

(No Model.)

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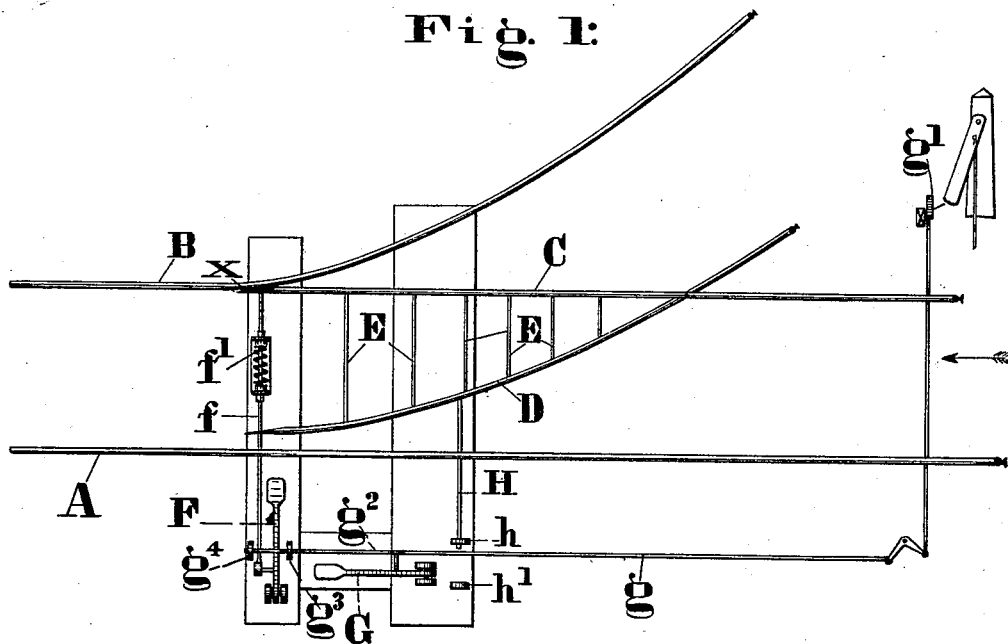
H. F. COX.

## INTERLOCKING LEVERS.

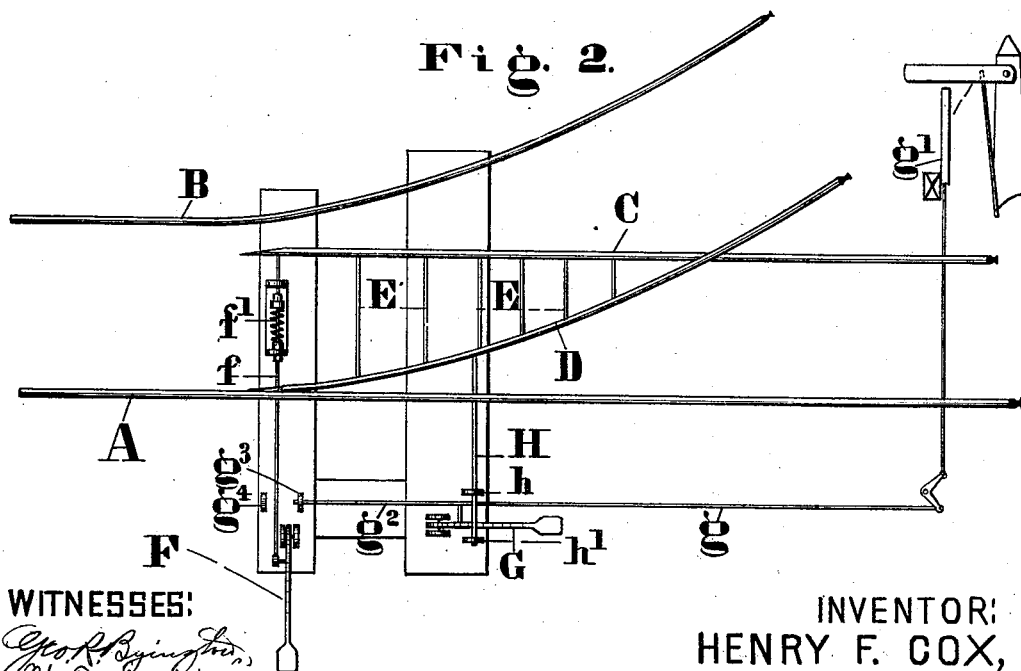
No. 261,207.

Patented July 18, 1882..

**Fig. 1:**



**Fig. 2.**



**WITNESSES:**

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(No Model.)

2 Sheets—Sheet 2.

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INTERLOCKING LEVERS.

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Fig. 3.

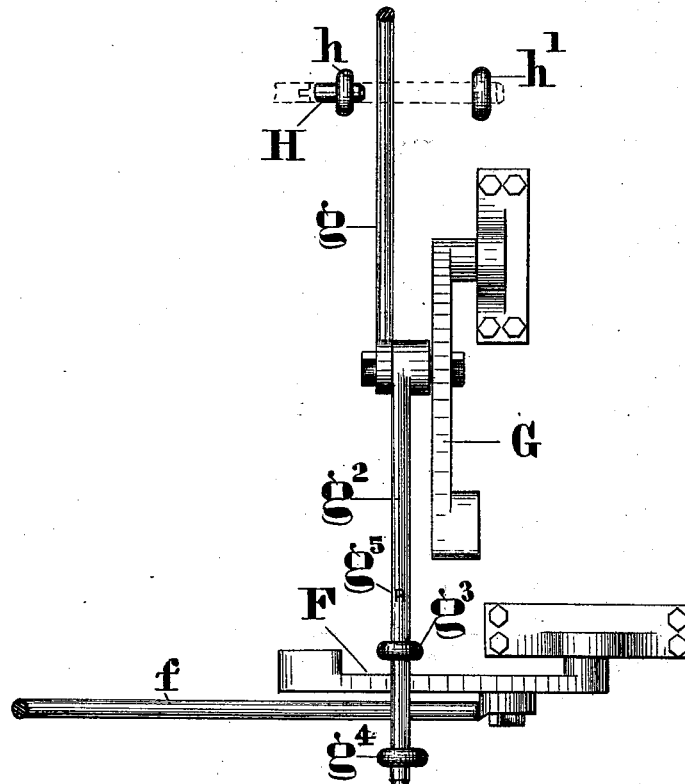
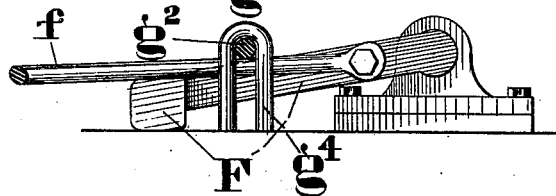


Fig. 4.



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# UNITED STATES PATENT OFFICE.

HENRY F. COX, OF ALTOONA, PENNSYLVANIA.

## INTERLOCKING LEVERS.

SPECIFICATION forming part of Letters Patent No. 261,207, dated July 18, 1882.

Application filed March 11, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY F. COX, of Altoona, county of Blair, and State of Pennsylvania, have invented new and useful Improvements in Interlocking Levers; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to that class of devices which are employed in connection with switches and signals for the purpose of insuring the performance of certain actions in a fixed order; and it consists in a special construction and arrangement of parts, by means of which economy and simplicity are combined in a marked degree.

In the drawings, Figure 1 represents a junction-switch to which my invention has been applied, held in its normal position for the purpose of permitting the passage of trains upon the main track. Fig. 2 represents the same switch moved out of its normal position for the purpose of permitting the passage of trains upon the branch track. Fig. 3 represents an enlarged view of levers F and G, and Fig. 4 a side elevation of the lever F.

To enable others skilled in the art to make and use my invention, I will proceed to describe fully the construction of the same and the manner of its operation.

A represents a fixed rail extending any given distance in a straight line, which rail forms one side of a main track, as shown.

B represents a fixed rail extending a certain distance in a straight line parallel with the rail A and a certain distance in a curved line, as shown, which rail forms in its straight portion one side of the main track and in its curved portion one side of the branch track, as shown.

C represents a movable rail, having its free end terminating in a point, which rail, when in its normal position, (shown in Fig. 1,) lies parallel with the rail A and forms a continuation of the main track from the point *x*, where the rail B curves away from the same.

D represents a movable rail having its free end terminating in a point, which is curved to run parallel with the curved portion of the rail B. The free end of the rail, when the lat-

ter is in its normal position, as shown in Fig. 1, is held away from the rail A, so that it does not interfere with the free passage of trains upon the main track.

E E represent tie-rods, by means of which the rails C and D are rigidly united together for the purpose of simultaneous movement.

F represents a switch-lever of the usual well-known or any other proper construction, which is united by means of the rod *f* and the spring-frame *f'* to the movable rails C and D, as shown.

G also represents a lever, which is united by means of the line of connection *g* to the signal *g'*, controlling the movement of trains upon the main track in the direction of the arrow.

*g*<sup>2</sup> represents a pipe or rod extending in the same direction as the long arm of lever G when the latter is in its normal position, as shown in Fig. 1, and *g*<sup>3</sup> a staple by means of which the end of the rod is held and guided, as shown.

*g*<sup>4</sup> represents a staple adapted to receive the extreme end of the rod, when the latter is in its normal position, for the purpose of locking the long arm of lever F against upward movement.

*g*<sup>5</sup>, Fig. 3, represents a hinge-joint by means of which one end of the rod is permitted to move in a horizontal plane, while the other describes an arc of a circle with the lever. This rod *g*<sup>2</sup> is so arranged in relation to the long arm of lever F as to lie, when in its normal position, in a horizontal plane above the lever, and thus hold the latter against upward movement, as shown in Fig. 4. The length of the rod is such, also, and it is so arranged relatively to the lever F, that the full movement of the lever G is required to completely disengage it from the lever so that the latter is free to rise.

H represents a pipe or rod rigidly attached to the rail D in such manner as to move simultaneously with the same.

*h* represents a staple by means of which the end of the rod is held and guided in its movement, and *h'* a staple adapted to receive the extreme end of the rod, when the latter is moved from its normal position, as shown in Fig. 2, for the purpose of locking the long arm of lever G against upward movement.

The operation is substantially as follows: When the switch is in its normal position, as shown in Fig. 1, the main track is open for the

passage of trains. When, however, it is desired to pass trains from the main track to the branch track or from the branch track to the main track the following actions must occur:

5 The lever G, which alone is free to act, must first be moved over from its normal position (shown in Fig. 1) to the special position shown in Fig. 2. By means of this movement the signal  $g'$ , controlling the movement of trains

10 on the main track in the direction of the arrow, is changed from "safety" to "danger." By means of this movement, also, the rod  $g^2$  is so moved as to set free the lever F, the same, however, not being completely free until the signal

15 is properly displayed. The lever F, now being freed, may be moved over from its normal position (shown in Fig. 1) to the special position shown in Fig. 2. By means of this movement

20 the switch CD is shifted, and the branch track thereby opened for the passage of trains. By means of this movement, also, the rod H, attached to the switch, is caused to extend over the long arm of lever G and through the staple  $h$  and lock it against upward movement,

25 thus preventing the display of the safety-signal until it is completely returned to its normal position. The switch is returned to its normal position by reversing the actions before described. In this case, also, the lever G

30 is not entirely freed until the lever F has completed its movement.

One of the special advantages of this special

arrangement is that great simplicity is united with economy of construction.

No special parts have to be made in building the switch, as standard levers, pipe, and other material may be used. By reason of this unskilled labor may be employed in their construction.

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

1. In combination with the lever F, having staples located on each side of the same, as shown, the lever G, controlling the signal, having the rod  $g^2$ , adapted to enter the staples above the lever F and securely lock the latter, as described.

2. A switch having a rod, H, substantially as described, in combination with a lever controlling the signal, the construction being such that the signal-lever is locked by the switch-rod whenever the switch is out of its normal closed position.

3. In combination with the lever G, having the line of connection to the signal and also the rod  $g^2$ , the lever F, and the movable switch having the rod H, as described.

This specification signed and witnessed this 8th day of March, 1882.

HENRY F. COX.

Witnesses:

H. W. BEADLE,  
B. F. MORSELL.