

(No Model.)

H. F. COX.

RAILWAY SWITCH AND SIGNAL INTERLOCKING.

No. 336,702.

Patented Feb. 23, 1886.

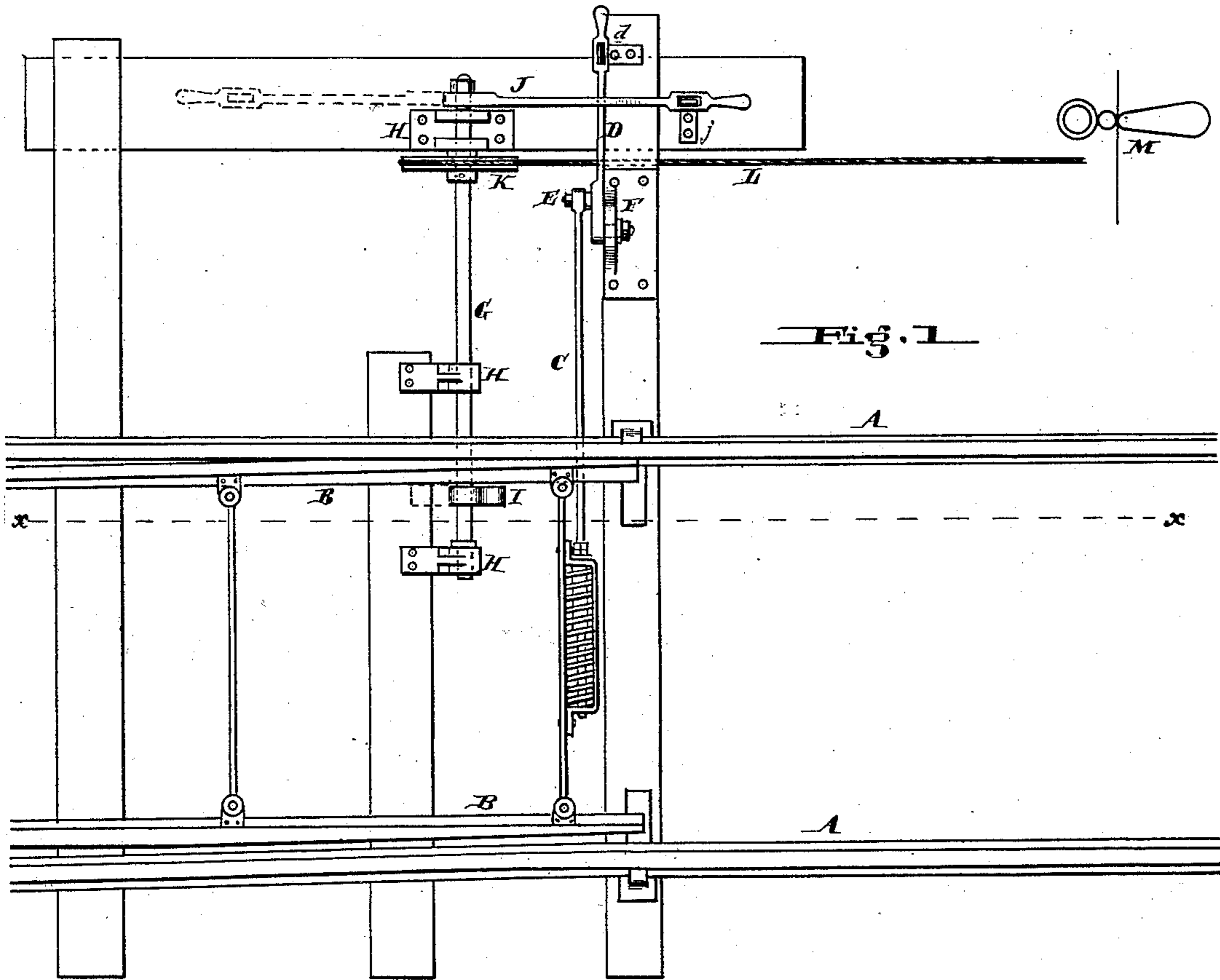


Fig. 1

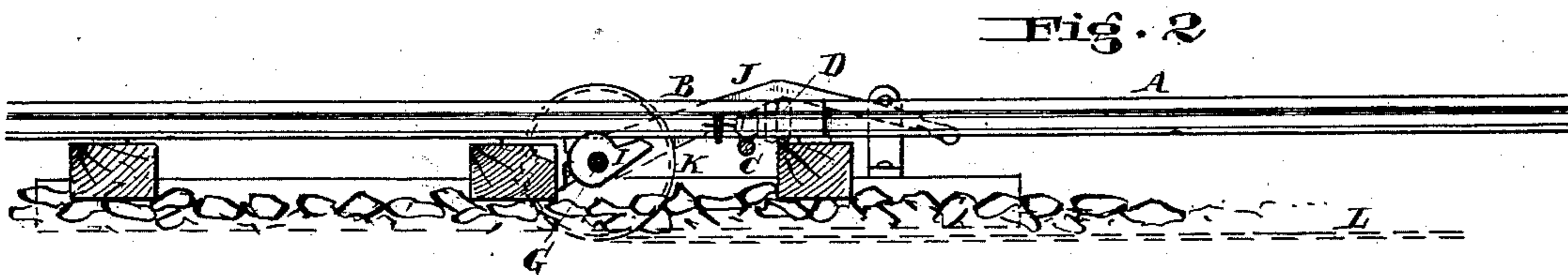


Fig. 2

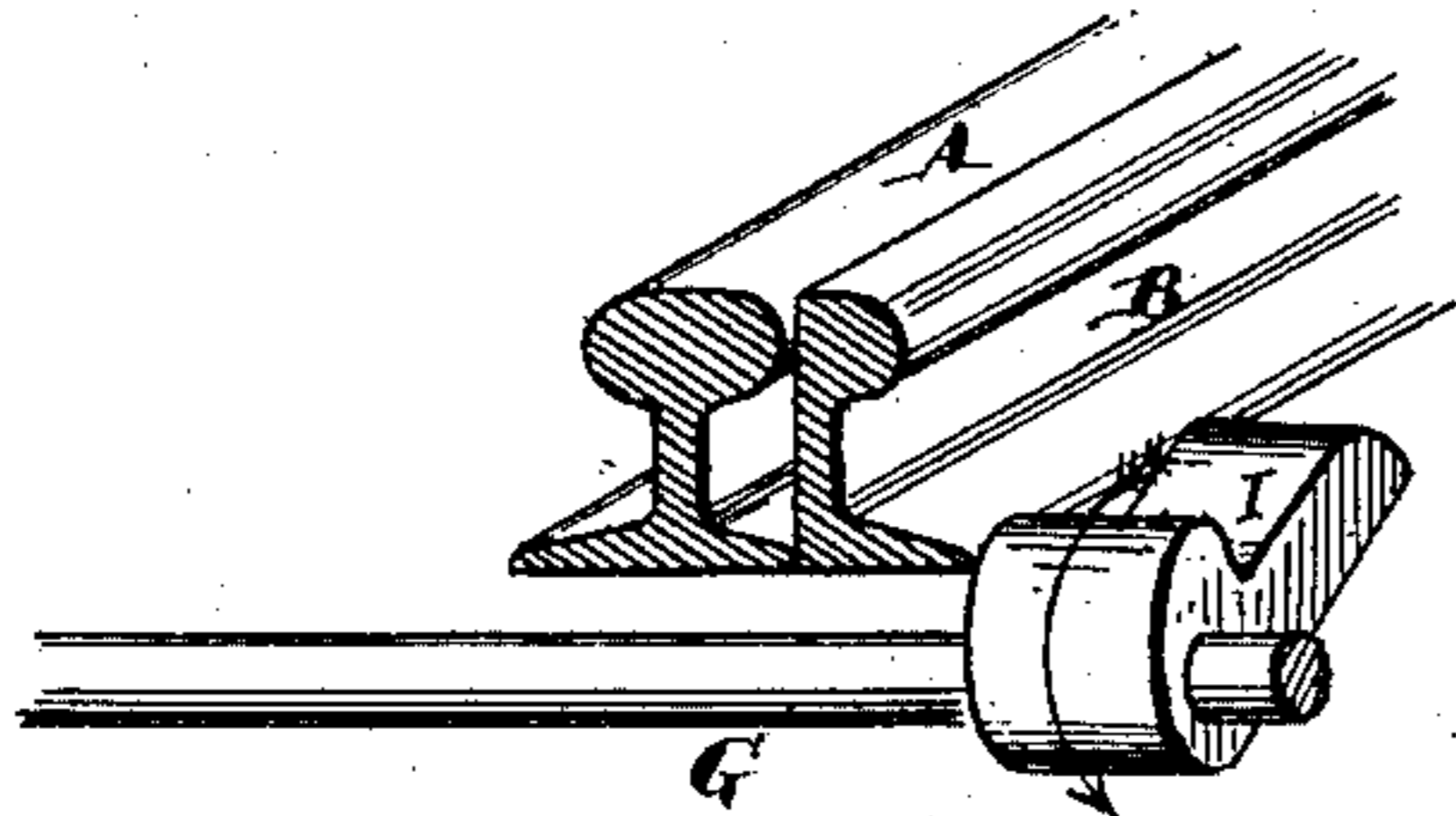


Fig. 3

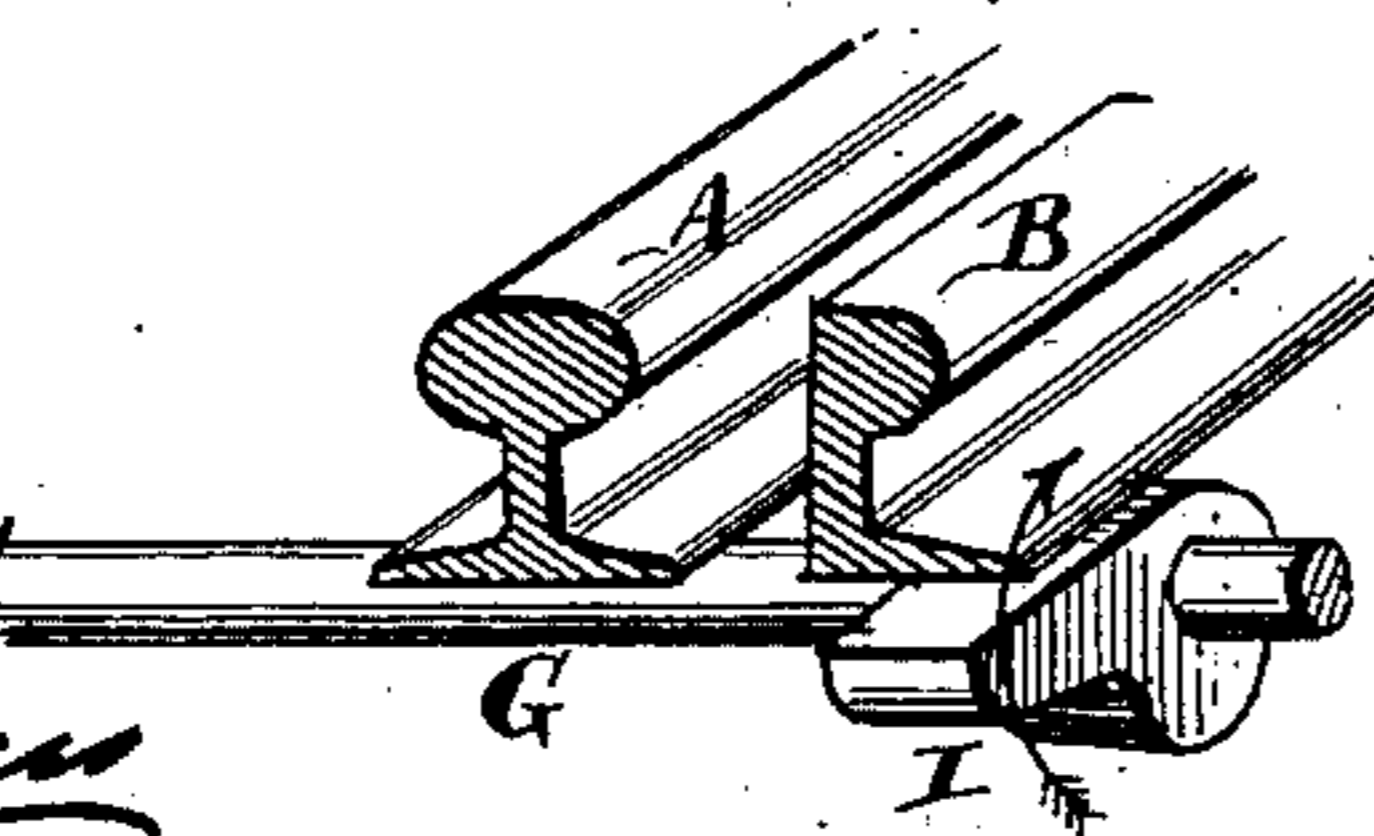


Fig. 4

Attest  
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## RAILWAY SWITCH AND SIGNAL INTERLOCKING.

SPECIFICATION forming part of Letters Patent No. 336,702, dated February 23, 1886.

Application filed May 25, 1885. Serial No. 166,609. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY F. COX, of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented new and useful Improvements in Railway Switch and Signal Interlocking, of which the following is a full and true description, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention belongs to that class of devices which are employed in connection with railway switches and signals for the purpose of insuring the performance of certain actions in a fixed and safe order.

15 In devices of this kind heretofore used provision has been made, as a rule, to interlock the operating-levers alone. In this way it is quite evident to any one skilled in the art that a breakage of the connection between the switch-operating lever and its switch might result in a wrong indication of the position of the switch by the signal.

25 The object of my invention is to provide a locking device which will insure the switch being in its normal position as set for the main track before the signal-operating device can be placed in such a position as to allow the signal to indicate "safety," and which will also prevent the displacement of the switch while the signal indicates "safety."

30 Reference being now had to the drawings, which illustrate my invention as applied to a switch and signal connections of the usual kind, Figure 1 is a plan view of such a switch; Fig. 2, a horizontal view on the section  $\alpha$ . Fig. 3 shows my locking-cam in its normal position. Fig. 4 shows my locking-cam in its position when the switch is open and the signal indicates "danger."

40 A A are the fixed rails; B B, the movable points of the switch; C, the switch-actuating connecting-rod; D, the switch-actuating lever; E, the usual bearings of the lever and rod. G is the signal operating and locking rod. H H H are bearings for the rod G. I is the locking-cam, preferably forged on the rod G. J is the lever-arm for actuating the signal.  $j$  is a staple or hasp, to which the lever J may be secured. K is a pulley for the

signal-connection; L, the signal-connection, 50 and M the signal.

The shape and construction of the locking-cam I are shown in Figs. 3 and 4. As will be seen, when the switch is in its normal position, as shown in Figs. 1, 2, and 3, the main track is open and the signal set to indicate "safety" by means of the lever J, which in this position (see Fig. 2) not only passes over and locks the switch-actuating levers D, but holds the cam I with its elongated end or portion upward and extending above the bottom of the rail B, to which it must be in close proximity, so that it will lock and prevent its being moved. The cam I is so shaped and so secured to the rod G that it will thus lock the rail B during the whole rotation of the rod and until the lever J is thrown completely over, as shown in dotted lines in Fig. 1, and then only is it possible to move the switch-point B over the cam, as shown in Fig. 4. 70 When the switch is thus opened, the rail B rests upon or in close proximity to the flat side of the cam, and locks it and the rod G in the position shown in dotted lines in Fig. 1; and consequently the signal remains at "danger" and cannot indicate "safety" until the point B is completely moved back to its position, as shown in Figs. 1 and 3, and the main track again perfectly clear. The cam I thus serves the double purpose of insuring the correct position of the switch-points before it is possible to turn the signal to indicate "safety" and of locking the switch-point in the safety position. The bearings H H H, in which the rod G turns, are secured to the tie and the timber supported from the ties on which the levers are journaled. This method of securing the cam-rod insures the correct position of the cam with reference to the rail, and makes it easy to apply my improvement to any existing switch. The ease with which my improvement can be so added is also increased by securing the pulley K on the rod G, as shown, and the connection of the cam-rod G with the signal by means of the pulley-and-rope connection is important, as these will readily accommodate themselves to the position of the cam, and not tend, as would a more rigid con- 95

necting-line, to move or jam the cam with reference to the rail.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a switch having operating lever D, the signal-operating rod G, having cam I and operating-lever J, so situated as to cross and lock the lever D when the signal is in its safety position, all substantially as shown and described.

2. In a switch and signal interlocking device,

substantially as shown and described, the rod G, having cam I, and bearings H, secured to the tie.

3. In a switch and signal interlocking device, substantially as shown and described, the rod G, having cam I, pulley K, and bearings H, secured to the tie.

HENRY F. COX.

Witnesses:

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JOSHUA MATLACK.