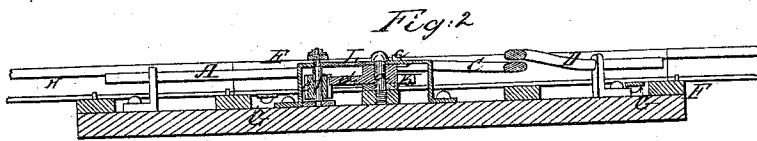
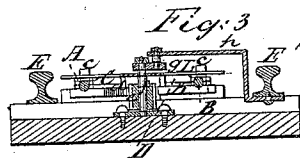
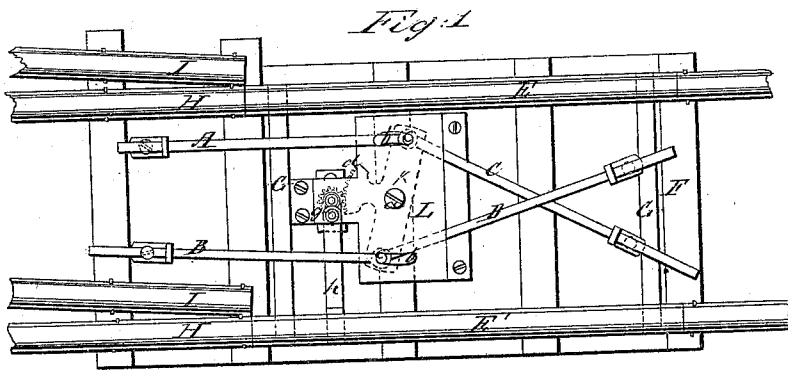


*J. A. Heyl.*

*Railroad Switch.*

*N<sup>o</sup> 81,634.*

*Patented Sept. 1, 1868.*



*Witnesses*  
*L. N. Piper*  
*J. A. Snow*

*Inventor*  
*John A. Heyl.*  
*by his attorney*  
*R. W. Mady*

# United States Patent Office.

JOHN A. HEYL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF,  
JOSEPH G. LORING, AND JOHN H. WIGGIN, OF SAME PLACE.

*Letters Patent No. 81,634, dated September 1, 1868.*

## IMPROVED RAILWAY-SWITCH.

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

TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME:

Be it known that I, JOHN A. HEYL, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Mechanism for Operating the Switches of a Railway-Track; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view,

Figure 2 a longitudinal section, and

Figure 3 a transverse section of a switch and its main and turn-out tracks, with my invention for operating the said switch by means of a carriage while running from the main track toward the turn-out or siding, or from the latter toward the former.

The purpose of the mechanism hereinafter described is to move the switch into alignment with the track upon which it may be desirable to have the carriage travel, and also to hold it firmly in position while the carriage may be passing over it.

On April 16, A. D. 1867, Letters Patent, No. 63,794, were granted to me on an improved railway-switch mechanism, which was wanting in two portions or elements incident to my present invention; that is to say, my patented switch-mechanism was not certain to hold the switch firmly in position while the carriage was passing over it, and there was no mechanism for arresting the lateral movements of the lever arranged between the switch-rails. In my present mechanism provisions are made for effecting the above results.

The patented mechanism contained not only a shaft having two common and two bell-cranks, but two inclined bars pivoted to such shaft, and a rod extending across the main track, the outer cranks of the rod being pivoted to two connecting-rods. I make use of substantially such devices for actuating each pair of the connecting-rods of my present switch-mechanism, although I have not represented such in the drawings, such rods being shown at A B and C D in the said drawings. Each pair of such rods is supposed to be applied to such a cranked shaft, provided with a pair of inclined bars. And there is to be on the axle of the locomotive or railway-carriage, or on some other part of such carriage, a wheel provided with means of sliding it laterally, so that when the locomotive or carriage may be approaching the switch, the wheel may be moved into a position to roll on and depress that inclined bar, which may be intended to effect the desirable movement of the switch, whether the said movement of the said switch is to be from the main track to the turn-out, or from the latter to the former.

In the drawings, E E' are the two rails composing the switch; they, at or near one end of each, being hinged or jointed to the main-track rails or pivoted to a sleeper, F, arranged at the end of the switch. The two switch-rails I connect by cross-bars G G, jointed to them so as to cause them, while in movement, to maintain their parallelism. The main-track rails are shown at H H, and those of the turn-out at I I.

The two pairs of connecting-rods A B, C D, are jointed to the two arms of a lever, K, arranged horizontally to turn the switch-rails, and supported at its centre on a pivot, *a*, which extends down from a socketed plate, L, arranged horizontally over the lever, and provided with two curved slots, *b b*, arranged in it as shown in fig. 1. Two studs, *c c*, project up from the lever K into such slots. Furthermore, there extends from the middle of the lever a toothed sector, *d*, which engages with a pinion, *e*, fixed on a vertical shaft, *f*, arranged in manner as represented. The said shaft has on its upper end a crank, *g*, to whose wrist there is pivoted a bent arm, *h*, extended from and jointed to one of the rails of the switch.

The slotted plate and the studs above mentioned determine the extent of movement of the lever, and of course that of the switch, in either direction. The movement of the crank is limited to one hundred and eighty degrees of a circle, or thereabouts, each movement of it bringing it into line with the arm, so as to hold the switch firmly in position while the carriage may be travelling over it. When the switch is in connection or

alignment with either the main or turn-out rails, the crank is on a dead-point with the arm, and thus while the crank may be at rest there can be no movement of the switch.

What I claim as my present invention, is—

The arrangement and combination of the arm *h*, the crank *g*, its shaft *f*, pinion *e*, and the toothed sector *d*, with the lever *K*, the switch and either or both pairs of connecting-rods *A B*, *C D* applied to such lever.

I also claim the combination and arrangement of the studs *e e* and the slotted plate *L*, with either or both sets of connecting-rods *A B*, *C D*, the lever *K*, the toothed sector *d*, the pinion *e*, the shaft *f*, the crank *g*, and the arm *h*, the whole being applied to the switch and the road-bed, substantially as specified.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.

JOHN A. HEYL.