No. 645,768. Patented Mar. 20, 1900.

P. R. WALSH.

AUXILIARY LOCK FOR RAILWAY SWITCHES.

(Application filed Sept. 9, 1899.)

(No Model.)

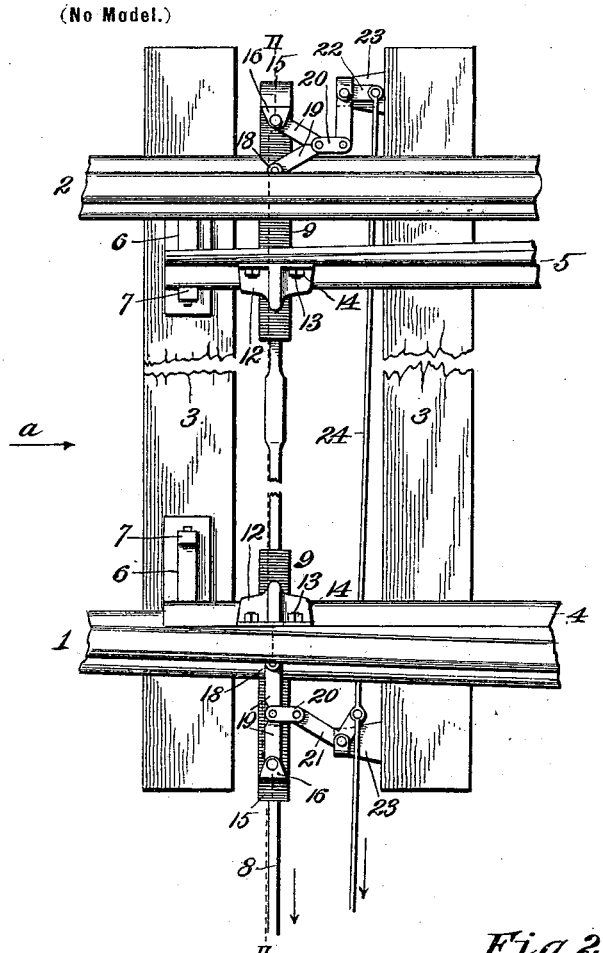



Fig. 1.

Fig. 4.

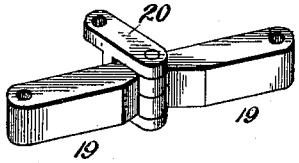



Fig. 2.

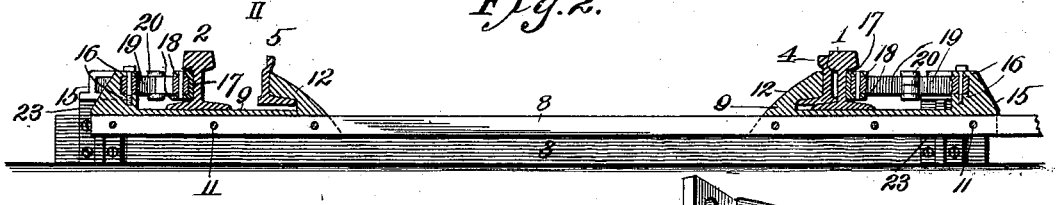
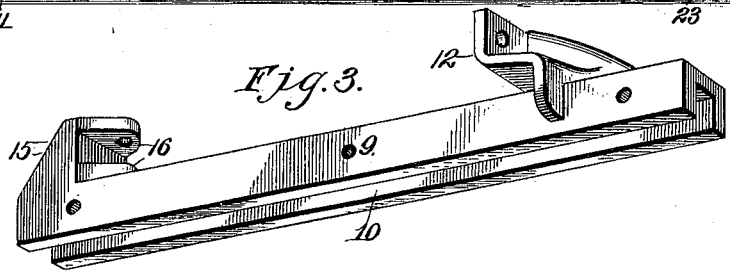



Fig. 3.

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# UNITED STATES PATENT OFFICE.

PHILIP R. WALSH, OF KANSAS CITY, KANSAS.

## AUXILIARY LOCK FOR RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 645,768, dated March 20, 1900.

Application filed September 9, 1899. Serial No. 729,929. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP R. WALSH, of Kansas City, Wyandotte county, Kansas, have invented certain new and useful Improvements in Auxiliary Locks for Railway-Switches, of which the following is a specification.

My invention relates to auxiliary railway-switch locks for insuring the retention of the switch either open or closed; and my object is to provide a construction which may be independent of the switch-stand, but must be operated before the switch can be moved.

With this general object in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as hereinafter described and claimed; and in order that the invention may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a top plan view of a railway-switch provided with an auxiliary switch-lock embodying my invention. Fig. 2 is a cross-section taken on the line II II of Fig. 1. Fig. 3 is a detail perspective view of one of the slide-plates. Fig. 4 is a detail perspective view of one of the toggles forming part of my auxiliary switch-lock.

In the said drawings, 1 2 designate the immovable rails at the junction of the main and side track, the same being secured in the usual or any preferred manner to the cross-ties 3.

4 5 designate the movable or split rails forming the switch and arranged between the rails 1 and 2, so that when rail 4 is in contact with the inner side of rail 1, thereby closing the switch at this point, rail 5 is out of contact with the companion rail 2, leaving the switch open at the corresponding side. The terminals of said movable or switch rails rest and are adapted to slide upon the wear-plates 6, provided with shoulders 7 at their inner ends to limit the inward movement of their respective rails, as shown in the upper part of Fig. 1.

8 designates the customary tie-bar for connecting the movable or switch rails with the switch-stand. (Not shown.)

9 designates a pair of similar slide-plates which each underlie one of the main rails and the adjacent switch-rail, and said rails are provided with longitudinal grooves 10 in their under sides to receive snugly the tie-bar 8, the connection between said slide-bars and said tie-bar being made permanent by means of a series of cross pins or bolts 11.

Near its inner end each slide-bar is provided with an angular lug 12, adapted to fit over the inwardly-projecting base-flange of the switch-rail and against the web or neck of the same, bolts 13 and retaining-nuts 14 being employed to make the connection secure. At their outer ends the slide-bars are formed with the upwardly-projecting lugs 15, formed with the inwardly-projecting ears 16 occupying the same horizontal plane as the outwardly-projecting ears 18 of the brackets 17, bolted or otherwise secured to the web or neck portions of the main rails, and pivotally connecting said brackets with the ears of said lugs is a toggle-joint consisting of a pair of links 19, pivoted together at their meeting ends and at their outer ends to said brackets 17 and lugs 15, respectively, the arrangement being such that when one toggle is straightened out the links forming the other extend at an angle to each other. In other words, when one toggle is expanded the other is contracted. The links 20, of skeleton or bifurcated form by preference, are pivotally connected to said toggle-joints coincidentally with the pivotal point of the links forming such joint and at their opposite ends are pivoted to the bell-crank levers 21 22, oppositely disposed and mounted upon the brackets 23, secured in any suitable manner to the adjacent cross-tie, said bell-cranks being pivotally connected together by the rod 24, adapted to be reciprocated by manual or other power.

By reference to Fig. 1 it will be seen that the movement of the tie-rod 8 in the direction indicated by the arrow to the position shown in said figure has the effect of throwing the switch to the position shown in order that a train traveling in the direction indicated by arrow *a* will pass from track-rail 1 onto the switch-rail 4 or, if the train were traveling in the opposite direction, from switch-rail 4 upon the track-rail 1, and in this connection it will be noted that in such movement said tie-rod was accompanied by the slide-bars secured thereto and that the toggle connected to rail 1 was expanded and the toggle con-

nected to rail 2 necessarily contracted. The full expansion of one of said toggles of course throws the pivot connecting the links of the same in line with the pivotal points at the opposite end of the toggle, thereby rendering it necessary as a preliminary to the operation of the switch that the expanded toggle be contracted or bent sufficiently in the proper direction to throw said central pivot out of line with the end pivots. This cannot be accomplished by an endwise application of power on the tie-rod, but requires a lateral application of force on the toggles, which is effected in this instance by means of the rod 24, the bell-cranks 21 22, and the links 20, the bell-cranks effecting a transmutation of the reciprocatory movement of rod 24 into a reciprocatory movement of links 20 at right angles to the movement of said rod. It will thus be seen that in order to throw the switch so as to open the connection between rails 1 and 4 and close the connection between rails 2 and 5 it is first necessary to move the rod 24 in the direction indicated by the adjacent arrow, this movement causing bell-cranks 21 and 22 to simultaneously contract and expand their respective toggles slightly in order that the movement of rod 8 in a direction opposite to that indicated by the adjacent arrow may throw the switch in the customary manner, the full accomplishment of which is attended by the complete expansion of the toggle connected to rail 2 in order that the reverse movement of the switch may be prevented.

From the above description it will be seen that I have produced an auxiliary switch-lock which embodies the feature of advantage enumerated as desirable in the statement of invention, which is of simple, strong, durable, and cheap construction, and which may be easily and quickly applied to any of the ordinary switches in common use.

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

1. A railway-switch lock, comprising a slide-bar underlying the track-rails and secured to the movable rails, a toggle-joint connecting said slide-bar with one of the stationary rails, and a similar toggle-joint connecting said slide-bar with the other stationary rail, one of said toggle-joints being expanded as the other is contracted, and means to contract or break the joint between the expanded toggle and to reëstablish the joint between or expand the companion toggle, substantially as described.

2. A railway-switch lock, comprising a bar underlying the track-rails, a pair of slide-bars connected to said first-named bar and bolted to the movable or switch rails, a toggle-joint connecting the outer ends of said slide-bars with the stationary track-rails, and means to contract or break the joint between the expanded toggle and to reëstablish the joint between or expand the companion toggle, substantially as described.

3. A railway-switch lock, comprising a bar underlying the track-rails, a pair of slide-bars connected to said first-named bar and bolted to the movable or switch rails, a toggle-joint connecting the outer ends of said slide-bars with the stationary track-rails, a pair of bell-cranks suitably supported, links connecting said bell-cranks with the toggle-joints coincidently with the breaking-point of the latter, and a reciprocatory rod pivotally connecting said bell-cranks, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

PHILIP R. WALSH.

Witnesses:
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