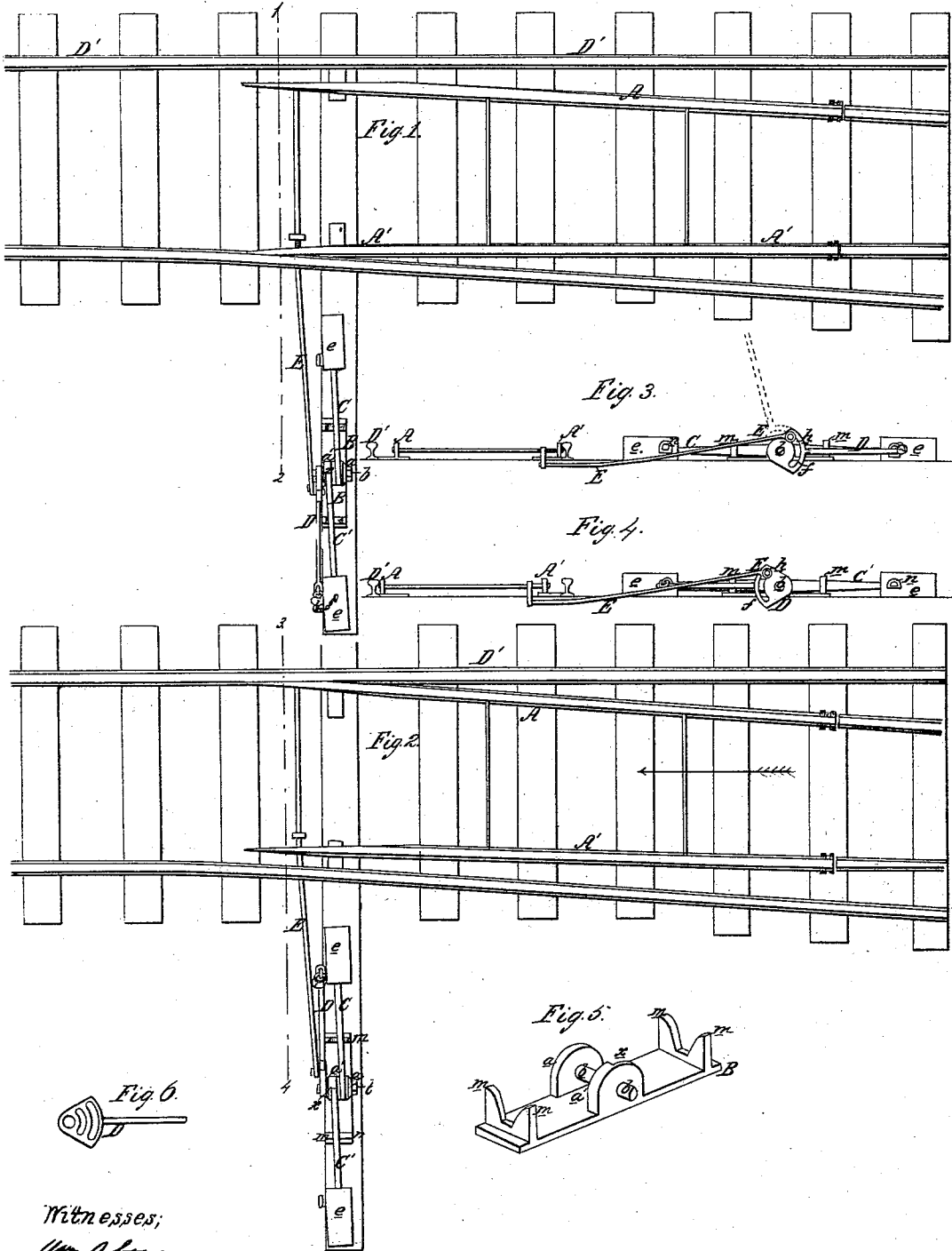


W. Wharton Jr,

Mechanism for Operating Switches.

N<sup>o</sup> 93,932.

Patented Aug. 17. 1869.



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WILLIAM WHARTON, JR., OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 93,932, dated August 17, 1869.

## IMPROVED MECHANISM FOR OPERATING SWITCHES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM WHARTON, Jr., of Philadelphia, Pennsylvania, have invented certain Mechanism for Operating Switches; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists—

First, of a certain lever, constructed in the peculiar manner fully described hereafter, so as to be a medium wherewith to move the switch-rails, with ease to the operator, and so as to be in the best position to be operated by the switch-rails, when the latter are acted on by the wheels of the cars.

Secondly, in the combination, with the said lever, of certain weighted arms for retaining the switch-rails, and restoring the same through the medium of the lever, after being acted on by the wheels.

Thirdly, of a certain stop for arresting one of the said weighted arms, in the manner and for the purpose described hereafter.

Fourthly, of certain fingers for preventing the weighted arms from being subjected to undue lateral strains.

In order to enable others skilled in the art to make and apply my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figures 1 and 2 are plan views of a railroad-switch, with my improved mechanism for operating the same;

Figure 3, a transverse vertical section on the line 1-2, fig. 1;

Figure 4, a section on the line 3-4, fig. 2;

Figure 5, a perspective view, on an enlarged scale, of the foundation-plate for carrying the operating-mechanism; and

Figure 6, a modification of the levers for operating the switch-rails.

Similar letters refer to similar parts throughout the several views.

A and A' are two ordinary switch-rails, arranged, in respect to the permanent rails of a track, in the usual manner, too well known to need description here.

To a suitable foundation, and adjacent to the track, is secured a plate, B, through projections *a* and *a'*, on which passes a pin, *b*, and to this pin are loosely hung two arms, C and C', each of which is furnished at its outer end with a weight, *e*.

To the same pin *b* is loosely hung a lever, D, in which is a segmental slot, *f*, concentric with the said pin, and through this slot passes a pin, *h*, by which the rod E is connected to the said lever, the outer end of the rod being connected to the switch-rails A and A' in the usual manner.

The lever D has at its outer end an eye, adapted to

a staple, *n*, on the weights *e* of each of the arms C and C', so that the lever may be connected to either weight by simply adjusting the eye of the former to the staple, through which may be passed a pin, or the lever D may be secured to either of the weights, or to either of the arms C or C', by other appliances, or by any locking-device, all that is necessary being suitable facilities for connecting the lever D to one or other of the arms or weights, and for readily disconnecting it from the same.

When the lever D is thrown outward, and connected to the weight of the arm C', as shown in figs. 1 and 3, the switch-rails are in a position to render the main track clear; but when the lever has been moved inward to the weight of the arm C, the switch-rails are so situated as to direct the cars from the main track to the turnout, and *vice versa*.

In moving the lever D, however, to effect this change of the switch-rails, (for instance, in moving the lever from the position shown in fig. 3 to that seen in fig. 4,) it will not commence to operate the switch-rails until it is elevated to about the position shown in red lines, owing to the lost motion caused by the segmental slot *f*, and this position is the most advantageous for the operator in exerting himself to commence and complete the movement of the switch.

Another and most important advantage possessed by the segmental slot of the lever D may be described as follows:

Supposing the switch-rails to be inadvertently left in the position shown in fig. 2, and that the locomotive is traversing the main track in the direction of the arrow, the wheels passing between the switch-rail A and main rail D', will move both switch-rails to the position shown in fig. 1; and it is important that the operating-mechanism should be such as not to present a rigid resistance to this movement, which an ordinary crank would do under some circumstances.

On reference to fig. 4, it will be seen that when the wheels of the locomotive commence to move the switch-rails from the position shown in fig. 2 to that seen in fig. 1, the pin *h*, which connects the rod E to the lever D, is in such a position, as regards the pin *b*, that the lever of itself presents no obstruction to the movement of the switch-rails, the only resistance presented being the weighted lever C, which locked to the lever D, suffices to maintain the switch-rails in the position shown in fig. 2, but is readily elevated when the wheels of the locomotive, traversing the main track in the direction of the arrow, act on these rails.

The foremost wheels, if the locomotive be moving at a speed exceeding eight miles per hour, will not only move the switch-rails, to permit the wheels to pass freely, but will, through the switch-rails, so act on the lever D as to throw it over, carrying with it the

weighted lever C, which falls over or on to the weighted lever C', and there serves to maintain the switch-rails in the position shown in fig. 1, and to leave the main track free for the following wheels of the train.

When the lever D is locked or otherwise secured to the weighted arm C', after using it to restore the switch-rails to the position shown in fig. 1, and to thus clear the main track, if the switch-rails should be moved from this position by the passage of cars from the turnout to the main track, the lever D cannot be thrown over, with the weighted arm C', toward the track, for the said arm is arrested by a stop, *x*, on the projection *a'* of the plate B, in such a position, that the moment the switch-rails are released from the control of the car-wheels, they will be restored to the position shown in fig. 1, by the falling of the weighted lever, and the main track will be consequently clear.

It is also evident, that when the main track is clear, and the lever D is secured to the weighted arm C', that an evil-disposed person cannot, by lifting up the same, affect the position of the switch-rails, as the stop *x* arrests the motion of the arm C, before the end of the slot *f* has reached the pin *h*.

It will be seen, on reference to the perspective view, fig. 5, that there are, near each end of the plate B, fingers *m m*, each finger being inclined on its inner edge.

The weighted arms C and C' fall between these fingers, which prevent the said arms from being subjected to any undue lateral strain.

In some cases, the switch-rails are of different

lengths, and one arranged to be moved from one point, and the other from another point; in which case the lever D should have two segmental slots, as shown in fig. 6, so that the operating-rod of the rail which has the shortest movement may be connected to the lever D by a pin passing through the slot nearest to the centre of motion, while the rod of the rail having the longest movement is connected to the lever by a pin passing through the slot farthest from the centre of motion.

I claim as my invention, and desire to secure by Letters Patent—

1. The slotted lever D, arranged for operating switch-rails, and for being operated by the same, substantially in the manner and for the purpose described.

2. In combination with the said slotted operating-lever, the weighted arms C and C'.

3. The lever D and weighted arms C C', all hung to the pin *b*, and operating together and with the stop *x*, substantially as specified.

4. The fingers *m m*, arranged on the plate B, for the reception of the weighted arms C and C', as set forth.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WM. WHARTON, Jr.

Witnesses:

JOHN WHITE,  
HARRY SMITH.