

(No Model.)

3 Sheets—Sheet 1.

G. KOENIG.

INTERLOCKING MECHANISM FOR SWITCH AND SIGNAL APPARATUS.

No. 575,120.

Patented Jan. 12, 1897.

FIG. 1.

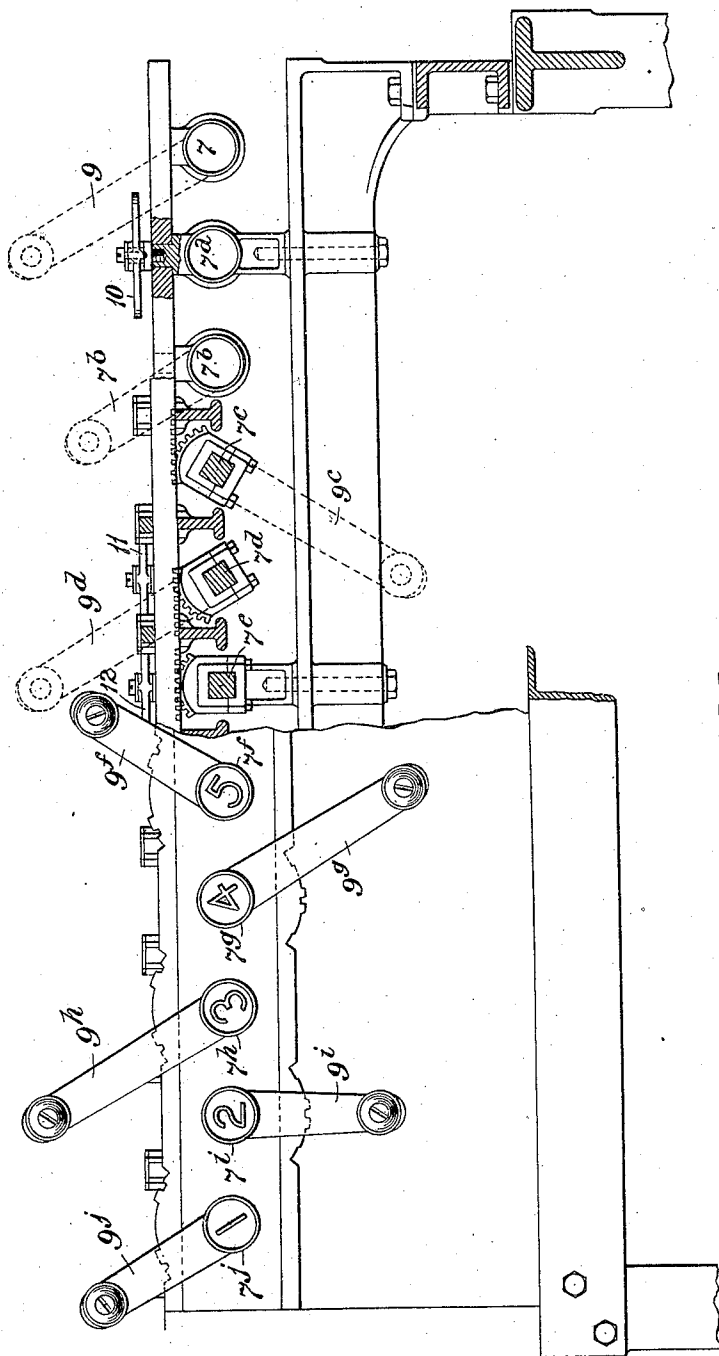
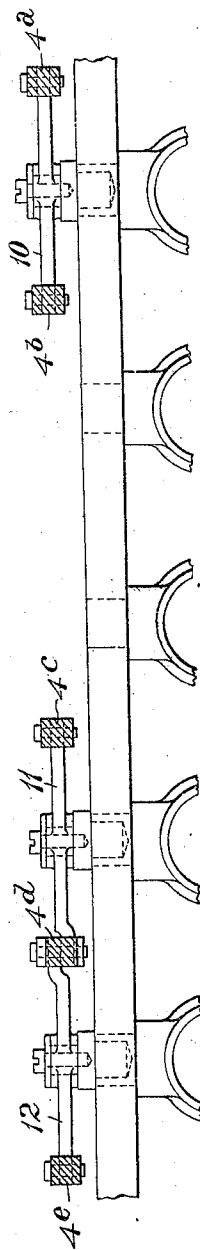


FIG. 3.



WITNESSES:

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Bayard H. Christy

INVENTOR.

George Koenig
by Daniel S. Wolcott
Att'y.

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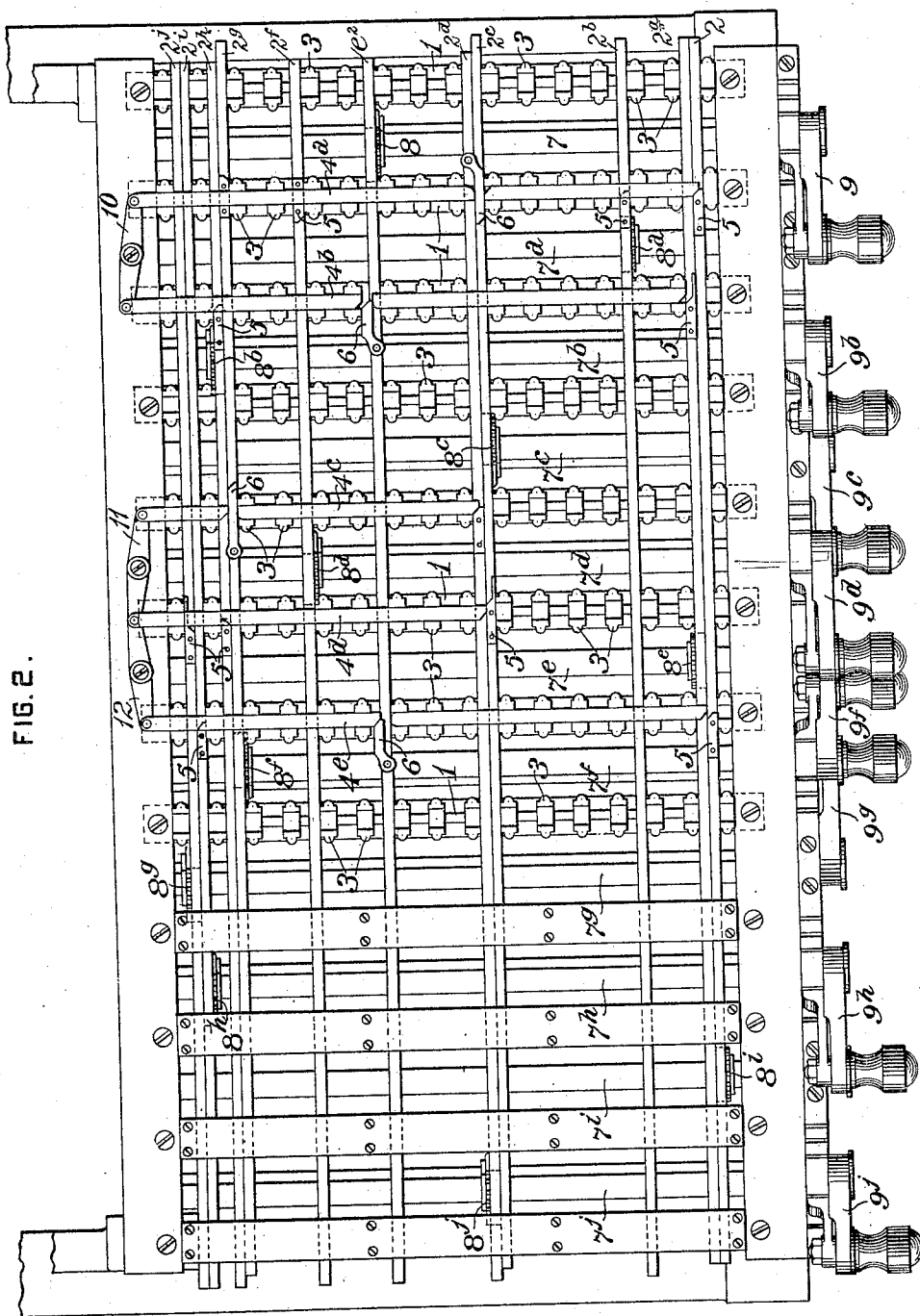


FIG. 2.

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(No Model.)

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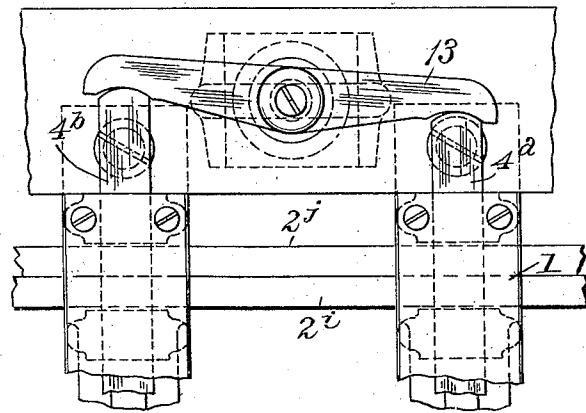
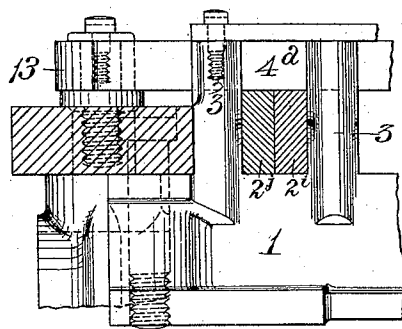
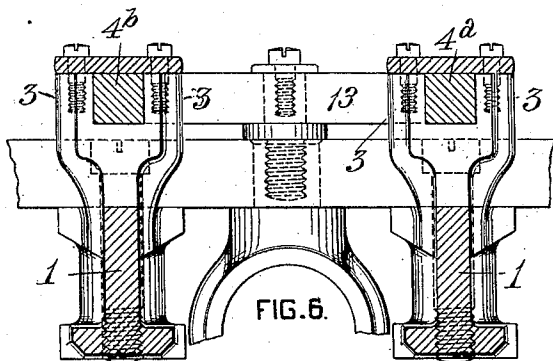
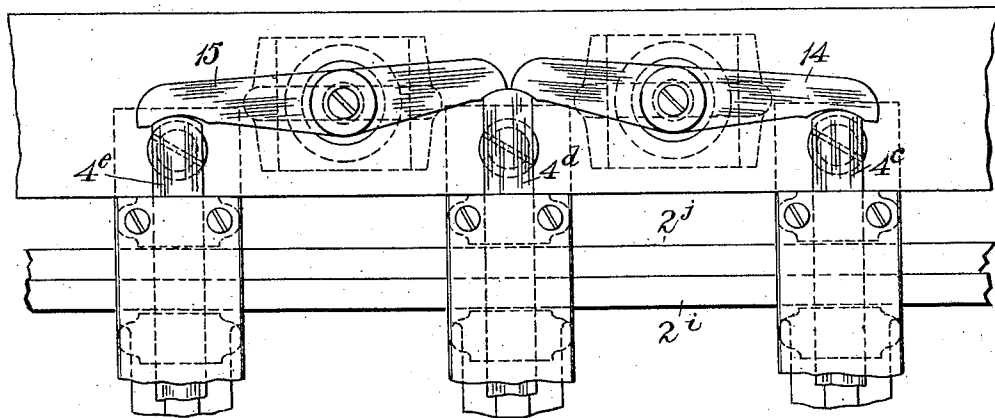


FIG. 4.

FIG. 5.



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UNITED STATES PATENT OFFICE.

GEORGE KOENIG, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE UNION SWITCH AND SIGNAL COMPANY, OF SWISSVALE, PENNSYLVANIA.

INTERLOCKING MECHANISM FOR SWITCH AND SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 575,120, dated January 12, 1897.

Application filed June 3, 1896. Serial No. 594,085. (No model.)

To all whom it may concern:

Be it known that I, GEORGE KOENIG, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Interlocking Mechanism for Switch and Signal Apparatus, of which improvements the following is a specification.

10 In large interlocking switch and signal plants considerable difficulty is found in arranging the mechanical interlocking within the tower on account of the width of such interlocking mechanism.

15 The object of the present invention is to so construct parts of the mechanical interlocking that when part or member thereof is shifted it will impart a movement to another similar or corresponding part or parts arranged parallel with the first part; and in
20 general terms the invention consists in the construction and combination substantially as hereinafter more fully described and claimed.

25 In the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of a switch and signal operating machine. Fig. 2 is a top plan view of the mechanical interlocking of the machine. Fig.
30 3 is a sectional elevation showing the manner of connecting adjacent parts of the locking mechanism. Figs. 4, 5, 6, and 7 are detail views, on an enlarged scale, illustrating a modification in the manner of imparting
35 movement from one of the locking devices to other similar locking devices.

In a suitable frame is mounted a series of bars 1, provided with notches transverse of the same for the reception of locking-bars 2.
40 The tops of the projections 3 between the notches in the bars 1 are formed with recesses or grooves for the reception of the locking-blocks 4^a, which are adapted to move at right angles to the locking-bars 2. On the locking-bars 2 are attached dogs 5, having one or
45 both ends inclined, and also pivotal fingers 6, having their free ends inclined or beveled. These dogs project above the surface of the locking-bars 2 and are adapted when the bars
50 are shifted to pass into notches in the under side of the locking-blocks 4^a, while the fin-

gers 6 are adapted to pass between adjacent ends of the sections of the blocks 4^a, &c., and by the engagement of the beveled ends of the dogs or fingers with corresponding bevels adjacent to the notches on the under side of the locking-blocks and at the ends of the sections of such blocks to shift said locking-blocks longitudinally.

In suitable bearings in the frame of the machine below the locking mechanism above described are mounted a series of shafts 7 7^a, &c., having secured thereto toothed sectors 8 8^a, &c., which are arranged to intermesh with teeth on the under side of the locking-bars 2. The projecting ends of these shafts are provided with operating-handles 9.

The construction so far described is fully shown and described in Letters Patent No. 406,212, granted July 2, 1889, to James T. Hambay.

In order to avoid the widening out of the mechanical interlocking for large plants, as has heretofore been necessary to accommodate a large number of blocks included in one combination, I provide for the shifting of one of the locking-blocks, as 4^b, or the blocks in the line 4^b, by the locking-blocks 4^a. This shifting is effected by means of a lever 10, pivoted to the frame of the machine and connected at its ends to the locking-blocks 4^a and 4^b, respectively.

Where it is desired to operate two or more locking-blocks by a third locking-block, the arrangement shown at the middle of Fig. 2 is employed. This arrangement consists of two levers 11 and 12, so pivoted to the frame of the machine that their adjacent ends may be connected to a locking-block, as 4^d, while their opposite ends are connected, respectively, to other locking-blocks, as 4^c and 4^e.

The operation of my improvement, referring to the construction shown in the middle of Fig. 2, is as follows, and in this description it will be supposed that the bars 4^d and 4^e are to be shifted by the block 4^c: In order to free these bars 4^d and 4^e, the locking-bar 2^c is first shifted to the left, so as to remove the dog 5 thereon out of line with the locking-block 4^d, by turning the handle 9^c to the right in Fig. 1. Next the handle 9^d is shifted to the right, thereby shifting the locking-bar 2^d

in the same direction and bringing the dog 5 on said bar against the inclined end of the block 4^c and shifting that block outwardly or toward the top of the sheet. The finger 6 on the locking-bar 2^c being pivoted to said bar will not prevent the longitudinal movement of the block 4^c. The upward movement of the locking-block 4^c, operating through the lever 11, will push the locking-block 4^d inwardly or toward the bottom of the sheet, and this movement of the locking-block 4^d will, through the medium of the lever 12, move the locking-block 4^e outward or toward the top of the sheet. Thus it will be seen that by connecting two or more locking-blocks in the manner described two or more locking-blocks can be shifted through the operation of one block by the operating-handles, as though they were continuations of each other.

In the construction shown in Figs. 1 to 3, inclusive, two or more locking-blocks are connected together in such manner that when one is moved in either direction the other block or blocks will be moved in an opposite direction. In some forms of mechanical interlocking it is desirable that one of the locking-blocks should be capable of being shifted in one direction independently of any other block, but when shifted in the opposite direction movement should be imparted to other locking block or blocks. Such combined and independent movements can be effected by the construction shown in Figs. 4 to 7, inclusive. As shown in said figures, a lever 13 is pivoted on the frame in such manner that its ends will project beyond the ends of adjacent locking-blocks, but the locking-blocks are not in any way connected to the levers, so that one locking-block, as 4^a, can be shifted down without changing the lever, and therefore without shifting the locking-block 4^b. If, however, the locking-block 4^a be pushed up, the locking-block 4^b will be pushed down a corresponding distance.

In the construction shown in Fig. 6 two levers 14 and 15 are so arranged on the frame of the machine that their inner ends will be

in line with the end of a locking-block 4^d, while their outer ends are in line with locking-blocks 4^c and 4^e, respectively. In such a construction any one of the locking-blocks can be shifted down without affecting either of the other blocks, but if one locking-block be shifted outwardly or toward the top of the sheet one or both of the blocks 4^c and 4^e will be pushed down. If the block 4^c be pushed up, the locking-block 4^d will be pushed down, but the block 4^e will not be affected.

It is characteristic of my improvement that one, two, or more locking-blocks can be shifted through the medium of one block, or one, two, or more blocks can be shifted by one block, or the latter can be moved independently of the other.

I claim herein as my invention—

1. In a mechanical interlocking mechanism for switches and signals, the combination of two or more parallel movable locking-blocks of such interlocking mechanism, means for shifting one of said locking-blocks, and one or more levers having a fixed fulcrum for transmitting motion from the driven locking-block to the other block or blocks, substantially as set forth.

2. In a mechanical interlocking mechanism for switches and signals, the combination of two or more parallel movable parts or members of such interlocking mechanisms, means for shifting one of said parts or members, and mechanism so arranged between the driven part or member and the other part or parts, that the driven part or member can be shifted in one direction independent of the other part or parts, but when shifted in the opposite direction, movement will be imparted to the other part or parts, substantially as set forth.

In testimony whereof I have hereunto set my hand.

GEORGE KOENIG.

Witnesses:

DARWIN S. WOLCOTT,
F. E. GAITHER.