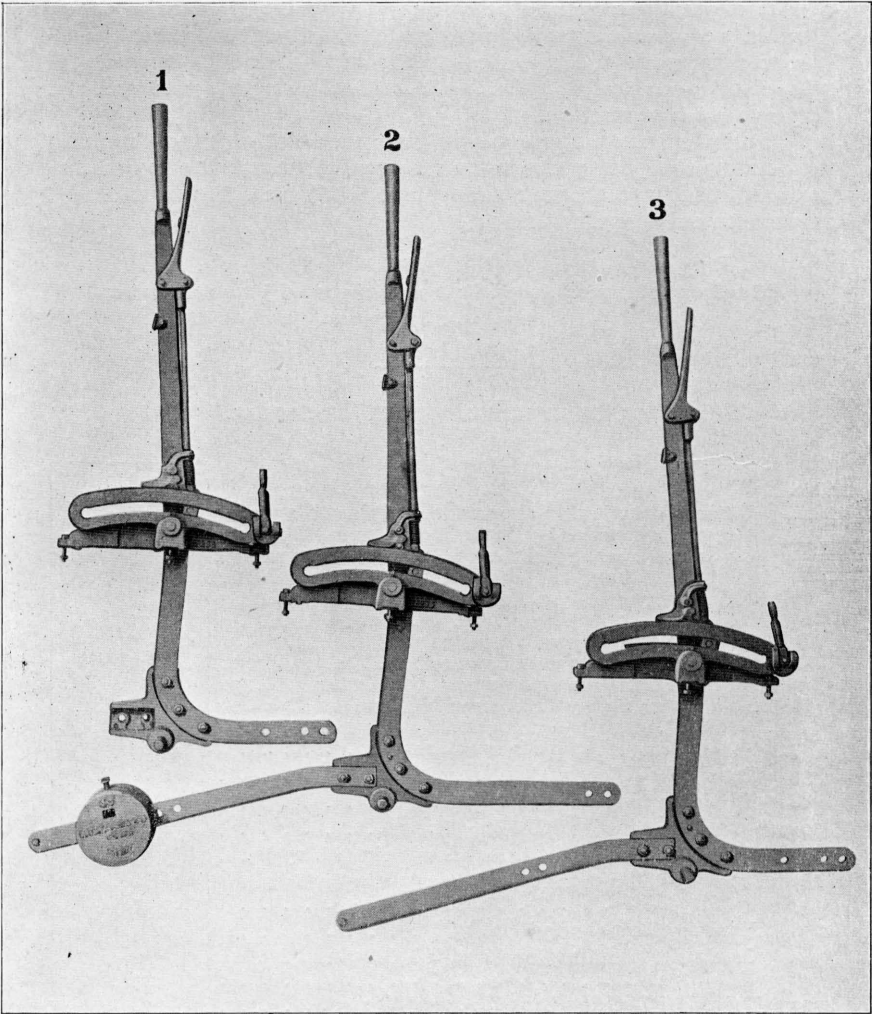
In ordering fittings to apply to an existing machine, the order must specify the numbers or letters of the levers required, the type of lever (see plate 153) and the number of levers in existing machine.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price	
A	Fittings complete as shown for applying to an existing 8 lever machine, including lever, rocking link, quadrant, universal link locking bracket with cap, bottom rail and cap, top plate, shaft, crank driver, shackles, pins, bolts, etc. Lever as per Plate 153. No. 1. No locking	\$41 35	
B	As above complete with lever as per Plate 153, No. 2..	42 95	
C	As above complete with lever as per Plate 153, No. 3..	41 35	
D	As above complete with lever as per Plate 153, No. 3a.	45 75	
E	Two Lever Saxby & Farmer Machine as above described, complete with locking (specify type of levers and locking when ordering)	Spec'l	
3a	Bottom Rail (Pl. 154)	2 46	
8a	Top Plate with Bolts (Pl. 154)	3 87	
10 and 11a	Front Rail with Bolts (Pl. 154)	4 26	
14b	Back Rail with tap bolts and dowel pin (Pl. 154) . .	3 33	
18 and 19a	Locking Bracket and Cap (4-way) with screws (Pl. 154)	2 37	
29	Locking Shaft (4-way) (Pl. 154)	1 74	
31a	Crank for Locking Shaft with bolt, pin and cotter (Pl. 154)	33	
32a	Driver for Locking Bar with bolt (Pl. 154)	36	

For list of other details see Plates 151, 153, 154, 155, 156.



Three Types of Levers furnished with The Saxby & Farmer Interlocking Machine

The Saxby & Farmer Interlocking Machine.

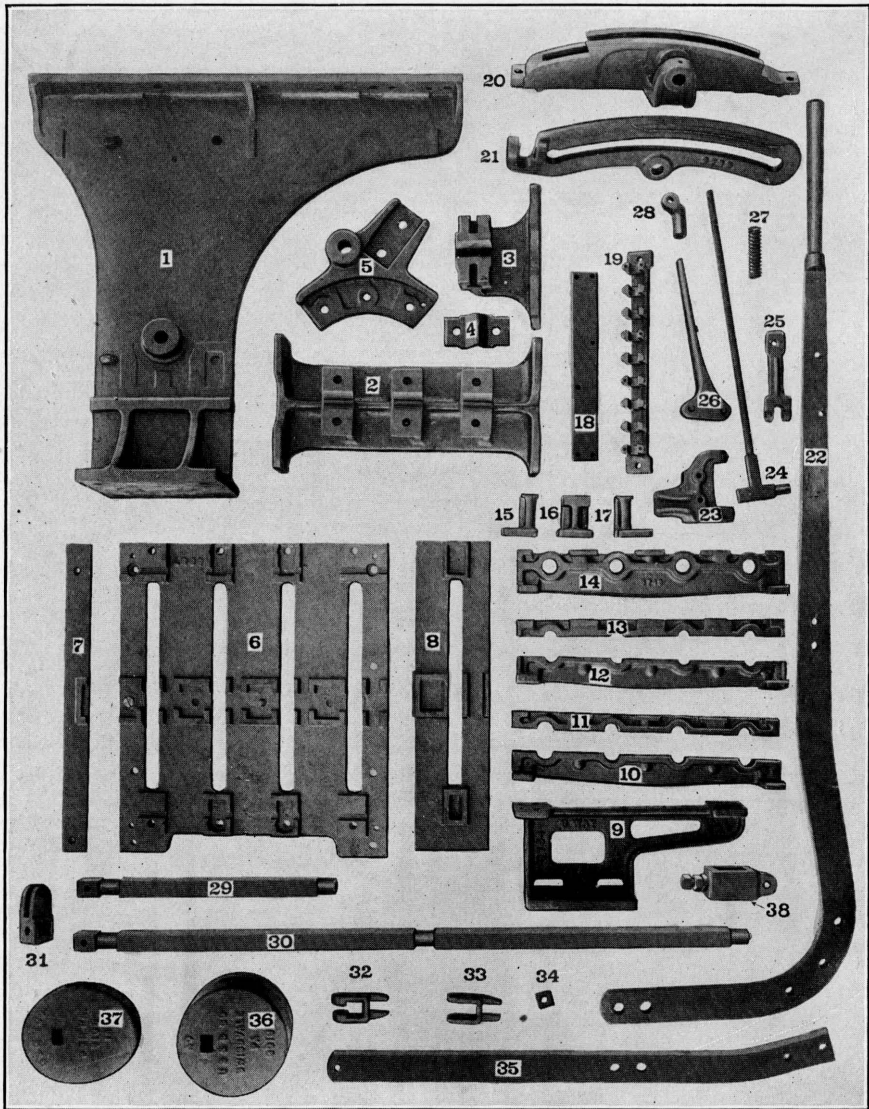
Types of Levers.

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price	
1	Switch Lever complete with jaw as shown	\$ 22 17	
2	Distant Signal Lever with 14lb counterweight, pins and shackles as shown.....	24 21	
3	Home Signal Lever for wire connection (no weight) with pins and shackles as shown.....	22 62	
3a	Home Signal Lever for pipe connection, with 40lb counter weight and jaw	27 03	

NOTE—The above prices and references include levers and all fittings illustrated, but do not include locking or locking supports which must be ordered separately, the order specifying the size of machine and the locking required. All orders for levers should state the designating numbers to be furnished with them.

For details See Plate 154.



Large Detail Parts used in The Saxby & Farmer Interlocking Machine

The Saxby & Farmer Interlocking Machine.

LARGE DETAIL PARTS.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price.
1	Leg only	\$15 18
2	4-way bottom rail only	6 12
2a	4-way bottom rail with cap and bolts (3-4 Pl. 154) (6-11, 4-5 Pl. 155)	7 20
2b	8-way bottom rail only	11 01
2c	8-way bottom rail with cap and bolts (7-4 Pl. 154) (14-11, 4-5 Pl. 155)	12 90
3	1-way bottom rail only for adding one lever to outside of a machine	2 01
3a	1-way bottom rail with cap and bolts (1-4 Pl. 154) (2-11, 2-5 Pl. 155)	2 46
4	Cap for bottom rail only	09
5	Lever shoe only	1 65
5a	Lever shoe with lever bolts (3-7, 1-33 Pl. 155)	1 92
5b	Lever shoe with all bolts (5-7, 1-33 Pl. 155)	2 07
6	4-way top plate only	9 15
6a	4-way top plate with bolts and dowel pins (1-12, 5-13, 1-20, 4-33 Pl. 155)	9 66
6b	8-way top plate only	16 08
6c	8-way top plate with bolts and dowel pins (1-12, 5-13, 1-20, 4-33 Pl. 155)	16 59
7	End strip only. Specify whether right or left hand is desired. A right hand is shown	78
7a	End strip with bolts (2-12 Pl. 155)	90
8	1-way top plate only. Used in connection with No. 3 for adding one lever to outside of machine. Specify whether right or left hand is desired. A right hand is shown	3 69
8a	1-way top plate with bolts (3-13, 1-20 Pl. 155)	3 87
9	4-way bearing only, for front, back or intermediate rails	2 43
9a	6-way bearing	2 76
9b	8-way "	3 15
9c	10-way "	3 45
9d	12-way "	3 78
9e	14-way "	3 84
9f	16-way "	4 50
9g	18-way "	4 62
9h	20-way "	5 19
9i	24-way "	7 02
9j	28-way "	7 71
9k	30-way "	8 49
9l	32-way "	8 91
9m	36-way "	9 81
9n	40-way "	11 31
	If bolts and dowels are desired, add to each above 4-10, 2-33 Pl. 155	27
10	4-way front rail only	2 37
10a	8-way front rail only	4 56
11	4-way front rail cap only	1 59

The Saxby & Farmer Interlocking Machine.

Large Detail Parts.

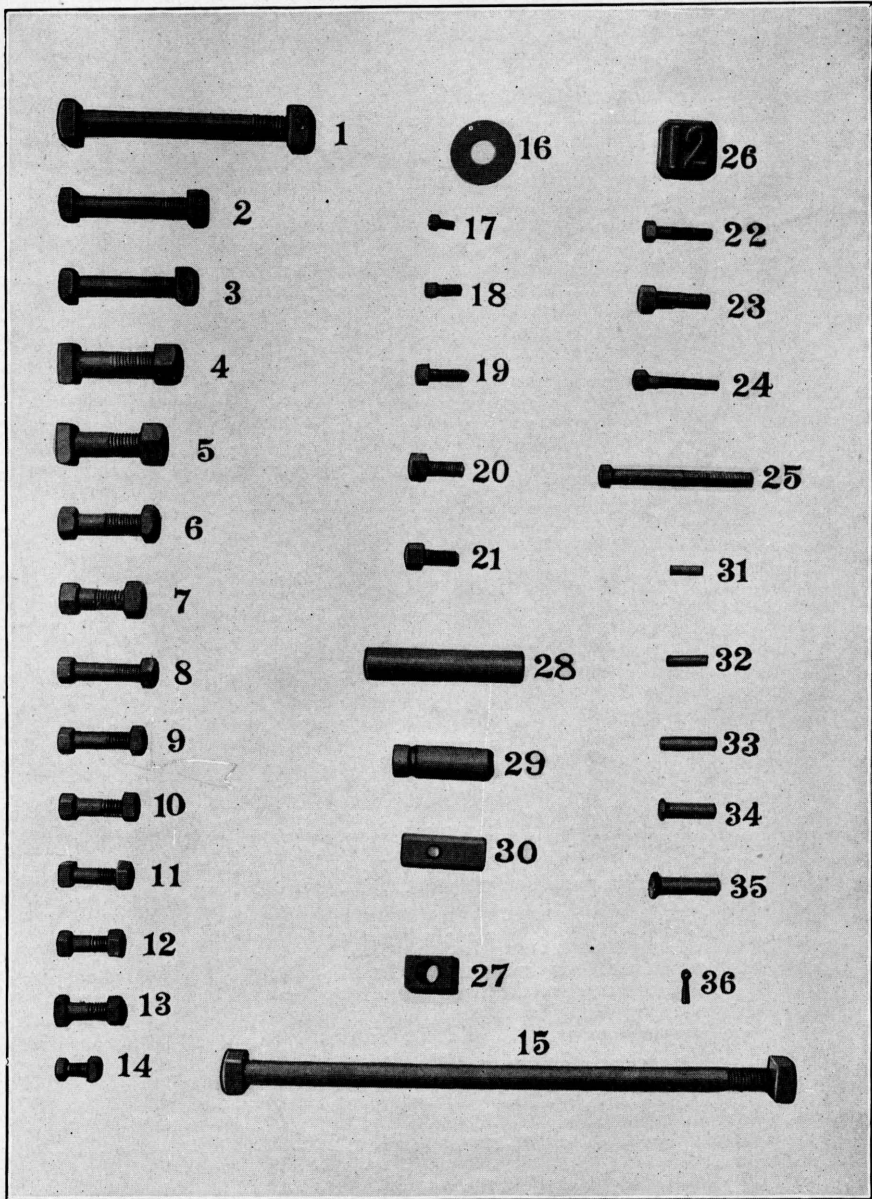
Continued.

No.		List Price.
11a	8-way front rail cap only.	\$ 3 39
10-11a	4-way front rail with cap, tap bolts, and cap screws (2-21, 2-31 Pl. 155)	4 26
10-11b	8-way front rail with cap, tap bolts, and cap screws (2-21, 2-31 Pl. 155)	8 73
12	4-way intermediate rail only. This part is not used until the number of spaces in the locking bracket exceeds twenty.	2 85
12a	8-way intermediate rail only	5 25
13	4-way cap for intermediate rail only	2 01
13a	8-way cap for intermediate rail only.	3 81
12-13a	4-way intermediate rail and cap with tap bolts, cap screws (2-21, 2-31, 3-22 Pl. 155)	5 28
12-13b	8-way intermediate rail and cap with tap bolts, cap screws (2-21, 5-22, 2-31 Pl. 155)	5 79
14	4-way back rail only.	3 15
14a	8-way back rail only	5 40
14b	4-way back rail with tap bolts (2-21, 2-31 Pl. 155)	3 33
14c	8-way back rail with tap bolts (2-21, 2-31 Pl. 155)	5 61
15	Left hand end block only	39
16	Intermediate end block only	45
17	Right hand end block only.	39
	Add to each end block one cap screw if desired. (1-21 Pl. 155)	09
18	4-way cap for locking bracket only	33
18a	6-way " " " " " "	36
18b	8-way " " " " " "	39
18c	10-way " " " " " "	45
18d	12-way " " " " " "	48
18e	14-way " " " " " "	51
18f	15-way " " " " " "	54
18g	16-way " " " " " "	57
18h	18-way " " " " " "	60
18i	20-way " " " " " "	63
19	4-way locking bracket only, for 8 bars	1 71
19a	6-way " " " " " 12 "	1 98
19b	8-way " " " " " 16 "	2 22
19c	10-way " " " " " 20 "	2 49
19d	12-way " " " " " 24 "	2 55
19e	14-way " " " " " 28 "	2 85
19f	15-way " " " " " 30 "	2 94
19g	16-way " " " " " 32 "	3 06
19h	18-way " " " " " 36 "	3 36
19i	20-way " " " " " 40 "	3 63
18-19a	4-way locking bracket, with cap and cap screws (4-17, 1-19, 1-24 Pl. 155)	2 37
18-19b	6-way locking bracket, with cap and cap screws (6-17, 1-19, 1-24 Pl. 155)	2 79
18-19c	8-way locking bracket, with cap and cap screws (6-17, 1-19, 1-24 Pl. 155)	3 03
18-19d	10-way locking bracket, with cap and cap screws (6-17, 1-19, 1-24 Pl. 155)	3 36
18-19e	12-way locking bracket, with cap and cap screws (6-17, 1-19, 1-24 Pl. 155)	3 45
18-19f	14-way locking bracket, with cap and cap screws (6-17, 1-19, 1-24 Pl. 155)	3 75
18-19g	15-way locking bracket, with cap and cap screws (6-17, 1-19, 1-24 Pl. 155)	3 87
18-19h	16-way locking bracket, with cap and cap screws (6-17, 1-19, 1-24 Pl. 155)	4 02
18-19i	18-way locking bracket, with cap and cap screws (8-17, 1-19, 1-24 Pl. 155)	4 44
18-19j	20-way locking bracket, with cap and cap screws (8-17, 1-19, 1-24 Pl. 155)	5 01

The Saxby & Farmer Interlocking Machine.

Large Detail Parts.

		Continued.	List Price.
No.			
20	Quadrant only.		\$ 3 72
20a	Quadrant with pin and bolts (1-29, 1-18, 2-8, 1-10 Pl. 155).		4 02
21	Rocking link only.		3 39
21a	Rocking link with pin (1-30 Pl. 155).		3 51
21b	Rocking link with pin and universal link, and link block (1-25 Pl. 154), (1-30, 1-27, 1-35, 1-36, Pl. 1-55)		4 08
22	Lever only. In ordering specify use to which it is to be put, so proper length of tail lever may be sent. This applies to Nos. 22, 22a and 22b		6 36
22a	Lever with latch complete (1-23, 1-24, 1-26, 1-27, 1-28 Pl. 154). (1-26, 2-23, 1-33, 3-34, 3-36 Pl. 155)		10 50
22b	Lever with latch, quadrant, rocking link, shoe, pins and bolts (1-23, 1-24, 1-26, 1-27, 1-28, 1-20, 1-21, 1-5, 1-25 Pl. 154) (1-29, 1-18, 2-8, 1-10, 1-30, 1-26, 1-27, 2-23, 1-33, 1-35, 1-36, 3-34, 3-36, 3-7, 1-28 Pl. 155)		20 82
23	Latch shoe only.		75
23a	Latch shoe with tap bolts (2-23, 1-33 Pl. 155)		84
24	Latch rod only		1 44
25	Universal link only		18
25a	Universal link with pin (1-35, 1-36 Pl. 155)		27
26	Latch handle only		84
26a	Latch handle with pins (2-34, 2-36 Pl. 155)		99
27	Latch spring only.		27
28	Latch rod thimble only.		24
29	4-way locking shaft only		1 74
29a	6-way " " "		1 92
29b	8-way " " "		2 10
29c	10-way " " "		2 28
29d	12-way " " "		2 46
29e	14-way " " "		2 61
29f	16-way " " "		2 82
29g	18-way " " "		2 97
29h	20-way " " "		3 21
30	24-way " " "		3 96
30a	28-way " " "		4 68
30b	30-way " " "		4 83
30c	32-way " " "		5 01
30d	36-way " " "		5 37
30e	40-way " " "		5 76
30f	60-way " " "		7 92
31	Crank for locking shaft only		18
31a	Special driver for locking shaft with bolt and pin (1-34, 1-36, 1-9 Pl. 155).		33
32	Standard driver for locking bar only		30
32a	Standard driver for locking bar with bolt (1-6 Pl. 155)		36
33	Special driver for locking bar only. To be used when a new driver is to be applied to a machine already in service.		30
33a	Special driver for locking bar with block and bolt (1-34 Pl. 154), (1-6 Pl. 155).		51
34	Filling block for No. 33 only.		12
35	Short tail lever only		93
35a	Short tail lever with bolts (2-7, 1-14 Pl. 155).		1 14
35b	Long tail lever only		1 29
35c	Long tail lever with bolts (2-7, 1-14 Pl. 155).		1 50
36	40 lb. weight for tail levers only		3 24
36a	40 lb. weight for tail levers with bolt (1-3 Pl. 155)		3 36
36b	56 lb. weight for tail lever only		4 53
36c	56 lb. weight for tail lever with bolt (1-3 Pl. 155)		4 65
37	14 lb. weight for tail lever only		1 32
37a	14 lb. weight for tail lever with bolt (1-2 Pl. 155).		1 41
38	Adjustable connector for tail lever		57



Bolts, Nuts, Pins and Small Detail Parts used in The Saxby & Farmer Interlocking Machine

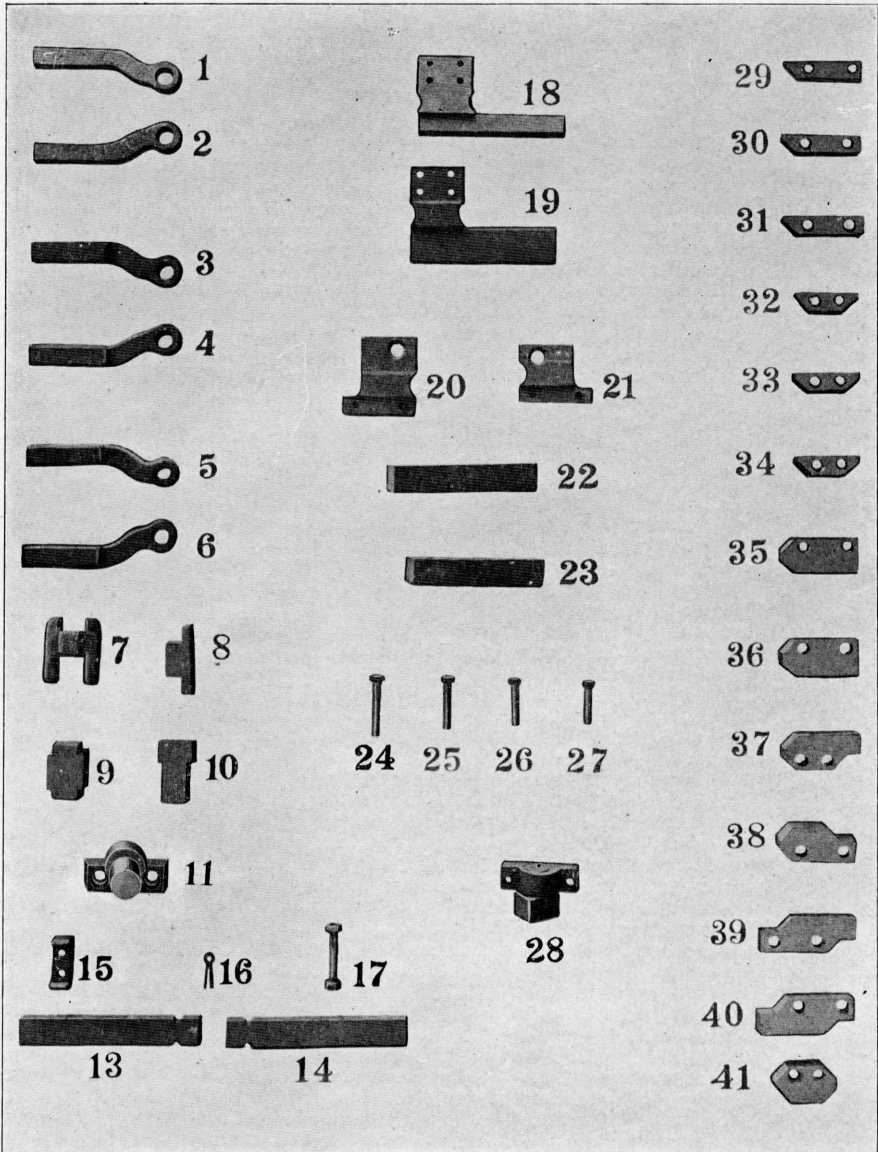
The Saxby & Farmer Interlocking Machine.

Bolts, Nuts, Pins, Etc.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price.
1	Bolt and nut, $\frac{3}{4}$ x 7", for fastening leg to bottom timber.....	\$ 18
2	Bolt and nut, $\frac{5}{8}$ x 4", for 14 lb. weight.....	11
3	Bolt and nut, $\frac{5}{8}$ x 3 $\frac{1}{2}$ ", for 40 lb. weight.....	09
4	Bolt and nut, $\frac{3}{4}$ x 2 $\frac{3}{4}$ ", for fastening bottom rail to intermediate leg.....	12
5	Bolt and nut, $\frac{3}{4}$ x 2 $\frac{1}{4}$ ", for fastening bottom rail to end leg.....	12
6	Bolt and nut, $\frac{5}{8}$ x 2 $\frac{1}{2}$ ", for clamping driver to locking shaft.....	09
7	Bolt and nut, $\frac{5}{8}$ x 2", for fastening lever and tail lever to lever shoe.....	09
8	Bolt and nut, $\frac{1}{2}$ x 2 $\frac{1}{2}$ ", for fastening quadrant, middle and front.....	06
9	Bolt and nut, $\frac{1}{2}$ x 2 $\frac{1}{4}$ ", for fastening crank to locking shaft.....	06
10	Bolt and nut, $\frac{1}{2}$ x 1 $\frac{7}{8}$ " for fastening bearing of locking to leg and end of quadrant to top plate.....	06
11	Bolt and nut, $\frac{1}{2}$ x 1 $\frac{3}{4}$ ", for fastening cap to bottom rail.....	06
12	Bolt and nut, $\frac{1}{2}$ x 1 $\frac{5}{8}$ ", full head, for fastening top plate and end strip to leg.....	06
13	Bolt and nut, $\frac{1}{2}$ x 1 $\frac{5}{8}$ ", T head, for fastening top plate and end strip to leg.....	06
14	Bolt and nut, $\frac{3}{8}$ x 1", hex. head and nut, check bolt for end of tail lever.....	04
15	Bolt and nut, $\frac{3}{4}$ x 17", for fastening leg to upright timber.....	30
16	Washer, $\frac{3}{4}$ ", for No. 1.....	02
17	Cap screw, $\frac{1}{4}$ x $\frac{1}{2}$ ", for fastening cap to locking bracket.....	05
18	Set screw, $\frac{3}{8}$ x $\frac{3}{4}$ ", for fastening link pin.....	06
19	Cap Screw, $\frac{3}{8}$ x 1 $\frac{1}{4}$ ", for fastening locking bracket to back rail.....	06
20	Tap bolt, $\frac{1}{2}$ x 1 $\frac{1}{8}$ ", for fastening top plate to leg....	09
21	Cap screw, $\frac{1}{2}$ x 1 $\frac{1}{4}$ ", for fastening back rails and end blocks to bearings.....	09
22	Machine screw, $\frac{3}{8}$ x 1 $\frac{3}{4}$ ", fastening cap to middle rail.....	07
23	Tap bolt, $\frac{1}{2}$ x 1 $\frac{3}{4}$ ", for fastening latch shoe to lever.....	03
24	Cap screw, $\frac{3}{8}$ x 2 $\frac{1}{4}$ ", for fastening locking bracket to front rail.....	09
25	Cap screw, $\frac{3}{8}$ x 4 $\frac{3}{8}$ ", for fastening locking bracket through end block to bearing.....	15
26	Lever number only.....	09
26a	Lever number with pin and cotter (I-34 and I-36)....	18
27	Die for rocking link.....	30
28	Lever shoe pin, 1 x 4 $\frac{7}{8}$ ".....	12
29	Rocking link pin, 1 x 3".....	09
30	Swivel pin, flat, 1 x 2 $\frac{5}{8}$ ".....	14
31	Dowel pin, $\frac{1}{4}$ x 1", through locking rails to bearing; through $\frac{3}{8}$ x $\frac{1}{2}$ " dogs to locking bars.....	02
32	Dowel pin, $\frac{1}{4}$ x 1 $\frac{1}{4}$ ", through $\frac{3}{4}$ " dog to locking bar ..	02
33	Dowel pin, $\frac{3}{8}$ x 2 $\frac{1}{2}$ ", through bearing and leg; through top plate and leg; through lever shoe and lever; through latch shoe and lever.....	03
34	Turned pin, $\frac{1}{2}$ x 1 $\frac{1}{16}$ ", for fastening latch handle and number plate to lever, and universal link to locking crank.....	08
35	Turned pin, $\frac{1}{2}$ x 2", for fastening swivel pin to universal link.....	08
36	Split cotter, $\frac{1}{8}$ x $\frac{3}{4}$ ", for Nos. 34 and 35.....	01



Locking Details used in The Saxby & Farmer Interlocking Machine

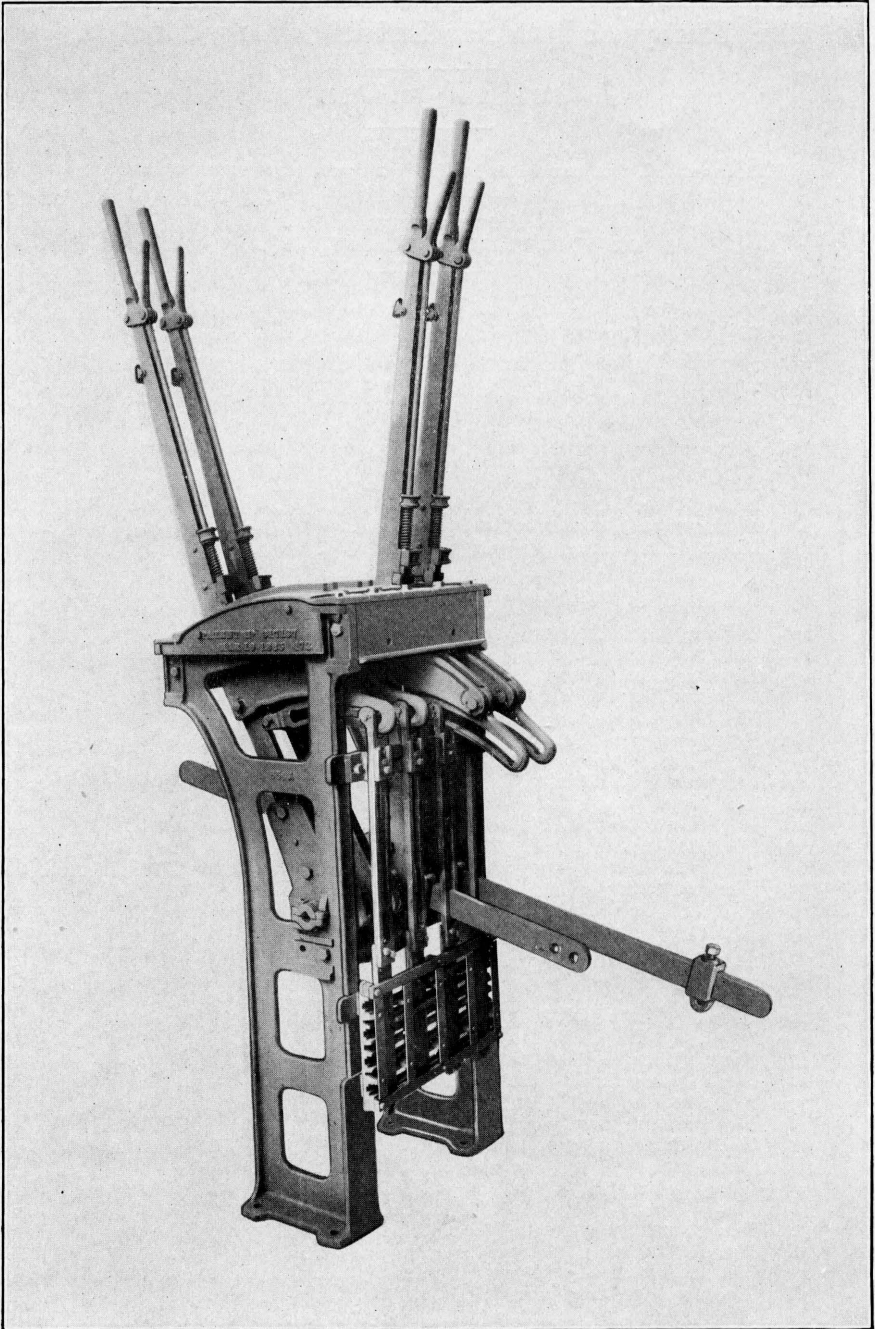
The Saxby & Farmer Interlocking Machine.

Locking Details.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price.
1	Right hand tappet, $\frac{3}{8}$ " thick	\$ 06
2	Left hand tappet, $\frac{3}{8}$ " thick	06
3	Right hand tappet, $\frac{1}{2}$ " thick	06
4	Left hand tappet, $\frac{1}{2}$ " thick	06
5	Right hand tappet, $\frac{3}{4}$ " thick	05
6	Left hand tappet, $\frac{3}{4}$ " thick	05
7	Filling piece for locking bar	04
8	Filling piece for cross locks	04
9	Filling piece for cross locks	04
10	Filling piece for cross locks	04
11	Right or left hand trunnion	42
13	} Two pieces of locking bar notched for splicing . . . }	
14		
15	Splice plate for locking bar	45
16	Cotter for No. 17	01
17	Hex head cap screw, $\frac{1}{4}$ x $1\frac{1}{16}$ ", with hex nut, used in making splice in locking bar	12
18	Right hand special reach dog, $\frac{1}{2}$ " wide	3 21
18a	Left hand special reach dog, $\frac{1}{2}$ " wide	3 21
19	Right hand special reach dog, 1" wide	3 30
29a	Left hand special reach dog, 1" wide	3 30
20	Left hand special reach trunnion	1 14
21	Right hand special reach trunnion	1 14
22	Piece of locking bar, $\frac{1}{2}$ x $\frac{3}{4}$ " in section. (Give length in ordering.) Per foot	18
23	Piece of $\frac{3}{4}$ x $\frac{3}{4}$ " steel, used for cross locks. (Give length in ordering.) Per foot	27
24	Rivet, $\frac{1}{4}$ " x $1\frac{19}{32}$ " for $\frac{3}{4}$ " locking dogs, Nos. 31, 34, 36, 37, 38, 39, 41	01
25	Rivet, $\frac{1}{4}$ x $1\frac{11}{32}$ " for $\frac{1}{2}$ " locking dogs, Nos. 30, 33, 35, 40	01
26	Rivet, $\frac{1}{4}$ x $1\frac{7}{32}$ " for $\frac{3}{8}$ " locking dogs, Nos. 29, 32	01
27	Rivet, $\frac{1}{4}$ x $1\frac{1}{16}$ " for trunnions	01
28	Driving piece and block	60
29	No. 1 locking dog, $\frac{3}{8}$ x $\frac{1}{2}$ "	09
30	No. 2 locking dog, $\frac{1}{2}$ x $\frac{1}{2}$ "	09
31	No. 3 locking dog, $\frac{3}{4}$ x $\frac{1}{2}$ "	09
32	No. 4 locking dog, $\frac{3}{8}$ x $\frac{1}{2}$ "	11
33	No. 5 locking dog, $\frac{1}{2}$ x $\frac{1}{2}$ "	09
34	No. 6 locking dog, $\frac{3}{4}$ x $\frac{1}{2}$ "	11
35	No. 7 locking dog, $\frac{1}{2}$ x 1"	12
36	No. 8 locking dog, $\frac{3}{4}$ x 1"	15
37	No. 10 locking dog, $\frac{3}{4}$ x 1"	21
38	No. 9 locking dog, $\frac{3}{4}$ x 1"	21
39	No. 13 locking dog, $\frac{1}{2}$ x 1"	21
40	No. 14 locking dog, $\frac{3}{4}$ x 1"	21
41	No. 15 locking dog, $\frac{3}{4}$ x 1"	14



The Johnson Interlocking Machine

The Johnson Interlocking Machine.

While we believe the Saxby & Farmer Interlocking Machine, fitted with horizontal locking, to be the best type in existence (an opinion shared by most of the Signal Engineers in America), yet there are a number of our patrons who prefer the vertical type of locking, and, to such, we have no hesitation in recommending the Johnson interlocking machine shown on the opposite plate.

In places where interlocking towers have perforce to be located in a narrow space, the vertical type of locking which requires less space is preferable to the horizontal type.

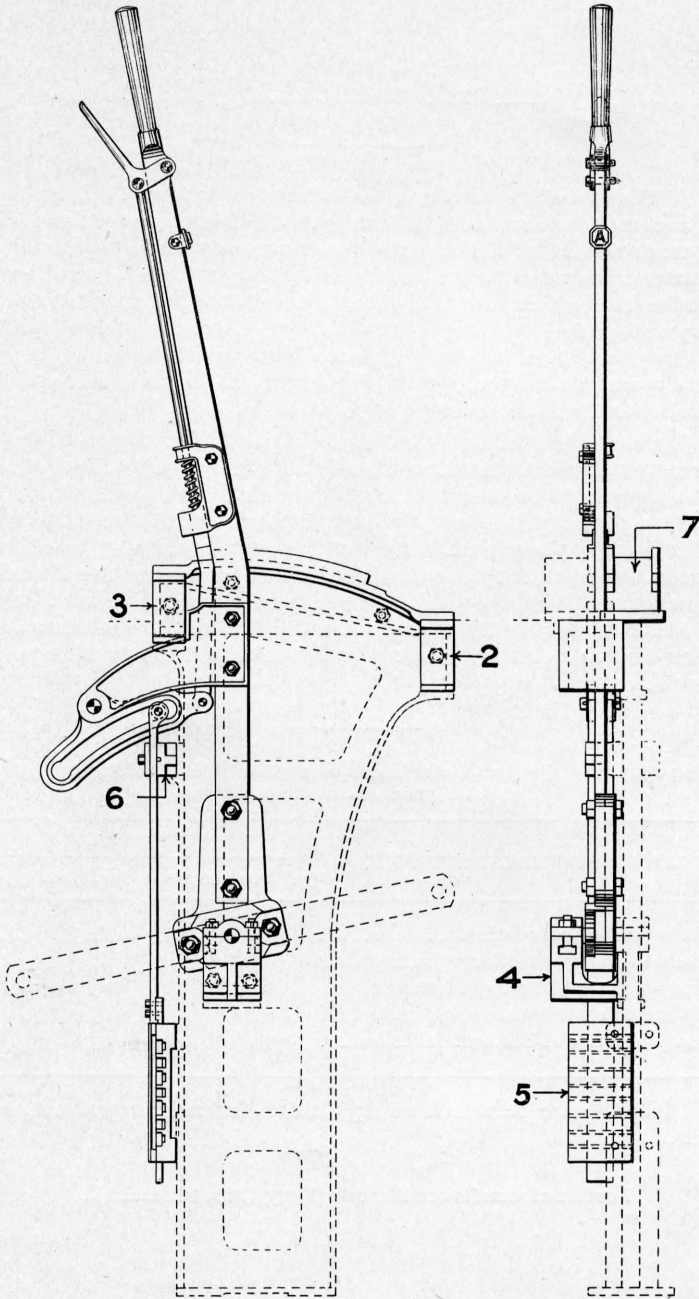
In ordering interlocking machines a signaled and numbered track plan showing the functions of each lever, the route or routes to be governed by each signal, and the kind of connections (whether pipe or wire) which will be employed by the latter, should accompany the order. If any combinations in the locking are required which would not ordinarily be included, they should be called for in the order, or a locking sheet furnished in addition to the above information. Order should clearly state the number of lever and spare spaces desired.

List price of Johnson machines, complete with locking, jaws, shackles, pins, bolts and cotters.

CAPACITY OF MACHINE FRAME.	LIST PRICE.	
	Per Lever.	Per Spare Space.
Four to twelve lever frame.	\$57 66	\$18 39
Sixteen to twenty-four lever frame.	61 95	18 72
Twenty-eight to forty-eight lever frame.	66 27	19 08
Fifty-two to seventy-two lever frame.	70 56	19 44
Seventy-two to one-hundred lever frame.	74 88	19 80

Special price furnished on application for machines of over one-hundred levers.

For list of details see Plates 158, 159, 160, 161 and 162.



End of a Johnson Interlocking Machine showing the addition of one extra lever and special fittings for its application

NOTE.—The solid lines show the lever and parts necessary for its application.

The Johnson Interlocking Machine.

Special Fittings for adding an extra lever to the end of an existing machine.

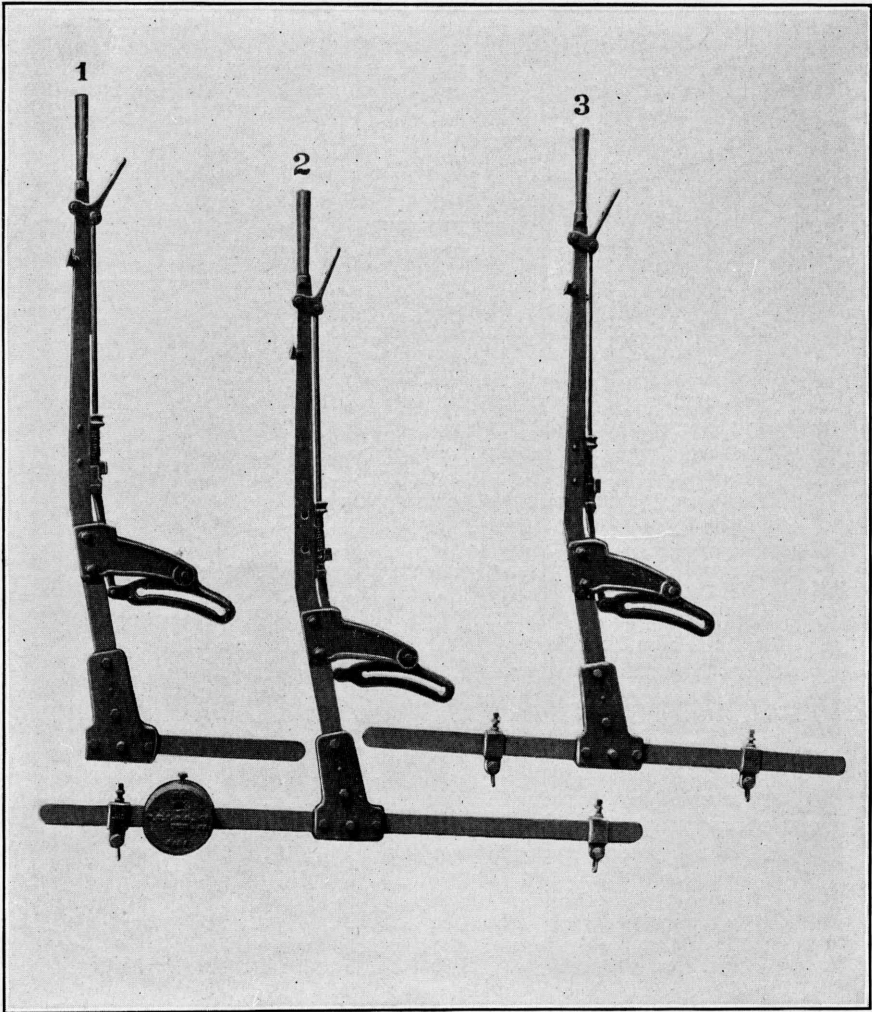
It frequently happens that an extra lever must be added to one or both ends of an existing interlocking machine, and we illustrate on the opposite page the parts necessary for making such additions. Two sets of these fittings can also be applied to either side of a single leg and used as a separate two lever machine.

In ordering fittings to apply to an existing machine the order must specify the numbers or letters of the levers required, the type of lever (see plate 159) and the number of spaces in the locking plate.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price.
A	Special fittings complete as shown, including lever tappet and locking plate for machines having 4 space locking plates. Lever as per Plate 159, No. 1 . . .	\$ 52 90
B	As above, complete with lever, as per Plate 159, No. 2 . . .	59 65
C	As above, complete with lever, as per Plate 159, No. 3 . . .	55 05
	For each 2 spaces in machine locking plates add to any of the above	1 02
D	Two-lever Johnson machine as above described, complete with locking (specify type of levers and locking when ordering)	Spec'l
	Intermediate Segment complete with bolts (1-11, 2-28 Plate 160)	4 66
2	Front Girder End Bracket only	2 13
2a	Front Girder End Bracket with bolt (1-29, Plate 160)	2 19
3	Back Girder End Bracket only	2 31
3a	Back Girder End Bracket with bolt (1-29, Plate 160)	2 37
4	Lever Center End Bracket only	2 31
4a	Lever Center End Bracket with cap and bolts (1-21, 2-23, 2-29, Plate 160)	2 64
5	1 Lever 4 Space Locking Plate only	5 01
5a	1 Lever 6 Space Locking Plate only	5 31
5b	1 Lever 8 Space Locking Plate only	6 90
5c	1 Lever 10 Space Locking Plate only	7 14
5d	1 Lever 4 Space Locking Plate complete with caps, screws, tie bars and bolts	5 25
5e	1 Lever 6 Space Locking Plate complete with caps, screws, tie bars and bolts	5 58
5f	1 Lever 8 Space Locking Plate complete with caps, screws, tie bars and bolts	7 20
5g	1 Lever 10 Space Locking Plate complete with caps, screws, tie bars and bolts	7 47
6	1 Lever Tappet Girder only	1 74
6a	1 Lever Tappet Girder only with cap, cap screws and bolts (1-24, 1-22, 1-7, Plate 160)	2 16
7	Intermediate Segment, see 11, Plate 160	



Three Types of Levers furnished with The Johnson Interlocking Machine

The Johnson Interlocking Machine.

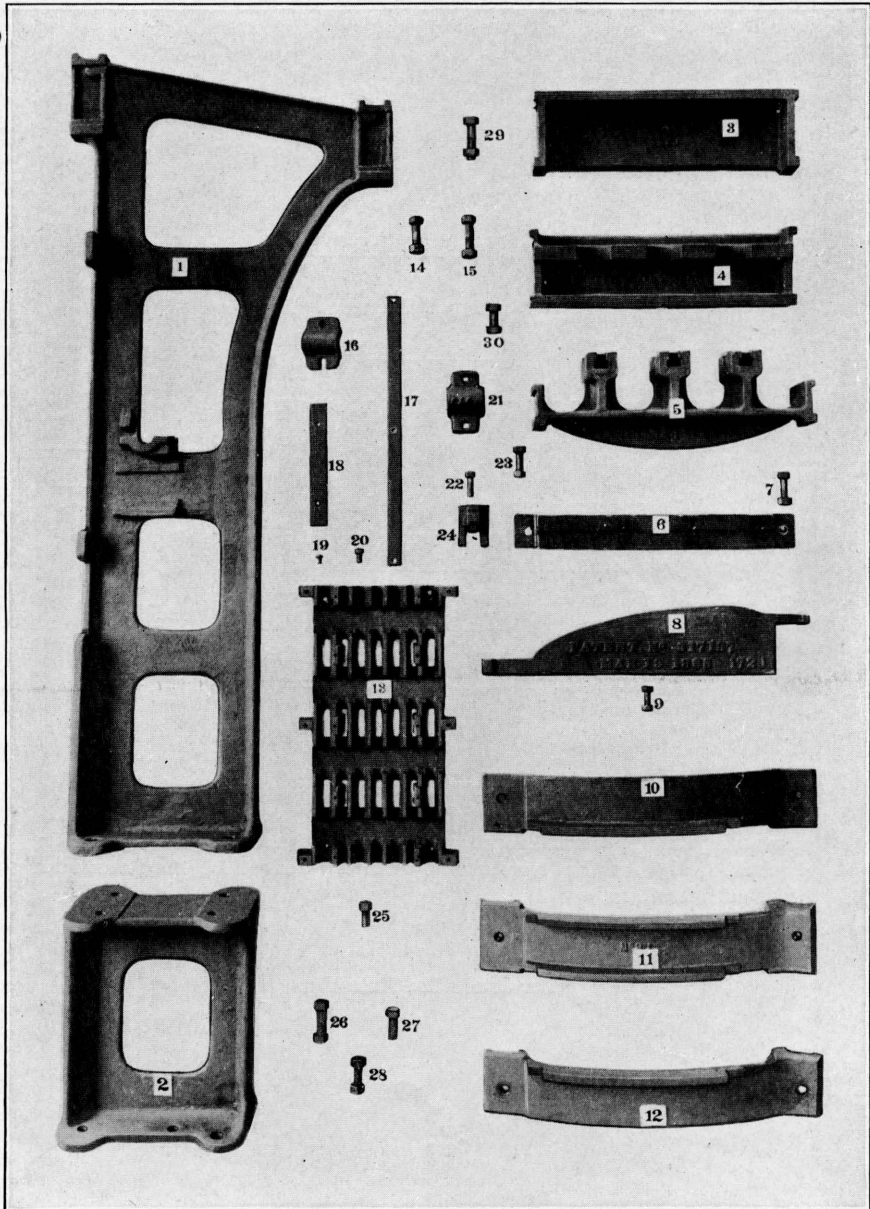
Types of Levers.

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
1	Switch Lever complete as shown with jaw.....	\$30 75
2	Distant Signal Lever with 56lb counterweight complete as shown	37 50
3	Home Signal Lever for wire connection, complete as shown (no weight).....	32 90
3a	Home Signal Lever for pipe connection with 56lb weight.....	37 40

NOTE—The above prices and references include levers and all fittings illustrated, but do not include locking or locking supports which must be ordered separately, the order specifying the size of machine and the locking required. All orders for levers should state the designating numbers to be furnished with them.

For details See Plate 161.



Large Detail Parts used in The Johnson Interlocking Machine

The Johnson Interlocking Machine.

Large Detail Parts.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
1	Leg	\$28 26
2	Leg extension	5 82
3	4-lever front girder	4 20
3a	8-lever front girder	6 63
4	4-lever back girder	4 92
4a	8-lever back girder	8 10
5	4-way bottom girder	6 09
5a	4-way bottom girder with caps and bolts (3-21, 6-23)	7 05
5b	8-way bottom girder	10 62
5c	8-way bottom girder with caps and bolts (7-21, 14-23)	12 57
6	4-way tappet girder	3 33
6a	4-way tappet girder with caps, screws and bolts, (4-24, 4-22, 2-7)	4 95
6b	8-way tappet girder	5 07
6c	8-way tappet girder with caps, screws and bolts, (8-24, 8-22, 2-7)	8 25
7	Bolt $\frac{1}{2}$ " x $1\frac{3}{4}$ " hex head and nut for fastening No. 6 to No. 1	03
8	Segment end plate (in ordering state whether right or left hand is desired)	66
9	Bolt $\frac{3}{8}$ " x $1\frac{3}{8}$ " hex head and nut for fastening No. 8 to Nos. 10 or 12	02
10	Left hand segment	4 32
11	Intermediate segment	4 56
12	Right hand segment	4 32
13	4-lever, 4-way locking plate	9 87
13a	4-lever, 4-way locking plate with tie bars, caps and screws, (2-17, 5-18, 10-19, 6-20)	11 25
13b	4-lever 6 way locking plate	11 76
13c	4-lever, 6 way locking plate with tie bars, caps and screws (2-17, 5-18, 15-19, 6-20)	13 20
13d	4-lever, 8 way locking plate	13 26

The Johnson Interlocking Machine.

Large Detail Parts.

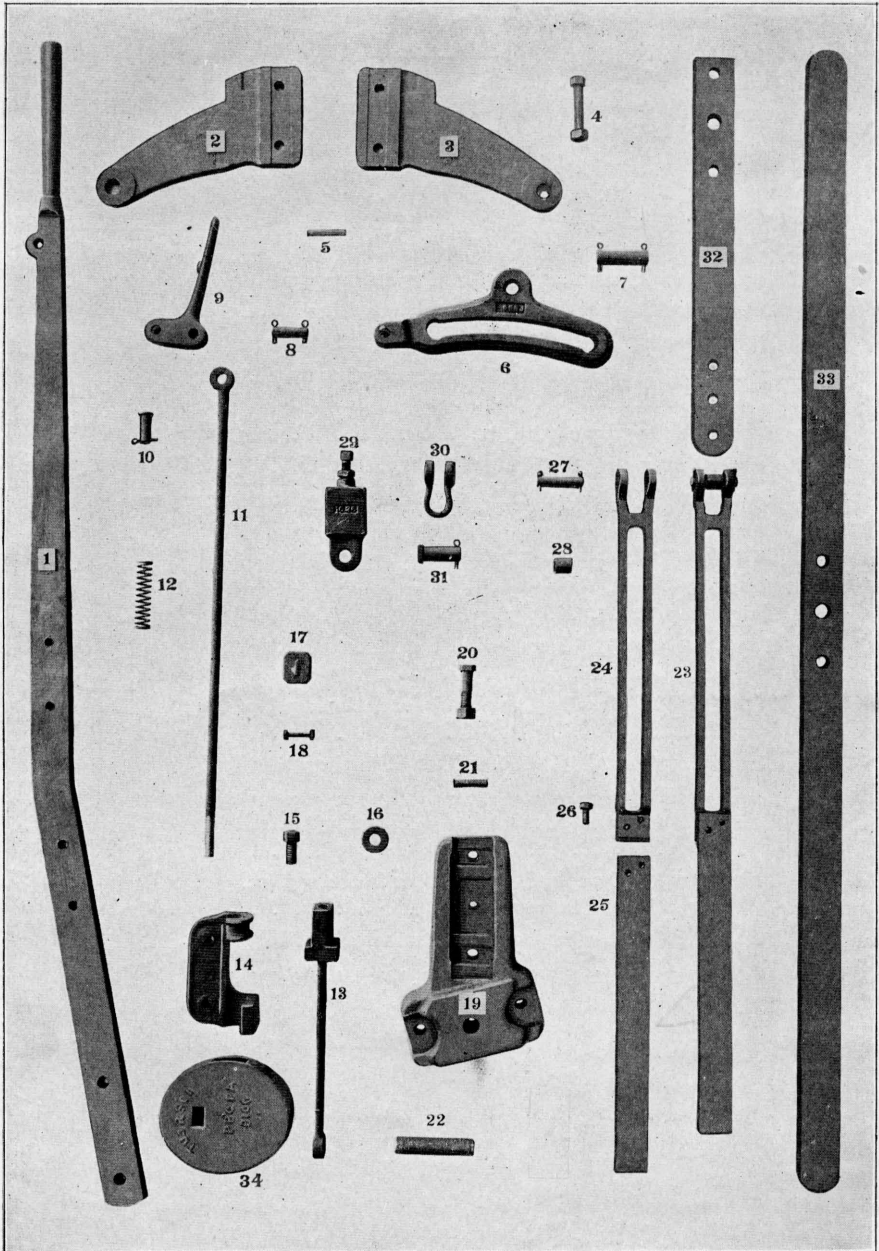
Continued.

No.	List Price
13e 4-lever, 8-way locking plate with tie bars, caps and screws (2-17, 5-18, 15-19, 6-20)	\$ 14 79
13f 4-lever, 10-way locking plate	16 80
13g 4-lever, 10-way locking plate with tie bars, caps and screws (2-17, 5-18, 20-19, 6-20)	18 48
13h 8-lever, 4-way locking plate	12 39
13i 8-lever, 4-way locking plate with tie bars, caps and screws (2-17, 9-18, 18-19, 10-20)	15 03
13j 8-lever, 6-way locking plate	16 62
13k 8-lever, 6-way locking plate with tie bars, caps and screws (2-17, 9-18, 27-19, 10-20)	19 53
13l 8-lever, 8-way locking plate	19 56
13m 8-lever, 8-way locking plate with tie bars, caps and screws (2-17, 9-18, 27-19, 10-20)	22 62
13n 8-lever, 10-way locking plate	24 72
13o 8-lever, 10-way locking plate with tie bars, caps and screws (2-17, 9-18, 36-19, 10-20)	28 02
14 Bolt $\frac{5}{8}$ "x $2\frac{1}{4}$ " hex head and nut for fastening No. 3 and No. 4 to No. 1 (End)	05
15 Bolt $\frac{5}{8}$ "x $2\frac{3}{4}$ " hex head and nut for fastening No. 5 to No. 1 (Intermediate)	06
16 End bearing cap for lever shoe pin (to be bolted to No. 1)	15
16a End bearing cap for lever shoe pin with 1-23	18
17 Tie bar for 4-lever frame	45
17a Tie bar for 4-lever frame with 3-20	48
17b Tie bar for 8-lever frame	96
17c Tie bar for 8-lever frame with 5-20	99
18 Cap for locking bar for 4-lever 4-way locking plate . .	06
18a Cap for locking bar for 4-lever 6-way locking plate . .	06
18b Cap for locking bar for 4-lever 8-way locking plate . .	09
18c Cap for locking bar for 4-lever 10-way locking plate. .	09
18d Cap for locking bar for 8-lever 4-way locking plate . .	06

The Johnson Interlocking Machine.

Large Detail Parts. Continued.

No.	List Price
18e Cap for locking bar for 8-lever 6-way locking plate . .	\$ 06
18f Cap for locking bar for 8-lever 8-way locking plate . .	09
18g Cap for locking bar for 8-lever 10-way locking plate. .	09
19 Machine screw $\frac{1}{4}$ "x $\frac{1}{2}$ " for fastening No. 18 to No. 13.	01
20 Cap screw $\frac{5}{16}$ "x 1", hex head for fastening No. 17 to No 13	01
21 Center bearing cap for No. 5	15
21a Center bearing cap for No. 5 with 2-23	21
22 Cap screw $\frac{3}{8}$ "x1 $\frac{1}{2}$ " hex head for fastening No. 6 to No 24	06
23 Bolt $\frac{1}{2}$ "x1 $\frac{3}{4}$ " hex head and nut for fastening No 16 to No. 1 and No. 21 to No 5	03
24 Tappet cap	33
25 Tap bolt $\frac{1}{2}$ "x1 $\frac{1}{4}$ " hex head for fastening No. 13 to No. 1	02
26 Bolt $\frac{5}{8}$ "x2 $\frac{1}{4}$ " hex head and nut for fastening No. 2 to No. 1	06
27 Tap bolt $\frac{5}{8}$ "x1 $\frac{1}{2}$ " hex head for fastening Nos. 10 and 12 to No 1	03
28 Bolt $\frac{5}{8}$ "x2" hex head and nut for fastening No. 11 to No. 1	05
29 Bolt $\frac{5}{8}$ "x3 $\frac{1}{4}$ " hex head and nut for fastening Nos. 3 and 4 to No. 1 (Intermediate)	06
30 Bolt $\frac{5}{8}$ "x1 $\frac{3}{4}$ " hex head and nut for fastening No. 5 to No. 1 (End)	04



Small Detail Parts and Fittings used in The Johnson Interlocking Machine

The Johnson Interlocking Machine.

Lever Details.

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

ORDER BY PLATE, NUMBER AND LETTER.

No		List Price
1	Lever only	\$10 86
1a	Lever complete (except tail lever), including latch shoe, rocker bracket, lever shoe, lever shoe pin, number plate, latch handle, latch rod, latch block, latch spring, rocker, center pin, link pin, cap screws, bolts and dowel pins (1-14, 2-15, 1-2, 1-3, 2-4, 1-5, 1-19, 2-20, 1-21, 1-22, 1-17, 1-18, 1-9, 2-10, 1-11, 1-13, 1-16, 1-12, 1-6, 1-7, 1-8)	27 60
2	Right Rocker Bracket	1 77
3	Left Rocker Bracket	1 77
4	Bolt $\frac{5}{8}$ "x $\frac{3}{4}$ " Hex. Head and Nut for fastening Nos. 2 and 3 to No. 1	12
5	Dowel $\frac{1}{4}$ "x $2\frac{1}{2}$ " for fastening Nos. 2 and 3 to No. 1	03
6	Rocker	2 49
7	Rocker Center Pin 1"x $3\frac{1}{4}$ " with cotters for joining Nos. 29 and 3 to No. 6	21
8	Rocker Link Pin $\frac{5}{8}$ "x $2\frac{1}{4}$ " with cotter for joining No 6 and 13	12
9	Latch Handle	1 05
9a	Latch Handle with pins and cotters (2-10)	1 29
10	Pin $\frac{5}{8}$ "x $1\frac{7}{8}$ " with cotters for joining No. 9 to Nos. 1 and 11	12
11	Latch Rod only	66
11a	Latch Rod with latch handle, latch block and latch pin (1-9, 2-10, 1-13)	2 64

The Johnson Interlocking Machine.

Lever Details

Continued.

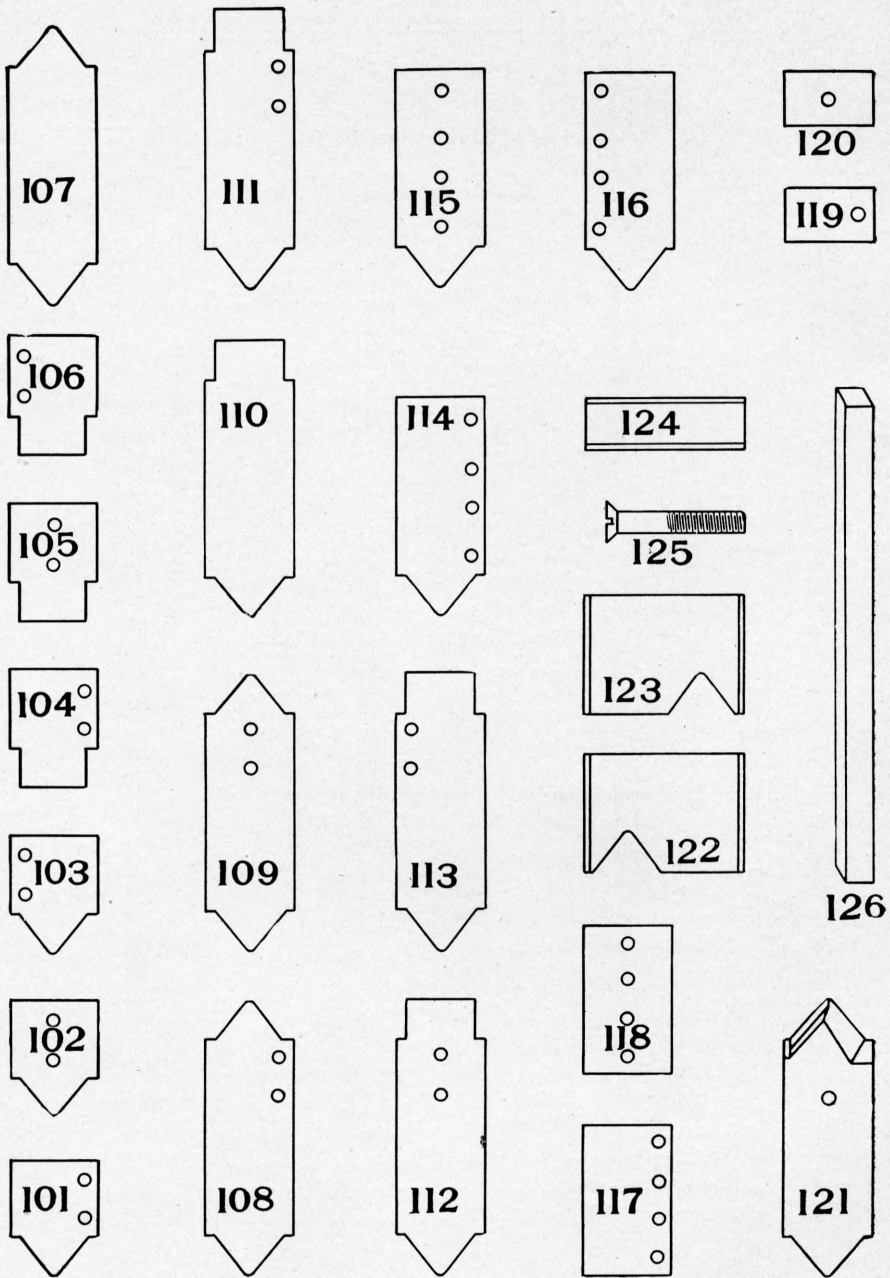
No.		List Price
12	Latch Spring	\$ 24
13	Latch Block	69
14	Latch Shoe	96
14a	Latch Shoe with cap screws (2-15)	1 26
15	Cap Screw $\frac{5}{8}$ "x1 $\frac{1}{4}$ " Hex. Head for fastening No. 14 to No. 1	15
16	Washer for No. 11	01
17	Number Plate	04
17a	Number Plate with bolt and nut (1-18)	07
18	Bolt $\frac{1}{4}$ "x1 $\frac{1}{2}$ " Square Head and Nut for fastening No. 17 to No. 1	03
19	Lever Shoe	3 00
19a	Lever Shoe with bolts and dowel pin for fastening shoe to lever (2-20, 1-21)	3 41
20	Bolts $\frac{3}{4}$ "x2 $\frac{3}{8}$ " Hex. Head faced with hex. nut for fastening either Nos. 1, 32 or 33 to No. 19	18
21	Dowel Pin $\frac{7}{16}$ "x2" for fastening No. 19 to No. 1.	05
22	Lever Shoe Pin 1"x4 $\frac{7}{8}$ "	18
23	4 Space Tappet complete as shown	2 88
23a	6 " " " " "	3 15
23b	8 " " " " "	3 42
23c	10 " " " " "	3 69
23d	12 " " " " "	3 93
23e	14 " " " " "	4 20
23f	16 " " " " "	4 47
23g	18 " " " " "	4 74
23h	20 " " " " "	5 01
23i	22 " " " " "	5 28
23j	24 " " " " "	5 55
<p>NOTE:—Special Tappets to be ordered according to requirements.</p>		
24	Tappet Jaw only	84
24a	Tappet Jaw only with Pin and Roller (1-27, 1-28)	1 50

The Johnson Interlocking Machine.

Lever Details.

Continued.

No.		List Price
24b	Tappet Jaw with Pin, Roller and Cap Screws (1-27, 1-28, 2-26)	\$ 1 62
25	4 Space Tappet only	1 02
25a	6 " " "	1 29
25b	8 " " "	1 56
25c	10 " " "	1 83
25d	12 " " "	2 07
25e	14 " " "	2 34
25f	16 " " "	2 61
25g	18 " " "	2 88
25h	20 " " "	3 15
25i	22 " " "	3 32
25j	24 " " "	3 49
NOTE:—Special Tappets to be ordered according to requirements.		
26	Cap Screw $\frac{3}{8}$ "x1" Hex. Head for fastening No. 24 to No. 25	06
27	Pin $\frac{5}{8}$ "x2 $\frac{7}{8}$ " with cotters for joining No. 24 and No. 6	09
28	Roller 1"x1"x $\frac{3}{8}$ " for No. 27.	57
29	Adjustable Connector for wire connected tail lever.	57
29a	Adjustable Connector with pin and shackle (1-30, 1-31)	73
30	Shackle $\frac{7}{8}$ " for No. 29	04
31	Pin and Cotter for joining Nos. 29 and 30	12
32	Tail Lever for switch	1 71
32a	Tail Lever for switch with bolts (2-20)	2 07
33	Tail Lever for signal	3 45
33a	Tail Lever for signal with bolts (2-20)	3 81
33b	Tail Lever for signal with bolts, adjustable connectors with pins and shackles (2-30, 2-31)	5 27
33c	Tail Lever for signals with bolts, adjustable connectors with pins and shackles and 56 lb weight (2-20, 2-29, 2-30, 2-31, 1-34)	9 89
34	56lb Counterweight with bolt	4 62



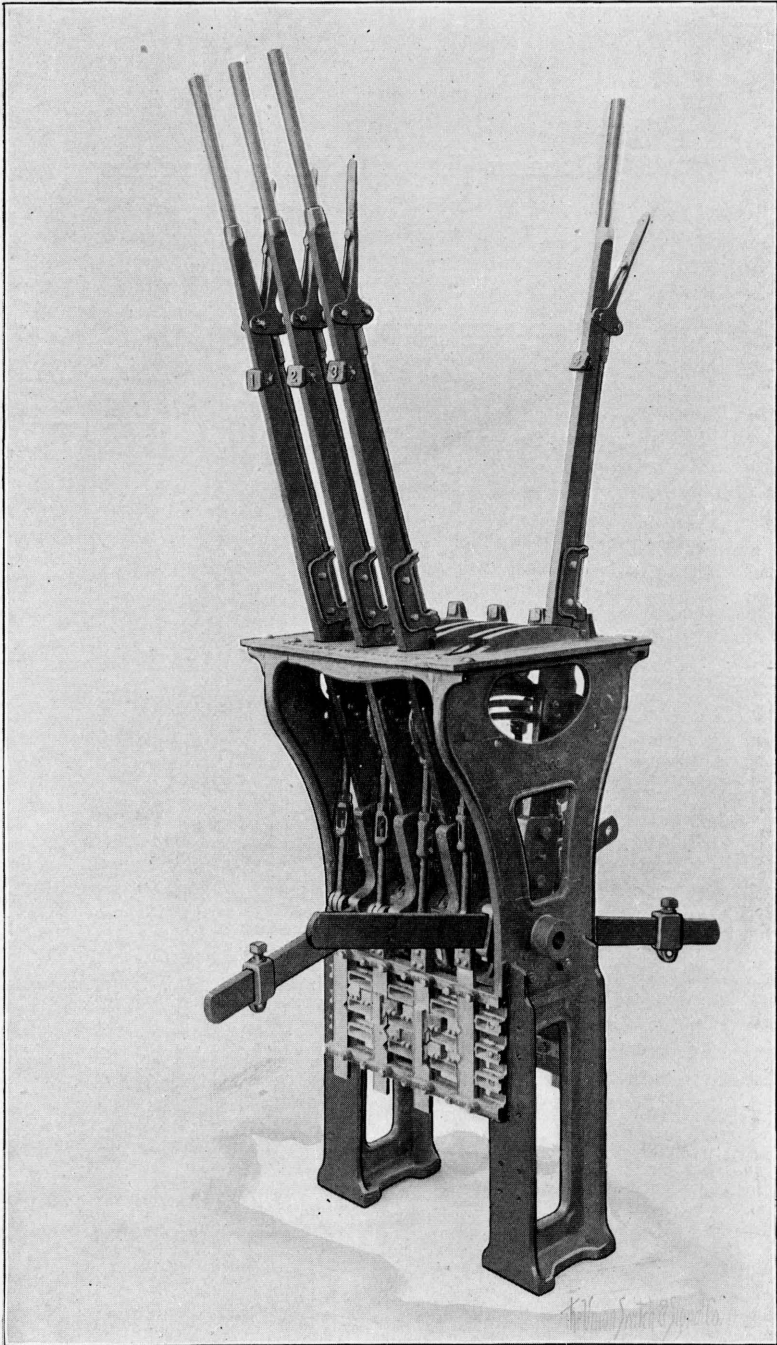
Locking Details for The Johnson Interlocking Machine

The Johnson Interlocking Machine.

Locking Details.

ORDER BY PLATE AND NUMBER.

No.	No.	Description	List Price
101	1	Locking Dog with Screws	\$ 30
102	2	" " " "	30
103	3	" " " "	30
104	4	" " " "	30
105	5	" " " "	30
106	6	" " " "	30
107	7	" " " "	39
108	8	" " " "	42
109	9	" " " "	42
110	10	" " " "	30
111	11	" " " "	45
112	12	" " " "	45
113	13	" " " "	45
114	14	" " " "	45
115	15	" " " "	45
116	16	" " " "	45
117	17	" " " "	36
118	18	" " " "	36
119	19	" " " "	12
120	20	" " " "	12
121	21	" " " "	36
122	22	" " " "	33
123	23	" " " "	33
124		Spacing Strip	21
125		10-32x $\frac{7}{8}$ " Special Steel Screw for locking dogs . . .	01
126		$\frac{3}{8}$ "x $\frac{3}{8}$ " Steel Locking Bar. State number of feet required. (per ft.)	12



The National Interlocking Machine

The National Interlocking Machine.

As a number of our patrons have this type of machine in use, and prefer to retain their present standards, we illustrate it here principally for their convenience in ordering new machines and additions or renewals to existing plants, but recommend the Johnson machine shown on Plate 157 for all places where the vertical type of locking is necessary or desirable, as being a more durable and lasting design.

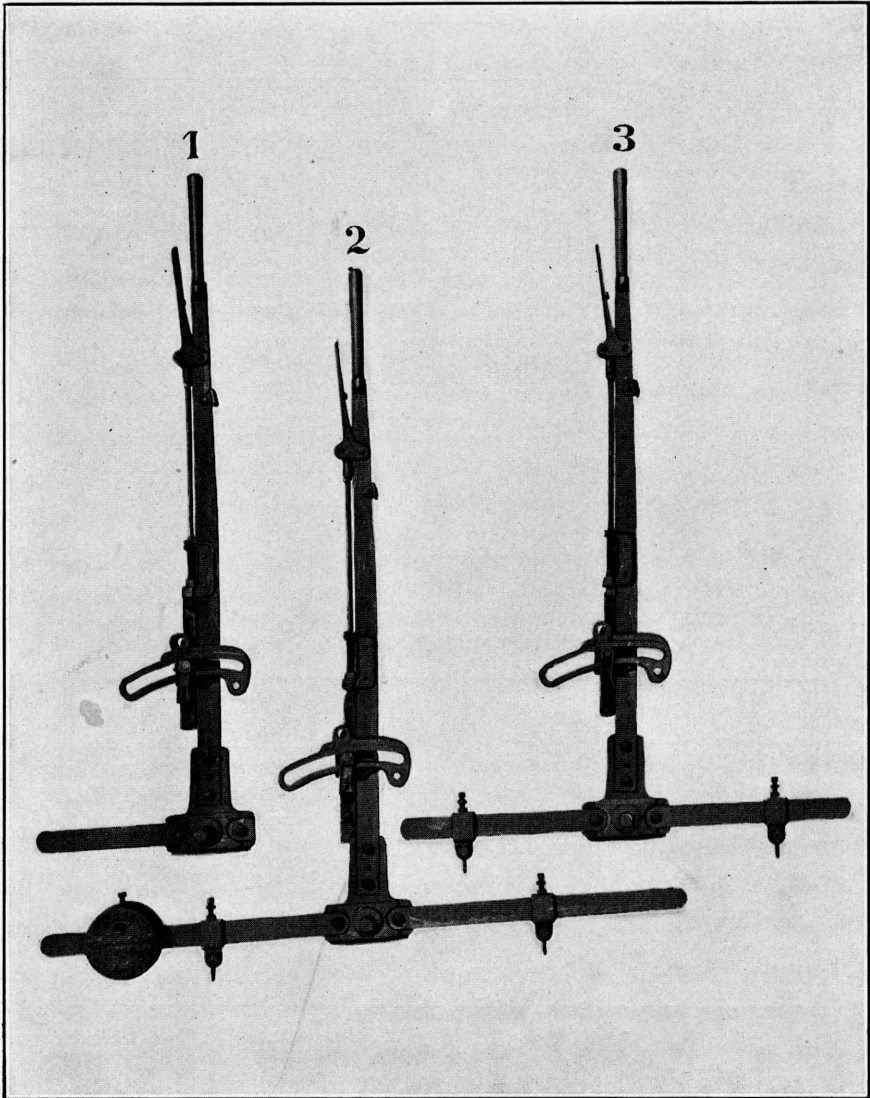
In ordering interlocking machines, a signaled and numbered track plan showing the functions of each lever, the route or routes to be governed by each signal, and the kind of connections (whether pipe or wire) which will be employed by the latter, should accompany the order. If any combinations in the locking are required which would not ordinarily be included, they should be called for in the order, or a locking sheet furnished in addition to the above information. Order should clearly state the number of levers and spare spaces desired.

List Prices of National Machines complete with locking, jaws, shackles, pins, bolts and cotters.

CAPACITY OF MACHINE FRAME.	LIST PRICES.		
	PER LEVER.		PER SPARE SPACE.
Four to twelve lever frame.....	\$48 00		\$19 00
Sixteen to twenty-four lever frame.....	50 00		19 00
Twenty-eight to forty-eight lever frame.	52 00		19 00
Fifty-two to seventy-two lever frame....	54 00		21 00
Seventy-six to one hundred lever frame.	56 00		21 00

Special prices furnished on application for machines of over One Hundred Levers.

For list of details, see Plates 164, 165, 166 and 167.



Three Types of Levers furnished with The National Interlocking Machine

The National Interlocking Machine.

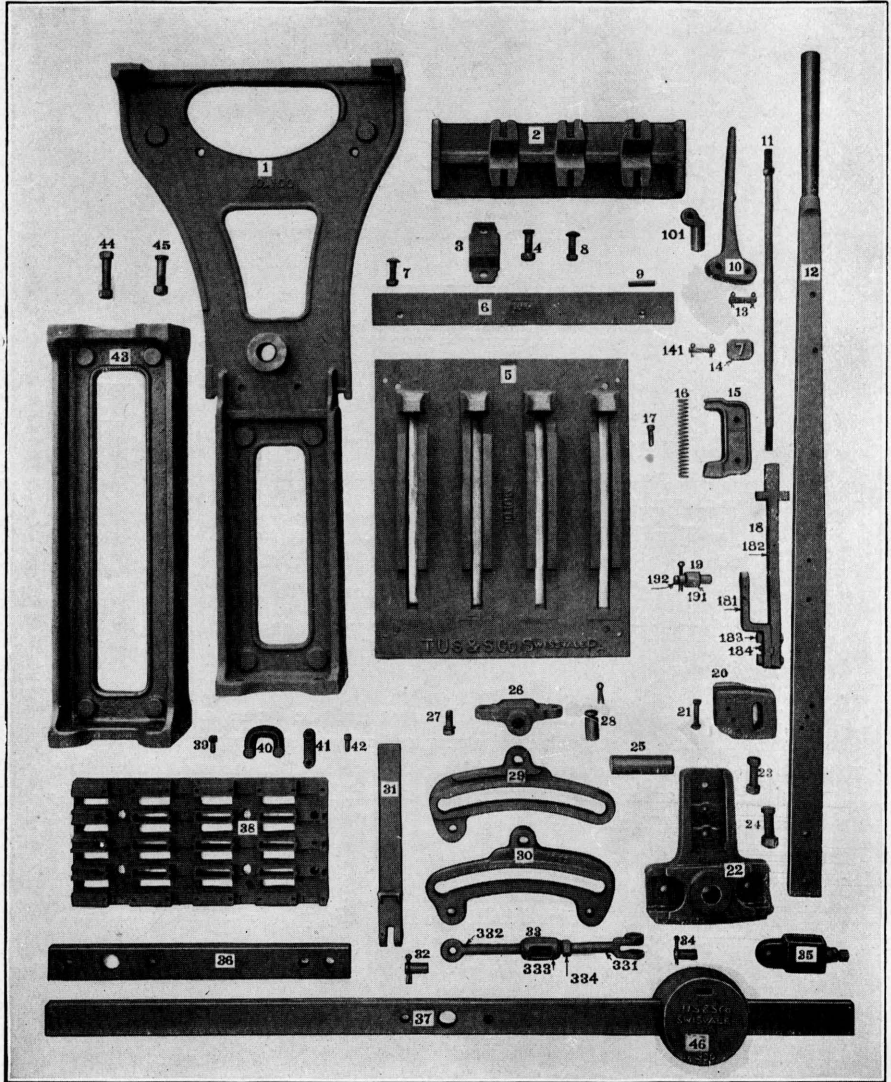
Types of Levers.

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
1	Switch Lever complete as shown with jaw	\$26 05
2	Distant Signal Lever with 40lb counter weight complete as shown	31 05
3	Home Signal Lever for wire connection complete as shown (no weight)	27 75
3a	Home Signal Lever for pipe connection with 40lb counter weight and jaw	30 95

NOTE—The above prices and references include levers and all fittings illustrated, but do not include locking or locking supports which must be ordered separately, the order specifying the size of machine and the locking required. All orders for levers should state the designating numbers to be furnished with them.

For details See Plate 165.



Large Detail Parts used in The National Interlocking Machine

The National Interlocking Machine.

Large Detail Parts.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
1	Leg only	\$32 73
2	4-way Girder	7 59
2a	4-way Girder with lever shoe pins, caps and cap bolts (4-25, 3-3, 6-8)	9 60
2b	8-way Girder	12 69
2c	8-way Girder with lever shoe pins, caps and cap bolts (8-25, 7-3, 14-8)	16 95
3	Girder Cap	15
3a	Girder Cap with bolts (2-8)	27
4	5/8"x2" Hex. Head cap screw faced, with hex. nut for fastening No. 2 to No. 1; (End)	09
5	4-way Top Plate	24 66
5a	4-way Top Plate with bolts, dowel pins, hangers, cap screws, spring washers, pins and cotters (4-7, 4-9, 4-26, 8-27, 4-28)	31 47
5b	8-way Top Plate	42 72
5c	8-way Top Plate with bolts, dowel pins, hangers, cap screws, spring washers, pins and cotters (4-7, 4-9, 8-26, 16-27, 8-28)	55 95
6	End Strip	63
6a	End Strip with bolts (2-7)	75
7	Bolt 1/2"x1 3/4" (round shank) button head with hex. nut for fastening Nos. 5 and 6 to No. 1	06
8	Bolt 1/2"x1 3/4" (square shank) button head with hex. nut for fastening No. 3 to No. 2	06
9	Taper Dowel Pin 7/16"x2" for fastening No. 5 to No. 1, Nos. 20 and 22 to No. 12, No. 38 to No. 1	03
10	Latch Handle only	96
10a	Latch Handle with pins and cotters (2-13)	1 02
10I	Latch Nut	30
11	Latch Rod	24
11a	Latch Rod with latch handle, latch nut, pins and cotters, latch dog, roller and latch spring (1-10, 1-10I, 2-13, 1-18, 1-19, 1-16)	5 52
12	Lever only	5 76
12a	Lever complete (except rocker, tappet or tappet connection) with number plate with pin and cotters, spring box and cap screws, latch box and cap screws, taper dowel, lever shoe with bolts and dowel pin, lever shoe pin, latch handle with pins and cotters, latch nut, latch rod, latch dog, roller and latch spring (1-14, 1-14I, 1-15, 2-17, 1-20, 2-21, 1-9, 1-22, 2-23, 1-9, 1-25, 1-10, 1-10I, 2-13, 1-11, 1-18, 1-19, 1-16,) (No tail levers, weights, jaws or shackles)	18 85
12b	Lever complete with Rocker, Tappet for 12 bar frame and Tappet Connection, number plate with pin and cotters, spring box and cap screws, latch box and cap screws, taper dowel, lever shoe with bolts and dowel pins, lever shoe pin, latch handle with pins and cotters, latch nut, latch rod, latch dog, roller and latch spring (1-14, 1-14I, 1-15, 2-17, 1-20, 2-21, 1-9, 1-22, 2-23, 1-9, 1-25, 1-10, 1-10I, 2-13, 1-11, 1-18, 1-19, 1-16, 1-29, 1-31, 1-32, 1-33, 1-34.) (No tail levers, weights, jaws or shackles)	25 45

The National Interlocking Machine.

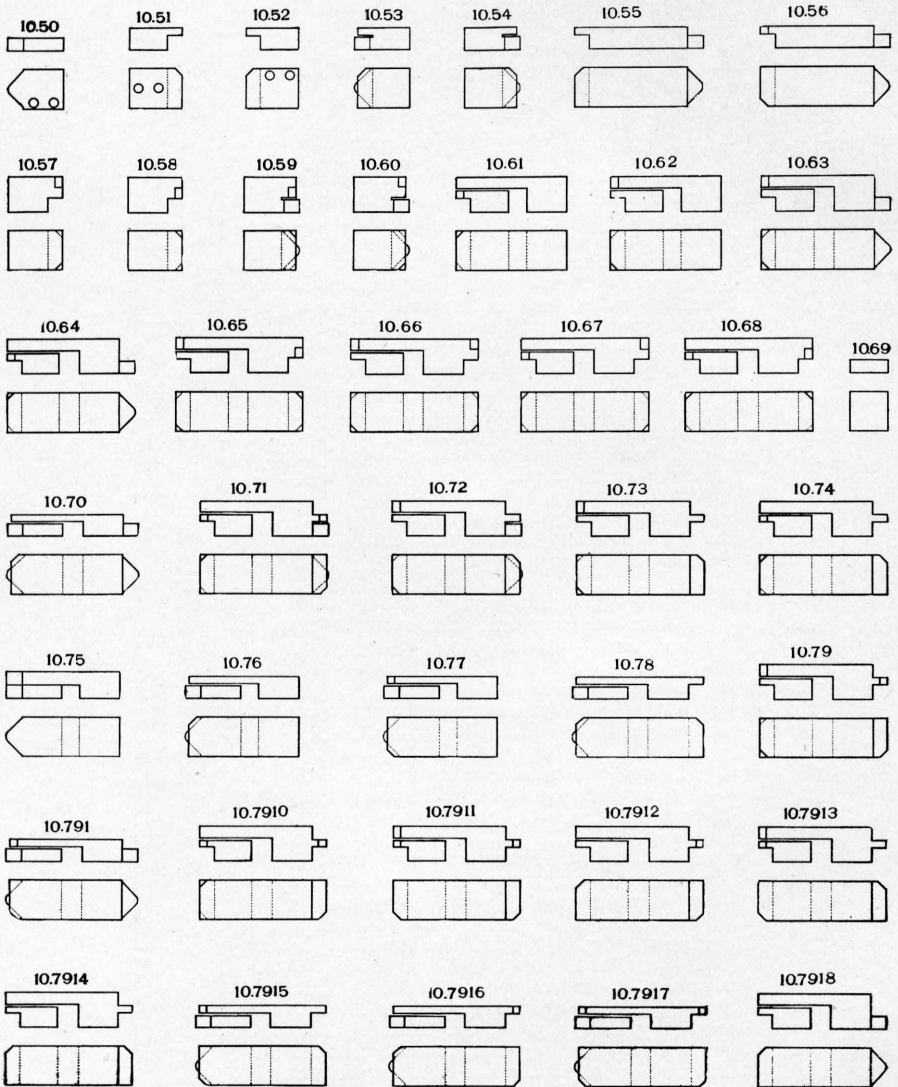
Large Detail Parts. Continued.

No.		List Price
13	Pin $\frac{1}{2}$ " x $2\frac{1}{2}$ " with $2\frac{1}{8}$ " x $\frac{3}{4}$ " cotters for joining Nos. 10 and 12 also Nos. 101 and 10	\$ 03
14	Lever number only	15
14a	Lever number with pin and cotters (1-2, 1-141)	18
141	Pin $\frac{3}{8}$ " x 2" with $2\frac{1}{8}$ " x $\frac{3}{4}$ " cotters for joining Nos. 14 and 12	03
15	Spring Box only	81
15a	Spring Box with cap screws (2-17)	93
16	Latch Spring	24
17	Cap Screw $\frac{3}{8}$ " x $1\frac{3}{8}$ " hex. head for fastening No. 15 to No. 12	06
18	Latch Dog with Link Bearing	3 00
18a	Latch Dog with pin, roller and cotter (1-19)	3 75
181	Link Pin Bearing only for No. 18	45
182	Latch Dog only for No. 18	2 37
183	Cap Screws $\frac{1}{2}$ " x $1\frac{1}{2}$ " hex. head with hex. nut for fastening No. 181 to No. 182	09
184	Dowel Pin $\frac{3}{8}$ " x $1\frac{1}{2}$ " for fastening No. 181 to No. 182	03
19	Roller Pin complete with roller and $\frac{3}{16}$ " x 2" Cotter for No. 18	72
191	Roller $1\frac{1}{16}$ " x $1\frac{1}{4}$ " x $\frac{3}{4}$ " for No. 18	60
192	Pin $\frac{3}{4}$ " x $2\frac{15}{16}$ " with $\frac{3}{16}$ " x 2" Cotter for No. 18	12
20	Latch Box only	1 44
20a	Latch Box with cap screws and dowel pin (2-21 1-9)	1 83
21	Cap Screw $\frac{3}{8}$ " x 2" hex. head faced with hex. nut for fastening No. 20 to No. 12	18
22	Lever Shoe Only	2 88
22a	Lever Shoe with Bolts and dowel pin for fastening shoe to lever (2-23, 1-9)	3 09
23	Bolt $\frac{3}{8}$ " x 2" hex. head and nut for fastening No. 22 to No. 12	09
24	Bolt $\frac{3}{4}$ " x $2\frac{3}{8}$ " hex. head faced with hex. nut for fastening either No. 36 or No. 37 to No. 22	12
25	Lever Shoe Pin $1\frac{1}{2}$ " x 5" for No. 22	33
26	Hanger for Rocker Links No. 29 and No. 30	93
26a	Hanger complete with pin, cotter and bolts (1-28, 2-27)	1 32
27	Cap Screw $\frac{1}{2}$ " x $1\frac{5}{8}$ " hex. head faced with spring washer for fastening No. 26 to No. 5	15
28	Pin 1" x $2\frac{1}{4}$ " inches with cotter for joining No. 29 or No. 30 to No. 26	09
29	Single Rocker only (Used when locking on one side of machine only)	4 32
30	Double Rocker only (Used when locking on both sides of machine)	4 32
31	Tappet for 12 bar frame, as shown	99
31a	Tappet for 12 bar frame with pin and cotter (1-32)	1 14
31b	Tappet for 24 bar frame, as shown	1 29
31c	Tappet for 36 bar frame, as shown	1 47
311	Tappet Jaw with $3\frac{1}{4}$ " x $1\frac{1}{4}$ " Button Head Rivets	15

The National Interlocking Machine.

Large Detail Parts. Continued.

No.		List Price
312	Tappet Blade only for 12 bar frame	\$ 54
32	Pin $\frac{3}{4}$ " x $1\frac{13}{16}$ " with $\frac{3}{16}$ " x 2" Cotter for No. 311	15
33	Adjustable Tappet Connection as shown	99
33a	Adjustable Tappet Connection with pin and cotter (1-34)	I 14
331	Female End of No. 33	21
332	Male End of No. 33	18
333	Turnbuckle for joining Nos. 331 and 332	36
334	Special Hex. Nut $\frac{3}{4}$ " for No. 331	15
34	$\frac{3}{4}$ " x $1\frac{11}{16}$ " Pin with $\frac{3}{16}$ " x 2" Cotter for No. 331	15
35	Adjustable Connector for No. 37	57
36	Tail Lever for Switch	I 29
36a	Tail Lever with bolts for fastening same to level shoe (2-24)	I 53
37	Tail Lever for Signal	2 85
37a	Tail Lever for Signal with bolts (2-24)	3 09
37b	Tail Lever for Signal with bolts, adjustable connectors with pins and shackles (2-24, 2-35, Plate 165, 2-30, 2-31, Plate 161)	4 55
37c	Tail Lever for Signal with bolts, adjustable connector with pins, shackles and 40lb weight (2-24, 2-35, 1-46, Plate 165, 2-30, 2-31, Plate 161)	7 85
38	4-way 12 Bar Locking Frame only	11 52
38a	4-way 12 bar locking frame with straight caps, cap screws and dowel pins (4-39, 2-9, 8-41, 16-42)	13 26
38b	4-way 24 bar locking frame only	15 15
38c	4-way 24 bar locking frame with straight caps, cap screws and dowel pins (6-39, 4-9, 8-41, 16-42)	17 10
38d	4-way 36 bar locking frame only	18 78
38e	4-way 36 bar locking frame with straight caps, cap screws and dowel pins (8-39, 4-9, 8-41, 16-42)	20 91
38f	8-way 12 bar locking frame only	15 84
38g	8-way 12 bar locking frame with straight caps, cap screws and dowel pins (4-39, 2-9, 16-41, 32-42)	19 14
38h	8-way 24 bar locking frame only	24 66
38i	8-way 24 bar locking frame with straight caps, cap screws and dowel pins (6-39, 4-9, 16-41, 32-42)	28 11
38j	8-way 36 bar locking frame only	34 47
38k	8-way 36 bar locking frame with straight caps, cap screws and dowel pins (8-39, 4-9, 16-41, 32-42)	38 04
39	Cap Screw $\frac{3}{8}$ " x $1\frac{3}{8}$ " with hex. head for fastening No. 38 to No. 1	06
40	Extension Cap for No. 38	09
40a	Extension Cap with screws (2-42)	21
41	Straight Cap for No. 38	04
41a	Straight Cap with cap screws (2-42)	16
42	Cap Screw $\frac{3}{8}$ " x 1" with hex. head for fastening No. 40 or No. 41 to No. 38	06
43	Extension Leg	12 24
44	Bolt $\frac{3}{4}$ " x 3" hex. head and nut for fastening No. 1 to No. 43	12
45	Bolt $\frac{5}{8}$ " x $2\frac{1}{2}$ " hex. head faced with hex. nut for fastening No. 2 to No. 1 (Intermediate)	07
46	40 lb. Weight	3 30



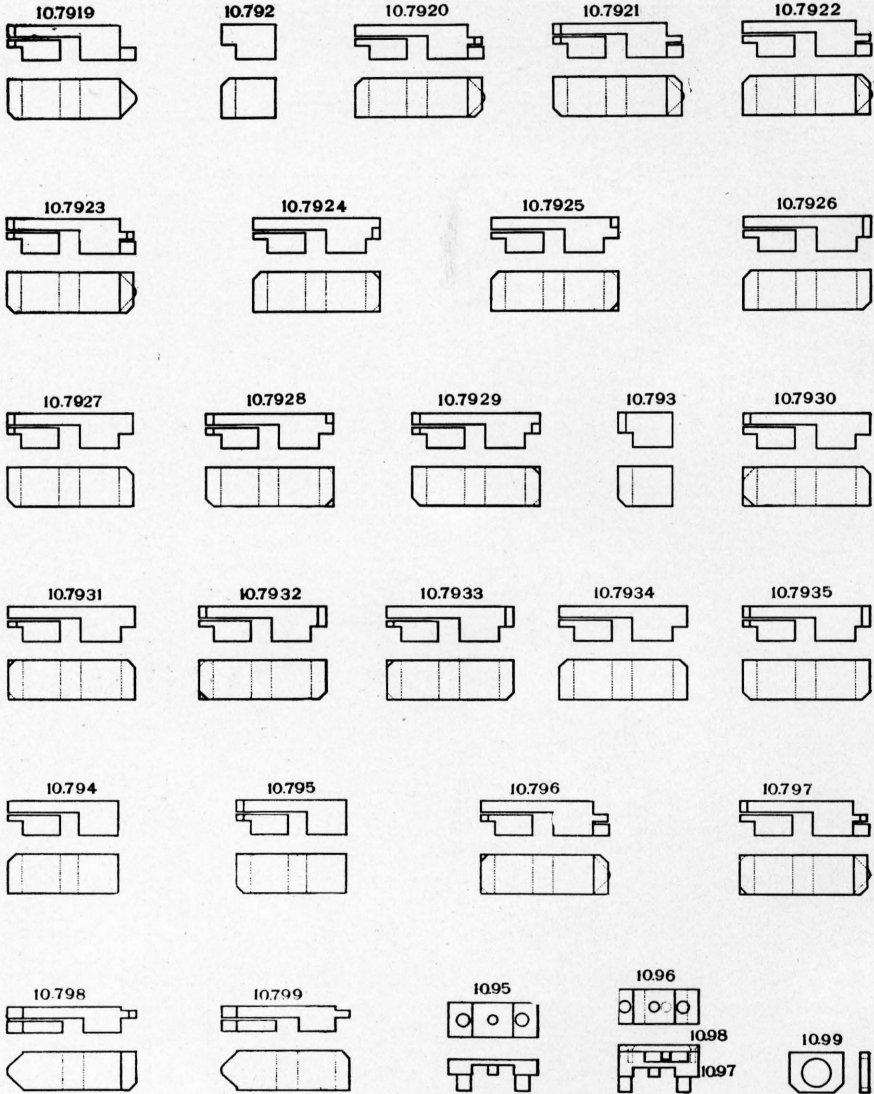
Locking Details for The National Interlocking Machine

The National Interlocking Machine.

Locking Details.

ORDER BY PLATE AND NUMBER.

No.		List Price
10.50	Locking Dog with Screws	\$ 21
10.51	" " " "	24
10.52	" " " "	24
10.53	" " " "	69
10.54	" " " "	69
10.55	" " " "	69
10.56	" " " "	69
10.57	" " " "	60
10.58	" " " "	60
10.59	" " " "	66
10.60	" " " "	66
10.61	" " " "	I 47
10.62	" " " "	I 47
10.63	" " " "	I 41
10.64	" " " "	I 41
10.65	" " " "	I 05
10.66	" " " "	I 05
10.67	" " " "	I 05
10.68	" " " "	I 05
10.69	" " " "	12
10.70	" " " "	I 23
10.71	" " " "	I 08
10.72	" " " "	I 08
10.73	" " " "	I 38
10.74	" " " "	I 38
10.75	" " " "	I 02
10.76	" " " "	I 20
10.77	" " " "	I 20
10.78	" " " "	I 23
10.79	" " " "	I 41
10.791	" " " "	I 23
10.7910	" " " "	I 41
10.7911	" " " "	I 41
10.7912	" " " "	I 41
10.7913	" " " "	I 41
10.7914	" " " "	I 41
10.7915	" " " "	I 23
10.7916	" " " "	I 23
10.7917	" " " "	I 23
10.7918	" " " "	I 41
	Cap Screws F. H. $\frac{1}{4}$ " x $\frac{3}{4}$ "	02
	Cap Screws F. H. $\frac{1}{4}$ " x 1"	03
	Cap Screws F. H. $\frac{1}{4}$ " x 1 $\frac{3}{8}$ "	03



Locking Details for The National Interlocking Machine

The National Interlocking Machine.

Locking Details.

Continued.

ORDER BY PLATE AND NUMBER.

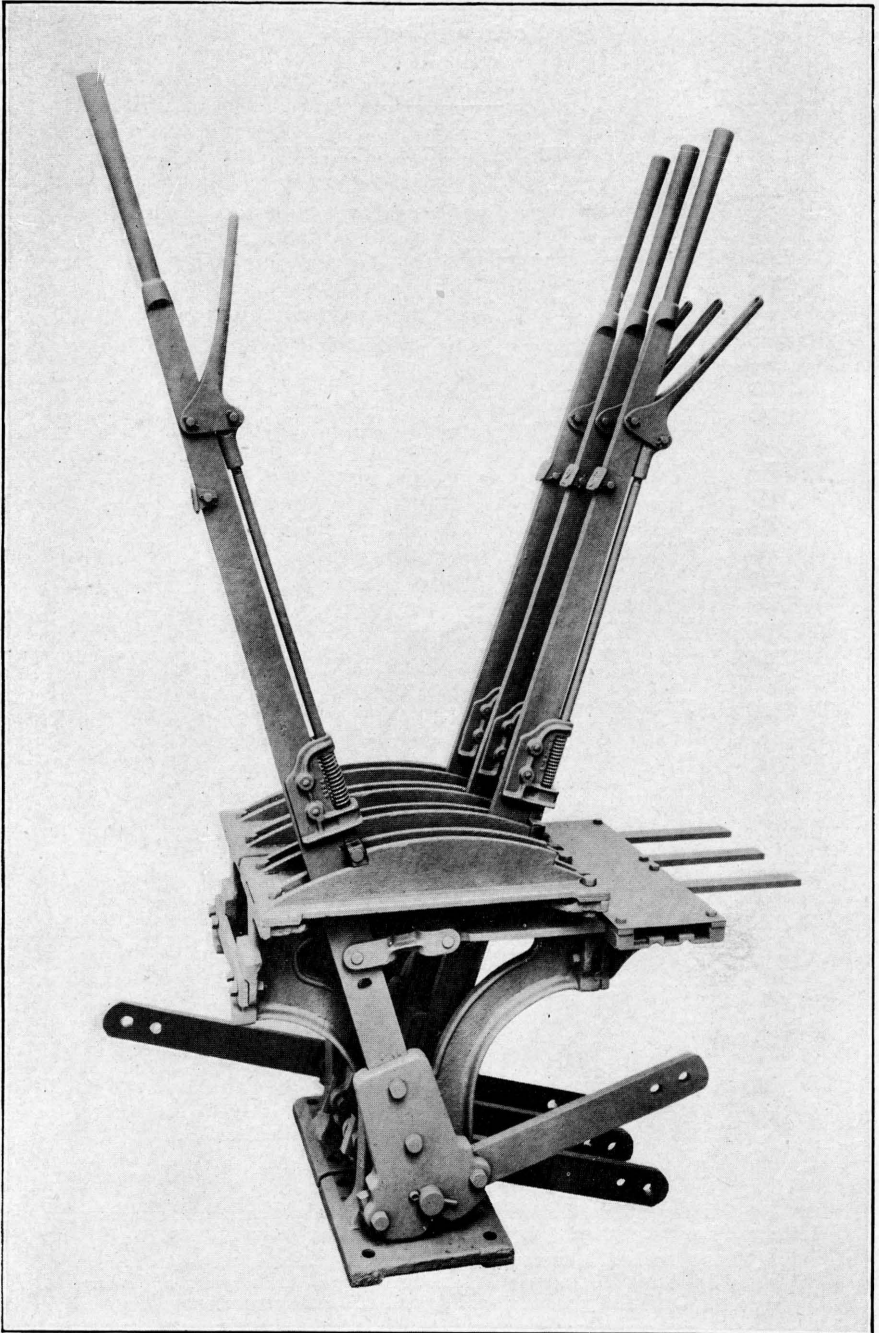
No.		List Price
10.7919	Locking Dog with Screws.	\$ 1 41
10.792	" " " "	33
10.7920	" " " "	1 08
10.7921	" " " "	1 08
10.7922	" " " "	1 08
10.7923	" " " "	1 08
10.7924	" " " "	1 05
10.7925	" " " "	1 05
10.7926	" " " "	99
10.7927	" " " "	99
10.7928	" " " "	1 05
10.7929	" " " "	1 05
10.793	" " " "	33
10.7930	" " " "	59
10.7931	" " " "	99
10.7932	" " " "	99
10.7933	" " " "	99
10.7934	" " " "	99
10.7935	" " " "	99
10.794	" " " "	1 47
10.795	" " " "	1 47
10.796	" " " "	1 08
10.797	" " " "	1 08
10.798	" " " "	1 23
10.799	" " " "	1 41
10.95	" " " "	69
10.96	" " " "	1 83
10.97	" " " "	87
10.98	" " " "	36
10.99	" " " "	18

NOTE.—In ordering dogs, give the catalogue number and add to it 1, for top; 2, for middle; 3, for bottom.

Thus: 10.51-1, means special dog 10.51 drilled for top bar.
 10.51-2, " " " 10.51 " middle bar.
 10.51-3, " " " 10.51 " bottom bar.

In ordering special double dogs give the catalogue number and add the letter "A" or "B," then 1, for top; 2, for middle; 3, for bottom.

Thus: 10.61 A 1, means top dog 10.61 A drilled for top bar.
 10.61 B 2, means bottom dog 10.61 B drilled for middle bar
 10.61-A-3, means top dog 10.61 A drilled for bottom bar.



The Stevens Interlocking Machine

The Stevens Interlocking Machine.

This machine, although it is made of the best quality of material, has no preliminary locking arrangement, and is best adapted for throwing side track switches, or switches in ladder tracks where it would be inconvenient and expensive to have a man running from one switch stand to another, or to have a number of men stationed at the different switches. By concentrating the switch connections at one central point, using a machine, one man can easily do the work of half a dozen under the old plan.

If locking is desired, it can be supplied of the ordinary Stevens type, but we do not advise the use of this machine for anything but yard work.

The levers of these machines are now fitted with separate lever shoes, so that either front or back tail levers, or both, can be applied to any lever so equipped.

The new style of lever is applicable to any Stevens machine.

If locking is desired with any of these machines, a signaled and numbered plan showing the functions of each lever, and the route or routes to be governed by each signal, should accompany the order.

All orders should clearly state the number of levers and spare spaces desired, the connections (whether pipe or wire) to be attached to each lever, and whether the machine is to be arranged for vertical or horizontal leadout.

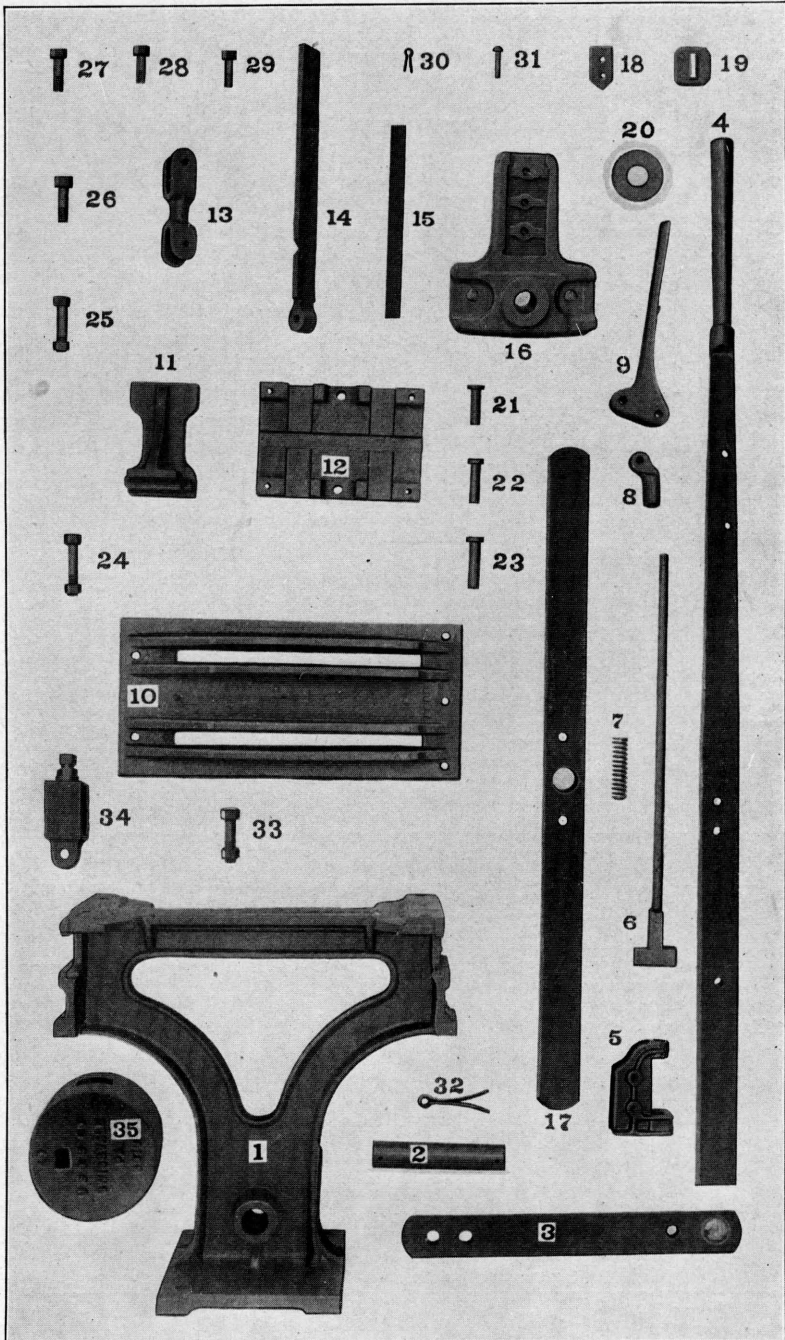
The front of the machine is that part occupied by a man when operating the levers.

List Prices of Stevens Machines for either vertical or horizontal leadout, with or without locking, complete with jaws, shackles, pins, bolts and cotters.

CAPACITY OF MACHINE FRAMES	WITHOUT LOCKING				WITH LOCKING			
	PER LEVER		PER SPARE SPACE		PER LEVER		PER SPARE SPACE	
HORIZONTAL CONNECTIONS.								
2 Lever Frame	\$23 03		\$12 50		\$28 20		\$17 70	
4 " "	23 25		12 75		29 63		19 15	
6 " "	23 25		12 75		31 15		19 15	
8 " "	23 25		12 75		32 77		19 15	
VERTICAL CONNECTIONS. (FRONT TAIL ONLY).								
2 Lever Frame	24 83		12 50		30 00		17 70	
4 " "	25 10		12 75		31 43		19 15	
6 " "	25 10		12 75		32 95		19 15	
8 " "	25 10		12 75		34 57		19 15	

For Long Tail Lever with adjustable shackles and bolts (no weights) add to each lever for Vertical connection \$3.47

For list of details see Plate 169.



Details and Fittings used in The Stevens Interlocking Machine

The Stevens Interlocking Machine.

Details.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
1	Leg	\$12 21
2	Lever Shoe Pin 1½" diameter	51
2a	Lever Shoe Pin with cotters (2-32)	53
2b	Lever Shoe Pin with cotters and washers (2-32, 2-20)	65
3	Tail Lever for switch (used for vertical connection only)	1 44
3a	Tail Lever for switch with bolts for fastening to lever shoe	1 80
4	Lever only (state whether for vertical or horizontal connection)	4 02
4a	Lever with shoe and bolts for fastening shoe to lever	6 18
4b	Lever complete with lever number, latch handle with pins and cotters, latch nut, latch rod, latch spring, latch shoe with bolts and lever shoe with bolts (1-19, 3-21, 3-30, 1-9, 1-8, 1-6, 1-7, 1-5, 2-26, 1-16 2-¾" x 2¾" bolts.) (No tail lever)	10 50
5	Latch Shoe	72
5a	Latch Shoe with cap screws (2-26)	78
6	Latch Rod	1 80
6a	Latch Rod complete with latch handle with pins, latch nut and latch spring (1-9, 2-21, 2-30, 1-8, 1-7)	3 35
7	Latch Spring	27
8	Latch Nut	24
9	Latch Handle	84
9a	Latch Handle with pins and cotters (2-21, 2-30)	1 04
10	Quadrant	4 89
10a	Quadrant with bolts for fastening to leg (1-27, 4-25)	5 16
11	Bearing for 1 Bar Locking Plate	1 38
11a	Bearing for 1 Bar Locking Plate with bolts (2-33)	1 50
11b	Bearing for 3 Bar Locking Plate	1 38
11c	Bearing for 3 Bar Locking Plate with bolts (2-33)	1 50
11d	Bearing for 6 Bar Locking Plate	1 77
11e	Bearing for 6 Bar Locking Plate with bolts (2-33)	1 89
11f	Bearing for 8 Bar Locking Plate	1 77
11g	Bearing for 8 Bar Locking Plate with bolts (2-33)	1 89
12	Locking Plate, 1 to 3 Bars	3 93

The Stevens Interlocking Machine.

Details. Continued.

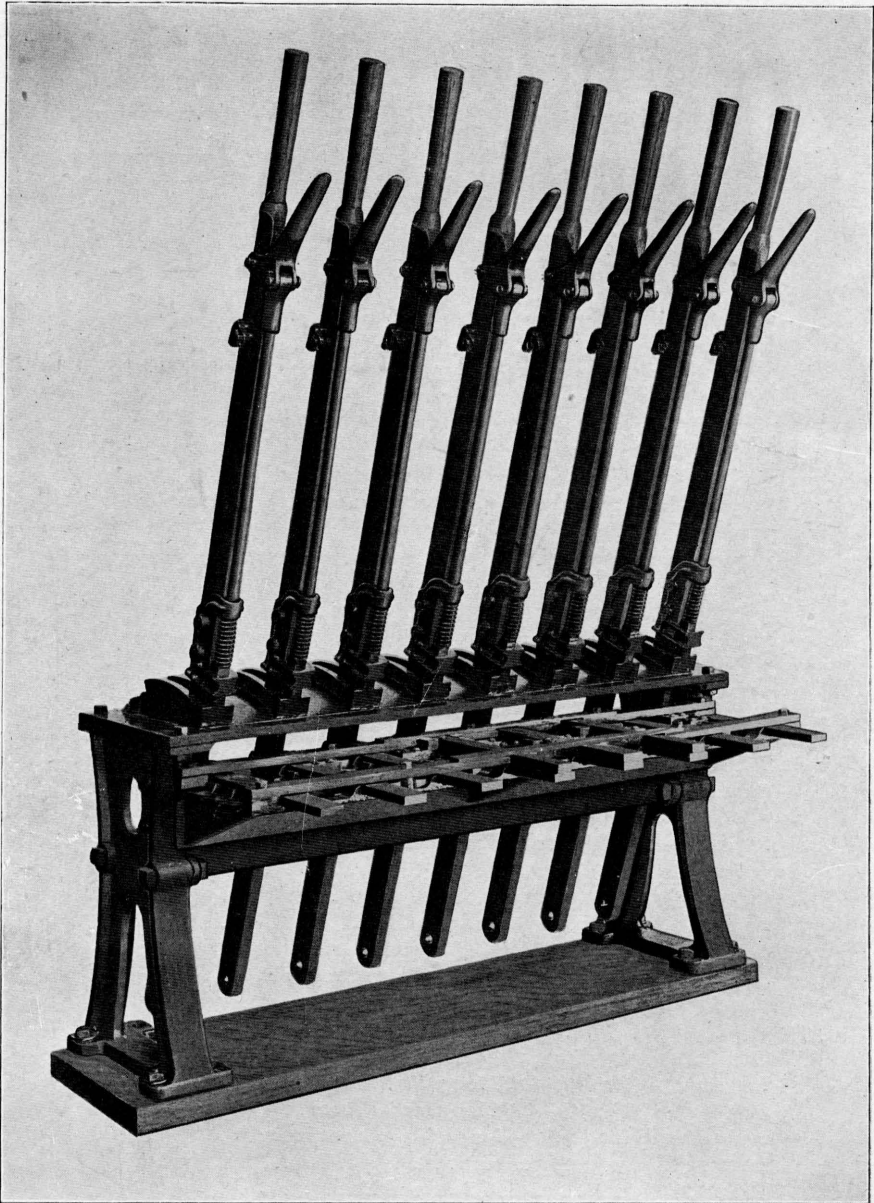
No.		List Price
12a	Locking Plate, 1 to 3 with cap bolts (2-28, 4-29, 2-15)	\$ 4 31
12b	Locking Plate, 6 Bars, 4 Levers	9 42
12c	Locking Plate, 6 Bars, 4 Levers with caps and bolts (4-28, 6-29, 2-15)	10 08
12d	Locking Plate, 6 Bars, 6 Levers	18 81
12e	Locking Plate 6 Bars, 6 Levers with caps and bolts (6-28, 8-29, 2-15)	19 92
12f	Locking Plate, 6 Bars, 8 Levers	18 81
12g	Locking Plate, 6 Bars, 8 Levers with caps and bolts (8-28, 10-29 2-15)	20 28
12h	Special Locking Plate, 2 Lever, 3 Bar for Electric Lock	5 04
12i	Special Locking Plate, 2 Lever, 3 Bar for Electric Lock with cap and bolts (2-28, 4-29, 2-15)	5 52
13	Tappet Link	21
13a	Tappet Link with pins and cotters (1-22, 1-23, 2-30)	42
13b	Special Tappet Link for Double Locking.	30
13c	Special Tappet Link for Double Locking with Pins (1-23, 1-½" x 3½" Pin, 3-30)	57
14	Tappet for 3 Bars, no notch	1 86
14a	Tappet for 6 Bars, no notch	1 86
15	Cap for Locking Bars 2 Levers	12
15a	Cap for Locking Bars 4 Levers	24
15b	Cap for Locking Bars 6 Levers	36
15c	Cap for Locking Bars 8 Levers	45
15d	Cap for Locking Bars 10 Levers	60
15e	Cap for Locking Bars 12 Levers	72
16	Lever Shoe	1 80
16a	Lever Shoe with bolts for fastening to lever	2 16
17	Tail Lever for Signals (used for vertical connections only)	3 45
17a	Tail Lever for Signals with bolts for fastening to lever shoe	3 81
17b	Tail Lever for Signals with bolts, adjustable connectors and shackles with pins and cotters (2-¾" x 2⅜" bolts, 2-34, Plate 169) (2-30, 2-31, Plate 161)	5 27

The Stevens Interlocking Machine.

Details.

Continued.

Fig.		List Price
17c	Tail Lever for Signals, adjustable connectors, shackles with pins and cotters and 40 lb. weight (2- $\frac{3}{4}$ "x2 $\frac{3}{8}$ " bolts, 2-34, 1-35, Plate 169) (2-30, 2-31, Plate 161)	\$ 8 58
18	Locking Dog, single end	12
18a	Locking Dog, single end with rivets (2-31)	14
18b	Locking Dog, double end	21
18c	Locking Dog, double end, with rivets (2-31)	23
19	Lever Number . . . . .	.09
19a	Lever Number with pin and cotter (1-21, 1-30) . . . . .	.19
20	Washer $1\frac{1}{2}$ " diameter for shoe pin . . . . .	.06
21	Pin $\frac{1}{2}$ "x1 $\frac{1}{16}$ " for fastening latch rod, latch handle and lever number. . . . .	.09
22	Pin $\frac{1}{2}$ "x2" for fastening tappet link to lever . . . . .	.09
23	Pin $\frac{1}{2}$ "x2 $\frac{1}{4}$ " for fastening tappet link to tappet . . . . .	.09
24	Bolt $\frac{1}{2}$ "x2" for fastening legs together in machines containing more than two levers . . . . .	.06
25	Bolt $\frac{1}{2}$ "x1 $\frac{7}{8}$ " for fastening quadrant to leg . . . . .	.06
26	Tap Bolt $\frac{1}{2}$ "x1 $\frac{3}{4}$ " for fastening latch shoe to lever . . . . .	.03
27	Tap bolt $\frac{1}{2}$ "x1 $\frac{1}{4}$ " for fastening quadrant to leg . . . . .	.03
28	Tap Bolt $\frac{1}{2}$ "x1 $\frac{1}{4}$ " for fastening locking plate to bearing . . . . .	.03
29	Tap Bolt $\frac{3}{8}$ "x $\frac{3}{4}$ " for fastening cap to locking plate . . . . .	.02
30	Cotter $\frac{1}{8}$ "x $\frac{3}{4}$ " for turned pins No. 21, No. 22 and No. 23 . . . . .	.01
31	Rivet $\frac{1}{4}$ "x1 $\frac{1}{4}$ " for fastening locking dog to locking bar . . . . .	.01
32	Cotter $\frac{1}{4}$ "x2 $\frac{1}{2}$ " for lever shoe pin . . . . .	.01
33	Bolt $\frac{1}{2}$ "x2" for bolting bearing to leg . . . . .	.06
34	Adjustable Connector for wire connected tail levers . . . . .	.57
34a	Adjustable Connector complete with pin and shackle (1-30, 1-31, Plate 161) . . . . .	.73
35	40 lb. Weight	3.30
	Cast Collar 2 $\frac{1}{2}$ " diam., 1 $\frac{1}{2}$ " hole, 1 $\frac{1}{2}$ " thick. . . . .	.12
	Leg Braces $\frac{3}{8}$ "x1 $\frac{1}{2}$ "—14" long for 4 Levers . . . . .	.24
	" " $\frac{3}{8}$ "x1 $\frac{1}{2}$ "—24" long for 6 Levers . . . . .	.39
	Add to leg brace (6-way) for each two lever increase . . . . .	.15
	Locking Bar $\frac{3}{16}$ "x1" per foot . . . . .	.12
	$\frac{3}{4}$ "x2 $\frac{3}{8}$ " Hex. Head Faced Bolt and Nut . . . . .	.18



The Dwarf Interlocking Machine

The Dwarf Interlocking Machine.

The dwarf machine, as its name implies, is of smaller and lighter construction than the Saxby & Farmer, Stevens, or other standard types of interlocking machines, and is designed to stand on ties, or other frame work, placed at track level.

It is used to a large extent on elevated railroads at outlying switches and main line cross-overs, and is also employed for the operation of station signals.

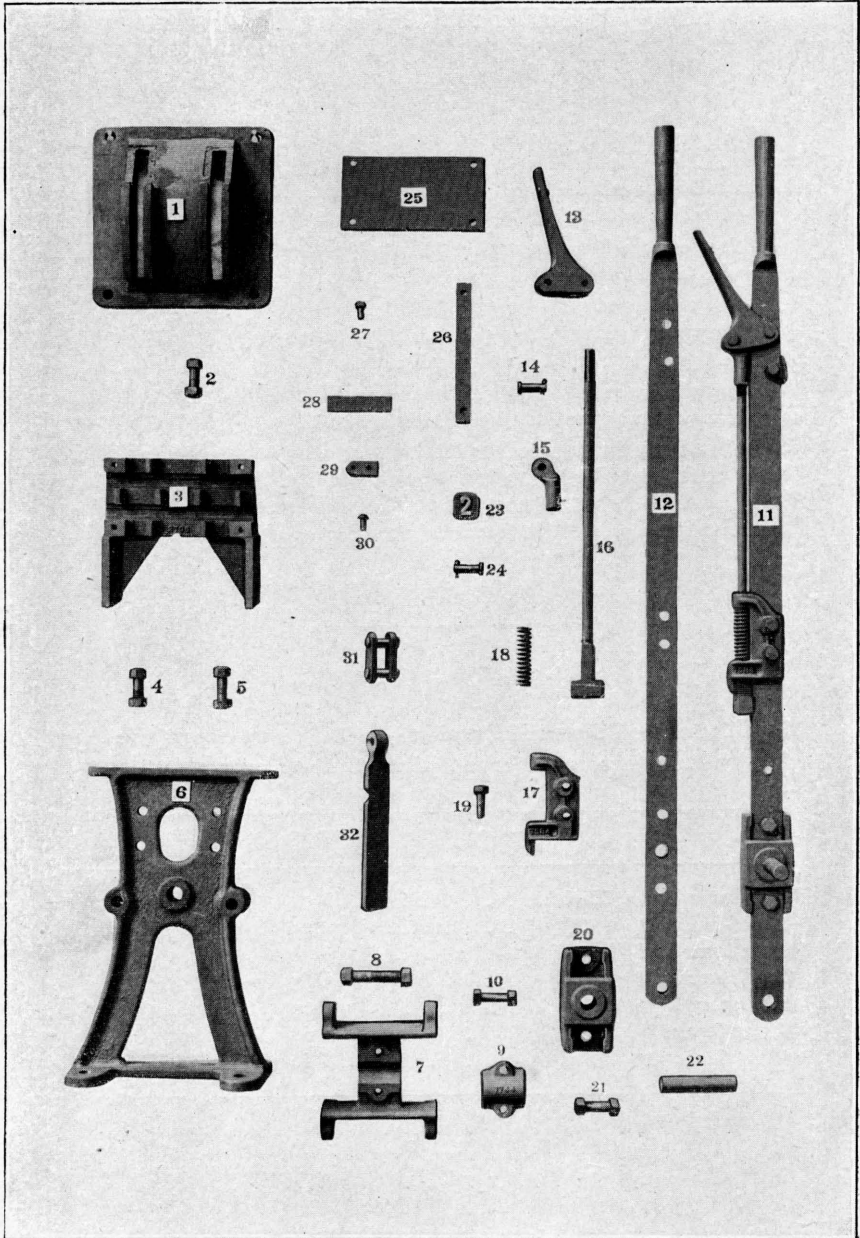
This type of machine can be furnished with any number of levers from 2 to 8, inclusive, either with or without locking.

It can also be furnished with one lever only, if desired; but for this size we recommend the type shown on Plates 172 and 173.

If locking is desired with any of these machines, a signaled and numbered plan showing the functions of each lever, and the route or routes to be governed by each signal, should accompany the order.

List Prices of Dwarf Machines, with or without locking, complete with jaws, pins, bolts and cotters.

	Without Locking	With Locking
Two-lever Dwarf Machine	\$60 75	\$85 44
Three-lever " "	78 15	113 10
Four-lever " "	96 70	141 96
Five-lever " "	114 65	161 96
Six-lever " "	132 65	181 95
Seven-lever " "	150 60	201 96
Eight-lever " "	168 60	221 82



Details and Fittings used in The Dwarf Interlocking Machine

The Dwarf Interlocking Machine.

DETAILS.

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

ORDER BY PLATE, NUMBER AND LETTER.

No.	List Price.
I Top Plate 2 lever	\$ 4 77
1a Top Plate 2 lever with cap screws and nuts	5 52
1b Top Plate 3 Lever	5 61
1c Top Plate 3 Lever with cap screws and nuts	6 39
1d Top Plate 4 Lever	6 39
1e Top Plate 4 Lever with cap screws and nuts	7 17
1f Top Plate 5 Lever	7 20
1g Top Plate 5 Lever with cap screws and nuts	7 98
1h Top Plate 6 Lever	8 01
1i Top Plate 6 Lever with cap screws and nuts	8 79
1j Top Plate 7 Lever	8 80
1k Top Plate 7 Lever with cap screws and nuts	9 59
1l Top Plate 8 Lever	9 60
1m Top Plate 8 Lever with cap screws and nuts	10 38
2 Cap Screw $\frac{5}{8}$ " x $1\frac{5}{8}$ " Hex. Head & Nut Fastening No. 1 to No. 6	21
3 Locking Plate 2-way	5 52
3a Locking Plate 2-way with bolts	6 12
3b Locking Plate 3-way	7 60
3c Locking Plate 3-way with bolts	8 20
3d Locking Plate 4-way	9 69
3e Locking Plate 4-way with bolts	10 29
3f Locking Plate 5-way	12 12
3g Locking Plate 5-way with bolts	12 73
3h Locking Plate 6-way	14 55
3i Locking Plate 6-way with bolts	15 18
3j Locking Plate 7-way	17 00
3k Locking Plate 7-way with bolts	17 60
3l Locking Plate 8-way	19 38
3m Locking Plate 8-way with bolts	20 01
4 or 5 Cap Screw $\frac{3}{8}$ " x $1\frac{1}{8}$ " Hex. Head & Nut for fasten- ing No. 3 to No. 6	21

The Dwarf Interlocking Machine.

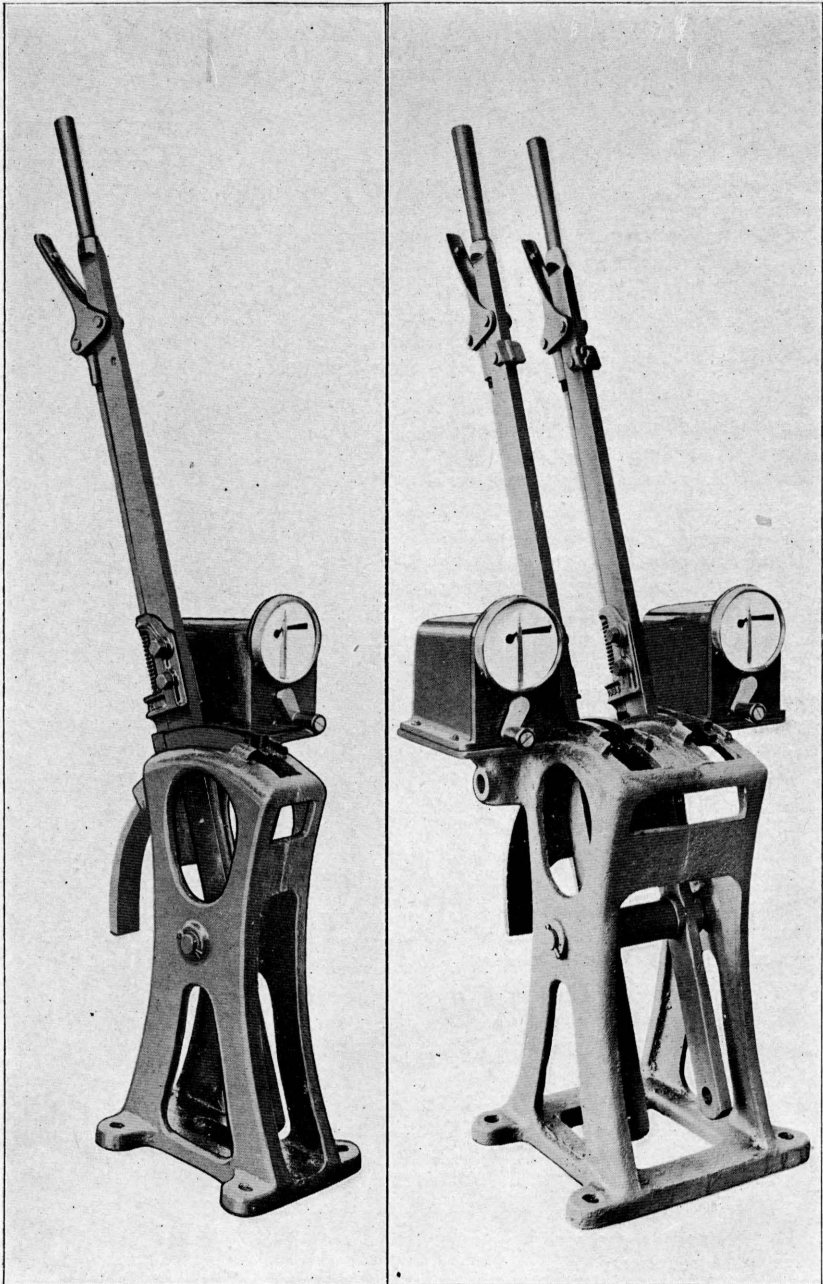
Details. Continued.

No.	List Price.
6 Leg	\$ 7 86
7 Bottom Rail 2 Lever	4 92
7a Bottom Rail 2 Lever with caps and bolts (1-9, 2-10, 4-8)	6 66
7b Bottom Rail 3 Lever	5 70
7c Bottom Rail 3 Lever with caps and bolts (2-9, 4-10, 4-8)	7 86
7d Bottom Rail 4 Lever	6 42
7e Bottom Rail 4 Lever with caps and bolts (3-9, 6-10, 4-8)	9 00
7f Bottom Rail 5 Lever	7 29
7g Bottom Rail 5 Lever with caps and bolts (4-9, 8-10, 4-8)	10 29
7h Bottom Rail 6 Lever	8 16
7i Bottom Rail 6 Lever with caps and bolts (5-9, 10-10, 4-8)	11 64
7j Bottom Rail 7 Lever	9 00
7k Bottom Rail 7 Lever with caps and bolts (6-9, 12-10, 4-8)	12 84
7l Bottom Rail 8 Lever	9 84
7m Bottom Rail 8 Lever with caps and bolts (7-9, 14-10, 4-8)	14 19
8 Cap Screw $\frac{3}{4}$ " x $2\frac{3}{8}$ " Hex. Head and Nut for fastening No. 7 to No. 6	33
9 Cap for No. 7	36
9a Cap for No. 7 with bolts	42
10 Bolt $\frac{1}{2}$ x 2 inch Sq. Hd. with Hex. Nut for fastening No. 9 to No. 7	03
11 Lever complete as shown	11 94
12 Lever only	5 76
13 Latch Handle	96
13a Latch Handle with pins	1 14
14 Pin $\frac{1}{2}$ x $1\frac{1}{8}$ inch C. H. with cotter for fastening No. 13 to No. 12	09
15 Latch Nut	24
16 Latch Rod	1 71
16a Latch Rod complete with latch handle, latch nut, latch spring, pins and cotters (1-13, 2-14, 1-15)	3 27
17 Latch Shoe	84
17a Latch Shoe with cap screws (2-19)	93
18 Latch Spring	18
19 Tap Bolt $\frac{1}{2}$ x $1\frac{3}{4}$ inch Hex. Hd. for fastening No. 17 to No. 12	03

The Dwarf Interlocking Machine.

Details.
Continued.

No.		List Price.
20	Lever Shoe	\$ 72
20a	Lever Shoe with bolts (2-21)	I 02
21	Bolt $\frac{5}{8}$ x 2 inch Hex. Head and Nut for fastening No. 20 to No. 12	15
22	Pin 1 x $4\frac{7}{8}$ inch C. R. for Lever	15
23	Lever Number	09
23a	Lever Number with pin and cotter	18
24	Pin $\frac{1}{2}$ x $1\frac{1}{8}$ inch C. H. with cotter for fastening No. 23 to No. 12	09
25	Cover for locking plate 2-way	42
25a	Cover for locking plate 3-way	46
25b	Cover for locking plate 4-way	51
25c	Cover for locking plate 5-way	63
25d	Cover for locking plate 6-way	75
25e	Cover for locking plate 7-way	88
25f	Cover for locking plate 8-way	I 02
26	Tie Bar 2-way	10
26a	Tie Bar 2-way with screws	21
26b	Tie Bar 3-way	17
26c	Tie Bar 3-way with screws	28
26d	Tie Bar 4-way	24
26e	Tie Bar 4-way with screws	35
26f	Tie Bar 5-way	31
26g	Tie Bar 5-way with screws	43
25h	Tie Bar 6-way	40
26i	Tie Bar 6-way with screws	51
26j	Tie Bar 7 way	47
26k	Tie Bar 7-way with screws	58
26l	Tie Bar 8 way	54
26m	Tie Bar 8-way with screws	65
27	Cap Screw $\frac{3}{8}$ x 1 inch for fastening No. 25 or No. 26 to No. 3	06
28	Locking Bar $\frac{1}{4}$ x 1 inch C. R., per foot	12
29	Dog single end	12
29a	Dog single end, with rivets (2-30)	14
29b	Dog double end	21
29c	Dog double end, with rivets (2-30)	23
30	Rivet $\frac{1}{4}$ x $\frac{7}{8}$ inch B. H. for fastening No. 29 to No. 28	01
31	Tappet Link with pins and cotters ($\frac{1}{2}$ x 2 inch C. H. Pins)	60
32	Tappet short	I 77
32a	Tappet long	I 86



One and Two Lever Dwarf Interlocking Machine with Electric Locks

Dwarf Interlocking Machine with Electric Locks.

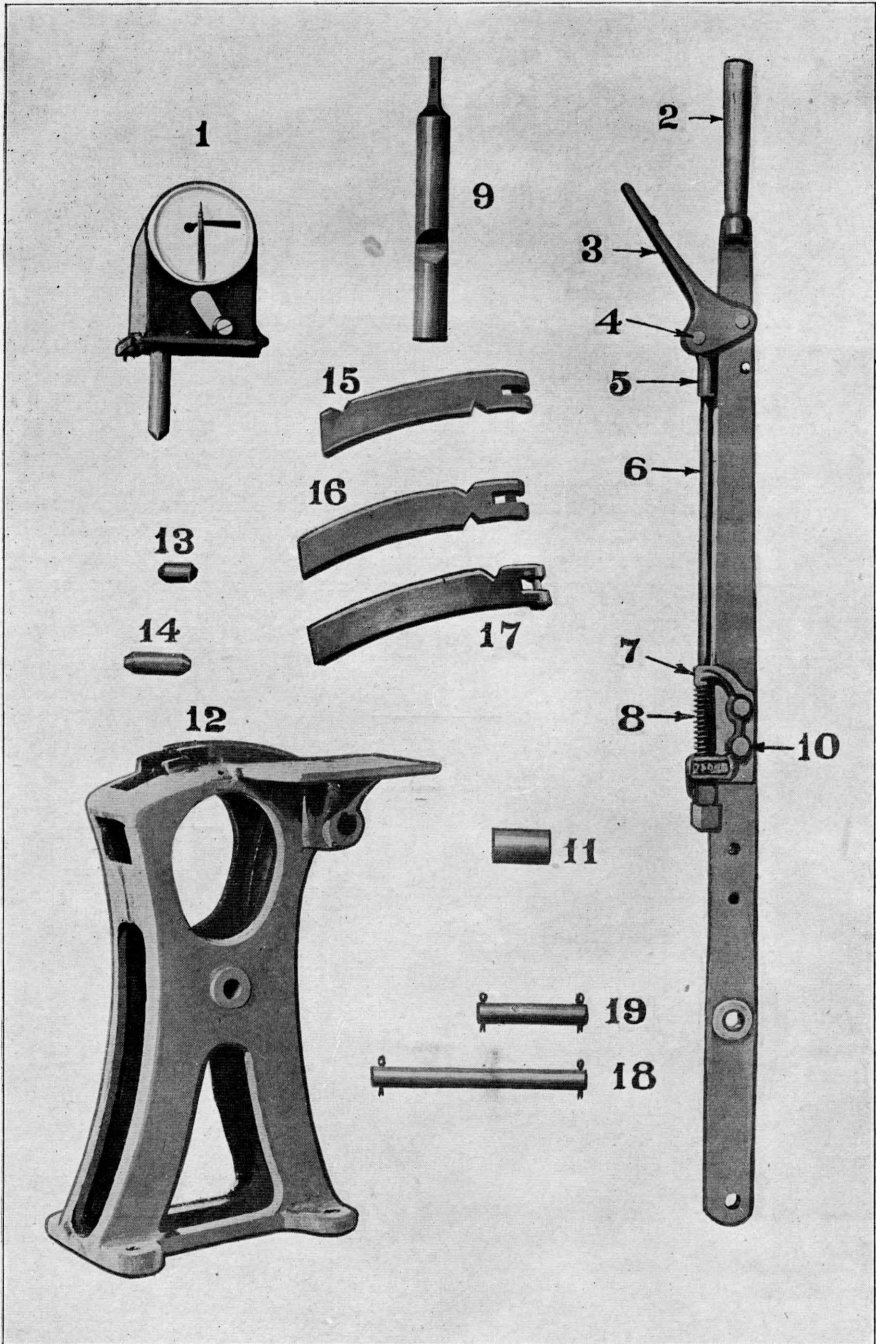
The machines illustrated are especially adapted for the manual operation of switches leading onto the main lines where it is desired to control them from an interlocking tower, telegraph office or other point from which the switches are too far distant to be operated by mechanical connections. By the use of the electric lock the tower or station operator can permit or prevent the operation of certain switches and can also indicate by the position of the miniature semaphore whether the switch or switches are in a condition to be operated.

A similar lock and indicator may be placed at the point from which the switch is to be controlled for the purpose of indicating its position, and if located in an interlocking tower can be used to prevent the clearing of signals governing main line train movements over the switch when the latter is set for the siding.

The machine illustrated can also be furnished without electric locks and indicators if desired.

ORDER BY PLATE, NUMBER AND LETTER.

No	List Price.	
A		One Lever Dwarf Machine with indicator and electric lock
	\$ 87 24	
Aa		As above without indicator and electric lock
	28 83	
B		Two Lever Dwarf Machine with two indicators and electric locks
	171 57	
Ba		As above without indicators or electric locks
	54 75	

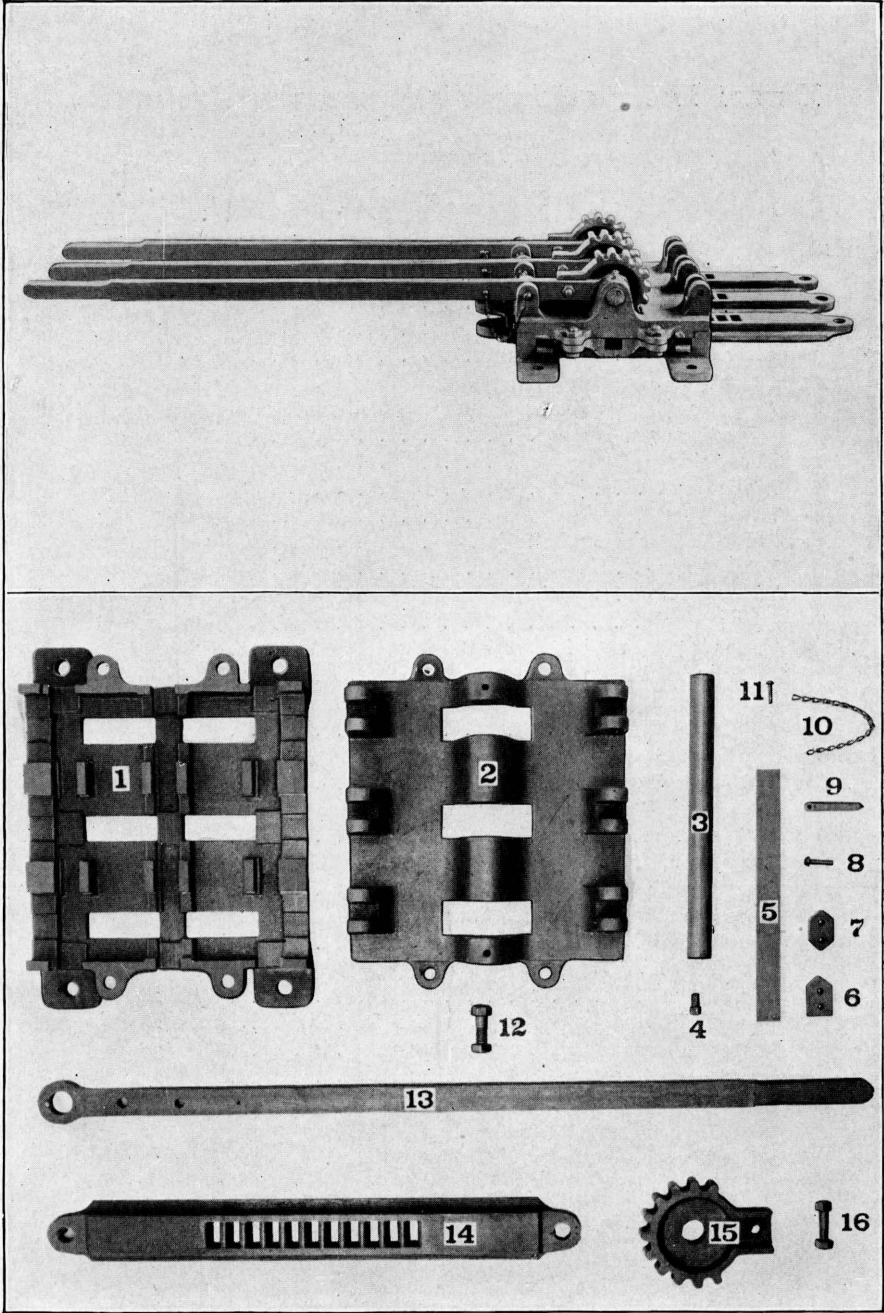


Details of One and Two Lever Dwarf Interlocking Machine and Electric Lock

Dwarf Interlocking Machine with Electric Lock.

Detailed Parts.

No.		List Price
1	Indicator and Lock, complete	\$58 41
2	Lever only	6 87
2a	Lever complete as shown	12 63
3	Latch Handle	84
3a	Latch Handle with pins and cotters	1 05
4	Pin $\frac{1}{2}$ "x $1\frac{1}{8}$ " with cotter for joining No. 5 to No. 3, and No. 3 to No. 2.	10
5	Latch Nut	24
6	Latch Rod	1 80
7	Latch Shoe.	72
7a	Latch Shoe with tap bolts (2-10)	84
8	Latch Spring.	27
9	Tappet $1\frac{1}{2}$ "x $7\frac{1}{2}$ " long with notches (special for 2-lever machine)	45
10	Tap Bolt $\frac{1}{2}$ "x $1\frac{3}{4}$ " hex. head for fastening No. 7 to No. 2, and No. 1 to No. 12	06
11	Spacer, for separating levers in 2-lever machine.	18
12	One Lever Stand only.	7 20
12a	One Lever Stand with lever pin and cotters (1-19)	7 50
12b	Two Lever Stand only.	11 52
12c	Two Lever Stand with lever pin, cotters and spacer (1-18, 1-11)	12 09
13	Cross Lock, $2\frac{1}{8}$ " long (for 1-lever machine)	30
14	Cross Lock, $3\frac{3}{8}$ " long (for 2-lever machine)	36
15	Tappet for lever No. 2 with pin and cotter (for 2-lever machine)	2 28
16	Tappet for lever No. 1 with pin and cotter (for 2-lever machine)	2 28
17	Tappet with pin and cotter (for 1-lever machine)	2 28
18	Lever Pin with cotters (for 2-lever stand)	39
19	Lever pin with cotters (for 1-lever stand)	27
	Washer for lever pin	02



Triple Ground Lever Interlocking Stand and Details

The Triple Ground Lever Interlocking Stand and Details.

Where one or two switches must be operated and interlocked with signals as in the case of the ending of a double track, this device is recommended as being especially applicable to the purpose.

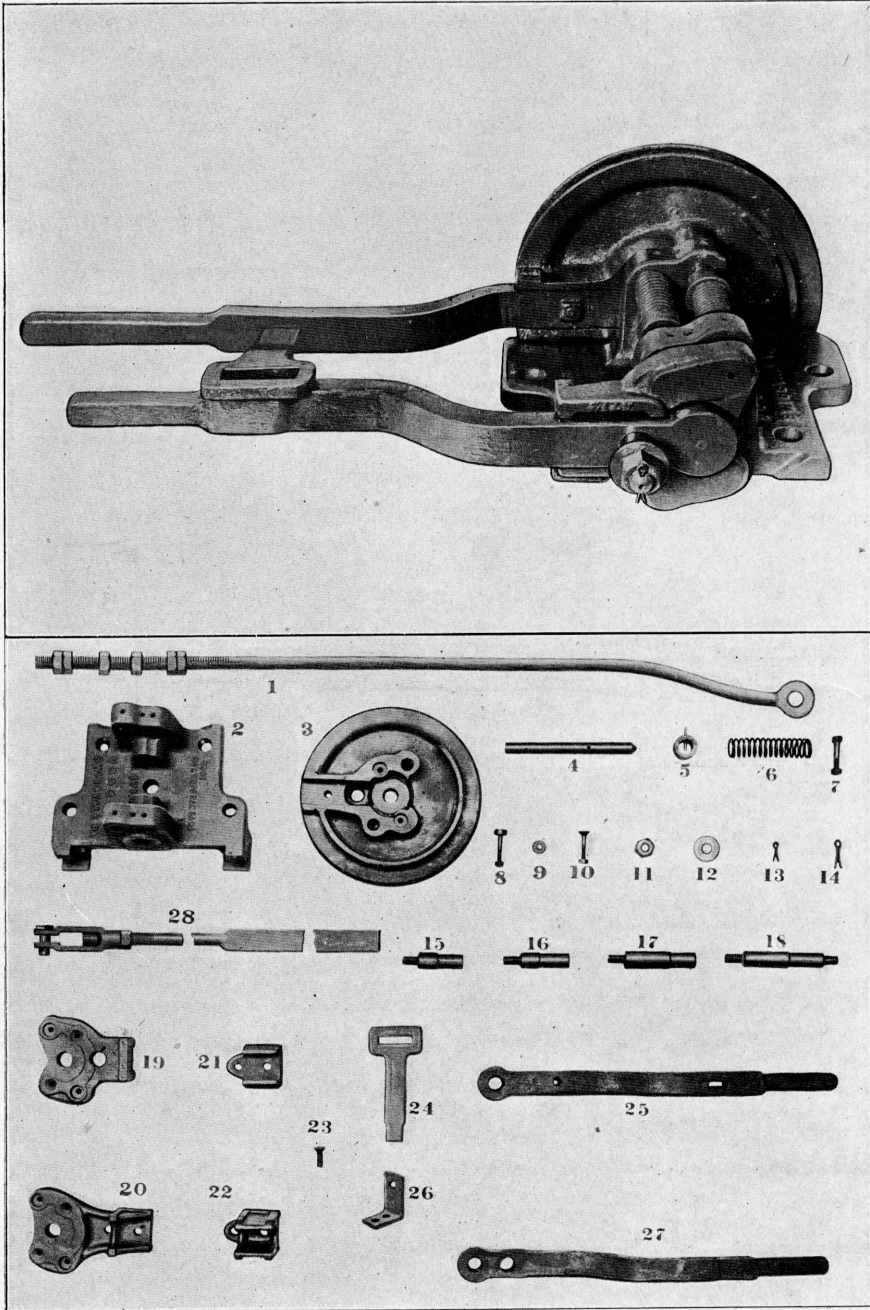
It can be located in a narrow space and from the fact that the levers lie horizontally, both in the normal and reversed positions and the machine itself extends but a few inches above rail level, it offers no obstruction to passing trains if placed between tracks.

The Stevens type of locking is applied to this machine, and any combination required between the three levers can be furnished.

A plan or sketch of the tracks to be protected and the arrangement and numbering of the signals should accompany all orders for this machine when locking between levers is required.

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price.
A	Triple ground lever complete as shown	\$51.15
a	Triple ground lever complete as shown, with 4 jaws and 4 bolts	57.21
b	Triple ground lever complete as shown, with 6 jaws and 4 bolts	59.85
I	Base	13.95
1a	Base with cap, set screws and bolts (1-2, 2-4, 4-12) . .	21.12
2	Cap	6.87
2a	Cap with set screws (2-4)	6.93
3	Shaft 1¼" x 15' . . . . .	.69
4	Set screw ⅜" x ¼" for holding shaft in place. . . . .	.04
5	Locking bar ⅜" x 1¼" . . . . .	.41
6	Locking dog, single end . . . . .	.13
6a	Locking dog, single end with rivets (2-11) . . . . .	.15
7	Locking dog, double end . . . . .	.21
7a	Locking dog, double end with rivets . . . . .	.23
8	Rivet ¼" x 1" for locking dog . . . . .	.01
9	Pin ½" x 3" for fastening lever . . . . .	.14
10	Chain 7" long } For attaching pin No. 9 . . . . .	.04
11	Rivet } . . . . .	.01
12	Bolt ⅜" x 1½" Hex head and nut for fastening top . .	.06
13	Lever	3.12
14	Rack	3.09
15	Pinion	1.32
16	Bolt ½" x 1¼" with hex nut for fastening Pinion to Lever . . . . .	.06



Double Ground Lever Interlocking Stand and Details

The Double Ground Lever Interlocking Stand and Details.

This device is intended for operating outlying main line switches and the semaphore signals protecting them. The levers are interlocked in such a manner that the governing signal or signals cannot be cleared until the switch or switches are set for the main track, nor can any switch be moved until the signals or signal controlling train movements over them have been first set to the danger position.

For applications of this device see Plate 176.

In ordering complete machines the order must specify for which of the layout (Figs. A, B, C or D) on Plate 176 the machines are required.

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
A	Double Ground Lever Interlocking Stand complete as shown	\$33 27
Aa	Double Ground Lever Interlocking Stand complete as shown, with lag screws	33 72
Ab	Double Ground Lever Interlocking Stand complete as shown, with staple and lag screws	34 27
1	Connecting Rod with Nuts as shown	4 35
2	Base	5 34
3	Chain Wheel	3 93
3a	Chain Wheel with Bolts (1-8, 1-9, 1-10)	4 02
4	Locking Pin	66
4a	Locking Pin with Collar and Pin (1-5)	75
5	Collar and Dowel Pin, for bearing of No. 6	09
6	Spring for No. 4	1 05
7	Bolt and Nut $\frac{1}{2}$ " x $2\frac{1}{2}$ ", for fastening No. 25 to No. 3	06
8	Bolt and Nut $\frac{3}{8}$ " x $2\frac{1}{2}$ "; cheese head for filling lock holes in No. 3, 19 and No. 20	05
8a	Bolt and Nut $\frac{3}{8}$ " x $1\frac{1}{2}$ "; cheese head for filling lock holes in No. 19 and No. 20	04
9	Washer $\frac{3}{8}$ " for No. 8 and No. 10	01
10	Bolt and Nut $\frac{3}{8}$ " x $2\frac{1}{2}$ " Csk. head	05
10a	Bolt and Nut $\frac{3}{8}$ " x $1\frac{1}{2}$ " Csk. head	04

The Double Ground Lever Interlocking Stand and Details.

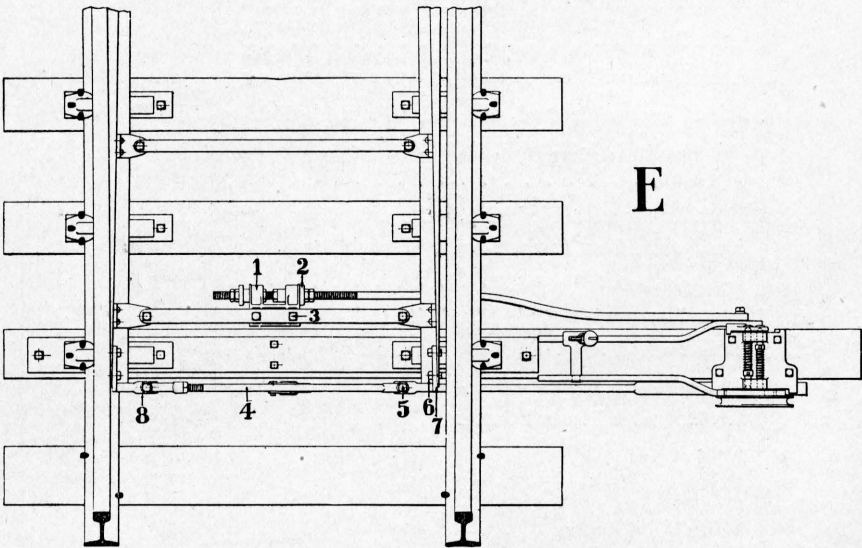
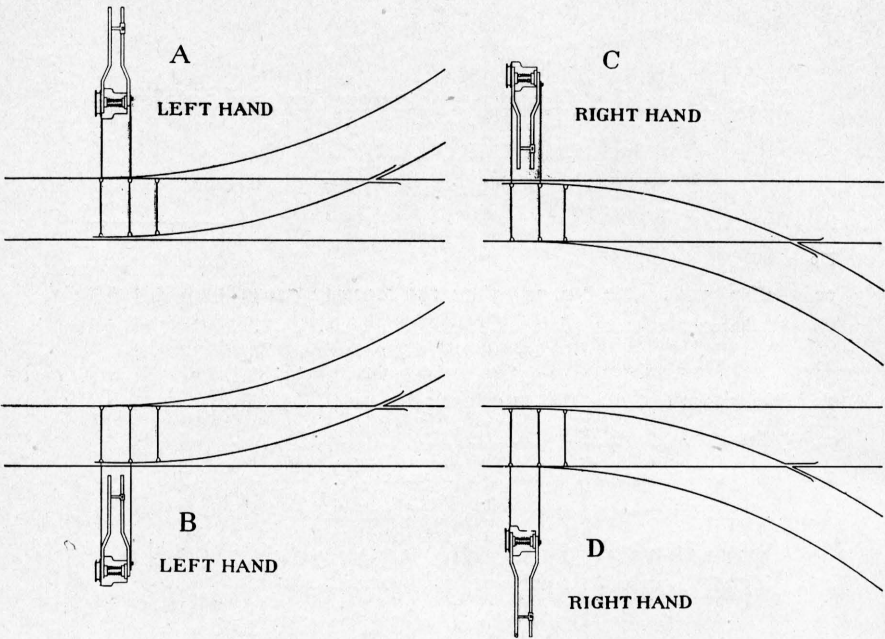
Continued.

No.		List Price
11	Hex. Nut $\frac{3}{4}$ "', for left hand ends of Nos. 15, 16, 17 and 18	\$ 06
12	Washer $\frac{3}{4}$ "', for left hand ends of Nos. 15, 16, 17 and 18.	02
13	Split Cotter $\frac{5}{32}$ "' x $1\frac{1}{4}$ "', for left hand ends of Nos. 15, 16, 17 and 18	01
14	Split Cotter $\frac{7}{32}$ "' x 2"', for right hand end of No. 18 .	01
15	Stud for switch rod connection on No. 27; this also helps to join No. 19 and No. 27	45
15a	Stud for No. 19 and No. 27 with nut, washer and cotter (I-11, I-12, I-13)	51
16	Stud, used only when a pipe connection is desired with No. 3	45
16a	Stud for No. 3 with Nut, washer and cotter (I-11, I-12, I-13)	54
17	Stud, for joining Nos. 2, 19 (or 20) and 27	51
17a	Stud for Nos. 2, 19 (or 20) and 27, with nut, washer and cotter (I-11, I-12, I-13)	57
18	Stud, for joining Nos. 2, 3 and 25	90
18a	Stud for Nos. 2, 3 and 25 with nut, washer and cotter (2-11, 2-12, I-13, I-14)	1 05
19	Switch Lever Casting; this is fastened to No. 2, and is used in connection with No. 27	93
19a	Switch Lever Casting with bolts (1-8, 1-10, 2-9)	1 02
20	Switch Lever Casting; this is fastened to No. 2, and is used in connection with a separate ground lever, in which case No. 27 is not provided	1 17
20a	Switch Lever Casting with Bolts (1-8, 1-10, 2-9)	1 26
21	Clip, used with No. 20, when the separate ground lever is of flat iron	30
21a	Clip with Rivets (2-23)	33

The Double Ground Lever Interlocking Stand and Details.

Continued.

No		List Price
22	Clip, used with No. 20, when the separate ground lever is of round iron	\$ 51
22a	Clip with Rivets (2-23)	54
23	Rivet for fastening No. 21 or 22 to No. 20	02
24	Cross arm, for No. 25	1 20
25	Signal Lever.	3 90
25a	Signal lever with cross arm, stud and bolts (1-24, 1-18, 2-11, 2-12, 1-13, 1-14, 1-7)	6 93
25b	Signal Lever with cross arm, stud, wheel and bolts (1-24, 1-18, 2-11, 2-12, 2-13, 1-14, 1-3, 1-8, 1-10, 2-9, 1-7)	11 13
26	Staple	41
27	Switch Lever	3 90
27a	Switch Lever with studs (1-15, 1-17, 2-11, 2-12, 2-13)	5 49
27b	Switch Lever with stud, clip and bolts using Nos. 19 and 21 (1-15, 1-17, 2-11, 2-12, 2-13, 1-19, 1-8, 1-10, 2-9, 1-21)	7 32
27c	Switch Lever with stud, clip, bolts and rivets, using Nos. 20 and 21 (1-15, 1-17, 2-11, 2-12, 2-13, 1-20, 1-8, 1-10, 2-9, 1-21, 2-23)	7 59
27d	Switch Lever with stud, clip, bolts and rivets, using Nos. 20 and 22 (1-15, 1-17, 2-11, 2-12, 3-13, 1-20, 1-8, 1-10, 2-9, 1-22, 2-23)	7 80
28	Lock Rod with Pin and Cotter	4 38



The Double Ground Lever Interlocking Stand
Views showing its application to right and left hand switches. Also
showing its connection with switch points

PART I.

The Double Ground Lever Interlocking Stand.

Views Showing its Application to Right and Left Hand Switches

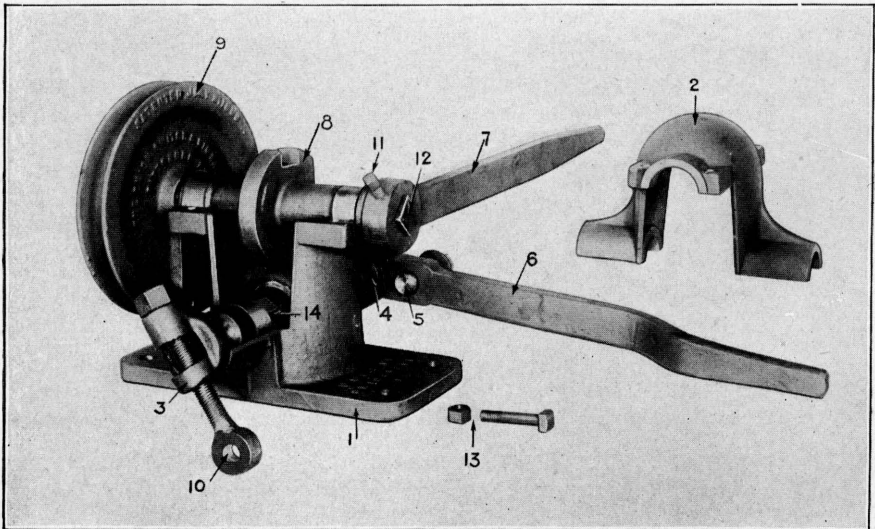
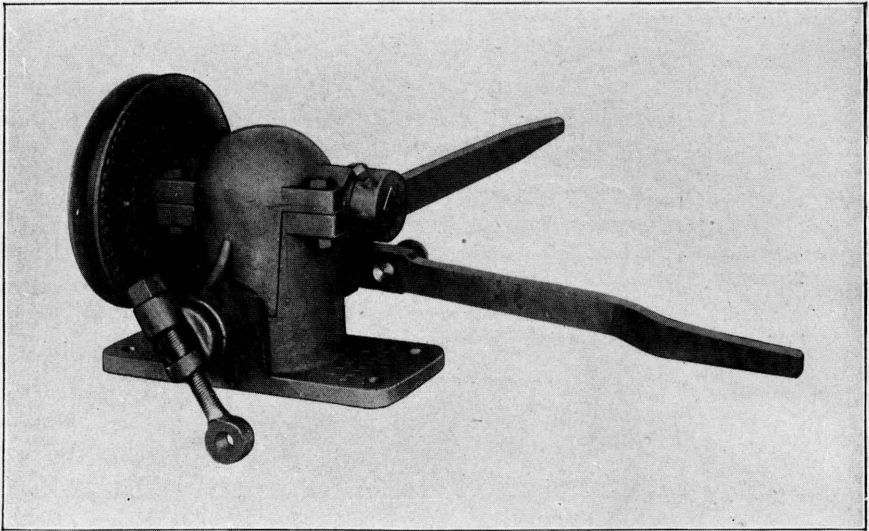
In ordering the Double Ground Lever Interlocking Stand shown on Plate 175, the order should specify which of the four applications illustrated on opposite page (Figs. A, B, C or D) the device is intended for, so that the proper arrangements of levers and locking may be sent.

PART II.

List of Parts used in Connecting Double Ground Lever Interlocking Stand to Switch Points.

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
E	Double Ground Lever Interlocking Stand complete with staples, lag screws, front and lock rods, switch feet and bolts, connecting rod with special adjustment, pins and cotters as shown in layout E. (See note above)	\$52 60
1	Malleable Bracket	1 59
2	Sleeves for No. 1	36
3	Rivet $\frac{3}{4}$ "x $2\frac{7}{8}$ " for fastening bracket to bridle rod . .	06
4	Front rod, adjustable, with lug, pins and cotters . . .	3 90
5	Pin and Cotter for No. 4.	10
6	Bolt and nut $\frac{5}{8}$ "x $2\frac{3}{8}$ " for fastening switch feet to rail	07
7	Right Hand Switch Foot	1 29
7a	Right Hand Switch Foot with bolts and nut locks . .	1 53
8	Left Hand Switch Foot	1 29
8a	Left Hand Switch Foot with bolts and nut locks . . .	1 53



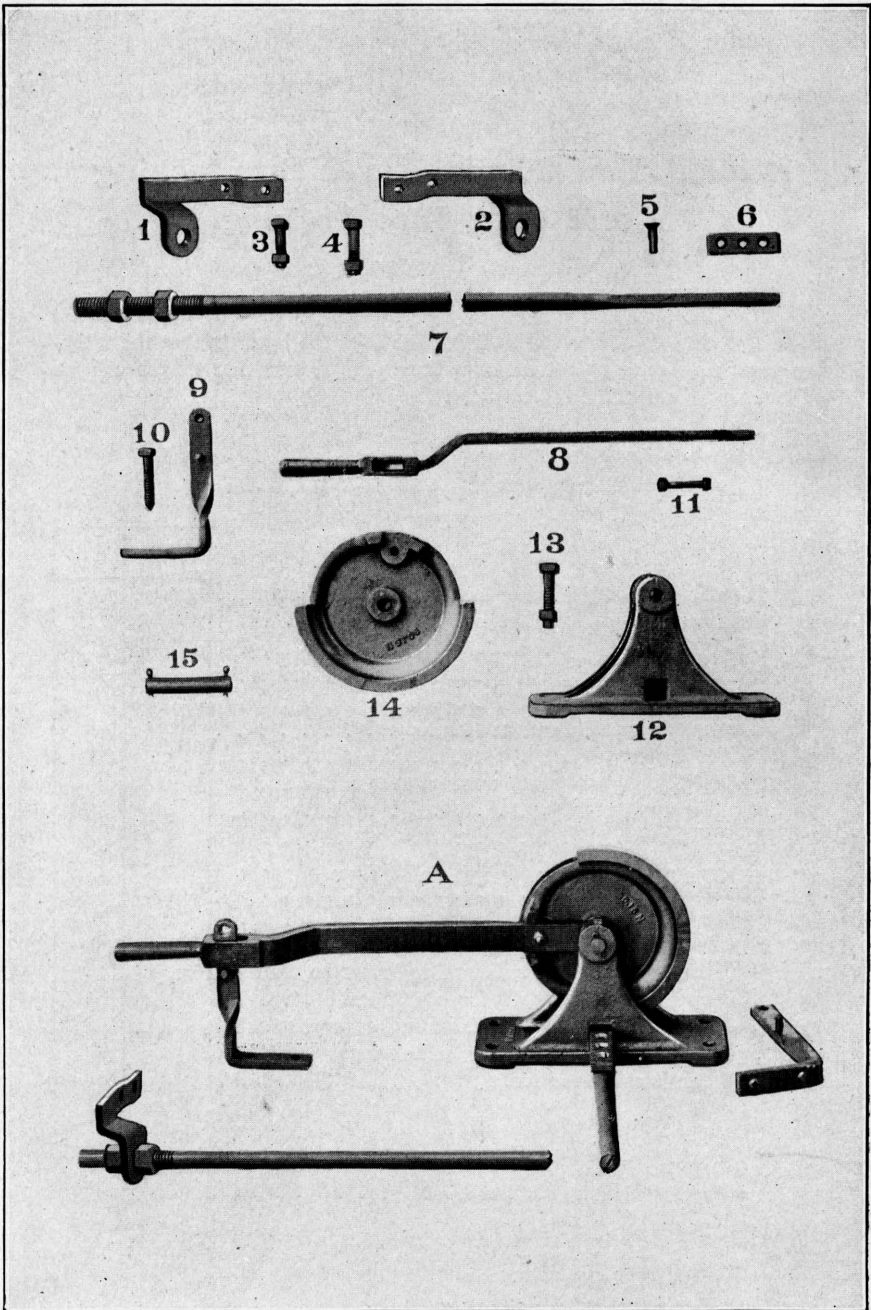
Disc Locking Double Ground Lever Interlocking Stand

The Double Ground Lever Interlocking Stand With Disc Locking.

This device is used for the same purposes as the one illustrated on Plate 175. It possesses certain advantages over the latter in that the working parts are better protected from the weather, and that the Disc Type of locking is less subjected to wear.

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
A	Disc Interlocking Ground Lever Stand as shown . . .	\$49 20
1	Base	5 79
2	Cover.	4 35
3	Switch Lock Disc	4 80
4	Switch Lever Disc	4 62
5	Stud with washer, nut and cotter	42
6	Switch Lever	5 07
6a	Switch Lever with stud, washer, nut, cotter and set screw (1-5, 1-11)	5 55
7	Signal Lever	5 43
7a	Signal Lever with set screw (1-11)	5 49
8	Signal Lever Disc	4 62
9	Signal Wheel with bolt and set screw	2 70
10	Eye Bolt and Nut	81
11	Set Screw $\frac{1}{2}$ "x $1\frac{1}{4}$ " for fastening levers to shafts	05
12	Square Shaft $1\frac{1}{4}$ "x $1\frac{3}{8}$ " for signal lever	41
13	Bolt and Nut $\frac{1}{2}$ "x3" for fastening cover to base	07
14	Square Shaft $1\frac{1}{4}$ "x $7\frac{3}{4}$ " for switch lever	30
15	$\frac{1}{2}$ " Lock Washer for No. 13	02



Rim Lock Ground Lever Interlocking Stand

The Rim Lock Ground Lever Interlocking Stand and Details.

This machine is used for locking an outlying switch and operating a distant signal governing train movements over it.

The switch itself is operated by an ordinary switch stand in the usual manner, and in addition has a lock rod connected to it which engages with the rim of the wheel on the ground lever stand operating the signal in such a manner that the signal cannot be cleared until the switch is in its proper position, nor can the switch be moved until the signal governing it has assumed the horizontal position.

ORDER BY PLATE, NUMBER AND LETTER.

No.		List Price
A	Ground Lever Stand complete with lock lugs, lag screws, bolts, lock rod, switch foot, bolts and nut locks	\$ 24 15
1	Left Hand Switch Foot	3 18
1a	Left Hand Switch Foot with bolts, nut locks and cotters (1-3, 1-4, 2-16, 2-17)	3 51
2	Right Hand Switch Foot	3 18
2a	Right Hand Switch Foot with bolts, nut locks and cotters (1-3, 1-4, 2-16, 2-17)	3 51
3	Bolt $\frac{3}{4}$ " x $2\frac{1}{2}$ ", drilled for cotter, with nut for fastening No. 1 or No. 2 to rail	15
4	Bolt $\frac{3}{4}$ " x 4", drilled for cotter, with nut for fastening No. 1 or No. 2 to rail	18
5	Rivet $\frac{1}{2}$ " x $1\frac{3}{4}$ ", Csk. for fastening No. 6 to No. 7	02
6	Locking Dog to be fastened to No. 7	39
6a	Locking Dog with rivets (3-5)	45
5	Lock Rod with $2-1\frac{1}{4}$ " thin hex. nuts	4 74
7a	Lock Rod with $2-1\frac{1}{4}$ " thin hex. nuts, locking dog and rivets (1-6, 3-5)	5 19
7b	Lock Rod with $2-1\frac{1}{4}$ " thin hex. nuts, locking dog, rivets and switch foot (1-6, 3-5, 1-1 or 2)	8 37
7c	Lock Rod with $2-1\frac{1}{4}$ " thin hex. nuts, locking dog, rivets, switch foot, bolts, nut locks and cotters (1-6, 3-5, 1-1 or 2, 1-3, 1-4, 2-16, 2-17)	8 73
8	Lever only	5 22
9	Lock Lug for holding lever in either position	96
9a	Lock Lug with lag screws (2-10)	1 14
10	Lag Screws $\frac{3}{4}$ " x 4" for fastening lock lug to foundation	09
11	Bolt and Nut $\frac{1}{2}$ " x $3\frac{1}{2}$ " for fastening lever to wheel	06
12	Wheel Stand for 10" Wheel	4 41
12a	Wheel Stand with pin and cotters (1-15)	4 80
12b	Wheel Stand with pin, cotters and wheel (1-15, 1-14)	7 08
12c	Wheel Stand with pin, cotters, wheel, lever and bolt (1-15, 1-14, 1-8, 1-11)	12 63
13	Bolt and Nut $\frac{3}{4}$ " x $5\frac{1}{2}$ ", for fastening No. 12 to foundation	15
13a	Bolt and Nut, $\frac{3}{4}$ " x $7\frac{1}{2}$ ", for fastening No. 12 to foundation	18
14	Wheel 10" diameter (state whether right or left hand)	2 22
15	Pin 1" x $6\frac{1}{2}$ " with cotters (2-17) for No. 12	33
16	Nut Lock $\frac{3}{4}$ " for No. 3 or No. 4	02
17	Cotter $\frac{3}{16}$ " x $1\frac{1}{2}$ " for No. 15	01
18	Washer $\frac{3}{4}$ " for No. 13	02
19	Thin hex. nut for No. 7	12

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