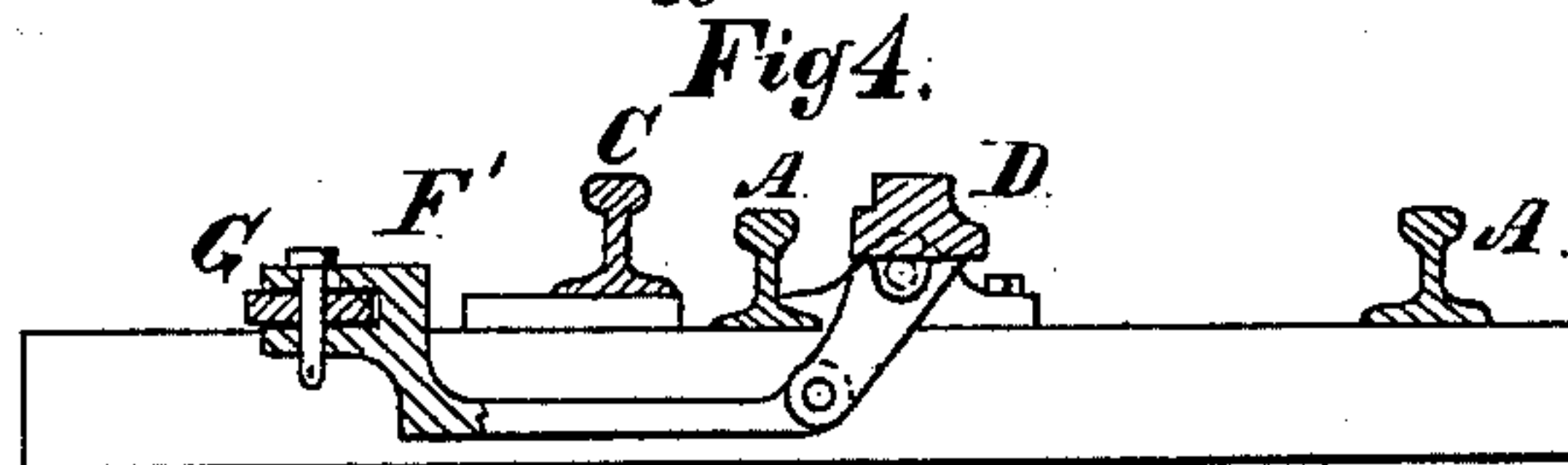
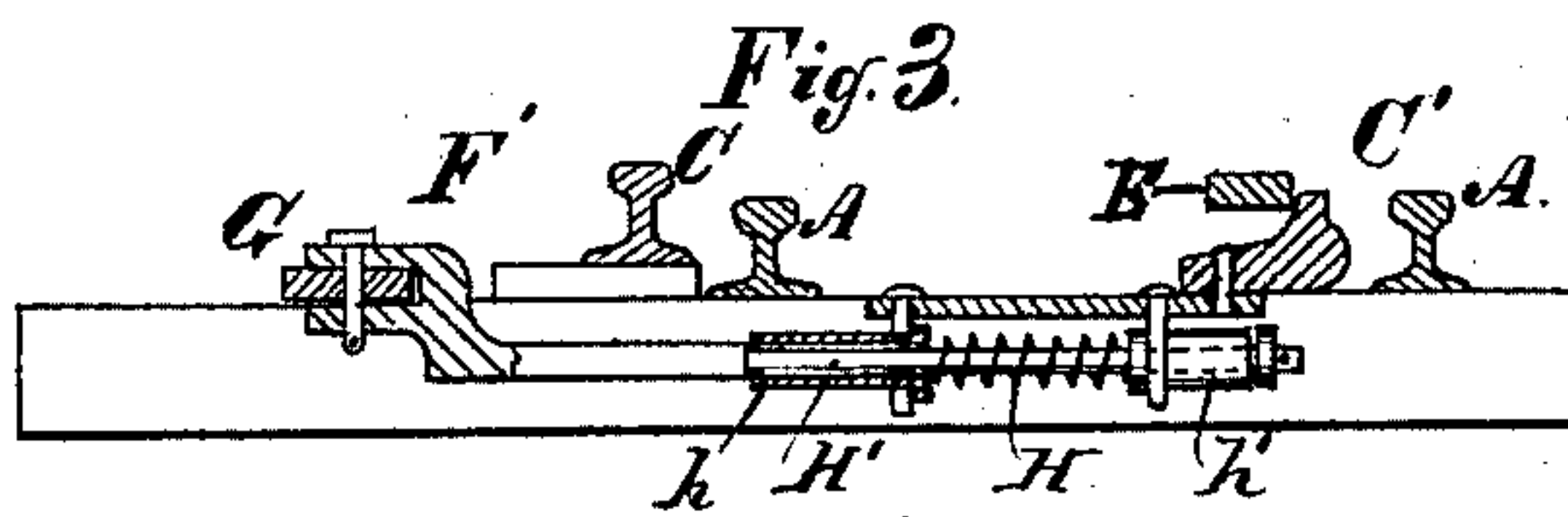
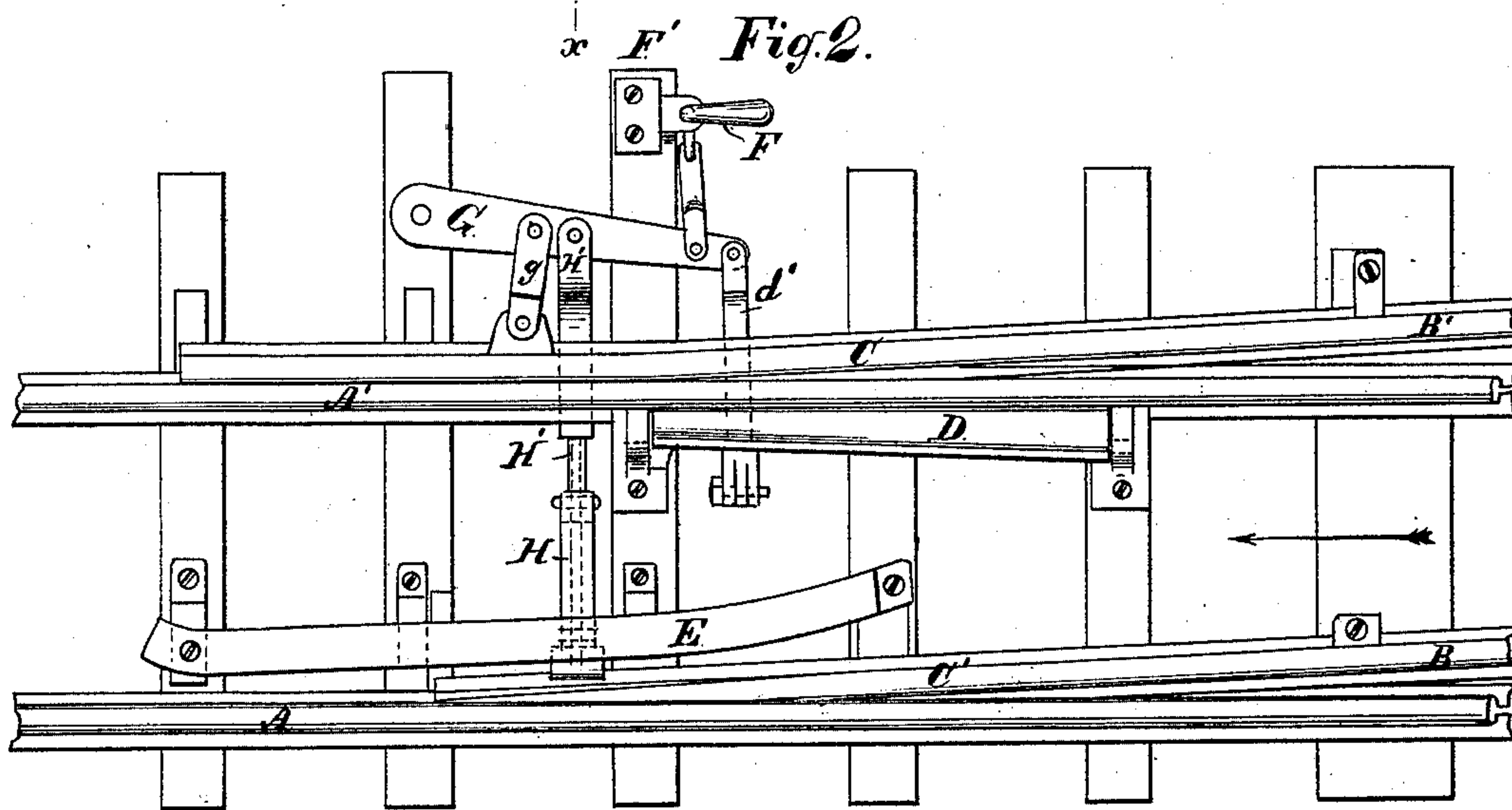
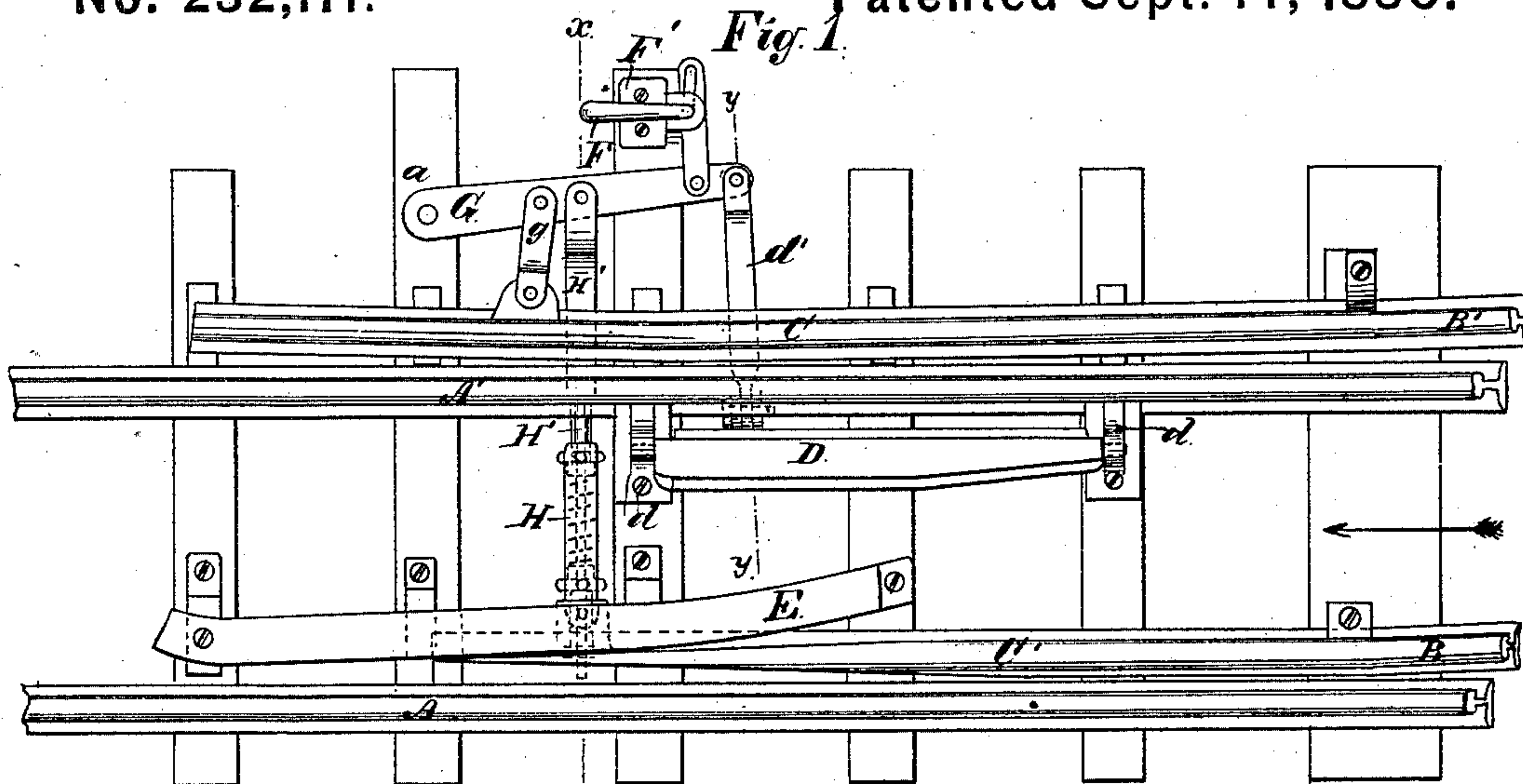


J. BRAHN.  
Railway Switch.

**No. 232,171.**

**Patented Sept. 14, 1880.**



***Witnesses:***

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# UNITED STATES PATENT OFFICE.

JAMES BRAHN, OF JERSEY CITY, NEW JERSEY.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 232,171, dated September 14, 1880.

Application filed January 6, 1880.

*To all whom it may concern:*

Be it known that I, JAMES BRAHN, of Jersey City, Hudson county, State of New Jersey, am the inventor of an Improved Railway-Switch, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a plan of a railway-switch embodying my invention, and showing the several parts in their relative positions for the main track to be used by passing trains. Fig. 2 is a similar view of the same, showing the several parts in position for conveying cars from the main track to the side track or turnout, and vice versa. Fig. 3 is a cross-section on line *x x*, Fig. 1; and Fig. 4 is a cross-section on line *y y*, Fig. 1.

My invention consists, first, in a railway-switch having a movable inclined rail and a point-rail arranged to be moved in unison by the switch-lever, and the said point-rail being provided with a spring, substantially as hereinafter specified, whereby the said rail may be moved independently of the opposite rail, hereinafter described; second, in a railway-switch having an inclined rail and a movable inclined block, as described.

A A' are the main-track rails. B B' are the side-track rails. C C' are the switch-rails, hinged at their connection with the side-track rails, as shown in the drawings, or they may be connected by fish-plates. The switch-rail C is inclined upward through a portion of its length, so as to gradually raise the wheel of a passing car high enough to permit the flange of the wheel to pass over the main rail A' when the switch is in position shown in Fig. 2. The switch-rail C' is molded or planed to a point, so that the neck of the rail houses under the head of the main-track rail A when set as shown in Fig. 2. By this means, in conveying a car from the main to the side track, the wheels running on rail A' are first raised off from that rail by running up on the incline of the switch-rail C, and are then guided to the side track by the point-rail C'. The rails C and C' are connected to the switch-lever G, the former by the link or rod *g* and the latter by the rod H', as shown, so that by means of the hand-lever F of the switch-stand, as shown,

the said rails may be moved in unison to open or close the switch—that is, to place the switch-rails in either of the positions shown in Figs. 1 and 2 in relation to the main track. The pointed rail C' is provided with a spring-connection, so that it may be moved away from the main-track rail A without the disturbing or moving of the rail C from its position, as shown in Fig. 2.

The construction and arrangement which I prefer for this combination of a spring with the side rail, C', is that shown in the drawings, the spring H being coiled upon the rod H' and bearing at either end against sleeves *h h'* on the rod, which are connected to said rail, the sleeve *h* abutting against a shoulder on the rod, as shown. By means of this arrangement, when the switch is in either of the positions shown in Figs. 1 or 2, the rail C' may be carried away from or up to the rail A, the spring being compressed from one end or the other as the rail is thus moved, while the opposite switch rail is not disturbed, and the pressure upon the rail C' being removed, the spring will carry the rail C' back again to its place against or away from the rail A, as the case may be, the switch being either open or closed.

D is a block placed inside of the main rail A', with its upper face inclined upward in the direction of the arrow, so that the flange of a wheel passing the switch on the main track in the direction of the arrow will pass over said block and up its inclined face and raise the wheel high enough to permit the tread of the wheel to take a bearing on the switch-rail C, and then follow down the incline of said rail to a bearing on the main rail again. The said block D is movable to and from the said main rail C, and I prefer to pivot it at its ends in suitable supports, *d*, so that it may be swung on its longitudinal axis by means of the rod *d'*, connected with the switch-lever G, and thus turned to either of the positions shown in Figs. 1 and 2.

E is a guide-plate arranged as shown on the inside of the main rail A, and extending in both directions beyond the end of the point-rail C'.

A car passing from the side to the main track, with the switch set as in Fig. 2, is guided



to the main rails by guide-plate E, and should a car approach the switch on the main track from the direction of the frog while the switch is set as shown in Fig. 2, then the wheels will be raised on the flange sufficiently high by the inclined block D to permit the tread to take a bearing on switch-rail C and follow down its incline to a bearing on the main rail, as before described, while at the same time the flange of the wheel on the opposite end of the car-axle passes between the main rail A and point-rail C', and compresses spring H by moving laterally the point-rail C' sufficiently to allow the flange of the wheel to pass between the rail A and the point of C'.

If a car approaches the switch from the side track while the switch is set as shown in Figs. 1 and 3, the wheels will be carried by the switch-rails C and C' until the space between guide-plate E and point-rail C' is filled by the flange of the wheel. At this point it is preferable to have switch-rail C' planed low enough to allow the tread of the wheel to take all its bearing on main rail A; then as the car advances it is forced laterally by the guide-plate E, while the flange of the wheel moves point C' by compressing spring H sufficiently to permit the flange to pass between guide-plate E and point-rail C', while the wheel on the opposite end of the car-axle has been drawn laterally sufficient to permit the flange to take a bearing on the head of main rail A', and runs on the flange until moved laterally by guide-plate E far enough to cause the tread to drop on main rail A'.

The several movable parts of the switch should be connected to switch-stand F' by lever G, as shown in Figs. 1, 2, 3, and 4, so by reversing the movable parts of the switch-stand the switch will be changed from the position shown in Fig. 2 to that shown in Fig. 1, in which position it can readily be seen that the main track is not broken, and is free from all obstructions.

My object is to furnish a switch that does not break the main track; but I make no claim to an inclined and a pointed switch-rail connected together by a connecting-rod. I am aware that they were patented in England, January, 1860.

I am also aware that a spring has been heretofore employed in a switch in connection with the pointed rail, and has been so arranged that when the switch is set for the main line a car coming from the side track will set it for the siding, the flange of the wheel passing be-

tween the pointed rail and the guide-rail and forcing the pointed rail against the main track, the spring to which the pointed rail is connected being compressed, and thus allowing the pointed rail to move; but in switches as heretofore constructed none have a spring connected to the pointed rail and so arranged that when the switch is set for the main line a car coming from the siding will set it for the siding, and thus pass to the main line, and, in connection therewith, when the switch is set for the siding a car moving on the main line toward the switch from the direction of the arrow will set the switch for the main line, and thus leave the main track free of obstruction, the switch in either instance returning to its former open or closed position. While, therefore, I do not claim, broadly, the combination, with a pointed switch-rail and its opposite movable inclined rail, of a spring-connection, it is my intention to limit my claim hereunder to the combination, with the pointed rail and its opposite movable inclined rail, of the spring I have herein described, whereby the double function which I have set forth is accomplished—namely, the spring H coiled on the rod H' and bearing at either end against sleeves h h' on the rod, which are connected to the pointed switch-rail.

What I claim as new, and desire to secure by Letters Patent, is—

1. A railway-switch having a movable inclined rail, C, and pointed rail C', the latter being provided with a spring, H, on rod H', bearing at either end against sleeves h h' on the rod attached to the pointed rail, substantially as described, and for the purpose specified.
2. A railway-switch having an inclined rail, C, and a movable inclined safety-block, D, as and for the purpose herein described.
3. A railway-switch having an inclined rail, C, a pointed rail, C', provided with a spring, H, on rod H', and having the bearing-sleeves h h' attached to the pointed rail, substantially as described, and a guide-plate, E, as and for the purpose specified.
4. A railway-switch having an inclined rail, C, an inclined movable block, D, and a pointed rail, C', provided with a spring, substantially as and for the purpose herein described.

JAMES BRAHN.

Witnesses:

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