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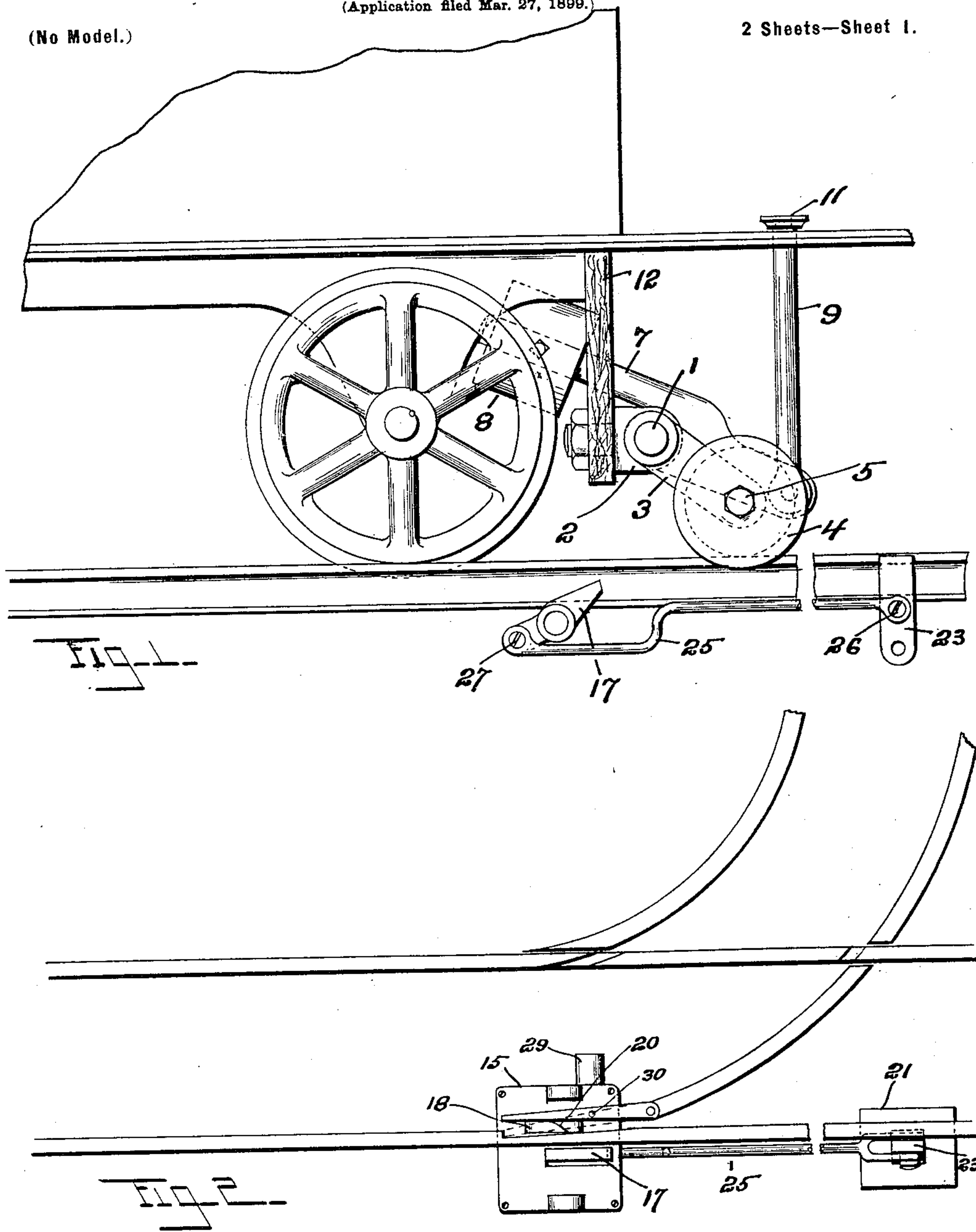
Patented Oct. 16, 1900.

H. B. PIERRE.  
SWITCH OPERATING DEVICE.

(Application filed Mar. 27, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.

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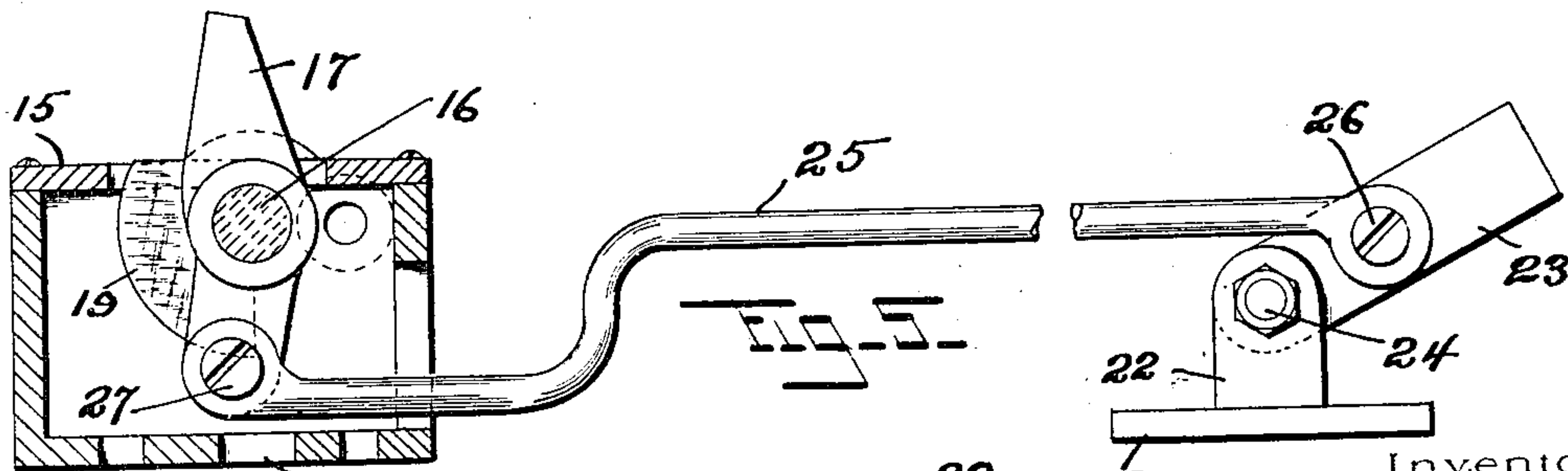
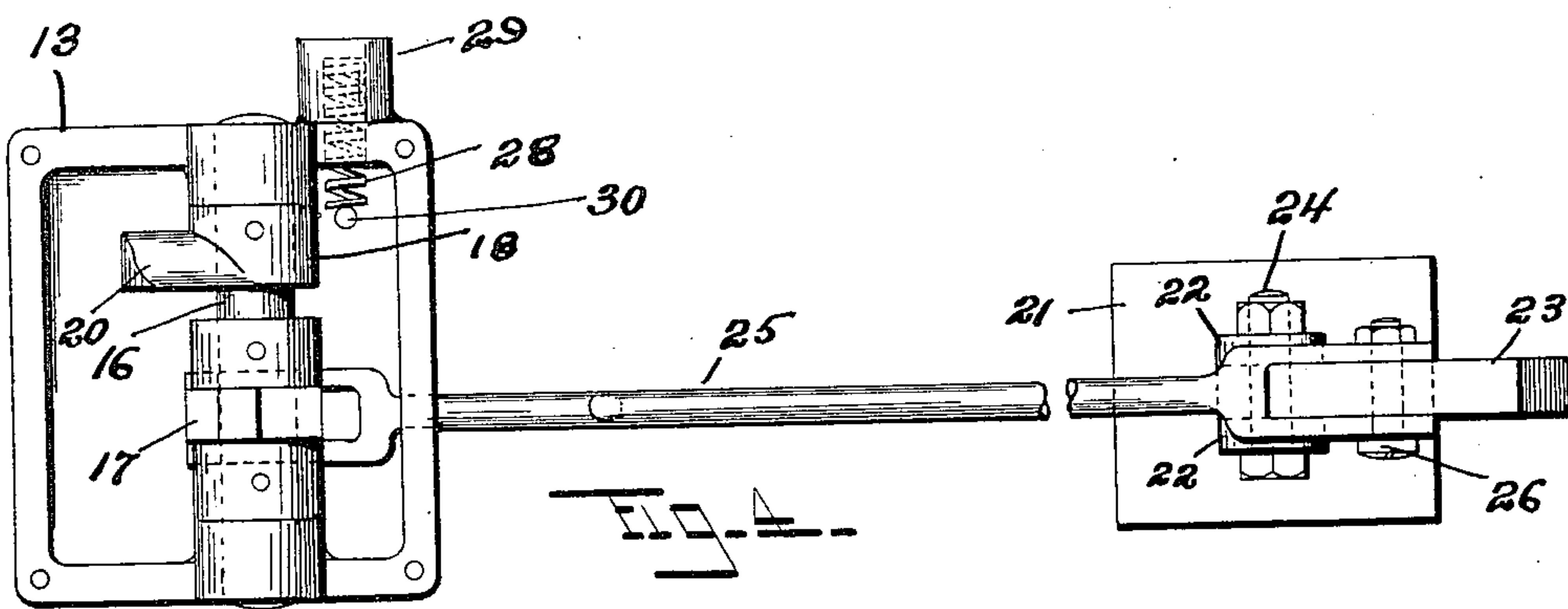
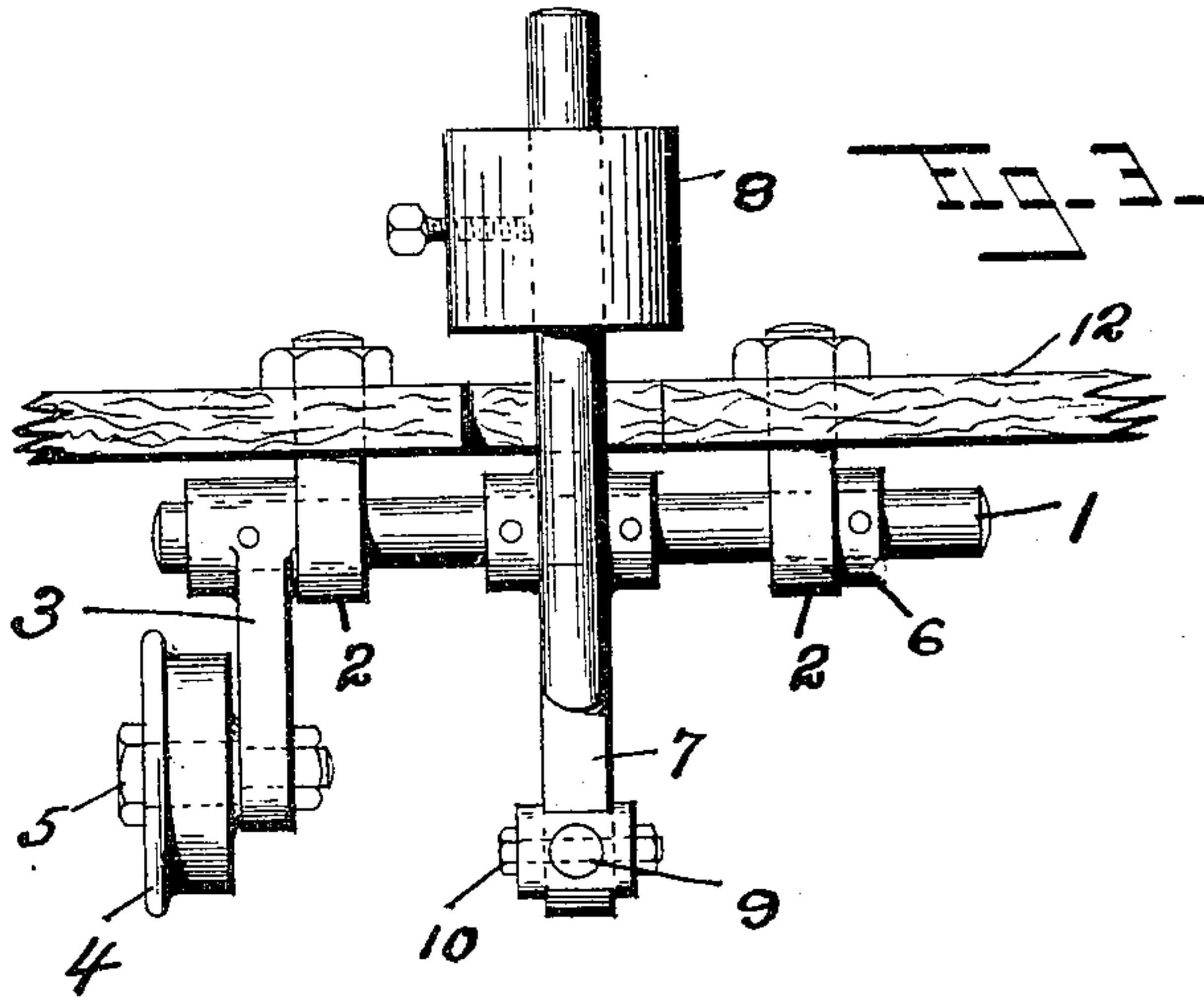
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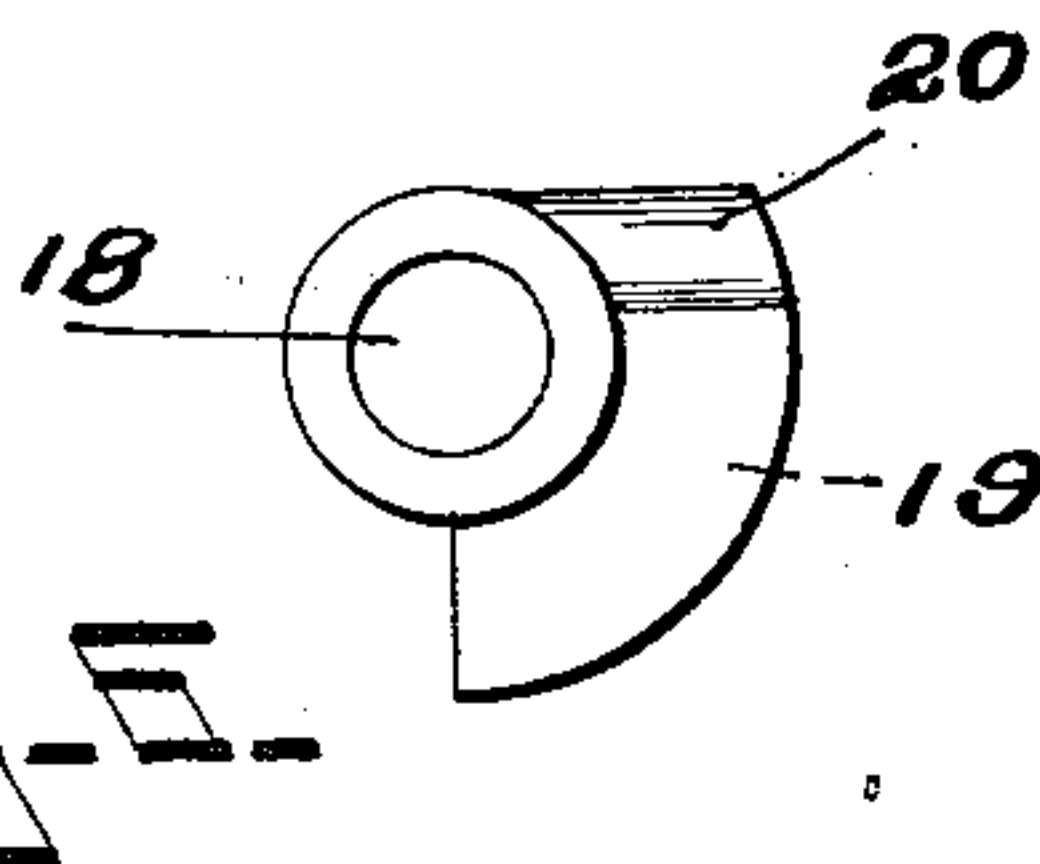
2 Sheets—Sheet 2.

(No Model.)



Witnesses. 14

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# UNITED STATES PATENT OFFICE.

HENRY B. PIERRE, OF TORRINGTON, CONNECTICUT.

## SWITCH-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 659,692, dated October 16, 1900.

Application filed March 27, 1899. Serial No. 710,567. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY B. PIERRE, a citizen of the United States, residing at Torrington, in the county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Switch-Operating Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in devices for operating railroad-switches, and is especially designed for use on street-cars.

It is the object of my invention to make the operation of the parts positive, to increase the life of such devices by having the wearing parts rotary, and to so design the whole mechanism that it may withstand the shock and jar to which devices of this character are subjected, as well as to make the parts few in number and capable of being readily replaced if broken.

To this end my invention consists of the switch-operating device constructed and operating as hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals designate like parts in the several views, Figure 1 is a side elevation of a portion of a car with my device attached thereto. Fig. 2 is a plan view of a switch and the trip mechanism. Fig. 3 is a plan view of that portion of the mechanism which is attached to the car. Fig. 4 is a plan view of the trip mechanism. Fig. 5 is a side elevation thereof, and Fig. 6 is a side elevation of the cam.

The numeral 1 designates the rock-shaft, which is supported by the brackets 2 2; 3, the trip-wheel arm fixed to the rock-shaft and carrying the trip-wheel 4 at its forward end upon the stud 5; 6, the thrust-collar, which, with the lever 3, prevents endwise movement of the rock-shaft in the brackets; 7, the rock-lever, which is made fast to the said rock-shaft and carrying the adjustable balance-weight 8 upon one end; 9, the pressure-rod, which is pivotally joined at its lower end to the said rock-lever by the stud-bolt 10 and the upper end of which projects through the car-platform and having a pad 11 fastened thereto.

In the drawings I have shown the brackets 2 2 as fastened to the downwardly-projecting

plank 12; but it is apparent that it may be attached to the car-body or the trucks in any other convenient manner best adapted to the special construction of the car.

That portion of the mechanism which actuates the switch-rail is shown in detail in Figs. 4 and 5 and comprises a case 13, preferably of cast metal, having a plurality of holes 14 in the bottom to drain off any water that may accumulate therein and which is embedded in the earth beneath the car-rail; a cover 15, secured to the top of said case; a rock-shaft 16, journaled at either end in the sides of the said case; a trip-arm 17, fixed to said rock-shaft, the upper end of which in its vertical position is substantially flush with the top of the rail, and a cam 18, also fixed to the said shaft and having the integral wing 19 extending around a portion of the hub thereof, with the forward end rounded, as at 20.

Located at a point substantially a car's length from the above-described mechanism is the release-actuating device, which consists of a plate 21, provided with upwardly-projecting ears 22 and a release-lever 23, pivotally secured between the said ears upon the stud 24. The connecting-rod 25, which is pivotally secured to the release-lever 23 at one end by the bolt 26 and to the trip-arm 17 at the other end by the bolt 27, unites the release mechanism with the mechanism for operating the switch-rail.

The release mechanism may be covered by a hood and preferably so in some cases, but its construction is a matter of knowledge within the skill of any mechanic and I have therefore not illustrated it in my drawings.

The operation of my device is as follows, it being understood that the normal position of the trip-wheel 4 is above and away from the rails and is there held by the adjustable weight 8: If it is desired to throw the switch-rail, the operator as he approaches the switch drops the trip-wheel down upon the rail, as shown in Fig. 1, by placing his foot upon the pad 11 and exerting sufficient pressure thereon to overcome the specific gravity of the weight 8, and when the trip-wheel meets the trip 17 (which stands in the position shown in Fig. 5) it rocks the same until the flange of the wheel rides over it. The trip in this position is shown in Fig. 1. The rock-



ing of the trip 17 is conveyed to the cam 18 through the rock-shaft and the wing 19 of the cam is brought up between the straight and the switch rail, (see Fig. 2,) thereby opening the switch. The rounded end 20 of the wing 19 facilitates the ready entrance of the cam between the switch and straight rails, it having a wedging action as the cam acquires its partial rotary movement. When the car has passed over the switch, the trip-wheel is brought into contact with the release-lever 23, which is now in an upright position, as shown in Fig. 1, and rocks it upon the stud 24 until the flange of the wheel passes over it, whereby it assumes the position shown in Fig. 5. As the release-lever 23 is pushed over, the trip 17 through the connection-rod 25 is brought back to its original position and the wing 19 of the cam drawn out from between the switch and straight rails. The switch-rail now assumes its normal position, as shown by the dotted lines in Fig. 2. The switch-rail may be thrown back by any of the methods common to the art, but the particular means used by me is the coil-spring 28, which is within a recess formed in the integral boss 29 upon the case 13 and having contact with a downwardly-projecting pin 30 in the switch-rail at its forward end. After the release mechanism has been passed the operator removes his foot from the pad and the trip-wheel is lifted from the rail by means of the weight 8 and rock-lever 7.

My device enables the operator of a street-car to operate the switch positively from his usual position upon the platform of a car by simply placing his foot upon a pad as the car is about to pass over the switch and removing it after the car has passed over the same a

car's length, and again the use of sliding wedges is avoided, which are easily broken, and operate only by complicated mechanism and with considerable friction.

There are minor changes and alterations that can be made within my invention, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

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

In a device of the character described, the combination with the switch-tongue; of mechanism for actuating the same, which mechanism comprises a rock-shaft 16; a cam 19 fixed thereto having an engagement with the said tongue; a trip-lever 17 fixed to said shaft and projecting upwardly by the side of the car-rail and having a downwardly-projecting arm; a pivotally-mounted release-lever 23; a connection-rod 25 joining said release-lever with the downwardly-projecting arm upon said trip-lever; and a spring 28 for moving said tongue in one direction; and mechanism for actuating said switch-tongue mechanism, which mechanism comprises a rock-shaft 1; a trip-arm 3 fixed thereto; a trip-wheel 4 adapted to move in the path of the said trip-lever 17 and release-lever 23; a rock-lever 7 and pressure-rod 9, all constructed and operating substantially as described.

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

HENRY B. PIERRE.

Witnesses:

WILLIAM F. PEET,  
WILLARD A. RORABACK.