

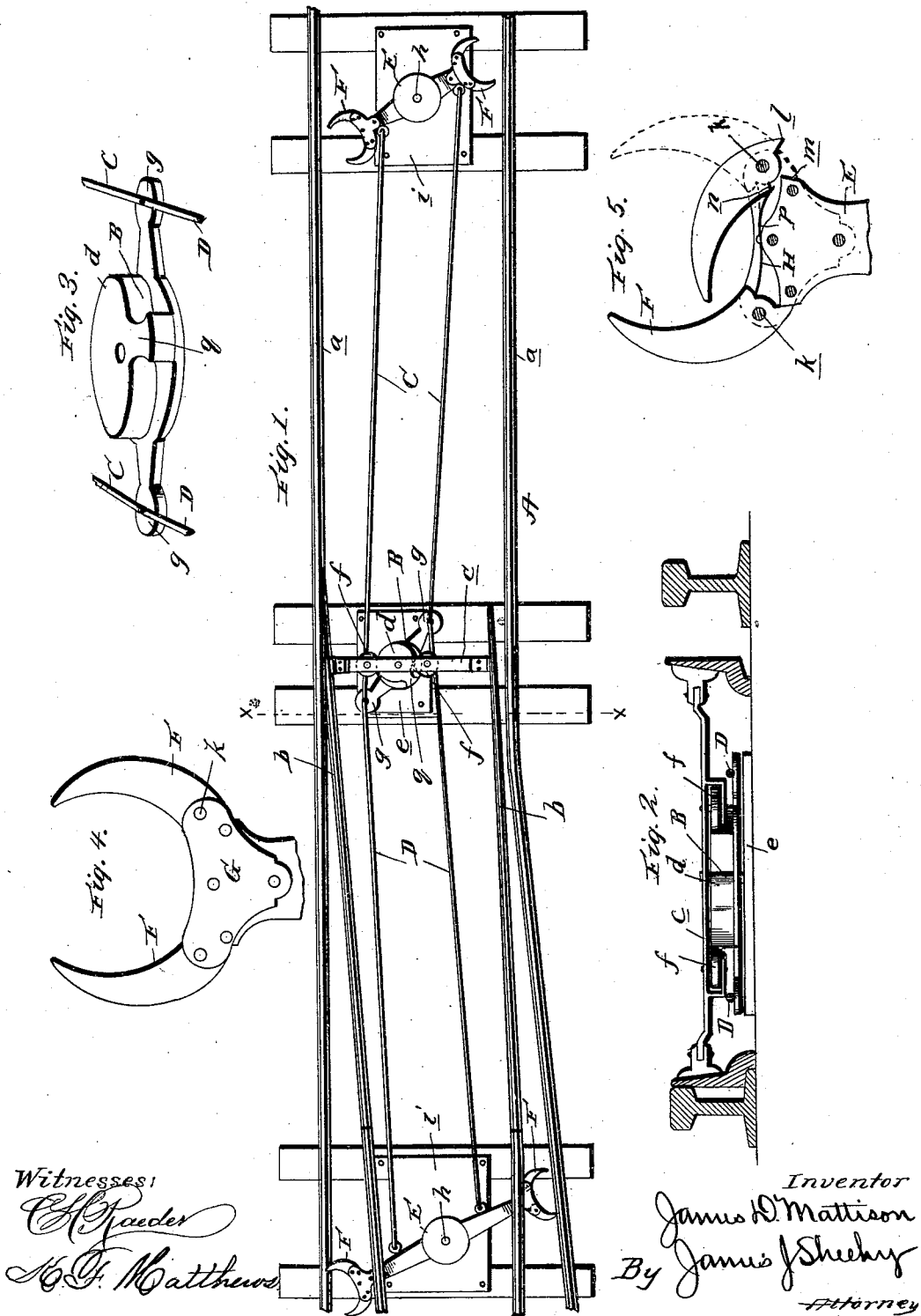
(No Model.)

2 Sheets—Sheet 1.

J. D. MATTISON.
RAILWAY SWITCH.

No. 478,879.

Patented July 12, 1892.



Witnesses:

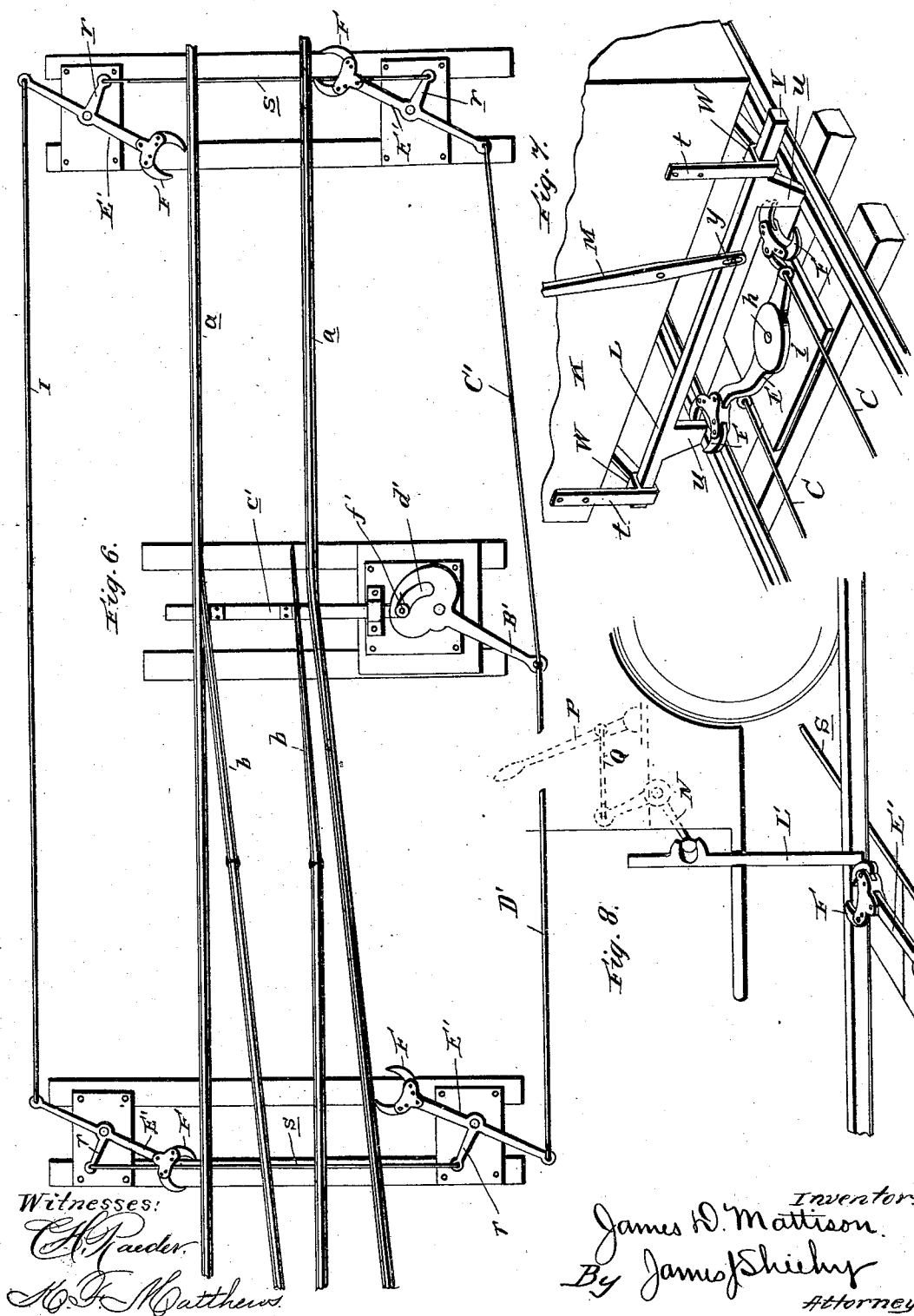
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2 Sheets—Sheet 2.

No. 478,879.

Patented July 12, 1892.



UNITED STATES PATENT OFFICE.

JAMES D. MATTISON, OF EAST SAGINAW, MICHIGAN.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 478,879, dated July 12, 1892.

Application filed July 6, 1891. Serial No. 398,549. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. MATTISON, a citizen of the United States, residing at East Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Railway-Switches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to improvements in mechanism for operating railway-switches; and it has for its object the provision of devices adapted to serve in connection with devices carried by a locomotive or car, whereby switches may be automatically opened and closed by the engineer or attendant on a moving train.

The invention will be fully understood from the following description and claims when taken in connection with the accompanying drawings, in which—

Figure 1 is a plan view of a section of railway, showing a switch and my improvements applied thereto. Fig. 2 is a cross-sectional view taken at the point indicated by the dotted line *xx* on Fig. 1. Fig. 3 is a perspective view of the cam-lever removed, showing the switch-rods connected with the arms thereof. Fig. 4 is a plan view of a pair of jaws on one of the pivoted levers. Fig. 5 is a view of similar parts, showing the interior thereof and one of the branches thrown in a position as if struck by the sliding or shifting bar carried by the frame. Fig. 6 is a plan view of a section of railway, showing a modification of my invention. Fig. 7 is a perspective view of a portion of one end of a car equipped with the sliding or shifting bars and manipulating-lever and a similar view of a portion of a railway with my improvements applied; and Fig. 8 is a side view of a portion of a car, showing a modification of devices for operating the switch, and also showing in perspective a portion of one of the switch-levers.

Referring by letter to said drawings, A indicates a section of railway, the main-track rails being represented by *a* and the switch-rails by *b*. These rails are supported upon cross-ties in the usual manner, and the free ends of the switch-rails are connected by a tie-bar or transverse slide-bar *c*.

B indicates an oscillating lever. This lever is provided at a central point and preferably upon its upper side with a cam or eccentric *d*, and is pivoted at such point to a plate *e*, which is in turn firmly secured to the cross-ties, as shown. The transverse bar *c*, which connects the free ends of the switch-rails, has journaled to its under side, on opposite sides of the cam or eccentric *d* and in close relation thereto, horizontal friction-rollers *f*, which are designed to be struck alternately by the cam or eccentric in the oscillating movements of the lever or plate B. This cam-plate B has oppositely-extending arms *g*, to which rods C and D are respectively attached.

Pivoted in the road-bed and at suitable points from the switch are levers E. These levers, which are preferably pivoted at *h* on plates *i*, are connected near their opposite ends with the rods C D and are designed to control the movements of the switch-rails. These levers E are provided at opposite ends with oppositely-curved branches F, and these branches, which are pivoted at their inner ends, as shown at *k*, to the levers E or plates G, carried thereby, are respectively provided with a shoulder *l*, designed to strike the ends *m* of the levers E when thrown outwardly or in an open position, and these branches are notched or provided with a shoulder *n* to receive the opposite ends of a flat spring H, which in turn has a bearing about midway of its length against the beveled part *p* at the ends of the levers E. By this construction it will be seen that the normal position of the branches F is the extended position, the spring allowing the shifting bar carried by the locomotive or cars to turn one of the said branches inwardly when it is desired to contact with the inner side of the opposite branch.

The cam plate or lever B is preferably provided on its periphery at a suitable point with an offset *q*, which may serve as a stop in its oscillating movement by striking the friction-rollers *f*, and thereby limit the movements of the switch-levers.

By particular reference to Fig. 6 of the drawings it will be seen that I dispense with the eccentric or cam plate in the center of the road-bed at the switch and provide instead thereof a lever B', having a cam-slot or

curvilinear slot d' . The bar c' has a friction-roller f' , which enters the cam-slot in the lever B' . The switch-levers E' , instead of having jaws pivoted at opposite ends, carries the jaws at the inner ends only, and these switch-levers are provided at a point midway of their length with a rectangular arm r , which are connected by a transverse rod or bar s , so that the movement of one will be effected by that of the other. The rods C' and D' connect the outer ends of one set of switch-levers E' with the outer end of the lever B' , and the outer ends of the opposite switch-levers are connected by a longitudinal rod I . It will be observed that the switch-levers are arranged in planes approximately parallel to each other, so that when a set of levers on one side of the railway have been moved in one direction the set on the opposite side will be moved in an opposite direction.

K indicates a portion of a railway-car. This car is provided at opposite ends with hangers t , in which is arranged a transverse horizontal slide-bar L , carrying on its under side depending lugs or tappets u , the ends of the slide-bar being extended, as shown at V , and bearing in eyes w at the lower ends of the hangers, as shown. This slide-bar is designed to be manipulated by an attendant on the car or engine, and is connected with a hand-lever M , which is pivoted at a suitable point to the car and is provided at its lower connecting ends with an elongated slot y , so as to accommodate itself to the movements of the slide-bar.

It will be observed that the opposite ends of the switch-levers E , as well as the inner ends of the levers E' , are elevated sufficiently above the plane of the track-rails to allow the lugs or tappets u to contact with said levers, and the lugs U are at a sufficient distance apart so that but one end of the switch-levers may be struck at the same time.

In Fig. 8 of the drawings, instead of drawing a horizontal slide-bar, I have illustrated a vertical slide-bar L' , which is designed to operate in a similar manner and for a similar purpose as the lever L . This vertically-movable or slide bar L' is connected with a bell-crank lever N , which is pivoted at its angle in the car or engine and is connected at its opposite branch to a hand-lever P by means of a rod or bar Q , and the hand-lever is pivotally supported at its lower end.

In operation it will be seen that when it is desirable to open or close a switch it is not necessary to stop the train nor even slow it, as the engineer or attendant on the locomotive may manipulate the hand-lever so as to have the vertical or horizontal slide-bars con-

tact with the desired switch-lever at one end and he may return the switch to the position in which he found it by having the brakeman or attendant on the last car manipulate the slide-bar, so as to contact with the desired switch-lever at the opposite end.

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

1. The improved switch-lever described, having the curved branches F , provided with the shoulders l and the notches or shoulders n and pivoted to the opposite ends of said lever, and the springs H , bearing at opposite ends against the inner ends of said arms and at the inner side of the pivot thereof, substantially as specified.

2. A railway-switch having, in combination with the main rails and switch-rails, a bar connecting the free ends of the switch-rails, a lever connected with the bar by a cam or eccentric, and an interposed roller, a rod leading in opposite directions from the eccentric, switch-levers connected together and also connected with the eccentric, said switch-levers having spring-backed and curved pivoted arms, so arranged that while both may be struck by switch-operating mechanism carried by a moving car but one of said arms will resist the engagement, so as to move its lever in the desired direction, substantially as specified.

3. The combination, with a switch constructed as described and having the switch-levers provided with the curved and pivoted arms, of a car or engine carrying guide-supports, a laterally-movable slide-bar arranged thereon, and depending lugs near opposite ends adapted to contact with the pivoted arms of the switch-levers, and the laterally-movable pivoted hand-lever on the car, adapted to manipulate the slide-bar, substantially as specified.

4. The combination, with the track-rails and switch-rails, of the bar connecting the free ends of the switch-rails and carrying a stud bearing a roller at one end, the slotted cam-lever receiving said stud and roller, the switch-levers connected in pairs at their outer ends by a rod and also connected with the slotted cam-lever, said levers also having angular branches connected by transverse rods, and the curved and spring-backed arms pivoted to the switch-levers, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES D. MATTISON.

Witnesses:

HENRY W. BATES,
BURLEY J. GREENFIELD.