

(No Model.)

E. A. BURGESS.
RAILWAY SWITCH.

No. 419,179.

Patented Jan. 14, 1890.

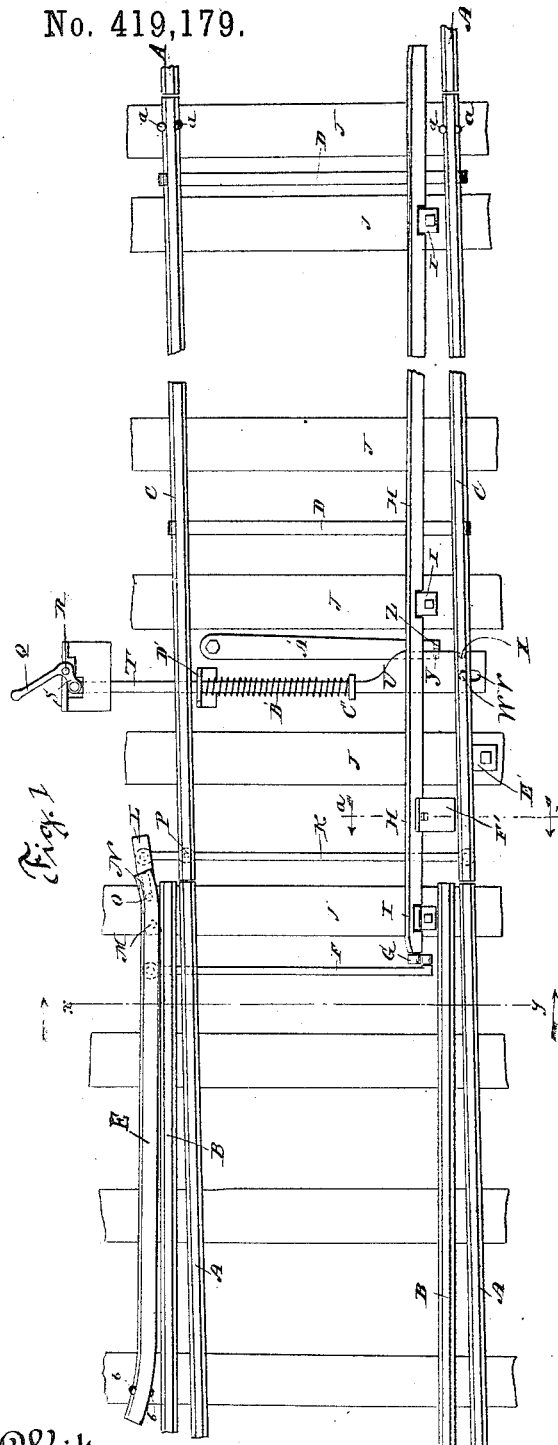


Fig. 1

Fig. 4

Fig. 3

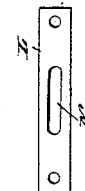
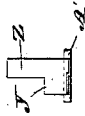
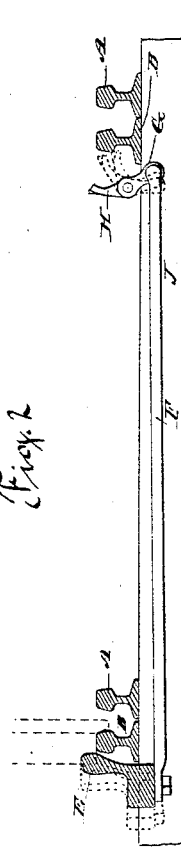


Fig. 5



Fig. 2



Witnesses:
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UNITED STATES PATENT OFFICE.

EDWARD A. BURGESS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO
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RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 419,179, dated January 14, 1890.

Application filed January 28, 1889. Serial No. 297,770. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. BURGESS, residing at New Haven, in the county of New Haven and State of Connecticut, 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 same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in railway-switches, the object being to produce a simple and reliable device for automatically shifting a stub-switch from the side track to the main track, and vice versa.

With these ends in view my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is plan view of a switch embodying my invention. Fig. 2 is an enlarged transverse sectional view on the line *x y* of Fig. 1, and looking in the direction of the arrows. Fig. 3 is an enlarged detached view of the slotted link. Fig. 4 is a similar detached view in end elevation of the spring-plate and shouldered finger; and Fig. 5 is a sectional view on the line *a b* of Fig. 1, to show the stationary block and locking-plate for locking the stub-switch in its normal position.

A A are the main-track rails, and B B the rails of the side track. The rails C C are located in the main track and form the ordinary stub-switch, one end of each rail being pivotally secured in place between spikes *a a*, and the two rails being connected together by cross-bars E D, in the usual manner.

E is a long shifting-rail having both of its ends slightly turned outward and running in close proximity to and standing higher than one of the side rails. This shifting-rail is pivoted at one of its ends between two spikes *b b*, so as to swing laterally toward and away from the side rail, which it runs alongside of. A connecting-rod F, pivoted near to the inner end of the said shifting-rail, extends transversely under the adjacent side rail and main-track rail to the opposite side of the track, where it is connected by a short rock-arm G

with the inner end of a long rocking bar H, mounted in boxes I, secured to the ties J, so as to rock on its longitudinal axis. This rocking bar extends along the inner side of the adjacent stub-switch rail and beyond the outer end of the same and along the adjacent rail of the main track. This rocking bar is of sufficient length—say forty feet—to insure its always being held down by the wheels of the carriages or cars of a train while the train is passing over it, whereby it is prevented from turning back to its normal position when released by one car and before another car has come onto it. A connecting-rod K, pivotally connected to the extreme inner end of that rail of the stub-switch which is adjacent to the rocking bar, extends transversely under the same and the other rail of the stub-switch, and is pivotally connected with one end of a slotted link L, the opposite end whereof is pivoted, as at M, to one of the ties J, so as to swing laterally. This link is provided with an elongated slot N, which receives a pin O, projecting downward from the inner end of the shifting-rail. A pin P connects the said rod K with that inner rail of the stub-switch which is nearest to the shifting-rail. The stub-switch is manually shifted from the main track to the side track by means of a manual Q, rigidly secured to an upright post R, connected at its lower end by a crank S with a draw-bar T, extending transversely under the two rails of the stub-switch and under the rocking bar. That end of the draw-bar which extends under the rocking bar is provided with a flattened extension or wing U, having in its outer end an elongated slot V, receiving a pin or stud W, depending from the adjacent rail of the stub-switch, which is thus connected with the manual shifting device. One edge of the said flange U is provided with a notch X, arranged to receive, when the stub-switch is shifted onto the side track or siding, a shoulder Y of a finger Z, extending upward from the free end of a long flat spring A', whereby the stub-switch is locked in its switched position against the power of a stiff spiral spring B', encircling the bar T and exerting a constant tendency to shift the switch back

onto the main track. One end of this spring impinges against a collar C', mounted on the draw-bar and the other end against an angle-plate D', secured in place independent of the said bar, which passes through it. The said flat spring is placed so that when the rocking bar is turned over for automatically shifting the stub-switch it will press the upwardly-extending finger Z down and disengage its shoulder Y from the notch X in the edge of the flange U, whereby the stub-switch is automatically unlocked in its switched position and left free to be restored to its normal position in the main track by the spiral spring, which may of course be replaced, if desired, by a weight. The stub-switch is locked in its normal position in the main track between a stationary block E', located on the outside of that rail of the switch which is adjacent to the rocking bar, and a locking-plate F', projecting from the outer edge of such rocking bar and arranged to stand near the adjacent stub-switch rail when the rocking bar is in its normal position, in which it is shown in full lines in Fig. 2 of the drawings.

Having now described my invention in detail, I will proceed to set forth the mode of its operation.

Normally the stub-switch is in the main track and locked in such position by the stationary block and the plate projecting from the rocking bar. When, now, it is desired to use the side track, the manual is turned to pull the draw-bar of the manual device toward it. The first movement of the draw-bar is without effect; but as soon as the outer wall of the elongated slot in its flange engages with the pin in the slot the draw-bar begins to move the switch toward the siding. This first movement of the switch is transmitted through the connecting-rod K to the slotted lever, the shifting-rail, the connecting-rod F, and the short crank G to the rocking bar, which is thus sufficiently rocked to clear its locking-plate F' from the inner edge of the adjacent rail of the stub-switch, which is now free to be moved onto the side track. A narrow space is provided for between the locking-plate and the adjacent switch-rail to permit the switch to be sufficiently moved to get the motion required for rocking the rocking bar sufficiently to get the locking-plate out of the way of the switch. The described rocking of the rocking bar also brings the same into position for being engaged by the wheel of an engine or car. When the switch has been moved into its switched position, the shoulder of the upright finger of the spring-plate enters the notch in the flange U of the draw-bar and locks the switch in its switched position, with the rocking bar turned down to the upper dotted position shown by Fig. 2 of the drawings. The switch being now set for running onto the side track, the wheels that first come onto the rocking bar act on the same with their flanges and turn it down to

the lower dotted position shown by the said figure of the drawings. This final turning down of the bar causes the depression of the upright finger and the disengagement of its shoulder from the notch in the edge of the flange of the draw-bar of the switch, whereby the switch is unlocked, so that as soon as the train passes off from the rocking bar the switch will be free to be restored to its normal position in the main track by the spiral spring. I will now assume that the train is on the side track. As it comes off from the same to run onto the main track again, the first wheels that engage with the shifting-rail will move the same laterally outward, this movement being transmitted through the connecting-rod F and the crank G to the rocking bar, which is turned down in position to be engaged by the flanges of the wheels and through the other connecting-rod K to the switch, which is thus shifted to the side track, but not quite to its final position, which results after the wheels engage with the inner end of the rocking bar and depress the same into the lowest position, in which it is shown by dotted lines in Fig. 2 of the drawings. When the rocking bar is turned down to its lowest position, the switch is moved to its proper position against the side track and the shifting-rail is moved out, so that it will not be rubbed by the car-wheels as they pass by it. It will thus be seen that when the train passes over the stub-switch onto the side track the switch is automatically unlocked and shifted to the main track again, and that when the train comes off from the side track it automatically shifts the switch from the main track to the side track to permit the train to run onto the main track again, after which the switch is automatically shifted back to the main track. The switch is therefore automatic in its action, except for setting it for the train to run on the side track. Under the described construction the switch is never left open, for it would never be shifted to the side track except for immediate use, and when it is used it is automatically unlocked and closed.

I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a railway-switch, the combination, with a shifting-rail pivoted at one end so as to be laterally moved by the car-wheels, of a rocking bar located on the opposite side of the track and adapted to be turned on its longitudinal axis by contacting with the car-wheels, means for connecting the adjacent ends of the said rail and bar together, so that the movement of one will cause the movement

of the other, and for connecting them with the rails of a stub-switch, substantially as set forth.

2. The combination, with a rocking bar, of
5 a draw-bar having connections for its manual operation and for its automatic restoration to its normal position, and a spring-actuated finger adapted to engage with such draw-bar to lock it and so hold the switch in its open
10 position and placed to be operated by the rocking bar when the same is rocked and disengaged from the draw-bar, which is thus left free to go back to its normal position and close the switch, substantially as set forth.

15 3. In a railway-switch, the combination, with a shifting-rail pivoted at one end and arranged by one of the rails of the side track so as to be moved when a train passes over the same, of a rocking bar located on the opposite side
20 of the track and constructed to be turned on its longitudinal axis when the train is running upon or leaving the side track, a connecting-rod and crank joining the adjacent ends of the said rail and bar, a connecting-
25 rod coupling the inner end of the shifting-rail with the stub-switch, and means for manually operating the switch and for automatically closing it, substantially as set forth.

4. In a railway-switch, the combination, with
30 a shifting-rail, of a rocking bar adapted to be turned on its longitudinal axis, a connecting-rod and crank coupling the said rail and bar, a stub-switch, a short lever having an elongated slot receiving a stud projecting from
35 the inner end of the shifting-rail, a connecting-rod connecting the outer end of this lever

with the stub-switch, and means for manually opening the switch and automatically closing it, substantially as set forth.

5. In a railway-switch, the combination, with
40 a shifting-rail pivoted at one end, of a rocking bar adapted to be turned on its longitudinal axis, means for connecting the said rail and bar so that any movement of either moves the other, a stub-switch, a locking-plate carried by the rocking bar and normally locking
45 one rail of the stub-switch, and means for manually opening the switch and automatically closing it, the said locking-plate being adapted to permit a slight movement toward
50 it of the rail which it locks, this movement of the switch being transmitted to the rocking bar, which is thus sufficiently rotated to get the locking-plate out of the way for the opening of the switch, substantially as set forth. 55

6. In a railway-switch, the combination, with a rocking bar, of a draw-bar provided at one end with a notched flange, and a shouldered finger actuated by a spring and adapted to
60 have its shoulder enter the notch in the said flange when the switch is in its open position and placed to be operated by the rocking bar to disengage its shoulder from the notch in the draw-bar and thus unlock the same, substantially as set forth. 65

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

EDWARD A. BURGESS.

Witnesses:

CHAS. B. SHUMWAY,
J. R. FORD.