No. 629,414. Patented July 25, 1899.

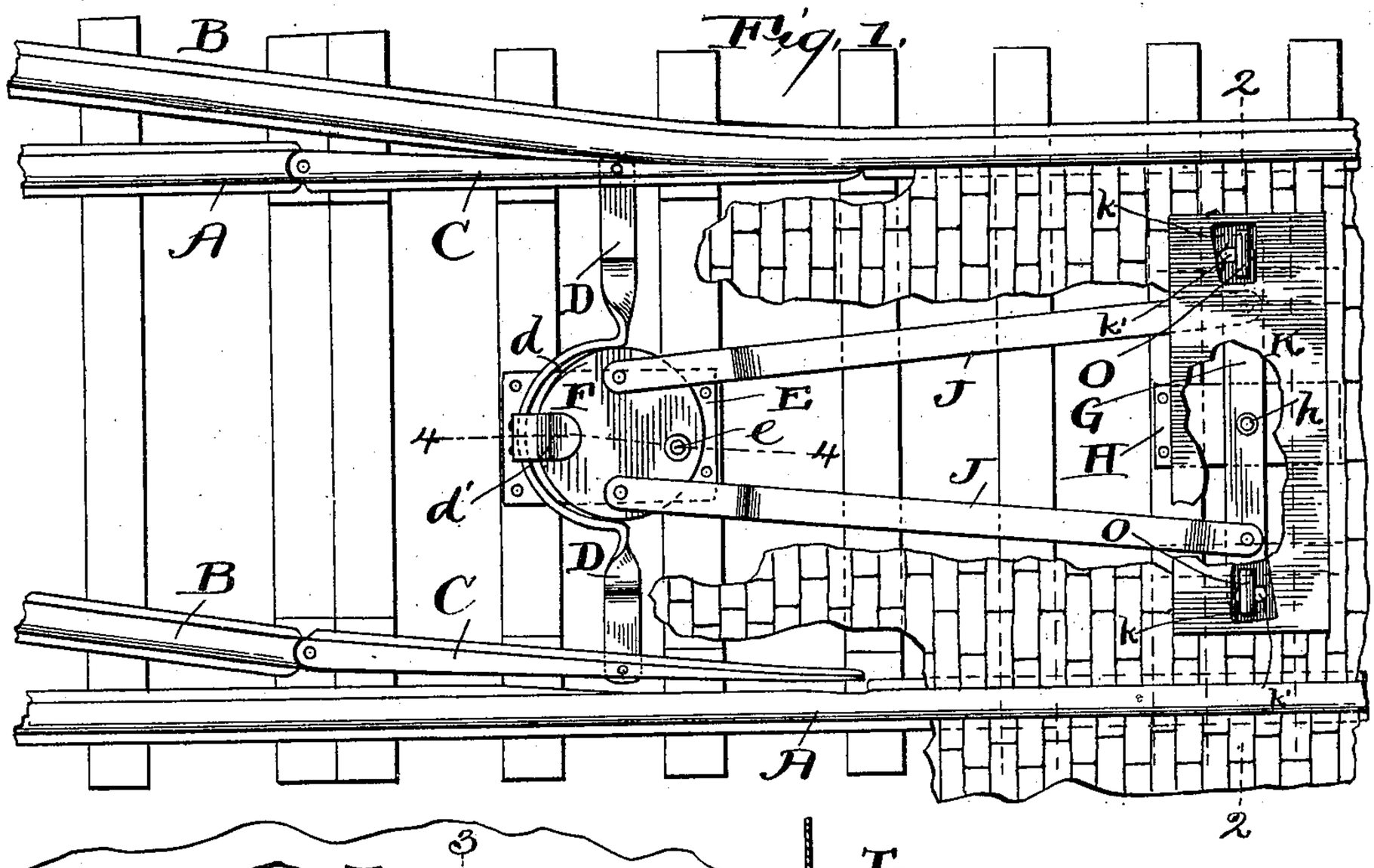
J. E. YOUNG & G. MORDEN.

RAILWAY SWITCH OPERATING MECHANISM.

(Application filed Sept. 10, 1898.)

(No Model.)

Fig. 1.



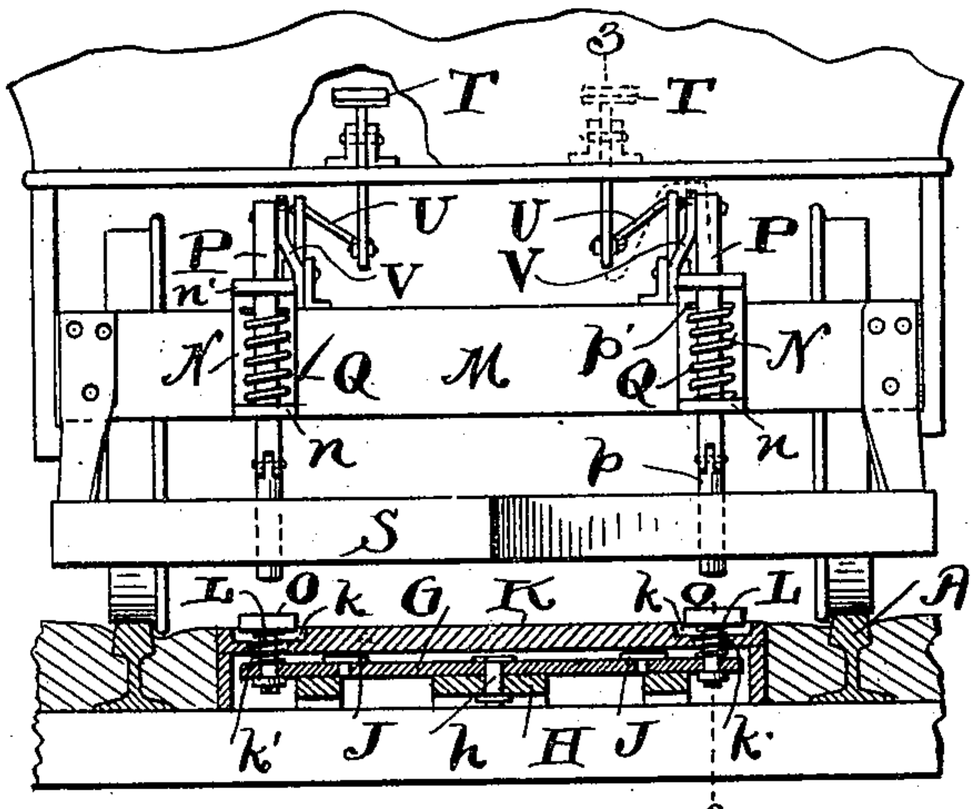


Fig. 2.

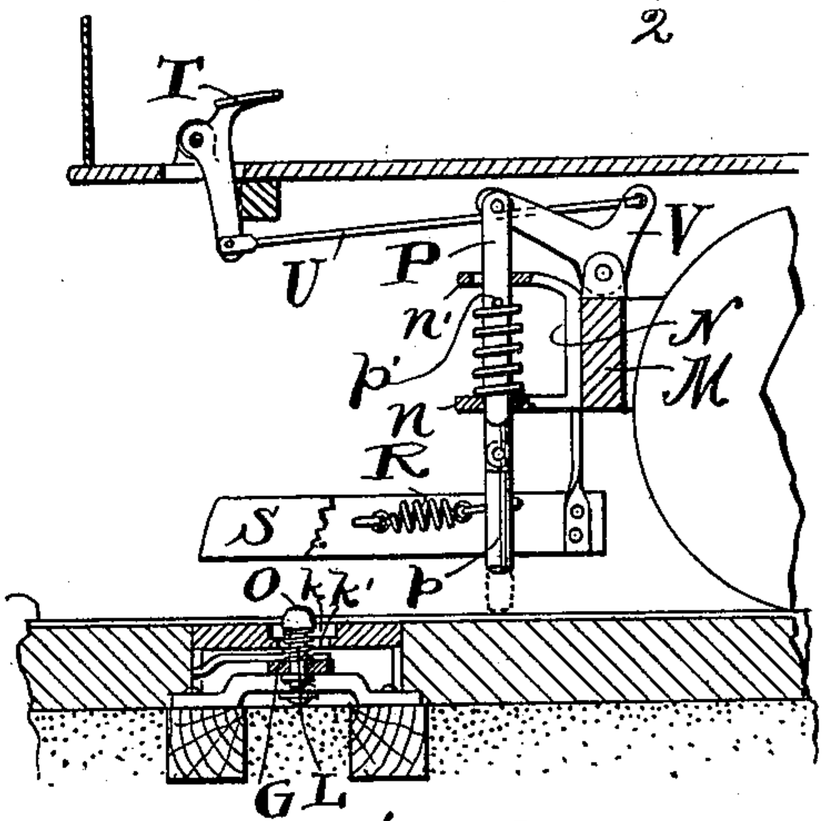


Fig. 3.

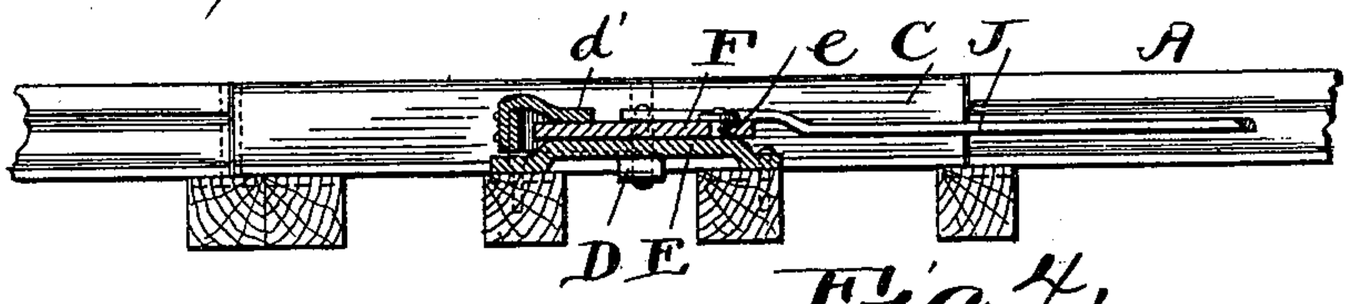
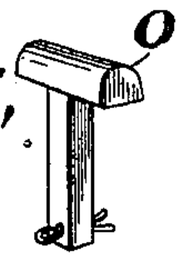


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

JONATHAN E. YOUNG AND GEORGE MORDEN, OF CONNEAUT, OHIO.

RAILWAY-SWITCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 629,414, dated July 25, 1899.

Application filed September 10, 1898. Serial No. 690,624. (No model.)

To all whom it may concern:

Be it known that we, JONATHAN E. YOUNG, a citizen of the United States, and GEORGE MORDEN, a subject of the Queen of Great Britain, residing at Conneaut, in the county of Ashtabula and State of Ohio, have invented a certain new and useful Improvement in Railway-Switch-Operating Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

Our invention relates to mechanism whereby a railway-switch may be thrown by the motorman of a moving car approaching the switch, so that without stopping the car the motorman may guide it in the desired direction.

The present invention is an improvement on that shown in Patent No. 602,249, granted to us April 12, 1898; and it consists of such arrangements at the track that the switch-point may be thrown by the car before it has approached close enough to the switch to obstruct the motorman's view thereof, so that before running onto the switch he may see that it is properly set.

The invention may also be described as consisting in the construction and combination of parts hereinafter specified, and pointed out definitely in the claims.

In the drawings, Figure 1 is a plan of a switch endowed with our improved operating mechanism. Fig. 2 is a vertical section of the same on the line 2 2 of Fig. 1 and shows in addition thereto a portion of the front elevation of an approaching car. Fig. 3 is a vertical longitudinal section on the line 3 3 of Fig. 2. Fig. 4 is a vertical longitudinal section through the oscillating member which shifts the switch-points, being on line 4 4 of Fig. 1. Fig. 5 is a perspective view of one of the T-shaped tripping-pins carried by the mechanism at the track and adapted to be engaged by the tripping-bar on the car.

Referring now to the parts by letters, A A represent the main track, B B a siding or branch, and C C the usual pivoted switch-points, adapted to connect in either the main or branch line.

Fig. 1 shows at the right a stone pavement which is broken away to reveal the switching mechanism, and such paving may be employed, if desired, without interfering with our mechanism.

The switch-points are connected together by a yoke D, having intermediate of its ends a bow part *d* of preferably a semicircular form. Pivoted on a vertical journal *e*, which may be a stud projecting upward from a plate E, secured to the ties near the yoke-bar, is an oscillating member F, made, preferably, in the form of a disk and so placed as to be embraced by the bowed part of the yoke. A tongue *d'* is preferably secured to the yoke and rests on the upper side of the disk F, thus holding the yoke in place. The disk being pivoted between its center and periphery, it is apparent that if it is turned about its pivot it will operate to shift the yoke-bar, and hence the switch points, one way or the other.

Located between the rails a suitable distance in advance of the switch-points is the horizontal lever G, which is pivoted at its center on a pivot *h*, which may be a stud projecting upward from a plate H, secured to two of the ties. A pair of links J J connect this lever on either side of its pivot with the oscillating member or disk F. The result of this construction is that if either side of the lever G is moved a short distance longitudinally of the track the disk F is shifted in one direction or the other about its pivot, and the yoke-bar D is moved transversely to the track and shifts the switch-points.

K represents a suitable plate which stands, preferably, flush with the road-bed over the lever G. In this plate, at the points which are over the ends of the lever, are the depressions or recesses *k*, and in the base of these depressions are slots *k'*. A T-shaped tripping-pin O, such as is shown in Fig. 5, stands in each of the depressions *k* and has its shank pass through the slot *k'* and also through a square hole in the end of the lever G and is locked to that lever by a suitable linchpin, which passes through the lower end of the tripping-pin. A spring L surrounds each of these tripping-pins and bears at its lower end against the lever G and its upper end against the head of the tripping-pin, and thus normally presses the pin upward as far as the linchpin at the bottom of the pin O allows. The tripping-pins, which are held from turning by their square shanks, are thus

normally in a position to be engaged by the operating-bar on the car; but they are also so supported that should a wagon-wheel pass over them they will be depressed into the recess in the cover-plate K, and thus will in no manner obstruct the roadway for vehicles.

In Figs. 2 and 3, M represents a cross-bar carried by the truck of a car. Secured to this cross-bar are the two brackets N, and journaled in each of these brackets is the operating or tripping bar P. Surrounding each bar is a spring Q, which bears at its lower end against the lower arm *n* of the bracket N and at its upper end against a pin *p'*, projecting through the bar P. The spring thus operates to normally elevate the bar P. Below each bracket N is an extension of the bar P, (designated *p*.) This extension is pivoted to the bar P, but is held normally in a vertical position by the spring R, secured at one end to the extension and at the other to the fender S, carried by the truck. The pivot of the extension and the spring R allow the extension to bend longitudinally of the car when desired.

T represents a treadle or foot-lever, in the form of a bell-crank, horizontally journaled on the car-body and extending above the floor of the platform of the car, and thus in convenient position to be engaged by the motorman's foot. The lower end of this treadle or bell-crank lever is connected by a link U to a bell-crank V, which is pivoted on the cross-bar M of the truck and has its other arm engaging the tripping-bar P. Thus when the treadle or foot-lever is depressed the link U is drawn forward, the forward arm of the bell-crank V moves downward, and the whole tripping-bar P is depressed, and thus comes into proper position to engage the corresponding tripping-pin O. The dotted lines in Fig. 3 indicate the lower end of the tripping-bar extension in this depressed position. The upper arm *n'* of the bracket N may have an enlarged hole through which the tripping-bar passes, whereby the latter may shift a little as it is moved downward, when its upper end moves forward a little with the movement of the bell-crank lever, or the connection with the bell-crank lever may be somewhat loose, as desired.

The operation of our improved mechanism is as follows: Ordinarily the tripping-bars P are drawn up by their springs out of the way and the mechanism remains idle. Suppose the car is approaching from the right, the switch set as in Fig. 1, and the motorman wishes to run onto the siding. He simply depresses with his foot the right-hand treadle T, thus forcing down that bar P, and the extension of this bar engages with the corresponding tripping-pin O and moves the lever forward a short distance and shifts the switch-points to connect in the siding. As soon as the left-hand switch-point impinges against the left-hand rail the movement of the lever G stops and the extension of the tripping-bar P bends backward, as allowed by its spring R, and passes over the tripping-pin O. If the switch is set right in the first place, the motorman does not depress either treadle and passes over the switch as usual.

Having described our invention, we claim—

1. In a switch-operating mechanism, the combination, with a pair of switch-tongues, of a yoke-bar connecting the same, said bar being bowed intermediate of its ends, a pivoted oscillating member extending within said bow and adapted in its oscillations to move the yoke-bar in one direction or the other, a pivoted lever G located in advance of the switch-points, and a pair of links J J connecting the lever on either side of its pivot with the oscillating member, substantially as described.

2. In a switch-operating mechanism, in combination, a lever G suitably pivoted on a vertical pivot substantially at its center, a plate K above said lever, a pair of depressions *k* in said plate, a slot *k'* in the base of each depression, a tripping-pin extending through said slot and connecting at its lower end with said lever, and springs normally pressing said pins above the plane of the upper surface of the plate K but allowing them to be depressed into the recesses in that plate, and mechanism connecting said lever with a suitable switch-point whereby the movement of the lever may operate to shift the switch, substantially as described.

3. In a switch-operating mechanism, the combination, with a track and a switch-point therefor, of a lever G pivoted at substantially its center on a vertical pivot below the plane of the track, a stationary plate K above said lever, a pair of depressions *k* in said plate over the ends of the lever, a slot *k'* in the base of each depression, a pair of T-shaped pins having square shanks, each shank extending through one of the slots and having its lower end in a square hole in said lever, a spring surrounding each shank and bearing at its lower end against the lever and at its upper end against the T-head of the pin and thus operating to normally press the pins above the upper surface of the plate K but allowing said pins to be depressed into the recesses, and mechanism connecting said lever G with the switch-point whereby the movement of the lever may operate the switch, substantially as described.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

JONATHAN E. YOUNG.
GEORGE MORDEN.

Witnesses:
WALLACE C. CHADMAN,
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