

(No Model.)

2 Sheets—Sheet 1.

H. L. WALTON.
AUTOMATIC SWITCH LOCK FOR RAILWAYS.

No. 562,990.

Patented June 30, 1896.

Fig. 1.

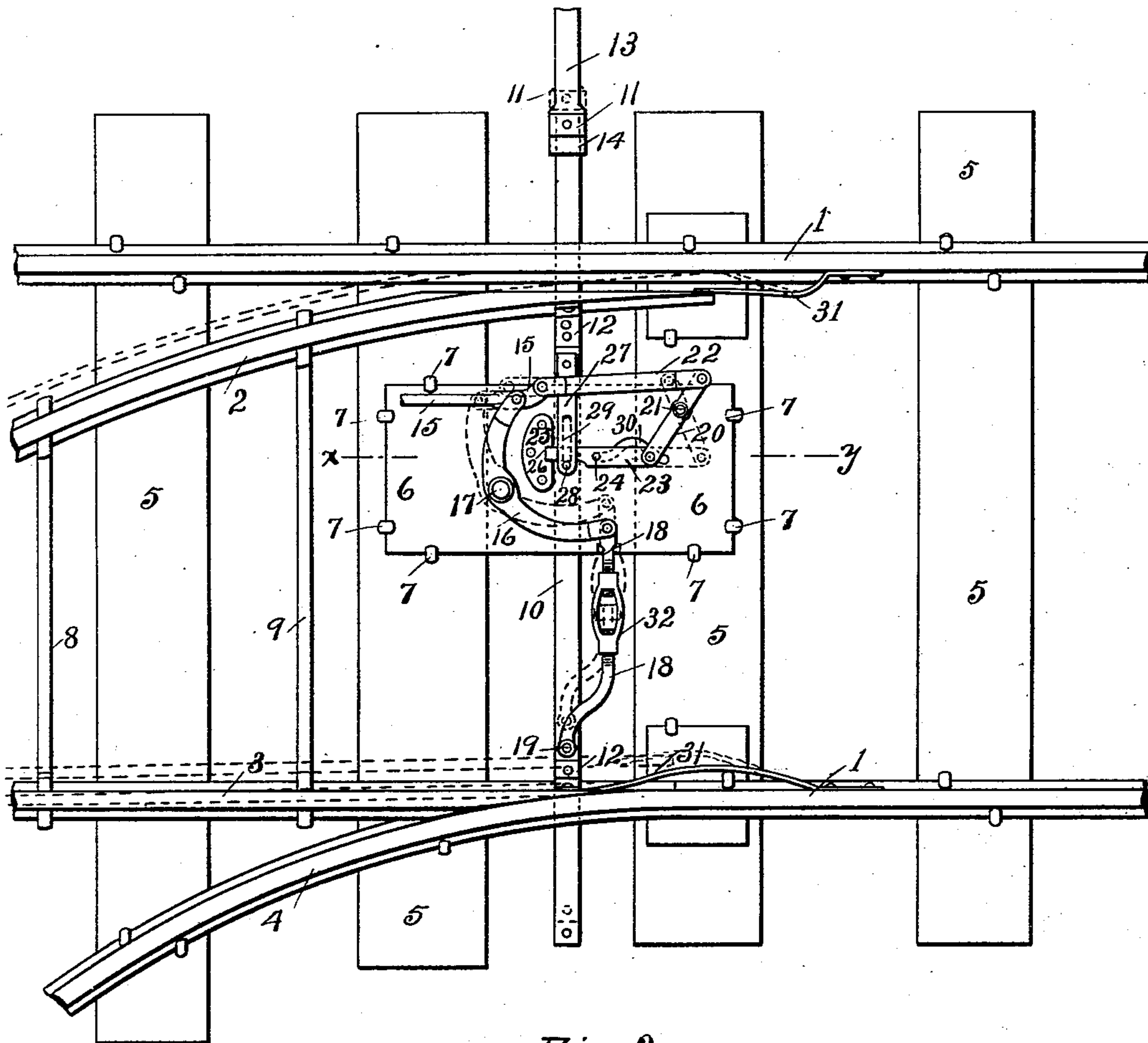


Fig. 2.

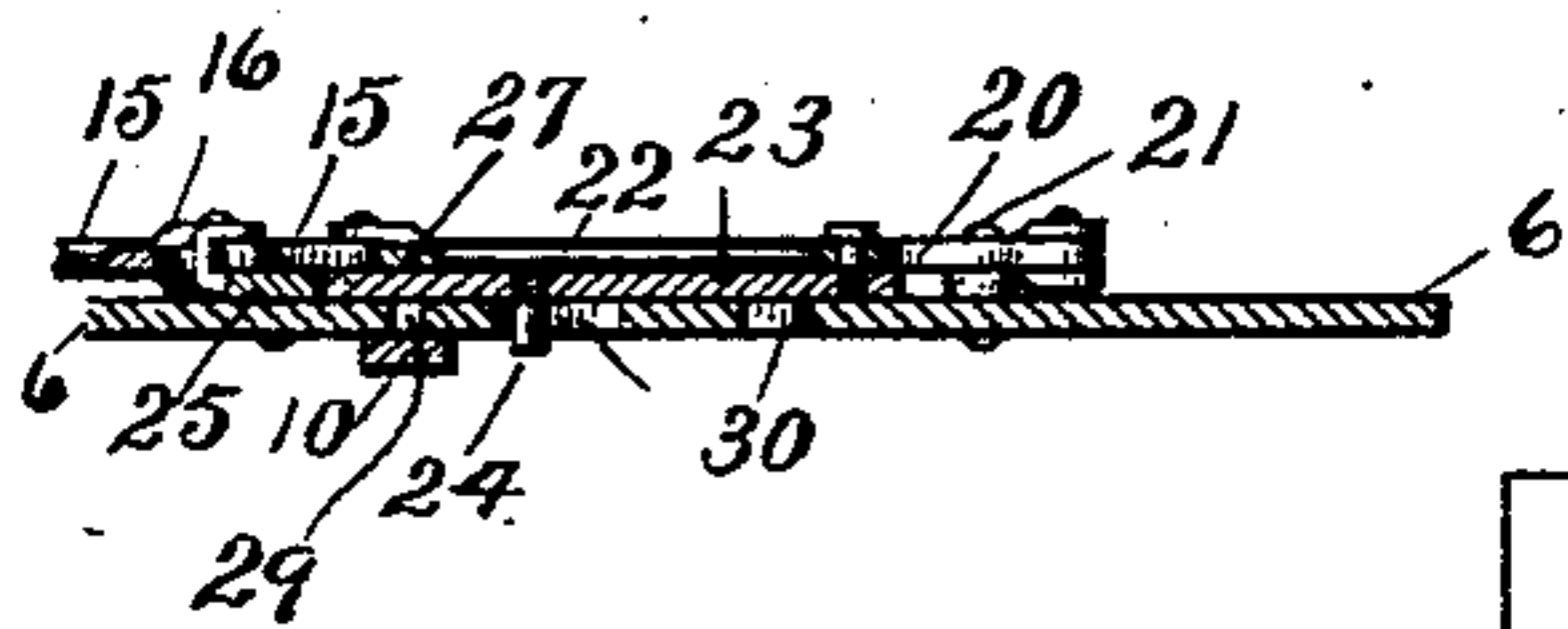
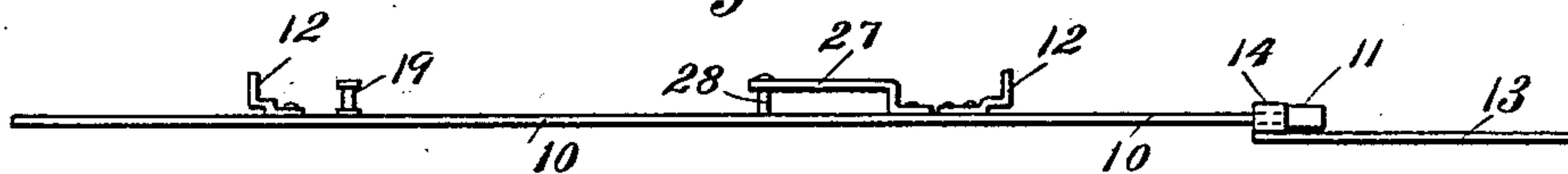
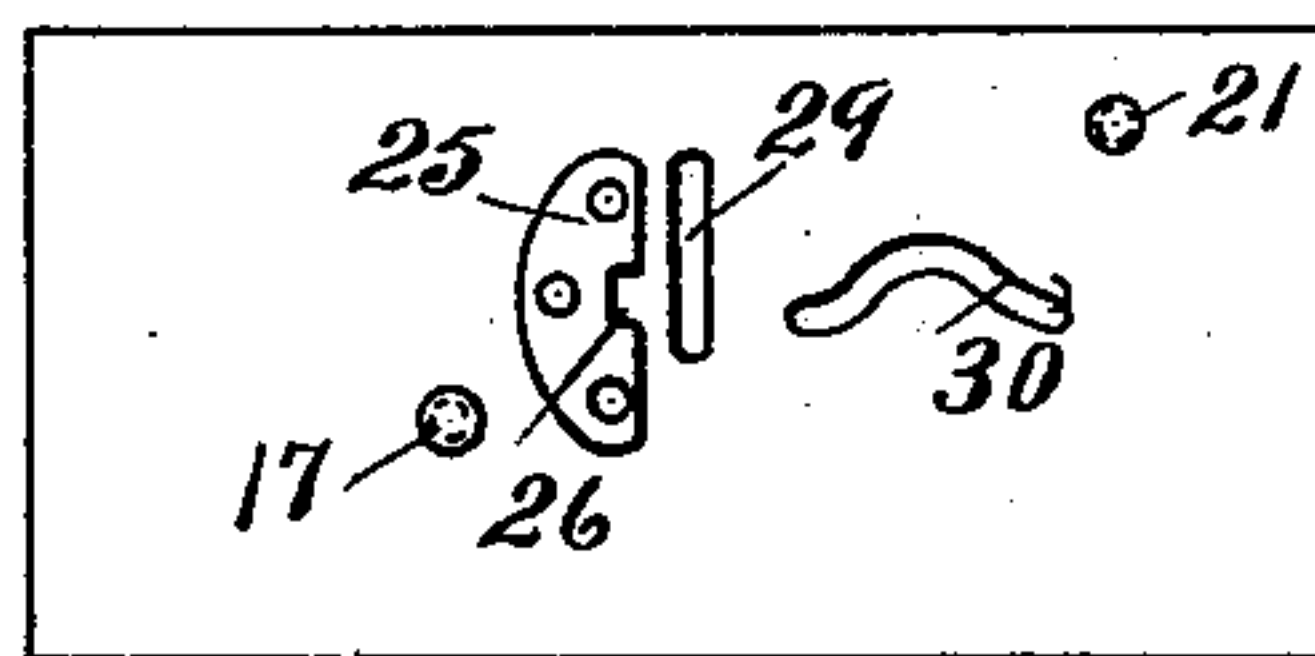


Fig. 3.

Witnesses.

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C. A. Bruffe.

Fig. 4.



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Herbert L. Walton.

By Fletcher Bains & Rockwood,
his Attorneys.

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2 Sheets—Sheet 2.

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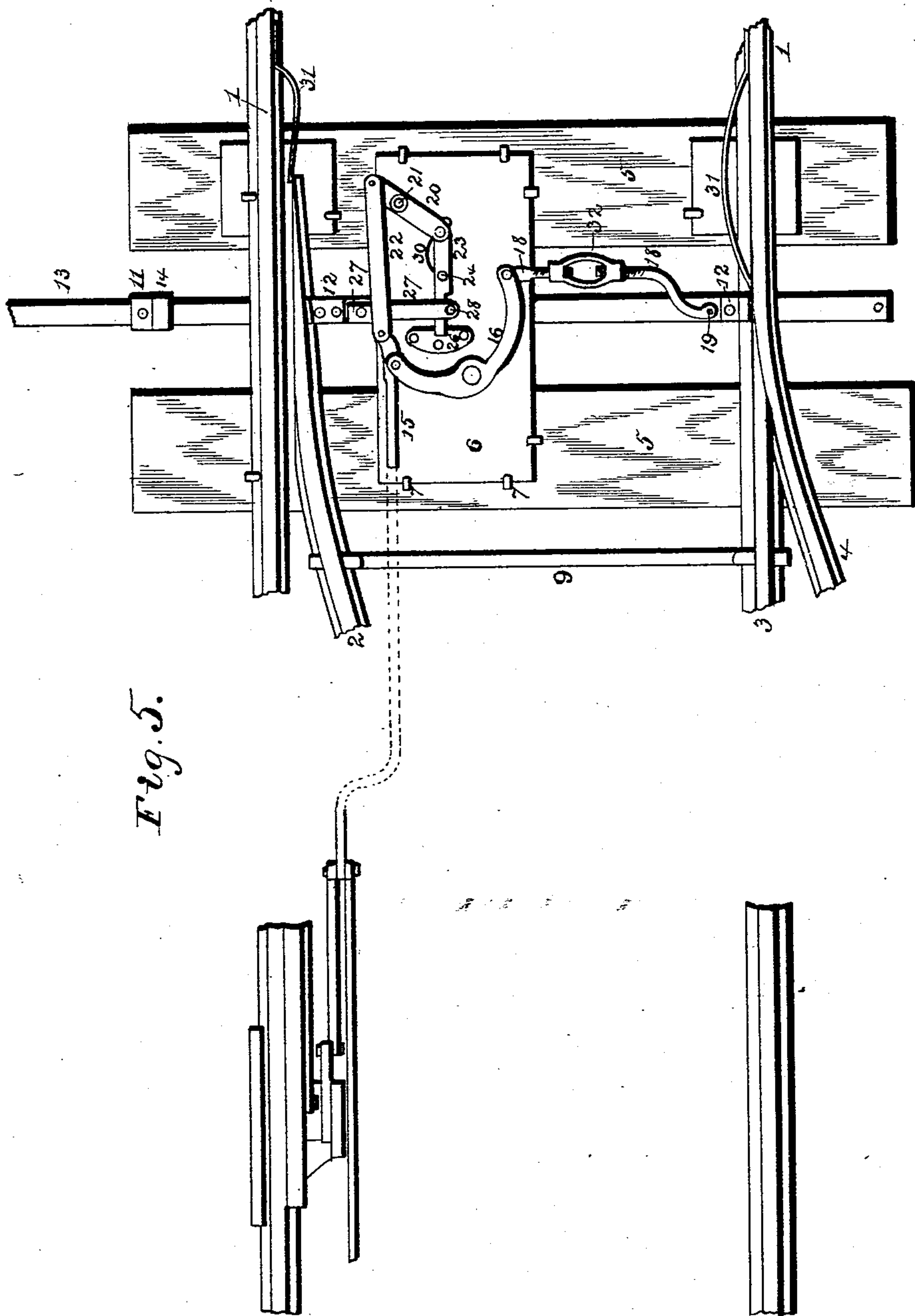


Fig. 5.

WITNESSES:

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UNITED STATES PATENT OFFICE.

HERBERT L. WALTON, OF MINNEAPOLIS, MINNESOTA.

AUTOMATIC SWITCH-LOCK FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 562,990, dated June 30, 1896.

Application filed April 6, 1895. Serial No. 544,807. (No model.)

To all whom it may concern:

Be it known that I, HERBERT L. WALTON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Switch-Locks for Railways, of which the following is a specification.

My invention relates to switch-locks by which the points of a railway-switch are held, in the proper position to permit the passage of trains, against the possible displacement of the points and consequent danger of accident; and the objects of my invention are to produce such a lock as will work automatically in connection with a device or devices for properly throwing the switch by the weight and motion of the train. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the switch-lock with the railway-tracks and connected parts. Fig. 2 is a longitudinal elevation of the outer connecting-rod of the switch-points. Fig. 3 is a sectional elevation of the lock and bed-plate through the line X Y, Fig. 1. Fig. 4 is a plan view of the bed-plate.

Similar numerals refer to similar parts throughout the several views.

1 represents the rails of a main railway-track, 2 and 3 the rails of a switch-point, and 4 the outer rail of a switch. The rails rest upon the ties 5. To the ties is secured a bed-plate 6 between the switch-points 2 3. The bed-plate may be secured in any suitable manner, as by spikes 7. The switch-points 2 3 are secured together by the ordinary connecting-rods 8, 9, and 10. The outer connecting-rod 10 extends beneath the track-rails, switch-points, and bed-plate 6, and has upon one of the outer ends thereof a head 11. The connecting-rod 10 is secured to the switch-points 2 and 3 by lugs 12, with suitable bolts passing through the same, as shown in Fig. 1, or in any appropriate way. A link 13 has a collar 14 upon its inner end, through which the outer end of the connecting-rod 10 passes. The link 13 runs to the lever of an ordinary switch-stand for throwing the points of a switch by hand, and a push-and-pull rod 15 runs to the operating mechanism of an automatic switching device, such as that shown

in Letters Patent of the United States No. 531,080, dated December 18, 1894, granted to myself and William A. Griffiths. The bell-crank lever 16 is pivoted to the bed-plate 6 at 17, and one end of the bell-crank lever is loosely secured to rod 15, while the other end of the lever has loosely attached to it a link 18. The outer end of the link 18 is loosely secured to the connecting-rod 10 at 19. A lever 20 is pivoted to the bed-plate at 21.

To one end of the lever 20 is loosely secured one end of a link 22, the other end of which link is loosely secured to rod 15, while the other end of arm 20 has loosely secured to it the outer end of a lock-bolt 23. From the under side of lock-bolt 23 projects a pin 24. (Best shown in Fig. 3.) A small plate 25 is secured upon the upper surface of the bed-plate 6, and plate 25 is provided on its edge opposite the inner end of the lock-bolt 23 with a notch or recess 26, into which the lock-bolt enters to lock the switch-points.

A strap 27 is secured rigidly to the connecting-rod 10, near the outer edge of bed-plate 6, and extends over said bed-plate for a considerable distance. At the inner end of strap 27, a bolt 28 passes through the strap, through a slot 29 in the bed-plate, and through the connecting-rod 10. The bolt 28 is rigidly secured to the strap 27 and to the connecting-rod 10. The pin 24 in the lock-bolt 23 fits loosely in a curved slot 30 in the bed-plate. When the lock-bolt 23 is in position for locking the switch, it is beneath the strap 27 and one edge of the lock-bolt rests against the bolt 28. When the lock-bolt is withdrawn, unlocking the switch, the bolt 28 is free to move within the slot 29 in the bed-plate when the connecting-rod 10 is moved in opening the switch.

Fig. 1 shows a main railway-track (the straight track) with a switch leading therefrom. The switch is closed, leaving the main track in condition for passage of trains. The switch-points are also locked in that position by the mechanism described, for it will be seen that so long as lock-bolt 23 is in notch 26, the connecting-rod 10 cannot move endwise to change the position of the switch-points 2 3. But we will suppose that the train is standing upon the switch and desires to move out upon the main track. As it moves upon the switch toward the switch-points,

traveling upon the rails 2 and 4, it will operate the switch device for railroads, such as that described in the former patent referred to, and thereby pull toward it the rod 15.

5 Pulling the rod 15 will throw the lever 20 into the position shown in dotted lines in Fig. 1, and during this operation the bell-crank lever 16, through the link 18, is also moving the connecting-rod 10, and with it the switch-

10 points, in position to open the switch with the main track. The lock-bolt 23 is also being removed from the notch 26 at the same time by the action of the lever 20. The pin 24, during the withdrawing of the lock-bolt,

15 must travel along and within the curved slot 30, which has the effect to move the inner end of lock-bolt 23 laterally in the same direction that the connecting-rod 10 and bolt 28 are traveling. Thus the movement of bolt

20 28 in the same direction at the same time will not be interfered with until the lock-bolt has been entirely removed from its pathway. When the rod 15 has been moved, by the operation of the switching devices referred to,

25 sufficiently to completely open the switch, the parts of the locking device and the switch-points will be in the position shown in dotted lines in Fig. 1. When the train has passed out upon the main track, the springs 31 at

30 the switch-points will close the switch and return the locking mechanism into its first position. The collar 14 and head 11 will permit the switch to be opened, as described, by the sliding of the connecting-rod 10 through

35 the collar into the position shown in dotted lines in Fig. 1, without movement of the switch-stand mechanism, and as described in the patent heretofore referred to.

An eighth of an inch is left between the

40 pin 28 and the side of the lock-bolt 23 adjacent to said pin. This allows the connecting-rod to move an eighth of an inch, during which the lock-bolt is withdrawn from the notch. The turnbuckle 32 makes it possible to adjust

45 the parts so as to take up that lost motion or to increase it, as may be desired.

In the absence of a locking mechanism such as herein described, when an automatic switching device (such as that referred to in

50 the former patent) is used, there is nothing to secure the switch-points against displacement but the springs 31. These springs are liable to be broken, especially in frosty weather, and if they be broken the switch is liable

55 to misplacement by the jarring of a passing train upon the main track. When such displacement occurs, a serious accident is likely to take place; but where my automatic switch-lock is used, the switch-points are automatic-

60 ally locked in a closed position as soon as the train has passed out from the switch, and no matter what accident may occur to the springs 31 there is no danger of displacement of the switch-points by jarring or otherwise. The

65 locking device is adapted, however, to be automatically unlocked by the operation of the

switching devices in the former patent referred to, and the switch-points are automatically locked after the switching devices have ceased to operate to open the switch, thus

70 combining both safety and convenience. A turnbuckle 32 is placed in the link 18, and operates on the usual screw-threads upon the link. By operation thereof the proper tension and adjustment between the connecting-rod

75 10 and the levers which operate the lock-bolt will be obtained.

The movable rail, which is depressed by the flanges of the car-wheels, is made of sufficient length so that some of the wheels of either a

80 locomotive or the cars are at all times upon the trip-bar while the train is passing out. This serves to hold the switch-points against the action of the springs. When the hind

85 wheels of the last car have passed off of the trip-bar, these wheels are very near to the end of the switch-points, and for that distance a sufficient weight of the car will remain upon the switch-points to hold them against the

90 action of the springs until such last wheels have passed completely clear of the switch-points. The springs then act upon the switch-points, but cannot act until the train has passed completely out.

What I claim as new, and desire to secure

95 by Letters Patent, is—

1. In an automatic switch-lock for railways, the combination of a connecting-rod secured to the switch-points, a bolt secured to the connecting-rod, a bed-plate provided with a guid-

100 ing-slot in which the bolt moves a lock-bolt adapted to engage said bolt and lock the connecting-rod, means for moving the switch-points in opening the switch by the action of the engine or train and means for automatic-

105 ally withdrawing and returning the lock-bolt, substantially as shown and described.

2. In an automatic switch-lock for railways, the combination of a connecting-rod secured to the switch-points, a lock-bolt adapted to

110 lock the connecting-rod, a bed-plate provided with a guiding-slot in which the bolt moves means for moving the switch-points in opening the switch by the action of the engine or

115 train and means for automatically withdrawing and returning the lock-bolt, consisting of a lever adapted to receive and to transmit to the lock-bolt the motion of a push-and-pull rod of an automatic switch device, substantially as shown and described.

120

3. In an automatic switch-lock for railways, the combination of a bed-plate, a connecting-rod secured to the switch-points, a bolt secured to the connecting-rod, a lock-bolt adapted to

125 engage said bolt and to lock the connecting-rod, a curved slot in the bed-plate, a pin projecting from the lock-bolt into said slot, means for moving the switch-points in opening the switch by the action of the engine or

130 train and means for automatically withdrawing and returning the lock-bolt, substantially as shown and described.

4. In an automatic switch-lock for railways, the combination of a connecting-rod secured to the switch-points, a lock-bolt adapted to lock the connecting-rod and switch-points, 5 means for moving the switch-points, in opening the switch by the action of the engine or train, means for automatically withdrawing the lock-bolt, and means adapted to require that part of the lock-bolt which locks the 10 connecting-rod, to move for a time in so withdrawing, in the same direction as the connecting-rod is moving, substantially as shown and described.

5. In an automatic switch-lock for railways, 15 the combination of a bed-plate provided with guiding-slots, a connecting-rod, a lock-bolt adapted to lock the connecting-rod and switch-points, means for moving the switch-points in opening the switch by the action of 20 the engine or train, means for automatically withdrawing the lock-bolt, and springs for re-

turning the switch-points and other parts to their first position, substantially as specified.

6. In an automatic switch-lock for railways, the combination of a bed-plate, a connecting- 25 rod, a lock-bolt adapted to lock the connecting-rod, a notch into which the lock-bolt is received, a curved slot in the bed-plate, a pin projecting from the lock-bolt into said slot, means for moving the switch-points in open- 30 ing the switch, means for automatically withdrawing the lock-bolt consisting of a lever adapted to receive and to transmit to the lock-bolt the motion of a push-and-pull rod of an automatic switch device, and springs 35 for returning the switch-points and other parts to their first position, substantially as herein set forth.

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Witnesses:

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