

No. 644,455.

Patented Feb. 27, 1900.

J. A. PHILLIPS.
SWITCH OPERATING MECHANISM.

(Application filed Dec. 7, 1899.)

(No Model.)

Fig. 1.

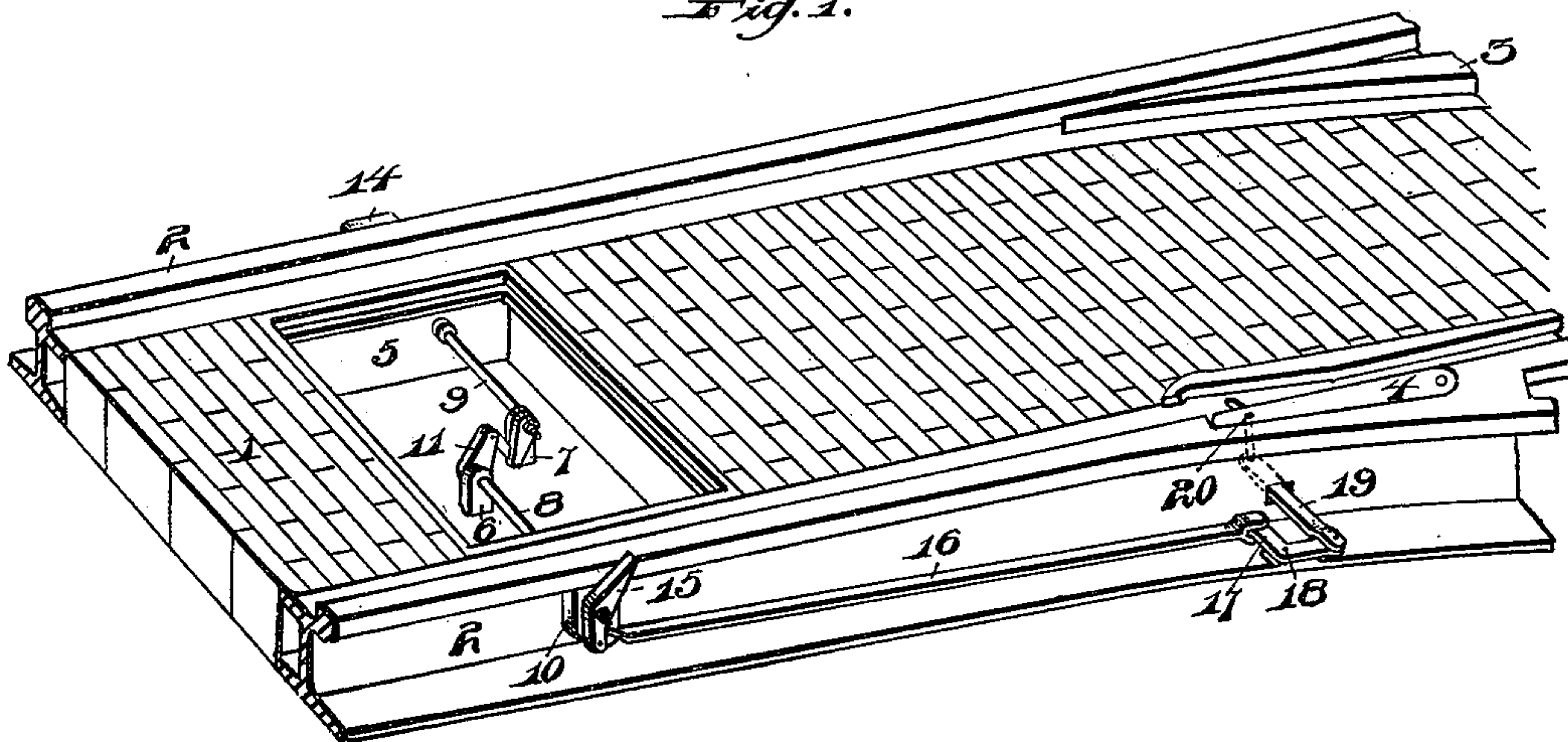


Fig. 2.

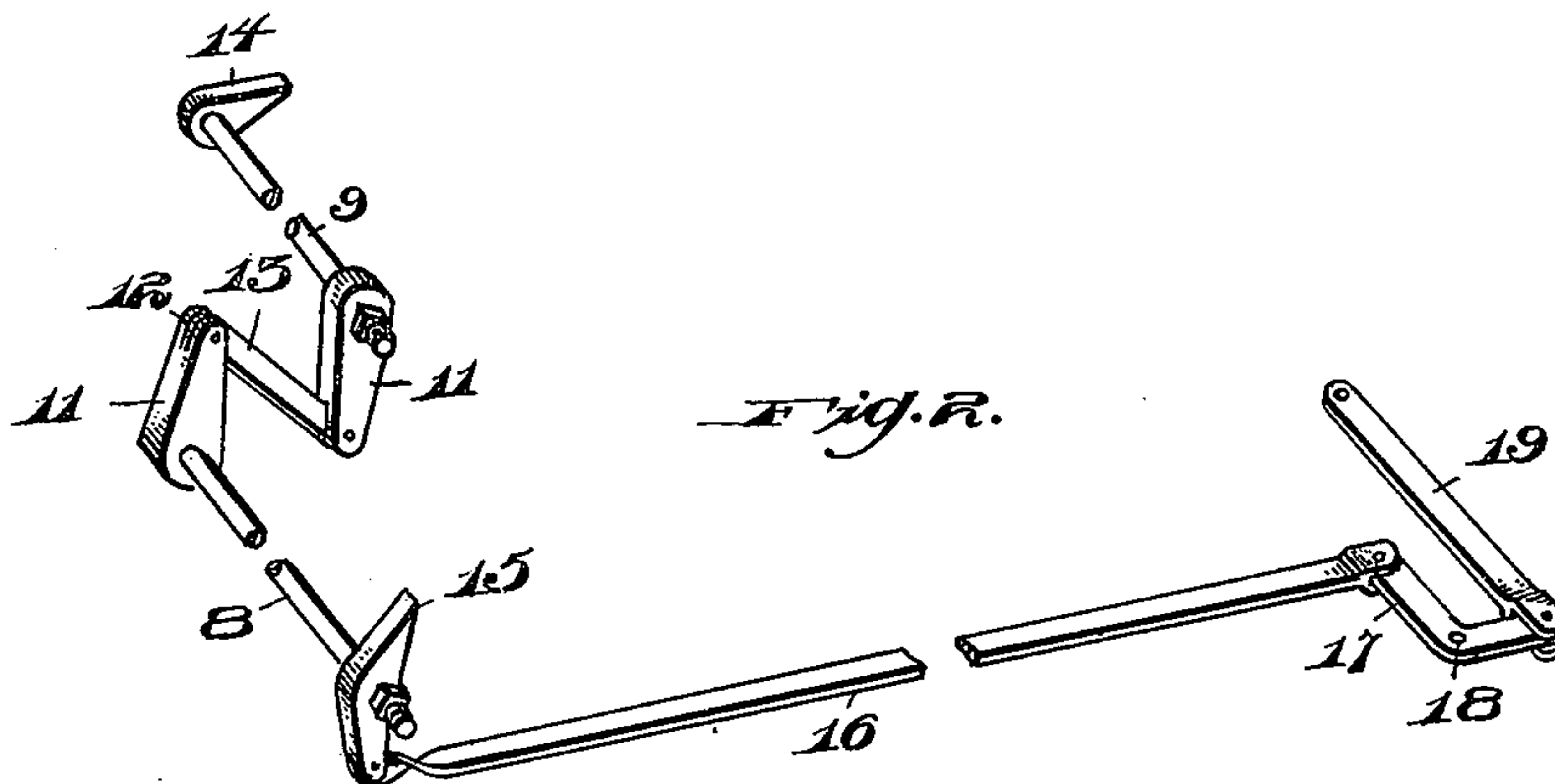
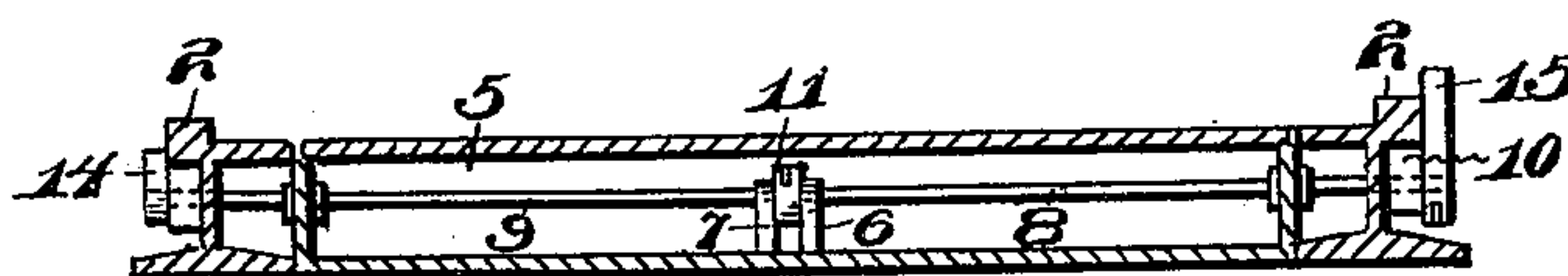


Fig. 3.



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SWITCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 644,455, dated February 27, 1900.

Application filed December 7, 1899. Serial No. 739,518. (No model.)

To all whom it may concern:

Be it known that I, JEFFREY A. PHILLIPS, a citizen of the United States of America, residing at Amos, in the county of Marion and State of West Virginia, have invented certain new and useful Improvements in Switch-Operating Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in switch-operating mechanism, and is particularly adapted for street-railways.

One object of my invention is to construct a switch-operating mechanism which can be operated from either side of a car.

A further object of my invention is to construct a switch-operating mechanism of this character which will be extremely simple in its construction, strong, durable, and comparatively inexpensive to manufacture; furthermore, one that may be easily operated from the platform of a car to throw a switch-tongue in either direction.

Briefly described, my invention consists in arranging a suitable leverage mechanism in the track-bed connected to a trip-arm at either side of the track, the ends of said trip-arms being connected by a lever to a bell-crank connected, in turn, to the switch-shoe for operating the switch-tongue.

My invention finally consists in the novel combination and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate corresponding parts throughout the several views, in which—

Figure 1 is a perspective view of a track-bed and a railway-track, showing the arrangement thereto of my improved switch-operating mechanism. Fig. 2 is a perspective view of my improved switch-operating mechanism. Fig. 3 is a cross-sectional view taken on the line *xx* of Fig. 1.

Referring to the drawings by reference-numerals, 1 indicates the track-bed; 2, the main rails of the track; 3, the switch-rails; 4, the switch-tongue, and 5 a suitable casing ar-

ranged in the track-bed and adapted to be provided with a cover. (Not shown.) This casing 5 has suitably secured to the bottom thereof a pair of standards or supports 6 7, arranged at an angle to each other. These standards have journaled therein the inner end of each of the operating-shafts 8 9, which extend through a suitable opening in the side of the casing 5 and project through the web of the track-rails on each side of the track, as shown, and each has mounted on its projecting end a bearing-block 10.

The operating-shafts extend through the standards 6 7, and each has mounted on its inner end a crank-arm 11, having their upper ends bifurcated, as at 12. These crank-arms are connected together by means of a link 13. The operating-shafts, on their projecting ends, have rigidly secured thereto trip-arms 14 15.

The trip-arm 15 is connected at its lower end to a main operating-lever 16, and the opposite end of this lever 16 is pivotally connected to one of the bell-cranks 17, the bell-crank 17 being fulcrumed to the base-plate of the rail, as at 18, and its opposite end pivotally connected to the switch-shoe 19, which extends through the web of one of the track-rails and is connected by means of the pin 20 to the switch-tongue 4.

My improved switch-operating device is so arranged that when operated in one direction the opposite trip-arm assumes a position ready to be operated.

The trip-arms of my improved switch-operating mechanism are adapted to be operated by a suitable hand-lever or foot-tread projecting from the car-platform—that is to say, the foot-tread coming in contact with the trip-arm 15 will force the same downwardly, drawing the operating-lever 16 therewith, laterally moving one arm of the bell-crank, causing the other arm thereof to be forced toward the track-rail, carrying the switch-shoe therewith and sliding the switch-tongue away from the rail and permitting the car to pass on the siding. At the time that the trip-arm 15 is lowered motion is imparted to the shafts 8 9, operating the crank-arms 11, and lowers the opposite trip-arm 14. When the trip-arm 14 is lowered, it raises the opposite trip-arm 15, moving the lever therefrom, carrying the bell-

crank in the opposite direction, causing the other arm of the bell-crank to move away from the rail, drawing the switch-shoe outwardly, carrying the switch-tongue therewith and bringing the same into engagement with the rail, as shown in full lines in Fig. 1.

Particular attention is called to the fact, as heretofore stated, that by the operation of one trip-arm the other arm is brought to an operative position and that these trip-arms can be operated from either side of the car. This is obtained by mounting the trip-arms upon the shafts 6 7, rigidly mounting the crank-arms upon the inner ends of the shafts, and pivotally connecting the cranks by means of the link 13. It is thought that the many advantages of my improved switch-operating mechanism can be readily understood from the foregoing description, taken in connection with the accompanying drawings.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

The combination with a railway-track provided with a pivoted switch-tongue and a casing interposed between the sections of the track, of a pair of upwardly-extending supports or bearings mounted in the said casing and arranged at an angle from each other,

an operating-shaft 8 journaled at one end in one of said supports and having its opposite end extending outwardly through one of the rail-sections of the track, an operating-shaft 9 journaled at one end in the other of said supports and having its opposite end extending outwardly through the other of the said rail-sections of the track, a tapering crank-arm secured at its lower end to said shaft 8 and having its upper end bifurcated, a tapering crank-arm secured at its upper end to said shaft 9 and having its lower end bifurcated, a link-arm connected at one end to the bifurcated upper end of one of the crank-arms and at its other end to the bifurcated upper end of the other of said crank-arms, a trip-arm 14 secured to the outer end of said shaft 9, a trip-arm 15 secured to the outer end of said shaft 8, a main lever connected at one end to the lower end of said trip-arm 15, a bell-crank lever pivotally secured to the base of one of the rail-sections of the track and pivotally connected to the opposite end of said main lever, and a switch-shoe pivotally connected at one end to said bell-crank and at its opposite end to said switch-tongue, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

JEFFREY A. PHILLIPS.

Witnesses:

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