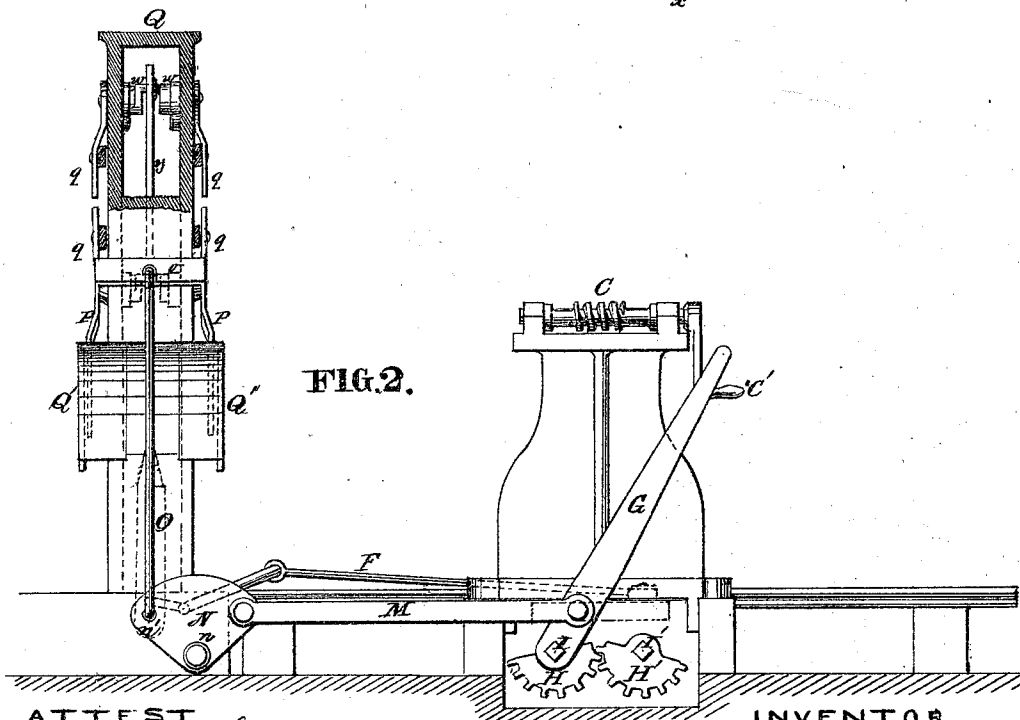
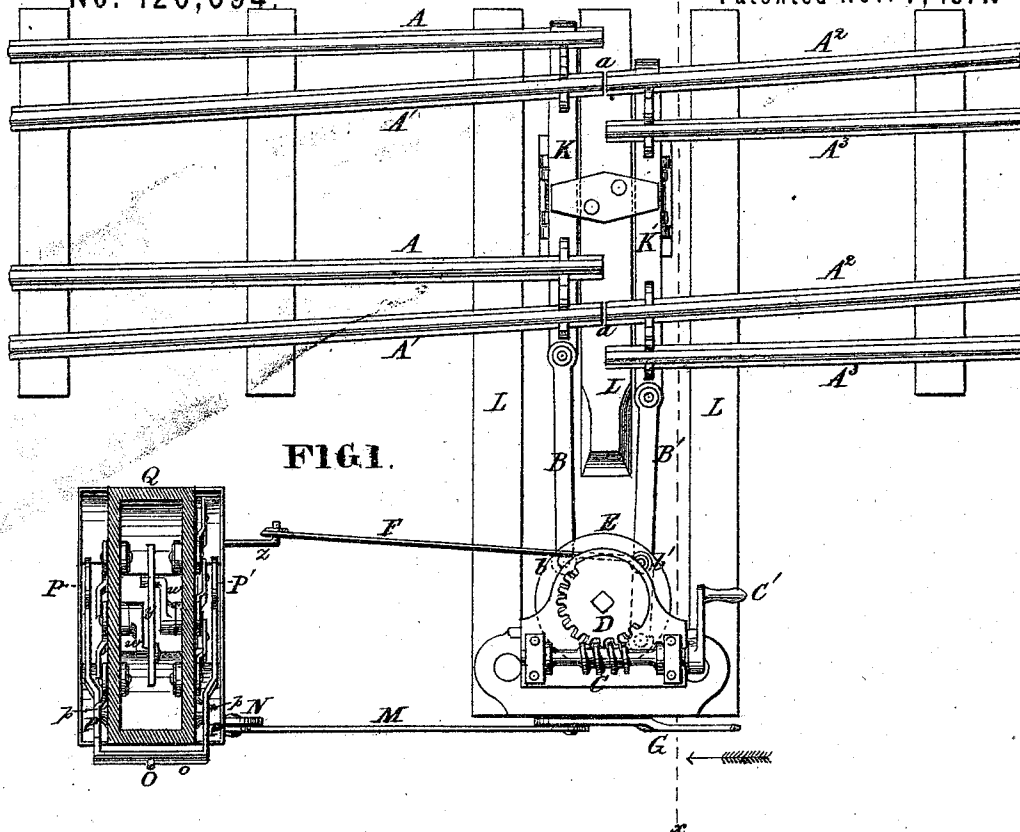


JOHN A. ANDERSON.  
Improvement in Railway-Switches and Signals.  
No. 120,694. Patented Nov. 7, 1871.



ATTEST  
*Wm. H. Brewster*  
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*By Octavius Knight*

JOHN A. ANDERSON. 2 Sheets--Sheet 2.  
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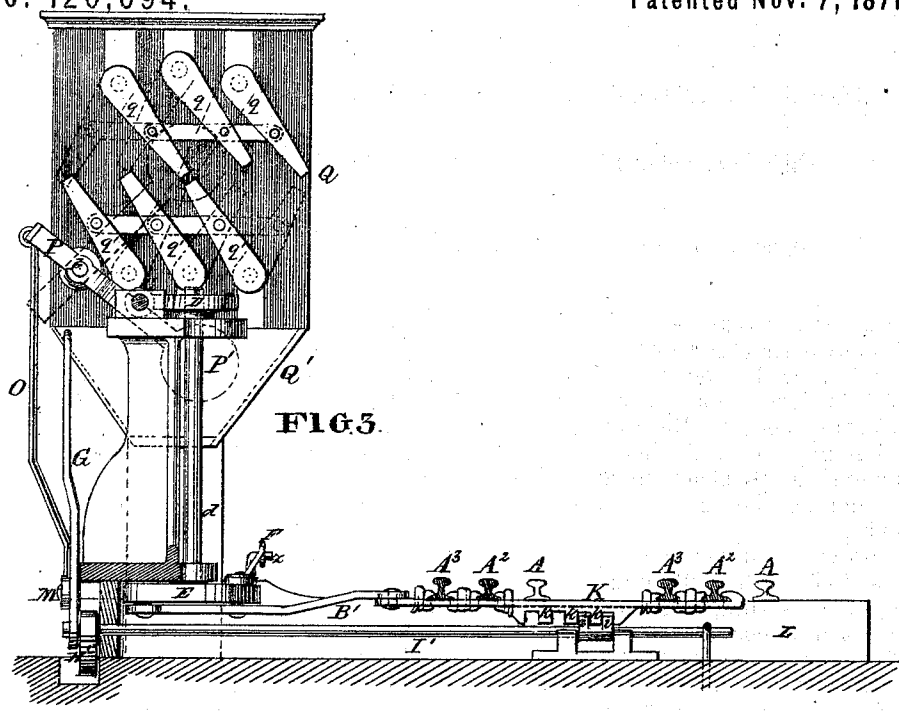


FIG. 3.

FIG. 5.

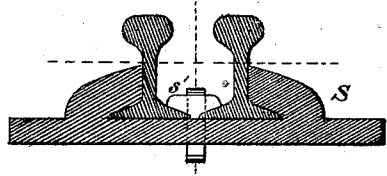


FIG. 4.

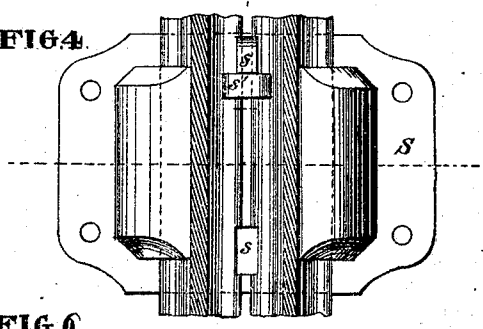
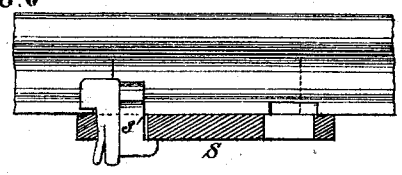


FIG. 6.



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# UNITED STATES PATENT OFFICE.

JOHN A. ANDERSON, OF LAMBERTVILLE, NEW JERSEY.

## IMPROVEMENT IN RAILWAY SWITCHES AND SIGNALS.

Specification forming part of Letters Patent No. 120,694, dated November 7, 1871.

*To all whom it may concern:*

Be it known that I, JOHN A. ANDERSON, of Lambertville, in the county of Hunterdon and State of New Jersey, have invented a new and useful Improvement in Railway Switches and Switch-Signals; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing.

My improvements relate primarily to an improved switch with switching rails or joints adapted to be sprung together, the respective sets moving in opposite directions.

The first part of my invention consists in the employment or use of automatic indicators or signals for showing the positions of the points relatively to each other, the same receiving its motion from the rail-shifting mechanism. Secondly, in an improved device for locking the points in position. Thirdly, in combining with such locking device automatic mechanism by which, when the switching-rails or points are unlocked, a danger-signal is displayed, and when forming a continuous line and properly locked the danger-signal is hidden from view.

Figure 1 is a plan of the switch and its appurtenances. Fig. 2 is a side elevation. Fig. 3 is a section transversely of the track on the line *x x*, Fig. 1, the signal being shown in elevation. Figs. 4, 5, and 6 are detail views of an improved chair for securing guard-rails, the same constituting an independent invention not herein claimed.

$A^2 A^1 A^3$  represent the switching-rails or "points" of two railroad-tracks, or a main track and double siding. These switching-rails or points are all movable, and instead of being pivoted are firmly attached at their outer ends and adapted to have their contiguous or butting ends sprung laterally as required. The respective sets of these rails or points  $A^1 A^2 A^3$  are connected by bars  $K K'$ , so as to move together, being preferably attached to these bars by gibs and keys, as represented. They are coupled to the shifting-gear by rods  $B B'$  jointed to the said connecting-bars.  $C$  represents an endless screw or worm;  $C'$ , a hand-crank for turning the same; and  $D$  a worm-wheel or sector, meshed by the said screw, the same constituting a power-multiplying device for operating the rail-shafting disk or bell-crank  $E$ , to the vertical rod or shaft  $d$  of which

the said worm-wheel is applied. In addition to the rods  $B B'$  there is coupled to the disk  $E$ , or its equivalent, a rod,  $F$ , connecting the same through a bell-crank,  $z$ , slotted rod or rods  $y$ , and crank-arms  $w$ , or any equivalent thereof, to coupled sets of pivoted pointers  $q q'$ , which are thus moved correspondingly with the points and made to indicate the relative position of the points or the condition of the switch, being of the same number and general arrangement as the rails on one side of the road.  $G$  represents a hand-lever working parallel to the track, and attached to one of a pair of intermeshing sector-wheels  $H H'$ , on the ends of a pair of horizontal rods or shafts  $I I'$ , extending transversely under the track. The connecting-bars  $K K'$  are over these shafts, and parallel to them, and are constructed with teeth  $k$  on their under sides, which are engaged by projections  $i$  on said shafts to lock the points in their positions.  $P P$  represent arms, pivoted at  $p$ ;  $P' P'$ , disks attached to the same; and  $Q' Q'$ , screens on the signal-post  $Q$ , behind which the said disks may drop, the same constituting a danger-signal. This is operated automatically, by the connection of said arms, by means of a union-bar,  $o$ , rods  $O M$ , and a bell-crank,  $N$ , to the hand-lever  $G$ , in such a manner as to secure the display of the danger-signal when the lever is moved to unlock the points, and its concealment when the points are locked in either position.  $L L$  represent sleepers to support the free ends of the switching-rails or points. The indicator  $q q'$  and the danger-signal  $P P'$  are each double, so as to be seen from either direction, the indicator on each face showing the track as it would appear to a person approaching. The indicators represented are for a three-track switch. The pointers  $q q'$  are preferably painted white, the disks  $P'$  red, and the faces of the post  $Q$  black, to secure the best contrast, and the two faces illuminated at night by lanterns in front of the same.  $S s s'$  represent a chair and fastening for securing the guard-rails. This forms no part of the present invention, and will not be particularly described.

The operation of the switch and signals is as follows: The parts being in normal position both tracks are unbroken. To move the points to the position represented in Fig. 1, for instance, so as to switch a train from the end  $A^2$  of the main track to the end  $A^1$  of the siding, or the reverse,

the lever *G* is first turned toward the signal-stand *R*. This movement, acting through the sectors *H H'*, turns the rods *I I'* so as to bring their projections *i* into horizontal position and out of mesh with the teeth *k* so as to unlock the rails. It also simultaneously throws up the disks *P'* of the danger-signal so as to expose the same above the screens *Q'*. The crank *C'* is then turned so as to rotate the endless screw *C*, through which motion is imparted to the worm-wheel *D*, rod *d*, and disk *E*, and through the latter and the connecting-rods *B B'*, and bars *K K'*, and through the rods *F y*, bell-crank *z*, and crank-arms *w*, or their equivalent, to the said points and the indicators *q q'*, the points being brought to proper position, and such position simultaneously represented by the indicators.

To restore the points to normal position the lever *G* is forced back, unlocking the points and lifting the danger-signals, and the crank *C'* turned backward until the indicators show both lines again unbroken, when the lever *G* is returned, locking the rails again and withdrawing the danger-signals.

The operation of the indicators is thus automatically performed by the movement which

brings the switching-rails into their proper positions, while the danger-signal is in like manner displayed and withdrawn in unlocking and locking the rails.

I claim as new and of my invention—

1. The indicators *q q'*, constructed substantially as described, and operated automatically, so as to show the relative positions of the rails by the movement which shifts the points, as and for the purpose set forth.

2. The combination of the hand-lever *G*, toothed connecting-bars *K K'*, and the horizontal rods or shafts *I I'*, constructed with the projections *i* for locking and unlocking the rails, substantially as described.

3. The combination of the hand-lever *G*, rods or shafts *I I'*, connecting mediums *o O M N*, and the danger-signals *P*, for the purpose of displaying and withdrawing the latter simultaneously with the unlocking and locking of the rails, and by the same movements, as set forth.

JOHN A. ANDERSON.

Witnesses:

MARTIN CONGELL,  
CHAS. A. SKILLMAN.

(120)