

(No Model.)

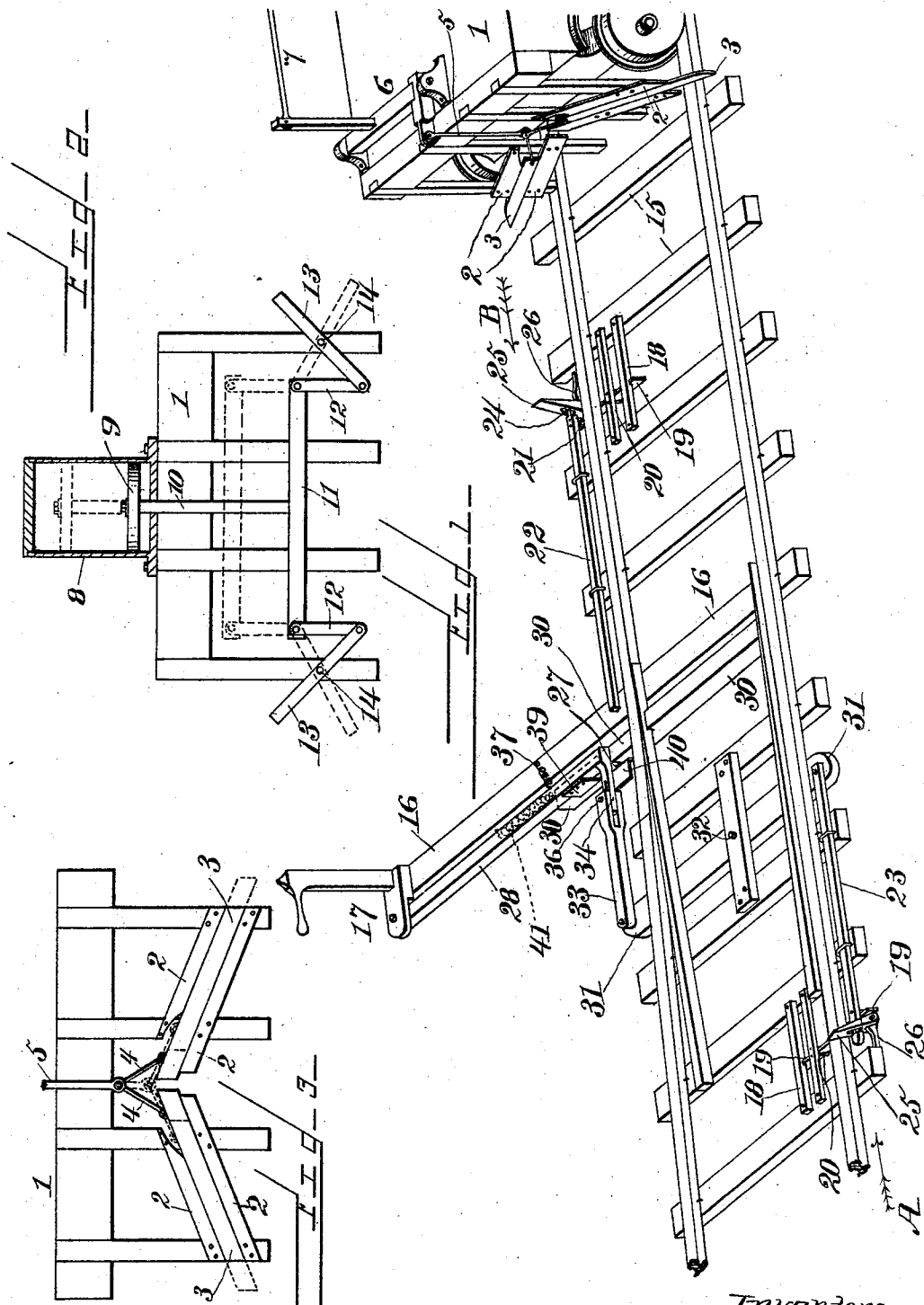
3 Sheets—Sheet 1.

W. HOLLIDAY & T. F. RAWLS.

RAILWAY SWITCH AND LOCOMOTIVE ATTACHMENT FOR OPERATING SAME.

No. 528,880.

Patented Nov. 6, 1894.



Witnesses:

J. C. Cornell
Charles Lunsford

Inventors:
William Holliday
and
Thomas F. Rawls
By *C. S. Bell*, atty.

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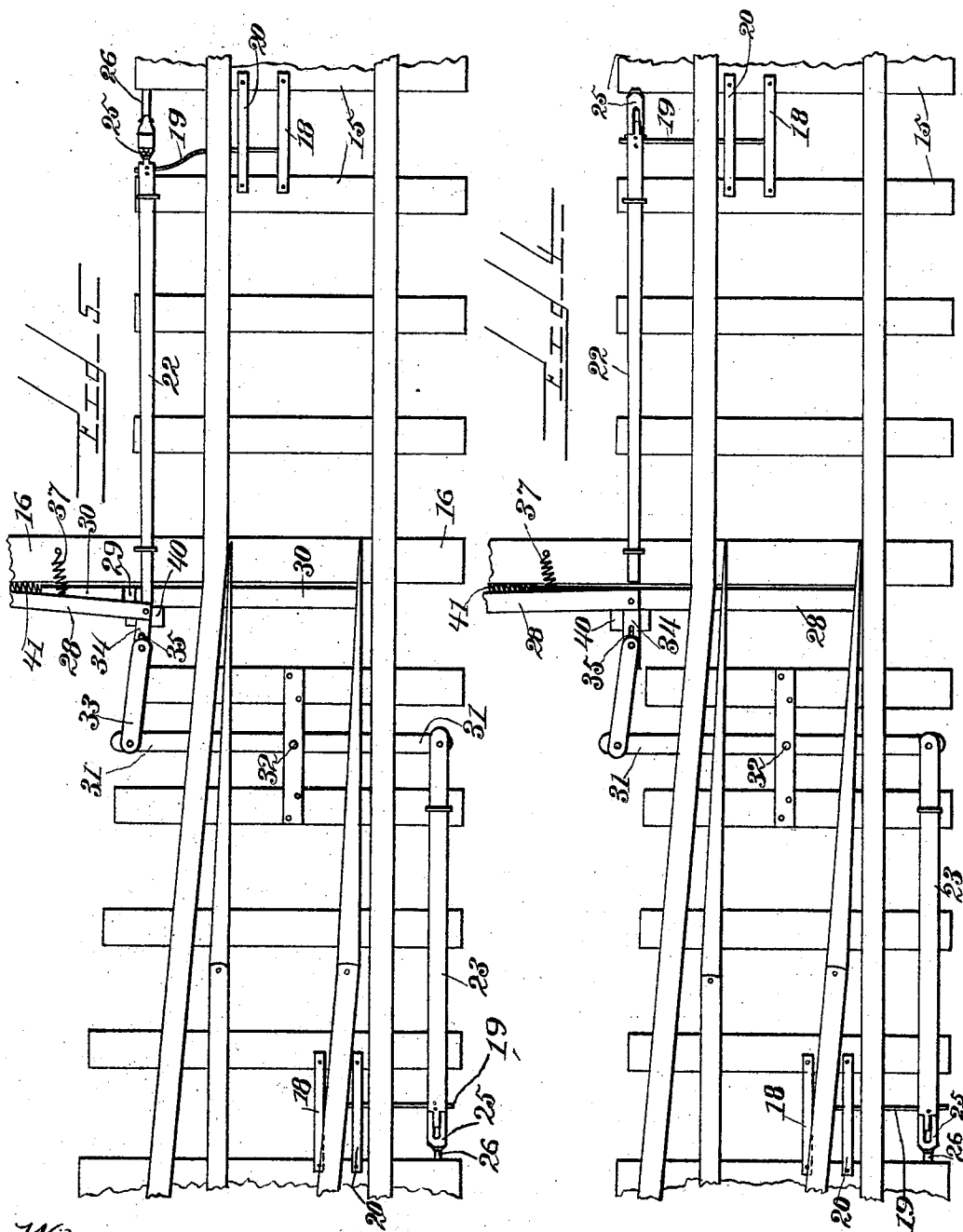
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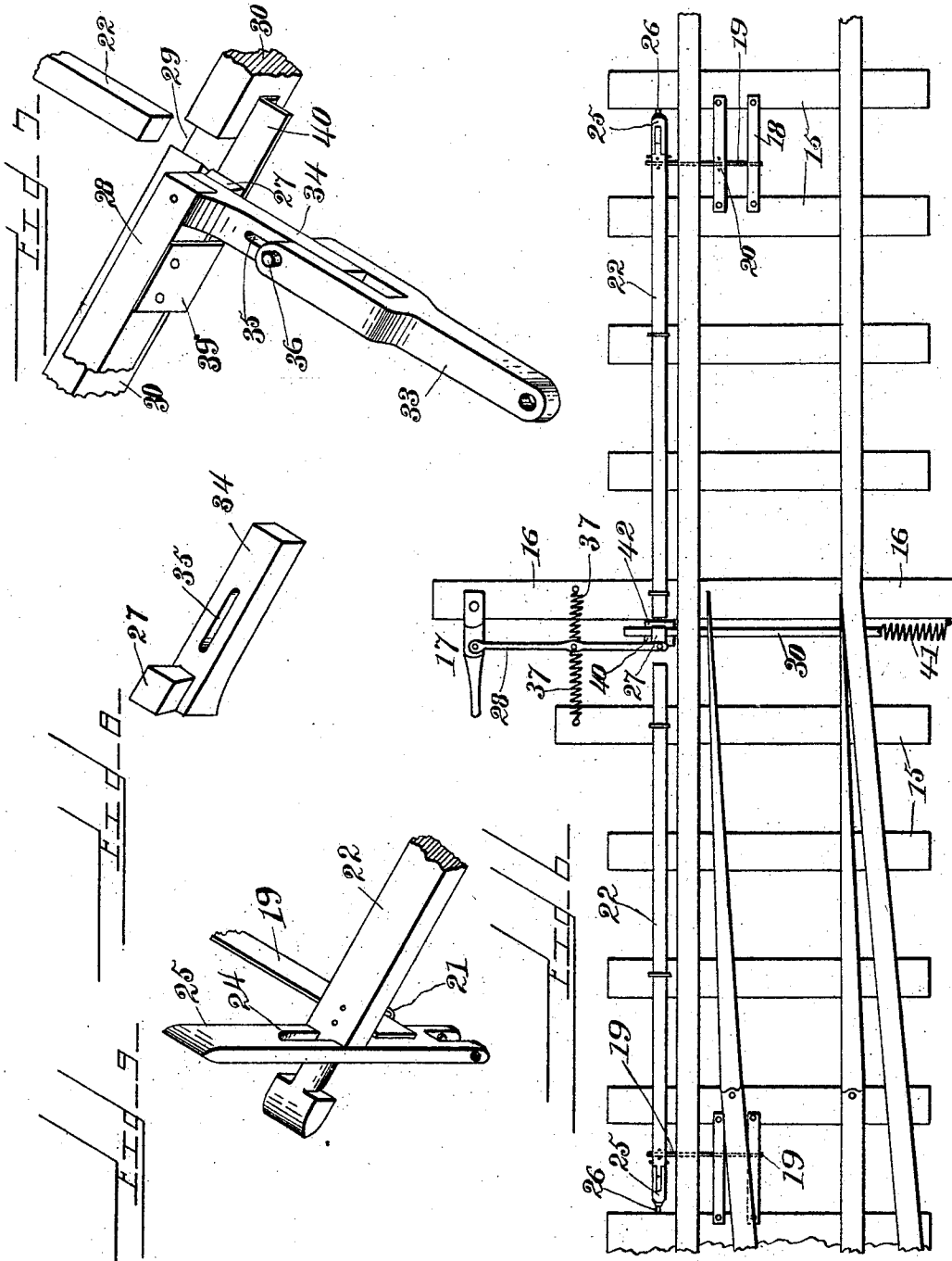
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Inventors:

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UNITED STATES PATENT OFFICE.

WILLIAM HOLLIDAY AND THOMAS F. RAWLS, OF BARNETT, MISSISSIPPI.

RAILWAY-SWITCH AND LOCOMOTIVE ATTACHMENT FOR OPERATING SAME.

SPECIFICATION forming part of Letters Patent No. 528,880, dated November 6, 1894.

Application filed June 1, 1894. Serial No. 513,158. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM HOLLIDAY and THOMAS F. RAWLS, citizens of the United States, residing at Barnett, in the county of Clarke and State of Mississippi, have invented certain new and useful Improvements in Railway-Switches and Locomotive Attachments for Operating the Same, of which the following is a specification.

Our invention has relation to that class of railway-switches which are operated automatically through the medium of a shifting device attached to the engine in such a way that it may readily be manipulated by the engineer from the engine cab, to close the switch.

The object of the invention is to provide a switch to be operated from one or both sides of the track, by mechanism upon the engine.

A further object of the invention is to provide a switch having a trip upon both sides of the track to be engaged one or the other by the switch operating mechanism upon the engine as the latter moves in either direction.

A still further object of the invention is to provide means attached to the engine and operated by either hand or compressed air, from the engine cab.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the appended claims.

Our invention consists in the improved construction of the switch and the locomotive appliances for operating the same, as hereinafter fully set forth, whereby we greatly simplify the construction of the mechanism, and render its operation absolutely certain and secure.

The invention is clearly illustrated in the accompanying drawings, which, when taken with the reference numerals marked thereon, form a part of this application, and in which—

Figure 1 is a perspective view of a railway switch track equipped with our switch and its mechanism showing the front portion of an engine without the pilot, and having the improved switch operating mechanism attached. Fig. 2 is a front view of the front portion of

an engine showing the switch operating mechanism attached, and the pilot removed, the reciprocating arms being shown extended in dotted lines. Fig. 3 is a modification of the switch operating mechanism upon the front of the engine to be operated by compressed air, with the reciprocating arms shown extended in dotted lines. Fig. 4 is a plan view of a track the switch and its connected mechanism in normal position. Fig. 5 is a similar view showing the mechanism in the position it is placed while the engine device is in contact with the trip or contact lever. Fig. 6 is a modification showing the switch adapted to be operated from either side of the switch stand upon the same side of the track. Fig. 7 is a perspective view of the tie bar, a portion of the trigger arm, the bar connecting the tie bar with the switch stand, and the slotted arm and lever attached to the said bar. Fig. 8 is an inverted perspective view of the right angle projection 34. Fig. 9 is a detached perspective of the switch rod engaged by the plate spring and trigger arm, with the spring and arm partly broken away.

The same reference numerals denote the same parts throughout the several figures of the drawings.

Upon the front of the engine 1, just behind the pilot, are secured the guides 2 slanting downward from each other to each side of the engine, and in which guides the engaging arms 3 slide. To these arms 3, are pivoted the toggle-jointed levers 4, and the lever 5, is connected to the toggle-joint at one end and its other end is pivoted to the rock shaft lever 6, operated by the engineer through the medium of the hand rod 7. When the latter is pushed forward the arms are extended, and when pulled, they are retracted into normal position.

In the modification of this mechanism shown in Fig. 3, a compressed air cylinder 8, is secured upon the front of the engine, and in which is operated the piston 9, having a piston rod 10, to which the cross head 11, having depending arms 12, is secured. To the ends of the arms 12, are pivoted the engaging arms 13, which are in turn pivoted at

14, to the rear of the pilot or the front portion of the engine. The piston is operated by compressed air or steam controlled by the engineer from his cab to raise the piston and lower the engaging arms, or lower the piston and raise the arms into their normal condition.

The track, and switch rails are supported by the usual sleepers 15, while one sleeper 16, is extended toward or fully to the switch stand 17.

Located between and secured to one or both of two of the sleepers 15, is a bracket 18, to which one end of a plate spring 19, is attached, and to the same sleepers is secured a guide hanger 20, for the said plate spring, the other or free end of the latter working in a hanger 21, secured to the under side of the trigger arms 22, and 23. These trigger arms are secured in the slot 24, of the trip 25, which extends above the track and is operated by the engaging arms 3, from the engine, to close the switch as a train approaches. The trip 25, is pivoted in a support 26, secured to and extending horizontally from one of the sleepers 15, to which the bracket 18, is secured.

In the essential form of our switch, as best shown in Figs. 4 and 5, the foregoing elements or devices are duplicated, one on each side of the track, and their purpose, construction, and operation are just the same, except that one end of the trigger arm 22, is free to slide, when the trip 25, is struck by one of the engaging arms 3, and push the lug 27, of the connecting bar 28, out of the notch 29, of the tie bar 30, to close the switch, while the end of the trigger arm 23, similar to the free end of the trigger arm 22, is pivoted to one end of the rocking or oscillating bar 31, pivoted at 32, in the center and extending across the track beneath the rails and between two of the sleepers. To the other end of this bar 31, is pivoted a slotted lever 33, and in such slot is secured a right-angle projection 34, of the connecting bar 28.

The projection 34, has a slot 35, through which, and the lever 33, the pin 36, is passed so that when one of the arms 3, of a train going in the direction indicated by the arrow A, strikes the switch rod nearest this arrow the trigger arm 23, will be pushed forward and cause the bar 31, to pull the lever 33, projection 34, and therefore the lug 27, of the connecting bar 28, out of the notch 29, to close the switch.

When one of the arms of a train moving in the direction indicated by the arrow B, strikes the trip nearest to this arrow, the free end of the trigger arm 22, pushes the lug 27, as hereinbefore described, and the projection 34, slides upon the pin 36, without moving the lever 33, or any of its connections to the other trigger arm 23; and should one of the arms 3, of this train strike the trip nearest the arrow, A, the trip will pull the trigger arm

23, and cause the pin 36, to slide in the slot of the projection 34, without moving the latter.

The switch stand forms no part of our invention, as the connecting bar 28, may be attached to or connected to the ordinary switch stands so as to open the switch; but the connecting bar 28, is provided with a coil spring 37, fastened to the sleeper 16, to return the bar 28, to its normal position; while the pivot 28, will allow the said bar ample transverse motion.

Upon the opposite side of the bar from the spring 37, is a plate 39, which engages the tie bar and prevents the spring from pulling the lug on the connecting bar clear through the notch in the tie bar.

Secured to one side of the tie bar flush with its notch, or it may be made in the same piece with the tie bar, is a flange or rest 40, upon which the lug 27, is supported when not engaging the notch.

A coil spring 41, is attached to the sleeper 16, and to the tie bar to return the latter to its normal position.

Referring to the modification shown in Fig. 6, the trigger arms are both located upon the same side of the track so as to be operated by a train moving in either direction, and in turn operate the switch by pushing the lug out of the tie bar notch; the said tie bar being provided with an additional flange rest 42, so that the lug may be supported upon either side of the tie bar from whence it is pushed out of the notch, the spring 41, in this form, being upon the opposite end of the tie bar.

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

1. A railway switch mechanism comprising the spring actuated tie bar, the trips, the connecting bar engaging the tie bar when the switch is open, the trigger arms slidably secured to the trips upon each side of the railway, and the oscillating bar pivoted in its center, to which one of the trigger arms is attached and the connecting bar is secured, said mechanism adapted to be operated by means upon a locomotive, substantially as set forth.

2. The combination with a railway switch provided with means adapted to be operated from a locomotive, said means consisting of the spring actuated tie bar having a notch, and provided with a flange or rest, the bar connected to the switch stand having a slotted projection and a lug engaging the notch when the switch is open, the slotted lever having a pin extending through it and the slot of the said projection, the trips, the trigger arms having a hanger, and slidably secured, one upon each side of the railway, to the trips, the plate spring having its free end located in the hangers to return the trips and trigger arms to their normal position, and the oscillating bar to which is pivoted one of the said trigger

arms and the said slotted levers, substantially as and for the purpose set forth.

3. The guides secured to the front of an engine and slanting downwardly from each
5 other, the rock shaft and its levers, the toggle-jointed levers, in combination with the reciprocating arms adapted to slide in the guides and pivoted to the toggle-jointed levers, and the lever 5 having one end connected to the
10 toggle-joint and the other end pivoted to the

rock shaft lever, substantially as and for the purpose set forth.

In witness whereof we hereunto set our hands in the presence of two witnesses.

WILLIAM HOLLIDAY.
THOMAS F. RAWLS.

Witnesses:

J. H. ROWELL,
H. W. CHEEK.