

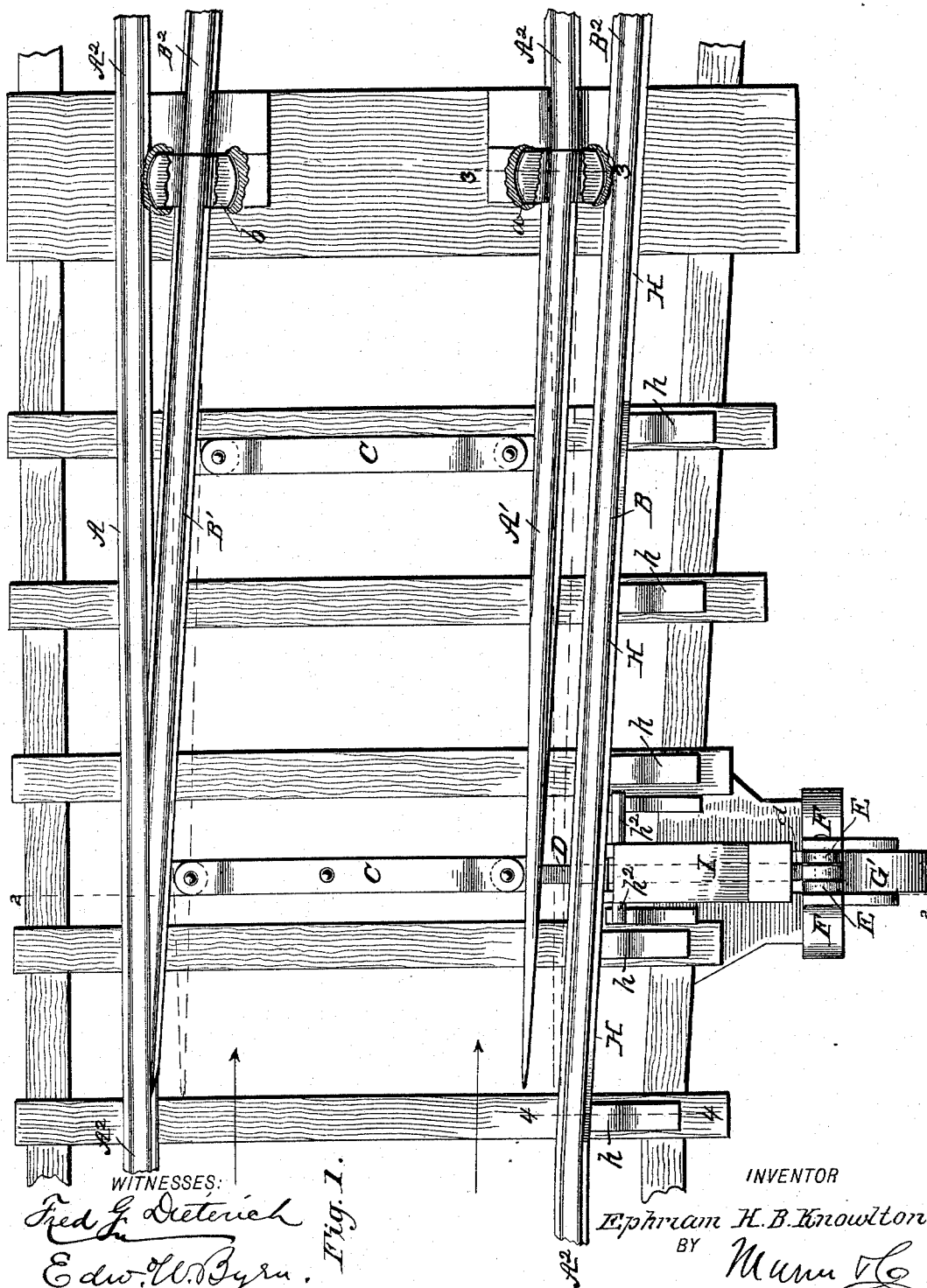
(No Model.)

2 Sheets—Sheet 1.

E. H. B. KNOWLTON.
RAILROAD SWITCH.

No. 527,338.

Patented Oct. 9, 1894.



WITNESSES:
Fred G. Dietrich
Edw. W. Pyra.
Fig. 1.

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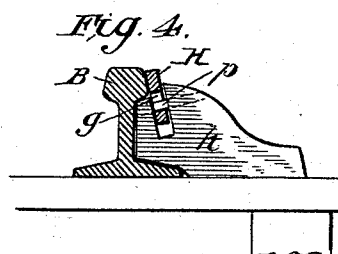
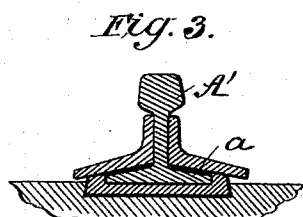
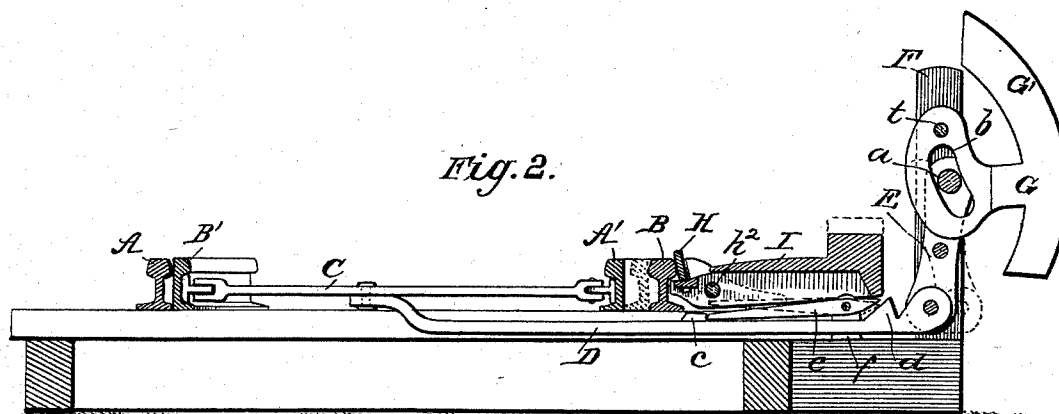
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UNITED STATES PATENT OFFICE.

EPHRIAM H. B. KNOWLTON, OF WEST SUPERIOR, WISCONSIN, ASSIGNOR OF
ONE-HALF TO JOSEPH SCHWALBE, OF SAME PLACE.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 527,338, dated October 9, 1894.

Application filed April 28, 1894. Serial No. 509,375. (No model.)

To all whom it may concern:

Be it known that I, EPHRIAM H. B. KNOWLTON, of West Superior, in the county of Douglas and State of Wisconsin, have invented a new and useful Improvement in Railroad-Switches, of which the following is a specification.

My invention is in the nature of an improved railroad switch, in which the switch is set by hand to side-track a train, and the train in passing automatically resets the switch to close the main line again, so that the latter can never be left open by the neglect of the switchman.

It consists in the peculiar construction and arrangement of the parts of the device for accomplishing the above result, which I will now proceed to fully describe with reference to the drawings, in which—

Figure 1 is a plan view of the switch, and Fig. 2 a vertical transverse section taken through the line 2—2 of Fig. 1. Fig. 3 is a sectional detail through line 3—3 and Fig. 4 a similar section through line 4—4 of Fig. 1.

In the drawings $A^1 A^2$ represent the rails of the main line, and $B^1 B^2$ the rails of the side track. The outer main line rail A is a continuous stationary main line rail *i. e.* both its ends are permanently connected with the main line A^2 . The other outer rail B is a continuous stationary rail but one end connects with the main line A^2 while the other end connects with the side track B^2 .

The two inner switch rails A' and B' are connected together by transverse links C , and at one end are tapered to sharp tongues adapted to lie closely against the inside of the stationary rails A and B , and at their other ends are seated in pivotally moving chairs a and b , and connect respectively with one of the rails of the main track, and one of the rails of the side track. When the switch rail A' is thrown against rail B as shown in dotted lines the movable switch rail B' is drawn away from the main rail A , and in this position the main track is closed or continuous, but when the switch rail B' is thrown against the main rail A the other movable switch rail A' is taken away from rail B and the side track $B^2 B^2$ is connected to the main line.

To effect the adjustment of the connected switch rails $A' B'$ an operating bar D Fig. 2 is jointed to one of the transverse links C near its middle and, extending under the rails, is jointed to the lower end of a vertical lever E which is fulcrumed between vertical standards F at or near its middle. This lever E is made of two bars connected at the top by a pin a which plays in a slot b of a weighted elbow lever G . This elbow lever is fulcrumed at t at the upper end of the slot in the vertical standards F , and the weight G' at the outer end of the lever is heavy enough to operate the switch rails $A' B'$.

On the operating bar D is formed a notch or shoulder c and also an inclined projection d . When this bar is forced inwardly to the rails to throw B' against, a detent bar e drops behind the shoulder and holds the switch firmly to this position. To insure the engagement of the detent it is made in the form of a lever fulcrumed in supports f , and its outer end is arranged to be struck by the incline d on bar D and slightly lifted so as to positively throw its other end down into engagement with the shoulder. This bar D is forced inwardly by the act of lifting the weight G' , and as soon as the detent drops behind the shoulder c the incline moves slightly away from the detent and the latter engaging with the shoulder holds the weight G' of the elbow lever in elevated position until it is automatically tripped to operate the switch rails.

Beside the rail B , and running some distance along the same (*i. e.* far enough to cause one set of wheels on a car to get on to it before the preceding set has passed off of it) is a vertically adjustable bar H . This bar is guided in slots g formed in brackets h , and is maintained on its edge in nearly a vertical plane with its upper edge close to the head of the rail where it may be acted upon and depressed by the car wheel. This bar is kept in place by pins p at its ends which pass through transverse slots in the bar without interfering with its vertical movement. This bar is normally held up a little above the level of the top of the rail by one end of a rocking or tilting frame I , which is fulcrumed in bearings by means of trunnions h^2 , and has its outer end weighted like a trip hammer.

The operation of this switch is as follows:
 To set the switch so as to side track a train,
 switch rail B' is thrown closely against rail A,
 and A' is thrown away from B as shown in
 5 Fig. 1, which makes the side track continu-
 ous with the main rails and opens the main
 line. This is effected by simply lifting the
 weight G', which deflects lever E, and throws
 bar D inwardly causing its shoulder c to be
 10 caught and retained behind the end of det-
 ent lever e which locks the weight G' in its
 raised position. The adjustable bar is also
 lifted to its higher position by the weighted
 end of the tilting hammer frame I. Now
 15 when a train passes in the direction of the
 arrows from the main track on to the side
 track rails B', the car wheels depress bar H
 and hold it down and raise the hammer
 frame I still higher until the last car of the
 20 train has passed. When this occurs, the ham-
 mer frame I falls and, striking the other end
 of the detent lever e, throws its inner end up
 and off of the shoulder c on the bar D. The
 weight G' of the operating lever, now being
 25 unsustained, drops, forcing the upper end of
 lever E inwardly and its lower end outwardly
 and drawing outwardly the bar D which drags
 the switch rails A' B' with it, and throws rail
 A' against B, and takes B' away from A', as
 30 shown in dotted lines, which renews the con-
 tinuity of the main line rails A² A². It will
 thus be seen that when a train is switched off
 onto a siding, the passage of that train auto-
 matically restores the continuity of the main
 35 line, so that the latter can never be left open
 by any neglect of the switchman.

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

1. The combination with the stationary 40
 rails A B, and the tapered and radially mov-
 ing switch rails A' B' connected together as
 described; of the operating bar D with lock-
 ing shoulder c, a weighted lever for moving 45
 the operating bar, a detent for locking the
 operating bar and weight, and a depressible
 bar and tilting frame arranged to be operated
 upon by the wheels of the train to trip or dis-
 lodge the detent substantially as shown and
 described. 50

2. The combination with the stationary
 rails A B, and the tapered and radially mov-
 ing switch rails A' B' connected together as
 described; of the operating bar D with lock-
 ing shoulder c, the lever E connected thereto 55
 at the bottom, the slotted and weighted lever
 G connected thereto at the top, the detent
 bar e, the vertically adjustable bar H ar-
 ranged in guides beside the rail,—and the
 weighted and tilting frame I arranged to be 60
 acted upon by the bar H and in turn to re-
 lease the detent substantially as shown and
 described.

3. The combination with the stationary
 rails, and the movable switch rails; of the 65
 operating bar D having shoulder c and in-
 incline d, the vertical lever E connected at its
 lower end to bar D, the slotted and weighted
 lever G connected to the upper end of the
 said lever, the detent lever e arranged to be 70
 acted upon by the incline d and to engage
 the shoulder c, and the tilting trip frame I
 arranged to hold bar H up and to release the
 detent substantially as shown and described.

EPHRIAM H. B. KNOWLTON.

Witnesses:

H. J. LOUD,
 ELMER GASKILL.