

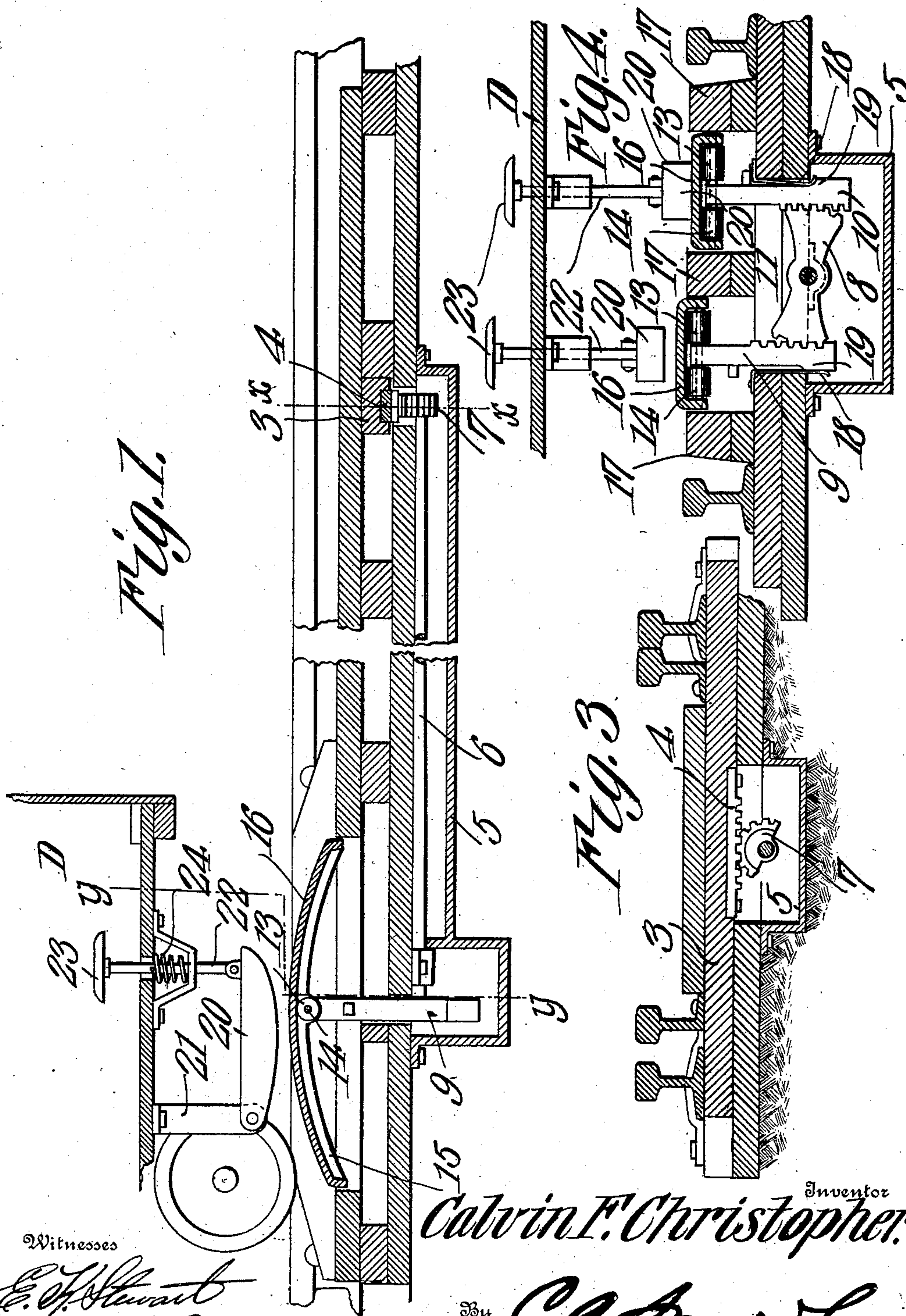
No. 889,441.

PATENTED JUNE 2, 1908.

C. F. CHRISTOPHER.
RAILWAY SWITCH.

APPLICATION FILED DEC. 14, 1907.

3 SHEETS—SHEET 1.



Witnesses
E. J. Stewart
Herbert D. Lawson

Calvin F. Christopher
Inventor

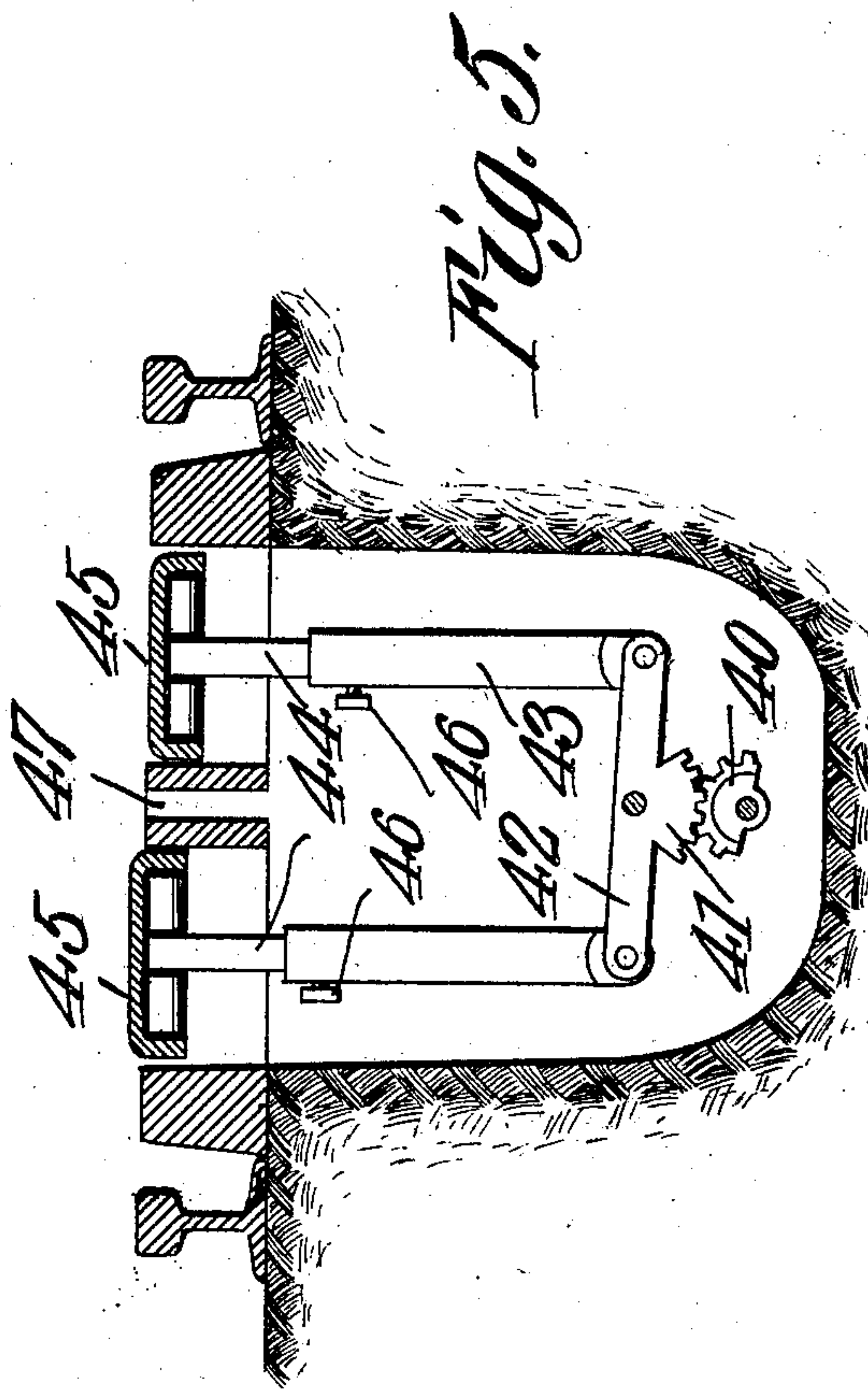
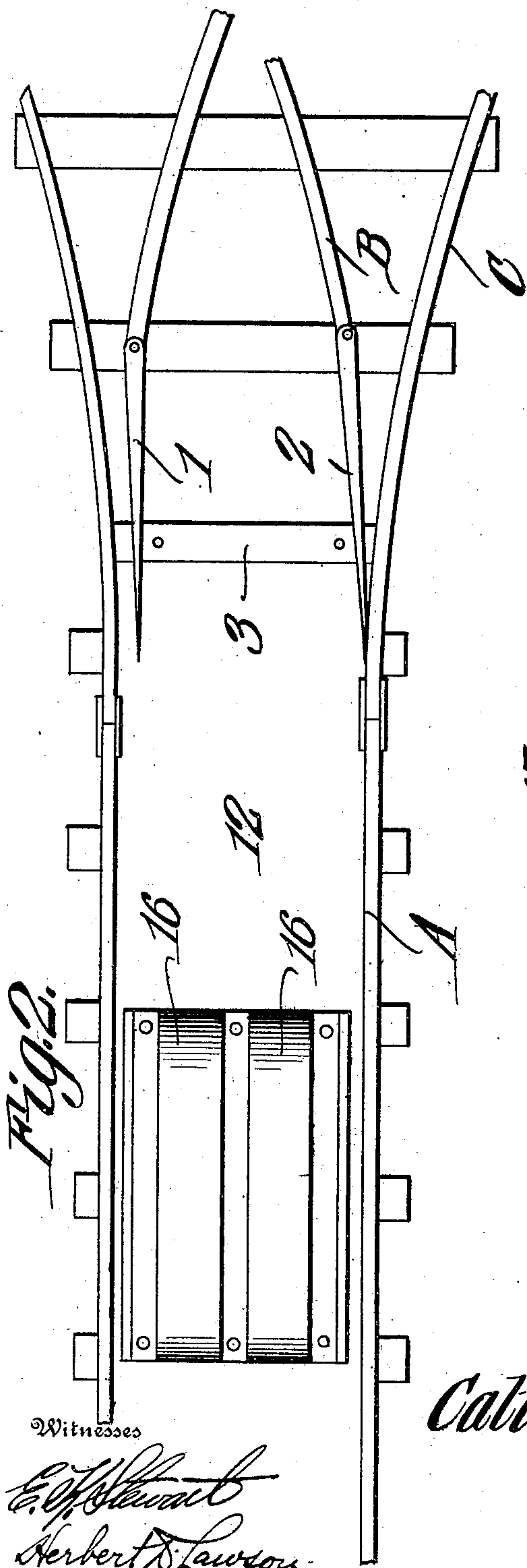
Cal Snow
Attorneys

No. 889,441.

C. F. CHRISTOPHER.
RAILWAY SWITCH.
APPLICATION FILED DEC. 14, 1907.

PATENTED JUNE 2, 1908.

3 SHEETS—SHEET 2.



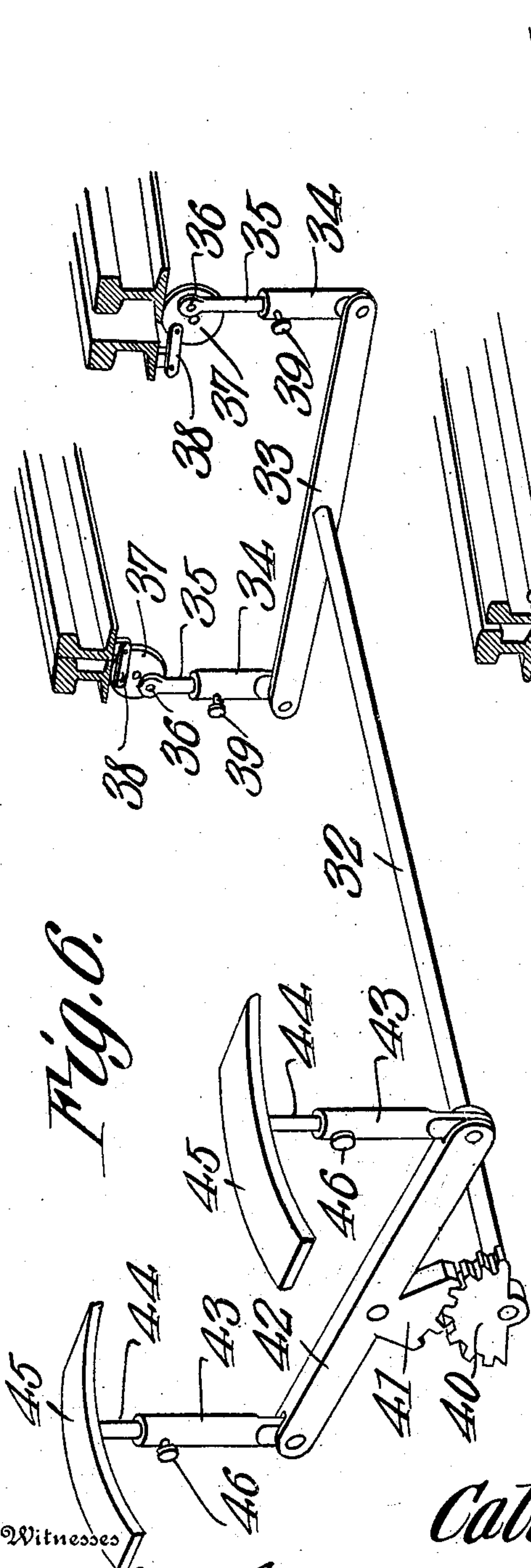
No. 889,441.

C. F. CHRISTOPHER.
RAILWAY SWITCH.

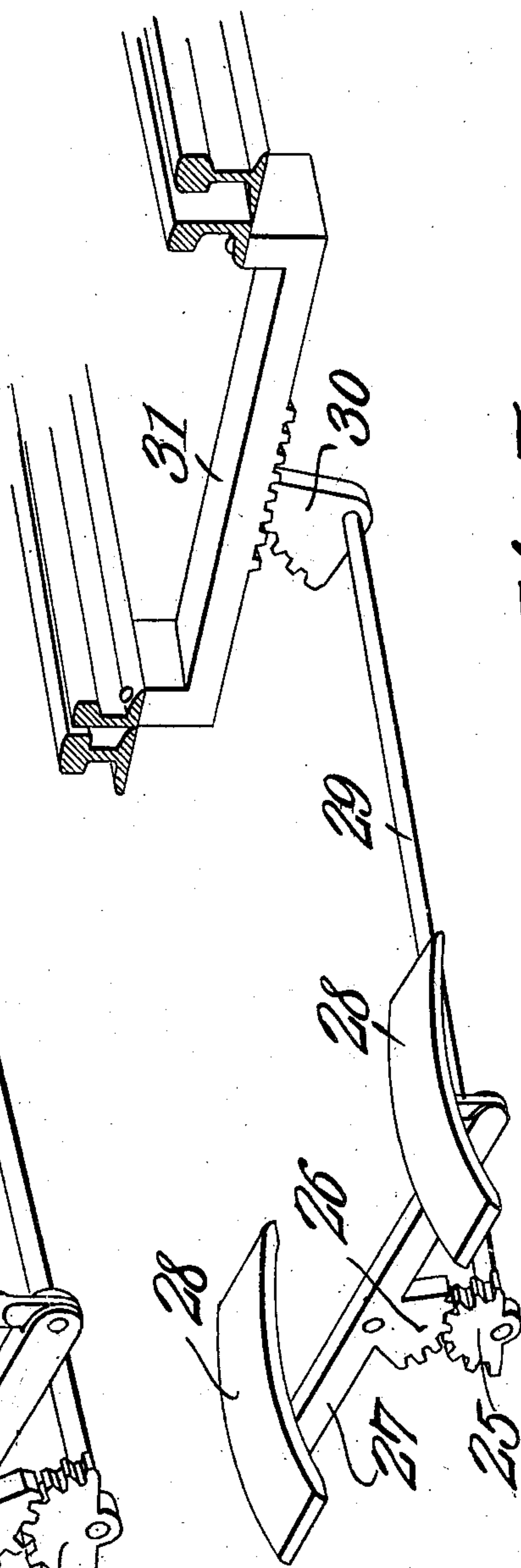
APPLICATION FILED DEC. 14, 1907.

PATENTED JUNE 2, 1908.

3 SHEETS—SHEET 3.



Witnesses
E. J. Stewart
Robert Lawson



Inventor
Calvin F. Christopher
By *Calvin F. Christopher*
Attorneys

UNITED STATES PATENT OFFICE.

CALVIN F. CHRISTOPHER, OF ASHEVILLE, NORTH CAROLINA.

RAILWAY-SWITCH.

No. 889,441.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed December 14, 1907. Serial No. 406,515.

To all whom it may concern:

Be it known that I, CALVIN F. CHRISTOPHER, a citizen of the United States, residing at Asheville, in the county of Buncombe and State of North Carolina, have invented a new and useful Railway-Switch, of which the following is a specification.

This invention relates to railway switches of that type designed to be operated by a car approaching the switch, the car being provided with means whereby the switch can be shifted so as to direct the car onto either track.

The principal object of the invention is to provide simple mechanism whereby power can be positively directed from depressible members located between the rails of the track to the switch, said mechanism being of such a nature that it will not be affected by snow or other materials which ordinarily tend to interfere with the operation of devices of this character.

Another object is to provide switch shifting mechanism which may be used in connection with conduit systems of railways such, for example, as underground cable or underground electric systems, the mechanism being so constructed as to readily operate within the conduit without in any wise interfering with the operation of the parts necessary to the movement of the car.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a longitudinal section through a switch embodying the present improvements and showing a portion of a car provided with the shifting mechanism. Fig. 2 is a plan view of the switch embodying the present improvements. Fig. 3 is a section on line $x-x$, Fig. 1. Fig. 4 is a section on line $y-y$, Fig. 1. Fig. 5 is a transverse section through a modified form of switch operating mechanism. Fig. 6 is a perspective view of said modified mechanism. Fig. 7 is a perspective view of another modified construction.

Referring to the figures by characters of reference, A designates the main track and B and C the tracks curving therefrom, there being switch tongues 1 and 2 mounted at the

ordinary points and connected by a cross bar 3. A rack bar 4 is secured to the lower face of bar 3 and directly above one end of a casing or trough 5 disposed longitudinally between the rails of the main track and journaled within this trough or casing is a longitudinal shaft 6 having a segmental gear 7 at one end which meshes with rack bar 4. The other end of the shaft is provided with a large segmental gear 8 interposed between and meshing with vertically movable rack bars 9 and 10 which extend upward through an opening 11 in the top plate 12 which is located between the rails at this point.

Rollers 13 are connected to and extend laterally from the upper portion of each rack bar 10 and the pivots 14 thereof project into flanges 15 formed along the sides of arcuate depressible members 16 supported between the rails of the main track as clearly indicated in Fig. 1. These members are preferably interposed between guard strips 17 located between the rails so as to prevent lateral movement of said members. A spring 18 is secured within the opening 11 and adjacent each rack bar 10 and said rack bar has a shoulder 19 against which the spring presses when the rack bar is lowered, thus yieldingly holding the rack bars in raised or lowered positions.

The car D designed to travel upon the tracks carries mechanism for actuating either of the members 16 so as to shift the switch tongues in the desired directions. This mechanism preferably consists of two shoes 20 supported at one end by hangers 21 while the other end of each shoe has an operating rod 22 pivotally connected to it and extending upward through the car platform. Each of these rods has a head 23 whereby it can be conveniently manipulated and a spring 24 is provided for holding each shoe and its operating rod in elevated position.

When the car approaches the switch and it is desired to shift said switch the proper shoe is depressed by the motorman or other person operating the car and this shoe will come into contact with the proper member 16 and said member has a convex upper face which will be gradually depressed by the shoe and its rack bar 10 will be forced downward and held by spring 18 while the segmental gear 8 will at the same time force the other rack bar upward. This movement of the segmental gear will result in the actuation of shaft 6 and

gear 7 and the rack bar 4 will therefore be moved transversely so as to move the switch in the desired direction.

As shown in Fig. 7 instead of utilizing rack bars to which the depressible members are connected as in Figs. 1 to 4 the segmental gear 25 may mesh with another gear 26 extending downward from the central pivoted portion of a rock bar 27 having a depressible member 28 pivotally mounted upon each end thereof. With this construction the depression of either member 28 will result in the actuation of rock bar 27 and gear 26 so as to cause gear 25 and its shaft 29 to partly rotate and to transmit motion through segmental gear 30 to the rack bar 31 to which the switch tongues are connected.

The two constructions heretofore described are especially designed for use in railway systems which do not utilize conduits below the tracks. Where these conduits are provided a construction such as shown in Figs. 5 and 6 may be employed. The rock shaft 32 is extended longitudinally within the lower portion of the conduit and is provided at one end with a rock bar 33 provided with upstanding tubular members 34 which are pivoted to the ends thereof. Within each of these tubular members is adjustably mounted a rod 35 connected to a wrist pin 36 extending from a disk 37. One of these disks is provided for each of the rods 35 and each disk is connected by a link 38 with the tongues of the switch. Rods 35 can be locked in adjusted positions within members 34 in any preferred manner as by means of set screws 39.

A segmental gear 40 is arranged at the opposite end of rock shaft 32 and meshes with a segmental gear 41 extending downward from the central pivoted portion of a rock bar 42. Tubular members 43 are pivoted to the ends of this rock bar and slidably mounted within them are rods 44 carrying depressible members 45 similar to the members 16 heretofore referred to. Set screws 46 or other suitable means may be utilized for fastening the rods 44 in proper positions within the members 43. With this construction, and as shown in Fig. 5, the members 45 are disposed at opposite sides of the slot 47 of the conduit and sufficient space is left between the members 43 to receive a cable or conductors such as used in connection with cable or electric railways.

It will be seen that by providing mechanism such as herein described all parts with the exception of the depressible members 16, 28 and 45 are protected from the elements and there is no danger of snow, dirt or the like interfering with the proper operation of the parts.

What is claimed is:

1. The combination with parallel alternately operating depressible members; of a

switch tongue, a rock shaft, adjustable means for transmitting motion from said shaft to the tongue, and adjustable means operated by the depression of either member for actuating the shaft and raising the other member.

2. The combination with parallel alternately operating adjustable depressible members; of a switch tongue, a rock shaft, means for transmitting motion from the shaft to the tongue, a gear connected to said shaft, means operated by the depression of either member for actuating the gear and raising the other member, and portable spring supported shoes disposed to contact with the respective depressible members to actuate the same.

3. The combination with parallel alternately operating depressible members and guides therefor; of a switch tongue, a rock shaft, a rock bar movable with said shaft, means operated by the rock bar for shifting the switch tongue in a plane intersecting the plane of movement of the rock bar, a second rock bar, connections between said bar and the depressible members, and means for transmitting motion from said rock bar to the rock shaft.

4. In mechanism of the character described the combination with parallel rock bars, a shaft movable with one of the bars, and means for transmitting motion to said shaft from the other bar; of alternately operating depressible members connected to one of the rock bars, and means operated by the other rock bar for actuating a switch tongue.

5. In mechanism of the character described the combination with a rock shaft, a switch tongue, and means operated by the shaft for shifting the tongue; of alternately operating depressible members, means for transmitting motion from said members to the shaft, each of said depressible members being pivotally mounted upon the motion transmitting means, and guards disposed along opposite portions of the depressible members.

6. In mechanism of the character described the combination with a rock shaft, a switch tongue, and means operated by the shaft for shifting the tongue; of a gear upon the shaft, a rock bar, a gear carried thereby for actuating the gear on the shaft, and arcuate pivotally supported members mounted upon the rock bar for engagement by actuating means.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CALVIN F. CHRISTOPHER.

Witnesses:

C. E. DOYLE,
JAS. M. WALKER.