

(No Model.)

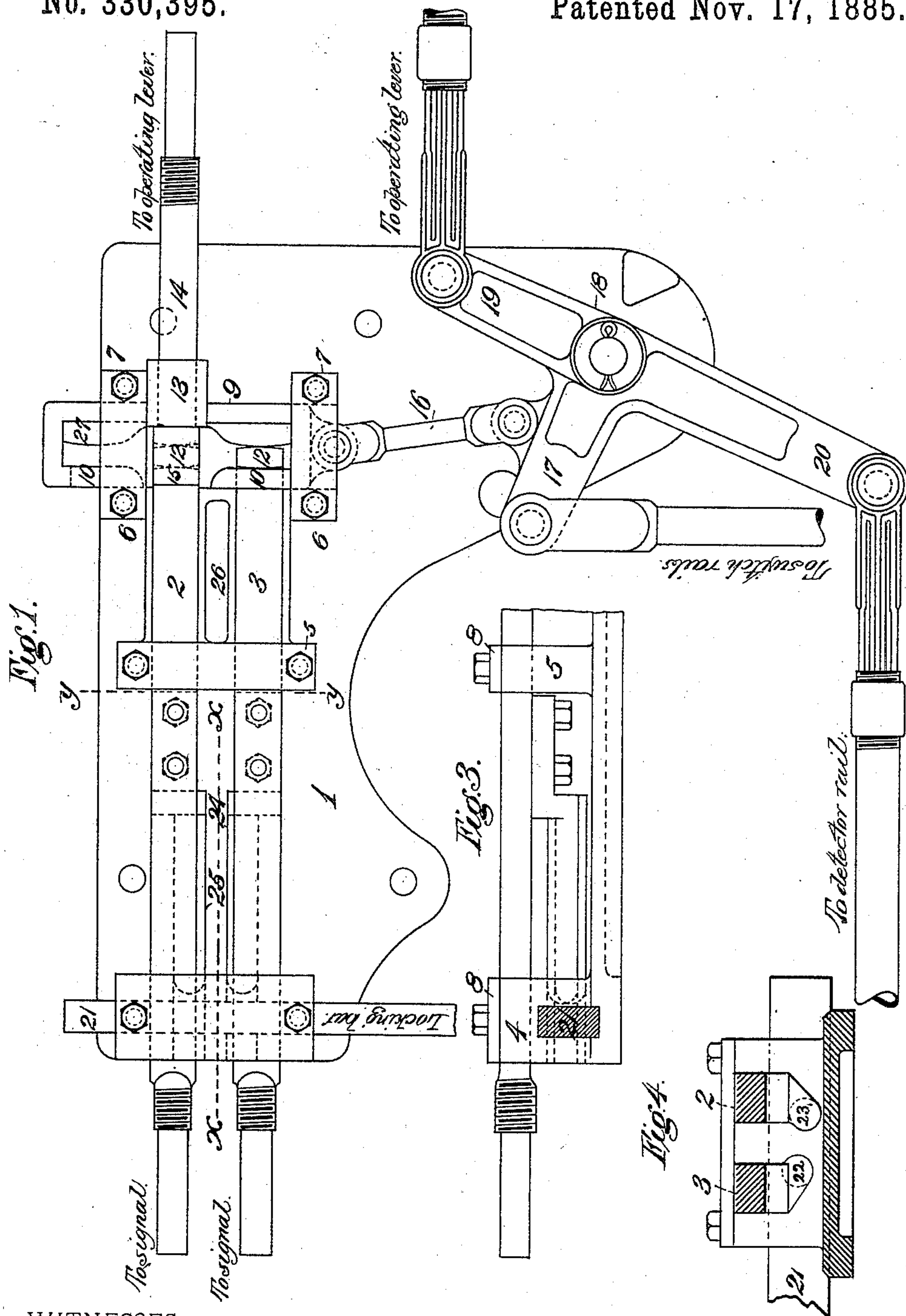
2 Sheets—Sheet 1.

J. T. HAMBAY.

SWITCH AND SIGNAL APPARATUS.

No. 330,395.

Patented Nov. 17, 1885.



WITNESSES:

Samuel S. Wolcott

C. M. Clarke

INVENTOR.

James T. Hambay,

BY George H. Christy

ATTORNEY.

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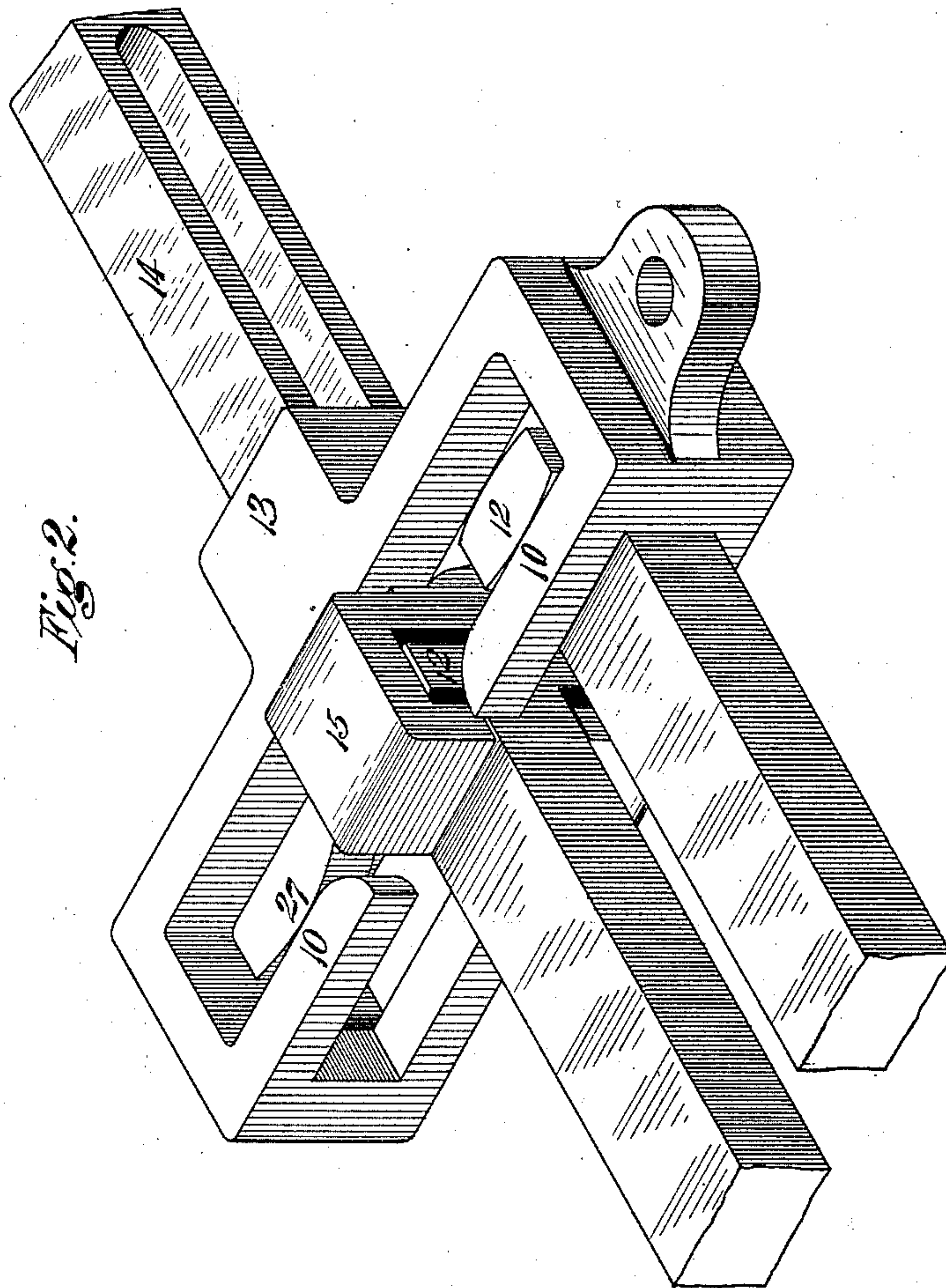
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UNITED STATES PATENT OFFICE.

JAMES T. HAMBAY, OF PITTSBURG, PENNSYLVANIA.

SWITCH AND SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 330,395, dated November 17, 1885.

Application filed June 1, 1885. Serial No. 167,183. (No model.)

To all whom it may concern:

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

In the accompanying drawings, which make part of this specification, Figure 1 is a top plan view of my improved apparatus for operating switches and signals. Fig. 2 is a view on an enlarged scale of the clutch mechanism. Fig. 3 is a section of a portion of the apparatus, the section being taken on the line *x x*, Fig. 1. Fig. 4 is a transverse sectional view, the section being taken on the line *y y*, Fig. 1.

The invention herein relates to certain improvements in what are generally known as "interlocking switches and signals," in which, by levers or other suitable means, an operator is enabled to work the switch and signals at any desired point, the construction and arrangement of the improved devices being such that the movement of the switch-operating devices or mechanism will so adjust the signal-operating mechanism that only the signal which will properly indicate the changed position of the switch-rails can be operated, and also that the signal can be operated only when the switch-rails have been properly set.

The object of my improved construction is generally to enable a switch and two separate and distinct signals for branch lines to be operated by the use of only two levers, but more particularly to prevent the setting of any signal until the switch has been set, thereby guarding against accidents arising from the breaking of the switch-connections.

Upon the cross-ties or any suitable foundation adjacent to the switch is secured the base-plate 1, on which are mounted the sliding signal-bars 2 and 3, which are held from lateral displacement by the pairs of pillars or posts 4, 5, 6, and 7, formed on or secured to the base-plate, and on the pillars 4 and 5 are secured the plates 8, thereby preventing any vertical movement of the bars 2 and 3.

Between the pairs of pillars 6 and 7 is arranged the reciprocating clutch 9, provided

at its opposite ends with the forked retaining-hooks 10, adapted to engage the T-shaped heads 12 of the sliding bars 2 and 3, and on the rear wall of the clutch directly opposite the space between the ends of the retaining-hooks is formed the socket 13, in which is mounted the longitudinally-movable rod 14. This rod is provided at the end projecting into the clutch with hooks 15, adapted to engage the opposite prongs of the T-shaped heads 12, and the opposite end of the rod is connected to a lever or other suitable operating device. One end of the clutch 9 is connected by a rod, 16, with the arm 17 of the lever 18, pivoted to the base-plate 1 at one side of the rods 2 and 3, the outer end of said lever-arm 17 being connected by any suitable means known in the art to the movable switch-rails. The arms 19 and 20 of said lever 18 are connected, respectively, to an operating-lever and to a detector-rail.

In the posts or pillars 4 is mounted the locking-bar 21, connected at one end to the switch-rails and adapted to be moved back and forth under the signal-rods 2 and 3 by the switch-rails. In this locking-bar are formed the holes 22 and 23, located in different horizontal planes, and adapted, respectively, in certain positions of the locking-bar for the reception of the pins 24 and 25, secured to the under side of the signal-rods 2 and 3, the pin 24 being arranged in the same horizontal plane as the hole 22, and the pin 25 having a corresponding position in relation to the hole 23 in the locking-bar.

Between the signal-bars 2 and 3, and immediately in front of the shifting-clutch 9, is located the stop 26, said stop being either formed on or secured to the bed-plate 1 in the position stated.

The rods 2 and 3 are so connected to their signals as to hold the same at "danger" while the rods are in the position shown in Fig. 1.

In operating this apparatus the lever 18 is turned to shift the switch-rails to the desired position. The movements of the lever 18 and the switch-rails effect corresponding movements of the clutch 9 and the locking-bar 21. The clutch 9 in its movement frees one of the signal-rods—*e. g.*, the rod 3—from engagement with the hook 10, at one end of the clutch, and, carrying with it the double hook 15 on

the rod 14, causes the hook to engage the T-shaped head of the rod 3. The rods 14 and 3 are then forced forward to the left in Fig. 1, thereby setting the signal connected to the rod 3 and pushing the pin 24 into the hole 22 in the locking-bar 21. The movement of the clutch 9 not only frees the rod 2 from engagement with one of the hooks 10 and into engagement with the double hook 15, but also effects a disengagement of the rod 2 from the double hook and an engagement with the hook 10 at the other end of the clutch. The rods 2 and 3 are firmly held as against any longitudinal movement while in engagement with the hooks 10 by the wedge-block 27, formed on the back portion of the clutch within the hooked portion thereof. It will be observed that unless both the clutch and the locking-bar are moved to the proper positions any movement of the rod 2 is prevented both by the stop 26 and by the locking-bar, the former being so located as to prevent the forward movement of the double hook 15 unless the latter is shifted into full engagement with the head of the rod 2, and the hole in the locking-bar being so arranged as to be in line with the pin 25 only when the switch-rails are properly set. By this double locking provision is made against the setting of signals either in case a break occurs between the operator's cabin or stand and the lever 18 or between the lever 18 and the switch-rails. If in shifting the switch a break should occur between the operator's stand and the lever 18, it would be impossible to give the signal except for the line for which the switch-rails are set, and if a break should occur between the lever 18 and the switch-rails, or the switch-rails and locking-bar, or if the switch-rails are not fully shifted, then, although the clutch might be properly shifted to the signal-rod, any movement of the rod would be prevented by the pin on such rod coming in contact with the locking-bar, which, in the cases supposed,

would either be not shifted at all or not sufficiently to bring the proper hole therein in line with the pin on the rod. By arranging the holes on the locking-bar and the pins on the signal-rods in different horizontal planes only such signals as will properly indicate the position of the switch-rails can be given.

I claim herein as my invention—

1. In a switch and signal interlocking apparatus, two or more longitudinally-movable signal-rods alternately operative, and provided with locking-pins 24 and 25, in combination with a locking-bar connected to the switch-rails, and provided with holes properly located for the reception of the locking-pins in the different positions of the switch-rails, substantially as set forth.

2. In a switch and signal interlocking apparatus, two or more longitudinally-movable signal-rods alternately operative, and provided with locking-pins 24 and 25, arranged in different horizontal planes, in combination with a locking-bar connected to the switch-rails, and provided with holes arranged in corresponding planes with the locking-pins, and adapted for the reception of said pins in the different positions of the switch-rails, substantially as set forth.

3. In a switch and signal interlocking apparatus, the longitudinally-movable signal-rods 2 and 3, in combination with the reciprocating clutch 9, provided with hooks 10, adapted to alternately engage the signal-rods, and the operating-rod 14, connected to the reciprocating clutch, and provided with suitable means for engagement with the signal-rods, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAMES T. HAMBAY.

Witnesses:

DARWIN S. WOLCOTT,
R. H. WHITTLESEY.