

(No Model.)

2 Sheets—Sheet 1.

W. A. CLAPP.
SWITCH OPERATING DEVICE.

No. 578,968.

Patented Mar. 16, 1897.

Fig. 3

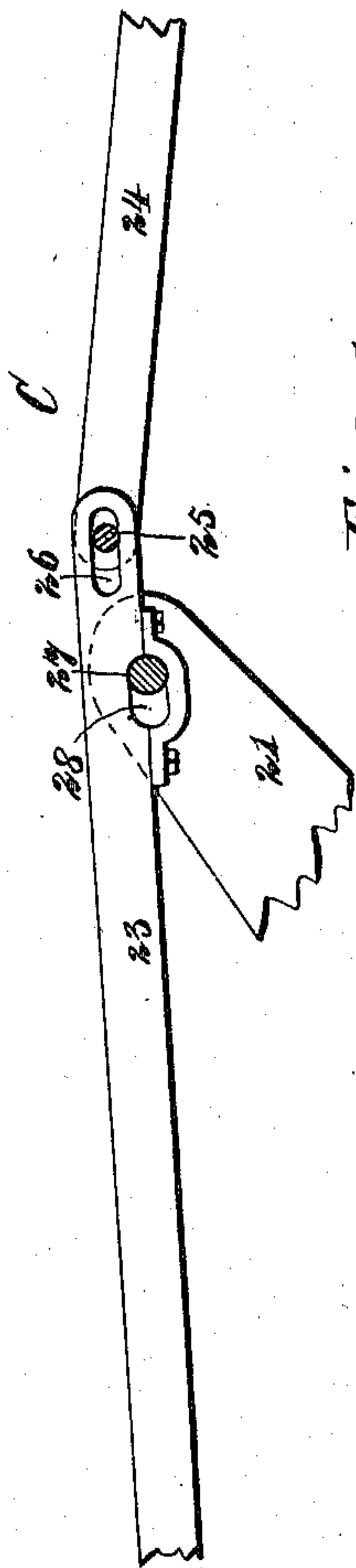


Fig. 1.

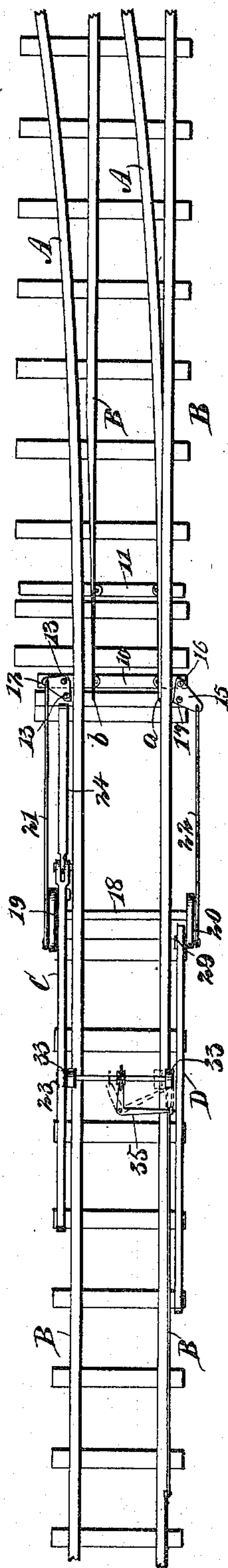
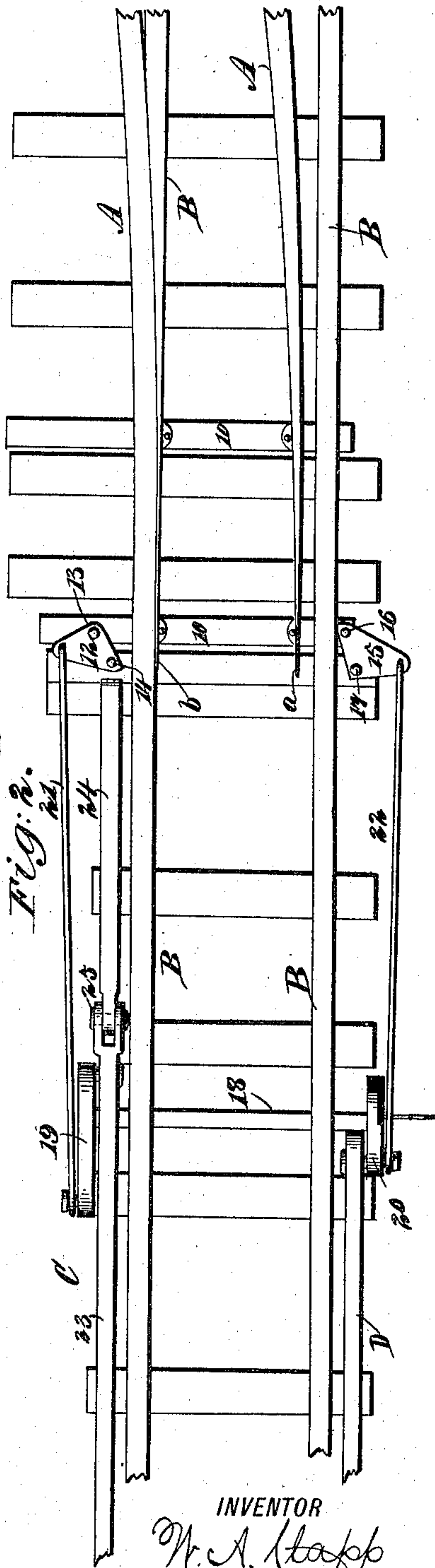


Fig. 2.



WITNESSES:
J. G. Rennie
J. H. Acker

INVENTOR
W. A. Clapp
BY *Murray*
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

W. A. CLAPP,
SWITCH OPERATING DEVICE.

No. 578,968.

Patented Mar. 16, 1897.

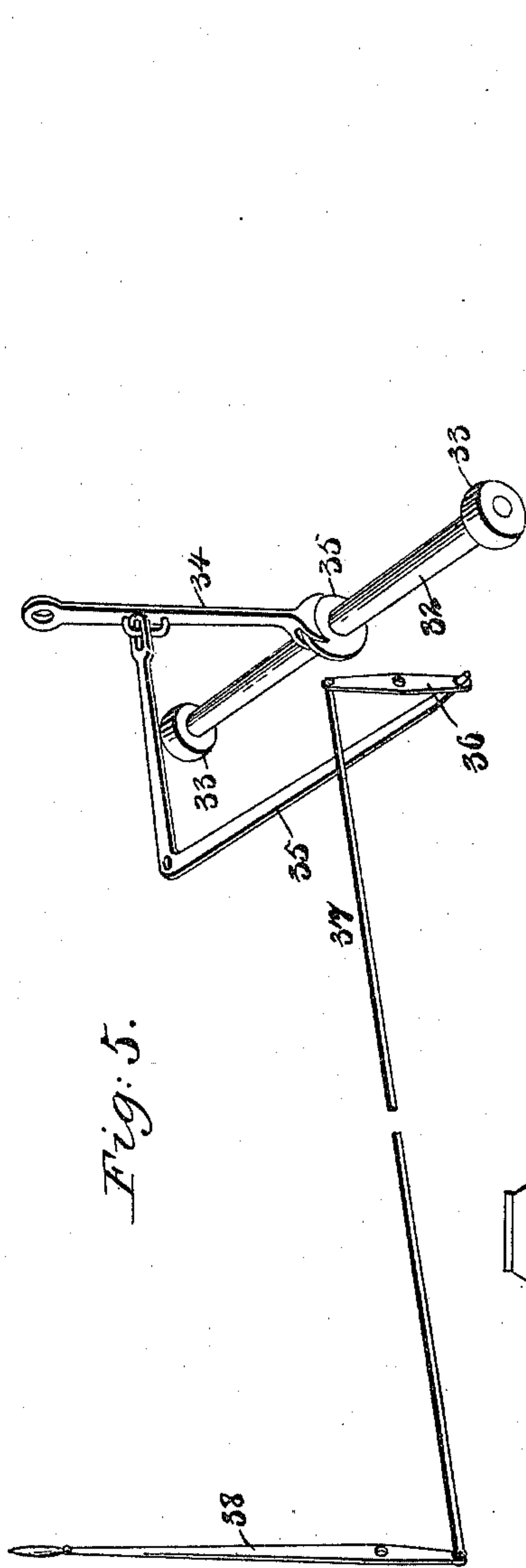


Fig: 5.

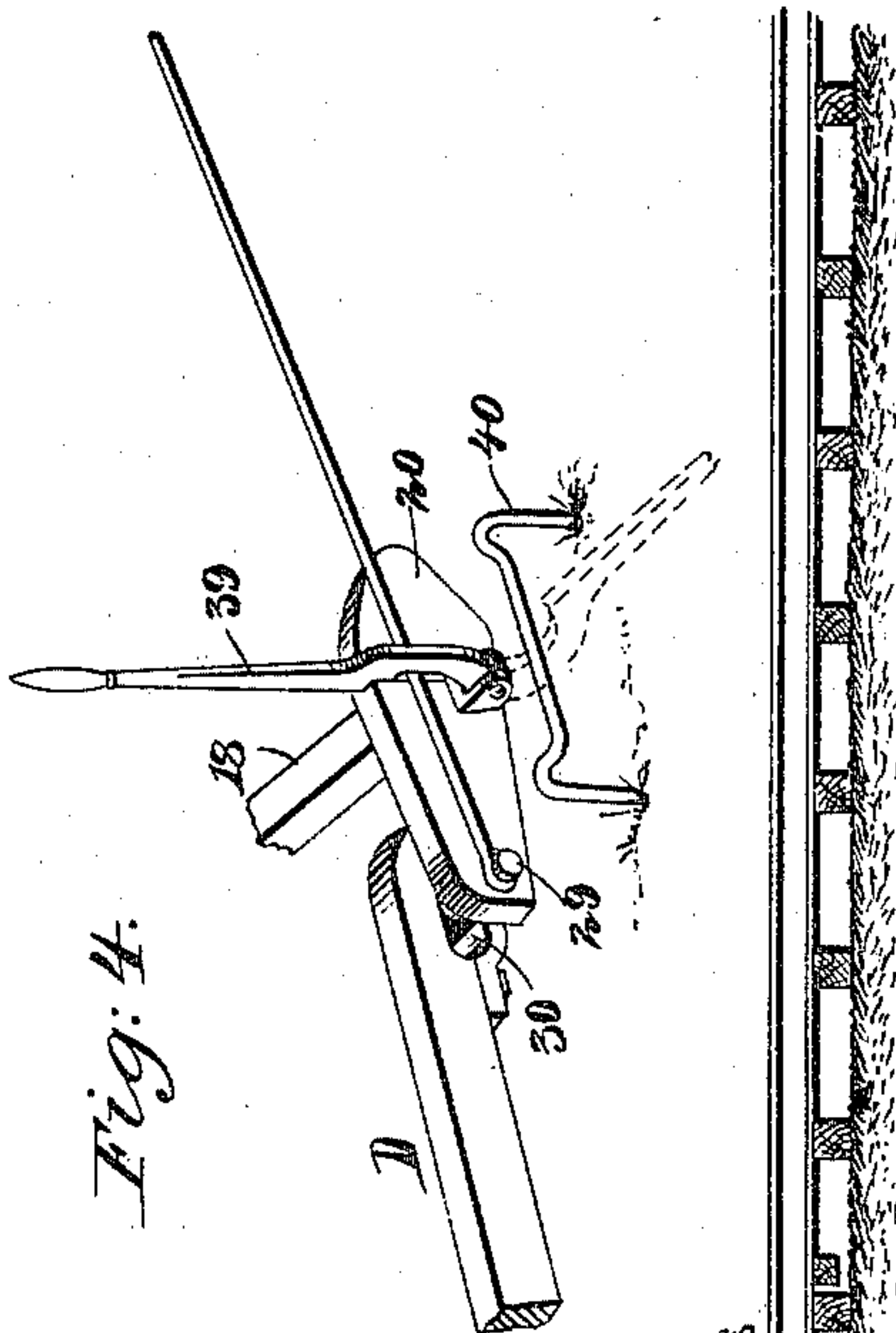


Fig. 4.

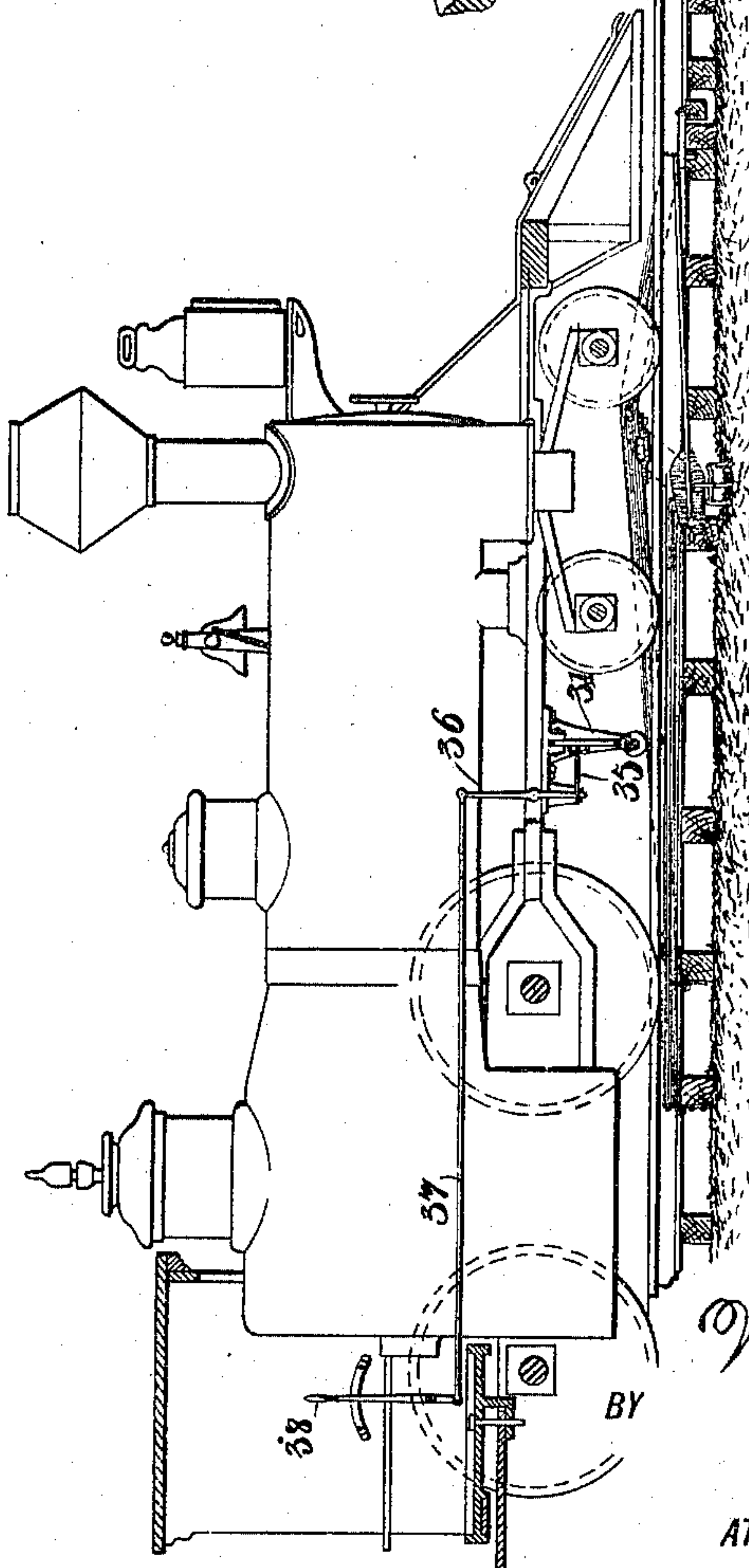


Fig. 6.

WITNESSES:

WITNESSES:
J. A. Remme
J. A. Remme

INVENTOR

W. A. Clapp
man

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILSON A. CLAPP, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO
EDWARD L. POLLOCK, OF SAME PLACE.

SWITCH-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 578,968, dated March 16, 1897.

Application filed June 16, 1896. Serial No. 595,743. (No model.)

To all whom it may concern:

Be it known that I, WILSON A. CLAPP, of Pittsfield, in the county of Berkshire and State of Massachusetts, have invented a new
5 and Improved Switch-Operating Device, of which the following is a full, clear, and exact description.

The object of my invention is to provide a switch-operating device of simple, durable,
10 and economic construction and applicable to any form of sliding switch, the said device being so constructed that the switch may be operated to open or close the same from a moving train and at a predetermined period
15 in advance of the train entering the switch.

A further object of the invention is to provide a convenient and simple mechanism for operating the shifting or trip devices for the switch, the said mechanism being readily
20 applied to an engine or to a car without interfering with any of its working parts.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth,
25 and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

30 Figure 1 is a plan view of a section of track embracing the switch, the switch being set for a siding. Fig. 2 is an enlarged view of the switch portion of the track, the switch being set for the main line. Fig. 3 is a partial side elevation of the jointed trip-rail used
35 in connection with the switch and to be operated from the engine, cab, or caboose. Fig. 4 is a perspective view of a portion of the single trip-rail to be placed opposite that shown in Fig. 3, and also illustrates a device
40 for operating the switch by hand. Fig. 5 is a detail perspective view of the mechanism employed for operating the trip-rails from the engine, cab, or caboose; and Fig. 6 is a side
45 elevation of a section of the track, illustrating the trip device on the engine in the act of operating one of the trip-rails.

The track shown is a single track, and the siding-rails are designated as A and the rails
50 of the main line as B. A switch-point *a* is formed at one end of the siding-rail A, and a

corresponding switch-point *b* is formed at the corresponding end of the inner main rail B. Both of these points *a* and *b* are secured to bars 10 and 11, which have sliding movement transversely of and beneath the rails.

Upon one projecting end of the sleeper nearest to the switch-points an angle-lever 12 is fulcrumed at the junction of one straight and an inclined side of the lever, as the said
lever is preferably triangular in general contour, and where the two straight sides of the lever connect the lever is pivoted to the forward sliding bar 10, or that bar which is nearest to the main line and carries the extreme
points of the switch. The pivoted connection between the lever 12 and the sliding bar 10 is designated as 13, while the connection between the said lever and the aforesaid
sleeper is designated as 14. On the same tie at the opposite end a second substantially
triangular lever 15 is fulcrumed, a pin 17 being passed through the lever into the tie where the two straight edges of the lever join, and where the inclined edge of the lever and the
straight edge connect a pivot-pin 16 attaches the lever to the aforesaid forward shifting bar 10. The pivots 13 and 14 of the lever 12 and the pivots 16 and 17 of the lever 15 are all
adjacent to the outer faces of the rail, each set of pivots being in substantially parallel
arrangement to the rails.

At a predetermined distance in front of the switch-points *a* and *b* a shaft 18 is journaled beneath the main rails; and this shaft extends beyond the outer faces of the rails, having secured at one end a shifting arm 19, and at the other end a second shifting arm 20 is attached. These two arms are so placed on the shaft 18 that when one of them lies down parallel with and below the top of the tread of a rail an end of the opposite arm will extend above the rail near which it is placed.

The rear end of the shifting arm 19, or that end opposite to the switch, is the end which is elevated, while the opposite end of the opposing arm 20 is that which will be elevated above the track. A rod 21 is pivoted to the reduced outer end of the shifting arm 19, while a second rod 22 connects the opposing shifting lever 15 and shifting arm 20 in like manner.

At that side of the track near which the shifting arm 19 is placed a trip-rail C is located. This rail is made preferably in two sections 23 and 24, as shown particularly in Fig. 3, the sections being hinged at their outer ends to the adjacent ties and connected to each other at their inner ends by a pin 25, passed through a longitudinal slot 26, made in one of the sections, so that the trip-rail may be pressed downward entirely below the track-rail parallel with which it is placed. When this trip-rail is in operative position, it will extend at this point considerably above the track-rail, as shown in Fig. 6. The members of the trip-rail C are hinged at their outer ends to conveniently-located sleepers or ties. A second trip-rail D is placed at the opposite side of the track, and this trip-rail is preferably in one piece, being hinged at its forward end only to a sleeper, or at that end which is farthest from the switch. The section 23 of the jointed trip-rail C is connected by a pivot-pin 27 with the shifting arm 19, the pivot-pin 27 having movement in the said arm, a slot 28 being provided either in the arm or in the section 23, the latter construction being illustrated in Fig. 3.

That end of the single trip-rail D which is nearest the switch is pivotally connected by a pin 29 with the opposing shifting arm 20, a slot 30 being made in the trip-rail to receive the said pin, as illustrated in Fig. 4. When the trip-rail C is depressed, for example, the opposing rail D will be raised and the switch will be placed in position for the siding or in position for the main line, as may have been determined upon. The switch is adapted to be set automatically, as heretofore stated, and this may be accomplished by providing under the engine, for example, a hanger 31, in which a trip-bar 32 is mounted to slide, the said trip-bar having a roller 33 or a stationary head at each end. When this trip-bar is not needed, it will be held transversely beneath the engine in such manner that its rollers or heads will clear both of the trip-rails, as illustrated in Fig. 1; and either one of the trip-rails may be depressed to set the switch open or closed by carrying the trip-bar 32 in direction of one or the other side of the engine, and this may be accomplished by causing a lever 34 to engage with a projection 35 at or near the center of the trip-bar, the said lever being fulcrumed at its upper end to a suitable support beneath the engine. The lever 34 is connected with a horizontal lever 35^a, preferably of the elbow type, also supported beneath the engine; and at one end of the lever 35^a a link 36 is attached, having a fulcrum near the center and serving as a third lever, and this link-lever 36 is connected by a rod 37 with a hand or foot lever 38, located, for example, in the cab of the engine and operating in a rack marked to indicate in what direction the lever must be shifted to operate the switch of the main line or the siding.

The switch-operating device may be manipulated by hand, when desired, through the medium of the mechanism shown in Fig. 4, for example, in which a hand-lever 39 is fulcrumed upon the shifting arm 20, and the said arm is recessed at the top to receive a shoulder on the lever, the lower portion of the lever being curved.

When the switch device is to be operated automatically, the hand-lever 39 is disconnected from the shifting arm 20, as shown in dotted lines in Fig. 4, and will rest upon a support 40. When, however, the hand-lever 39 is carried upward and its shoulder fitted into the recess of the shifting arm 20, as shown in positive lines in Fig. 4, this arm may be rocked in a manner to open or close the switch. It is obvious that one or the other of the shifting arms will at all times have an upwardly-inclined position and that the connecting-rod attached to the lowered arm will be below the center of the arm. Consequently the switch will remain in the position in which it is set.

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

1. A railway-switch having main rails and pivoted switch-points, a transversely-sliding bar connected to the switch-points, two levers fulcrumed adjacent to the bar and pivotally connected thereto, a rod connected to each lever, a rock-shaft, an arm fixed to each end of the rock-shaft, to which arms the rods are respectively connected, a trip rail having one end slotted and receiving a pin on one of the arms, the trip-rail being pivoted at its remaining end, two additional trip-rails respectively slidably connected to each other at their inner ends and one of the said additional trip-rails being slidably connected to the remaining arm, the outer end of each additional trip-rail being pivoted to the railway-bed, and a lever pivoted to one of the arms and capable of swinging to engage the arm whereby the lever may be turned to extend outwardly from the arm, substantially as described.

2. A railway-switch having main rails and pivoted switch-points, means for shifting the switch-points, two rods connected and actuating said means, a rock-shaft, a shifting arm fixed to each end of the rock-shaft, the shifting arms being oppositely disposed and having the rods respectively connected thereto, a trip-rail having one end slidably connected to one of the shifting arms and having the remaining end pivoted to the railway-bed, and two additional trip-rails having their inner ends slidably connected with each other and one of the additional trip-rails being connected to the remaining shifting arm, the outer ends of the trip-rails being pivoted to the railway-bed, substantially as described.

3. A railway-switch having main rails and pivoted points, a rock-shaft, a shifting arm fixed to the rock-shaft, a trip-rail pivoted at

one end to the railway-bed and having a slot in its remaining end, a pin on the shifting arm and passing through the slot of the trip-rail, a rod pivoted to the trip-rail and connected to the switch-points, and a lever fulcrumed to the shifting arm and having a notch receiving one edge of the shifting arm,

the lever being capable of swinging away from the shifting arm, substantially as described.

WILSON A. CLAPP.

Witnesses:

JOHN J. RYAN,
EDWARD N. ROSCOE.

Correction in Letters Patent No. 578,968.

It is hereby certified that Letters Patent No. 578,968, granted March 16, 1897, upon the application of Wilson A. Clapp, of Pittsfield, Massachusetts, for an improvement in "Switch-Operating Devices," was erroneously issued to Edward L. Pollock, as owner of the entire interest in said invention; that said Letters Patent should have been issued to the inventor, *Wilson A. Clapp and Edward L. Pollock, jointly*, said Edward L. Pollock being the assignee of one-third interest only in said patent, as shown by the record of assignments in this Office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 30th day of March, A. D., 1897.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

S. T. FISHER,
Acting Commissioner of Patents.