

B. A. CLAYTON.
 SWITCH OPERATING MECHANISM.
 APPLICATION FILED OCT. 27, 1910.

1,003,876.

Patented Sept. 19, 1911.

2 SHEETS—SHEET 1.

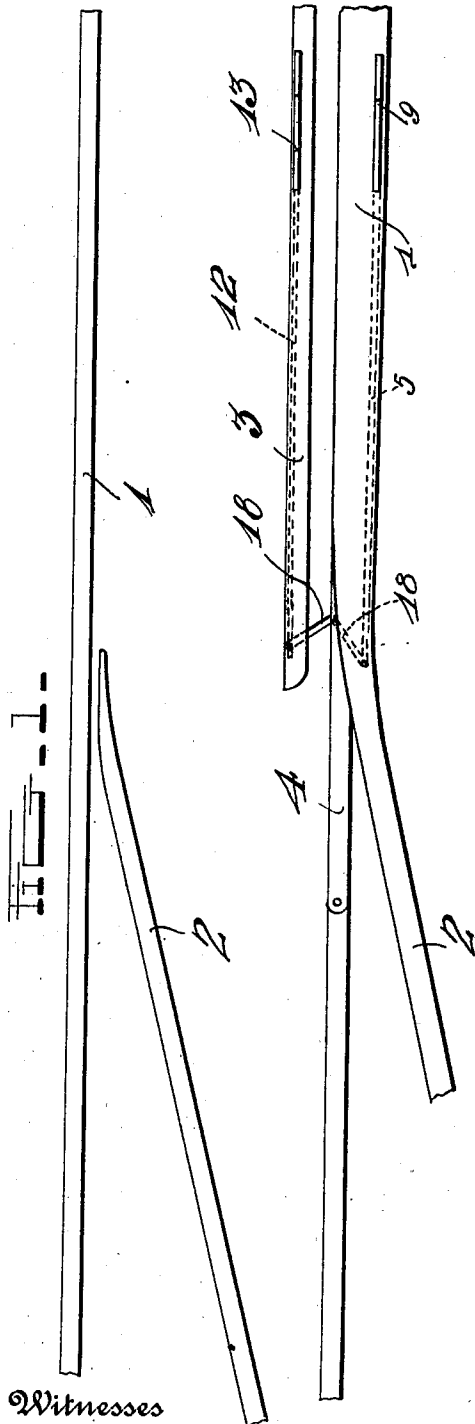
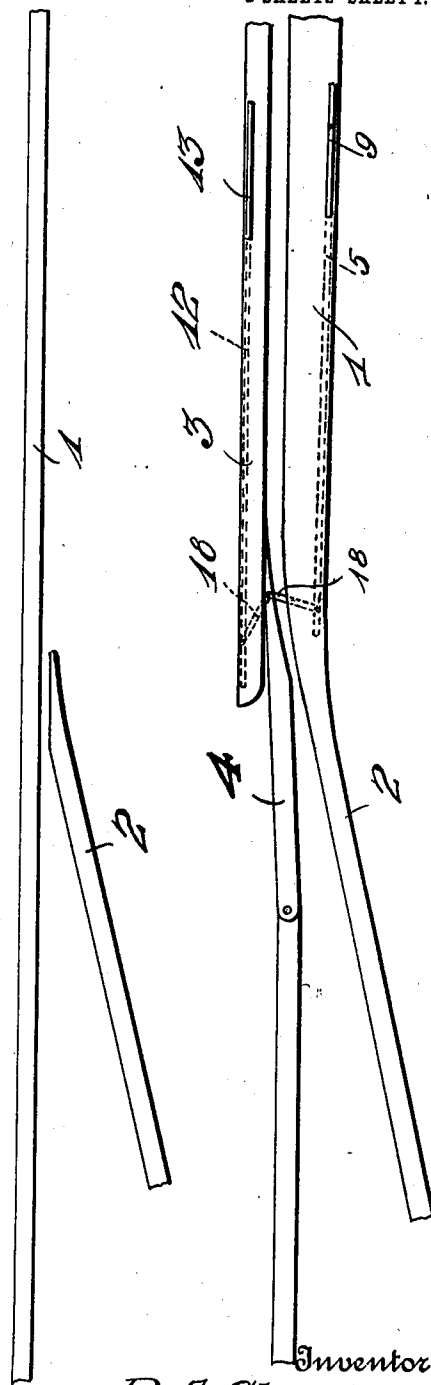


Fig. 1.



Witnesses
A. P. Hardy
O. B. Perkins

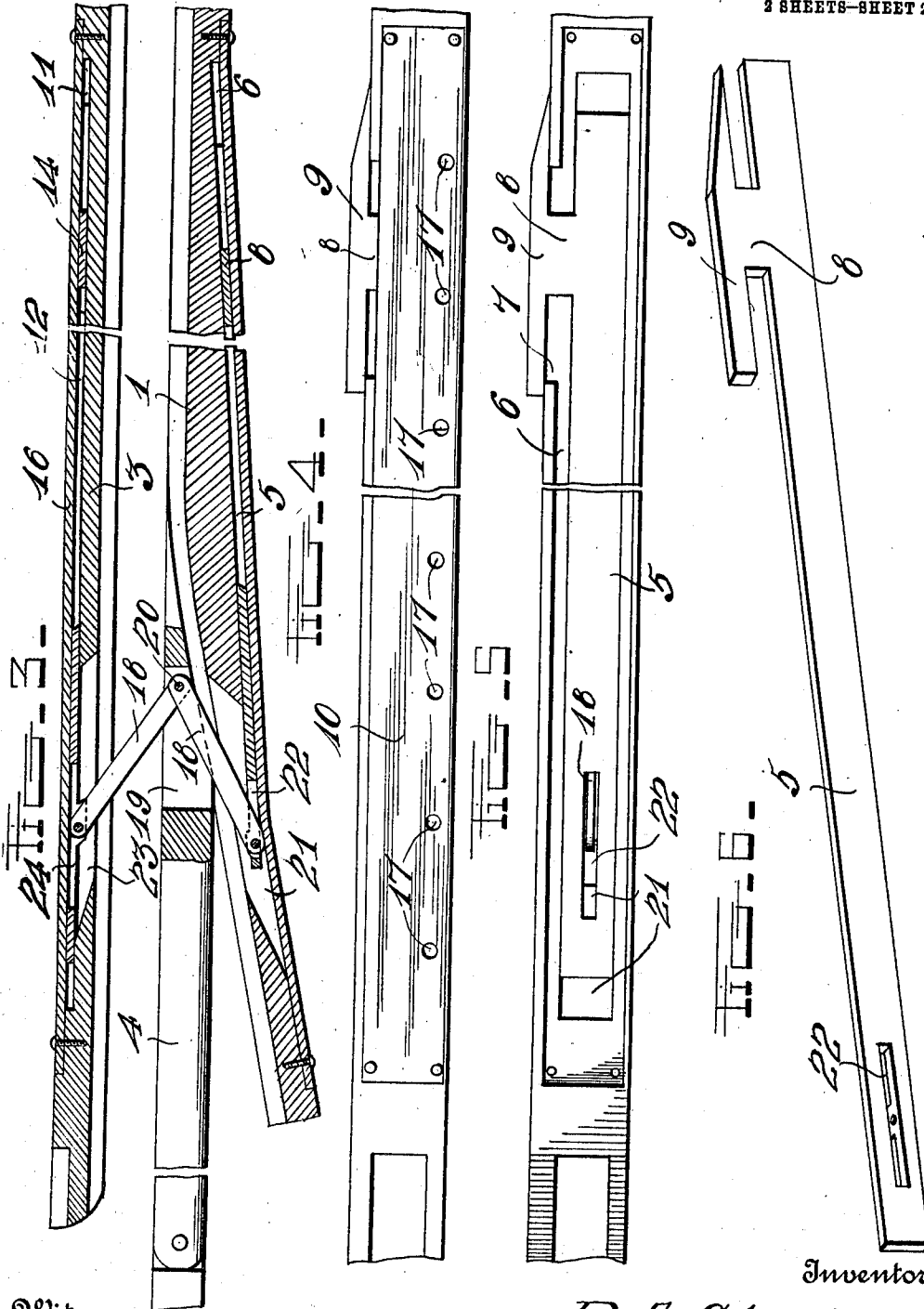
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UNITED STATES PATENT OFFICE.

BENJAMIN A. CLAYTON, OF LOCKHART, MISSISSIPPI.

SWITCH-OPERATING MECHANISM.

1,003,876.

Specification of Letters Patent. Patented Sept. 19, 1911.

Application filed October 27, 1910. Serial No. 589,424.

To all whom it may concern:

Be it known that I, BENJAMIN A. CLAYTON, a citizen of the United States, residing at Lockhart, in the county of Lauderdale and State of Mississippi, have invented certain new and useful Improvements in Switch-Operating Mechanism; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in switch operating mechanism for railways.

One object of the invention is to provide a switch operating mechanism by means of which the switch may be thrown when a car or engine is a considerable distance therefrom.

Another object is to provide a switch throwing mechanism of this character which will be simple, strong and durable in construction, efficient in operation and well adapted to the purpose for which it is designed.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a plan view of a portion of the main and branch rails of a railway track showing the application of the invention and illustrating the switch in closed position; Fig. 2 is a similar view showing the switch open; Fig. 3 is an enlarged horizontal section through the main and guard rails at one side of the track showing the construction and arrangement of the operating mechanism; Fig. 4 is a side view of one of the rails to which the switch throwing mechanism is applied; Fig. 5 is a similar view with the side plate removed; Fig. 6 is a perspective view of one of the switch operating rods and its trip lug.

Referring more particularly to the drawings 1 denotes the rail of the main track, 2 denotes the rails of the branch track, 3 denotes the guard rail for the switch and 4 denotes the pivoted switch point.

In Fig. 1 of the drawings, the switch point 4 is shown as being closed to permit

the passage of the car or train over the main track rails and past the switch, while in Fig. 2 the switch point is shown in an open position to permit the train or car to pass onto the branch tracks or siding.

In order to automatically shift the switch point from a closed to an open position or vice versa, I provide a suitable switch throwing mechanism which is adapted to be engaged and actuated by a suitable operating device carried by the car or engine (not shown), whereby when the car or engine approaches the switch and is still a considerable distance therefrom, the switch will be thrown in the desired direction to permit the train or car to pass along the main track or onto the siding.

My improved switch throwing mechanism comprises a trip bar 5 which is slidably mounted in a longitudinal recess 6 formed in the outer side of one of the main track rails at a point where the same is joined by the branch rail and substantially opposite to the free end of the switch point. In the top of the rail adjacent to one end of the recess 6 is formed a slot 7 through which is adapted to extend the shank 8 of a trip lug 9 forming part of the trip bar 5 and by means of which said bar is actuated when the lug is engaged by the operating device carried by the car or engine. The lug 9 is preferably beveled or inclined at one end to permit the operating device carried by the car or engine to pass over the lug after operating the switch. The lug or block 9 is of sufficient length to always cover the slot 7 in whatever position the lug may be. Secured to the outer side of the rail 1 over the recess 6 is a removable cover plate 10 whereby the bearing 5 is protected from the weather. In the guard rail 3 is also formed a longitudinally disposed recess 11 in which is slidably mounted a switch operating bar 12 which is constructed in the same manner as the bar 5 in the main track rail and on which, adjacent to one end is formed a trip lug 13 which is similar to the trip lug 9 on the bar 5 and is integrally connected to the bar 12 by a shank 14. The shank 14 projects up through a slot 15 formed in the tread of the rail. The lug 13 is beveled at one end and is also of sufficient length to at all times cover the slot 15. By forming

the lugs 9 and 13 of sufficient length to cover the slots in the rails, dirt, snow, ice or other foreign matter is prevented from entering and thus clogging the slot. Arranged on the
 5 outer side of the rail 3 over the recess 11 is a cover plate 16 whereby the bar 12 is protected. The cover plates 10 and 16 on the main guard rails are provided near their lower edges with a series of drain passages
 10 17 through which any water which may have entered the recesses 6 or 11 may pass therefrom, thus preventing the trip bars from becoming frozen in the recesses.

The free end of the switch tongue 4 is connected to the outer ends of the operating bars 5 and 12 by means of short links or toggle levers 18, said levers having their inner ends projecting into a slot 19 formed in the end of the switch tongue and pivotally
 15 connected to the latter by a pivot pin 20. The outer end of one of the levers 18 projects through a slot 21 formed in the rail 1 and communicates with the recess 6 and is pivotally connected to the bar 5 in a slot 22
 20 formed therein as shown. The outer end of the opposite lever 18 projects through a slot 23 formed in the inner side of the guard rail 3 and communicates with the recess 11 and is pivotally connected to the operating bar 12
 25 in a slot 24 formed therein near this end as shown.

By constructing the switch operating bars 5 and 12 as herein shown and described it will be readily seen that when either of the
 35 trip lugs 9 or 13 thereof is engaged by the tripping or operating device carried by the car or engine that the switch tongue will be thrown in one direction or the other thereby opening or closing the switch to permit
 40 the car or train to pass along the main track or onto the siding as may be desired and it will also be understood that the bars 5 and 12 may be of any desired length so that the switch point may be thrown from any distance, and before the car or engine reaches
 45 the same thus enabling the engineer or motorman to see whether or not the switch has been properly thrown thereby avoiding accidents and the delays which might be occasioned by the car or train running in a different direction from that intended.
 50

When the operating device carried by the car or engine is projected to engage either the trip lug 9 or 13 said lug together with
 55 the operating bar on which the same is formed will be pushed longitudinally thereby drawing inwardly on the toggle lever or link which connects the bar to the switch tongue whereupon the switch tongue will be
 60 swung over toward or in the direction of the operating bar actuating the same and into engagement with the main track rail or guard rail thus opening or closing the switch.

It will be obvious that the lugs 9 and 13
 65 being set on the outer side of the rails 1 and 3, the wheels of the car will pass over said rails without engaging said lugs and they can only be actuated by the engineer or motorman throwing into operation the proper
 70 trip operating device according to the track on which it is desired to travel. The width of the treads of the rails inside of the lugs 9 and 13 is sufficient to permit the passage of the wheels of a train without engagement
 75 with said lugs.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without
 80 requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.
 85

Having thus described my invention, what I claim is:

1. In a switch operating mechanism the
 90 combination with the main and side track rails of a guard rail arranged adjacent to one of the rails of the main track, said guard rail and main track rail having formed therein longitudinally disposed recesses and lon-
 95 gitudinally disposed slots communicating with one end of said recesses, a switch point arranged between said guard and adjacent main track rail, operating bars slidably mounted in said recesses, means to opera-
 100 tively connect the forward ends of said bars with said switch point, operating lugs formed on the opposite ends of said bars and projecting upwardly through the slots in
 105 said rails whereby the bars may be projected in the recesses of the rails thereby operating the switch in the desired direction.

2. In a switch operating mechanism the combination with a main track rail and side rail of a guard rail arranged adjacent to one
 110 of the main track rails, said main track and guard rails having formed in one side thereof longitudinally disposed recesses and in their upper sides or tread surfaces longitudinally disposed slots communicating with said
 115 recesses, a pivoted switch tongue arranged between said main track and the guard rails, switch operating bars slidably mounted in said recesses, said bars being of sufficient length to operate the switch at a considerable distance therefrom, toggle levers to connect the forward ends of said bars with said
 120 switch tongue, trip lugs slidably mounted on said rails over the slots therein, integrally formed shanks to connect said lugs through the slots with the operating bars in said recesses, said lugs being of sufficient length as to cover said slots at all times whereby the
 125

latter are protected from the entrance of
foreign matter, and removable cover plates
arranged on the sides of the rails over the
recesses formed therein, said cover plates
5 having a series of drain passages whereby
the water is permitted to drain from the
recesses.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

BENJAMIN A. CLAYTON.

Witnesses:

W. S. PIGFORD,
ERNEST BROWN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
