

No. 720,006.

PATENTED FEB. 10, 1903.

LE ROY DEVERS.  
AUTOMATIC STREET CAR SWITCH.

APPLICATION FILED SEPT. 10, 1902.

NO MODEL.

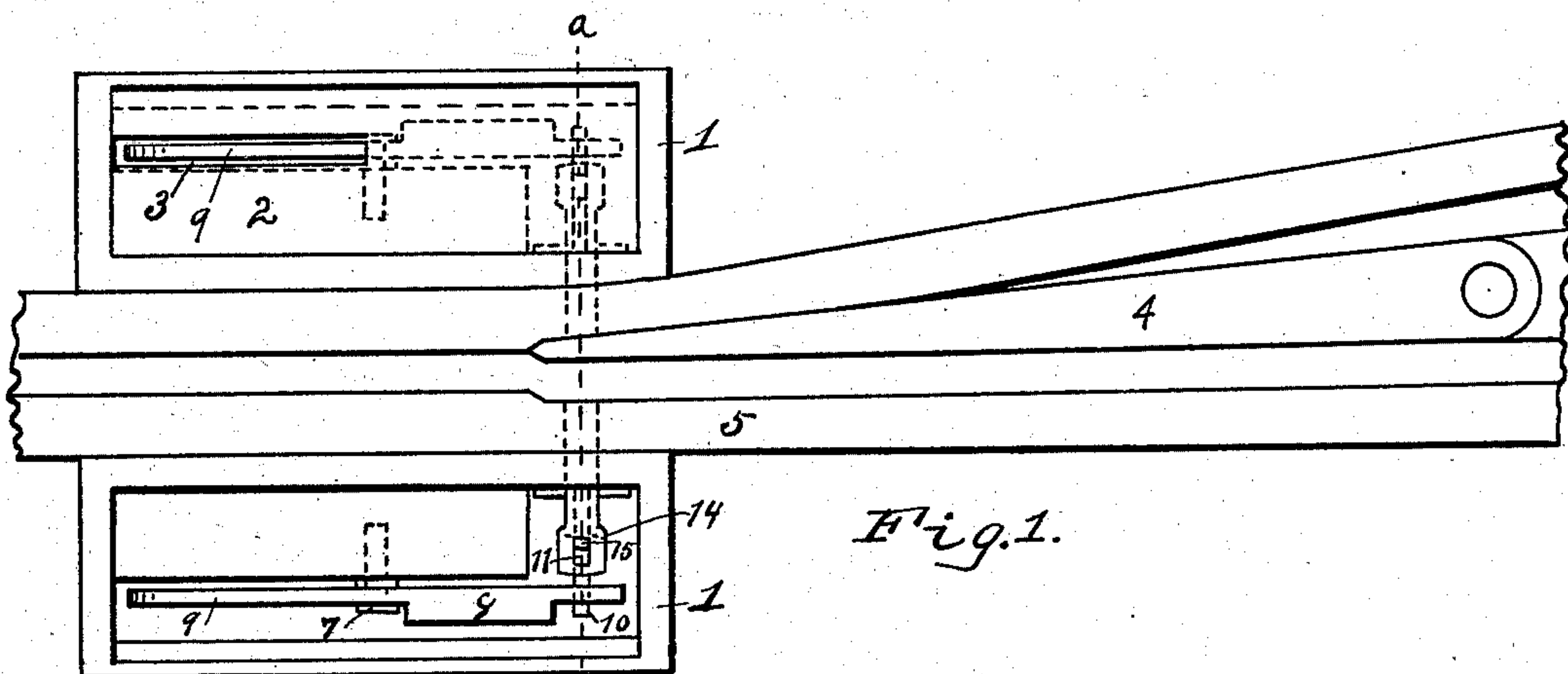


Fig. 1.

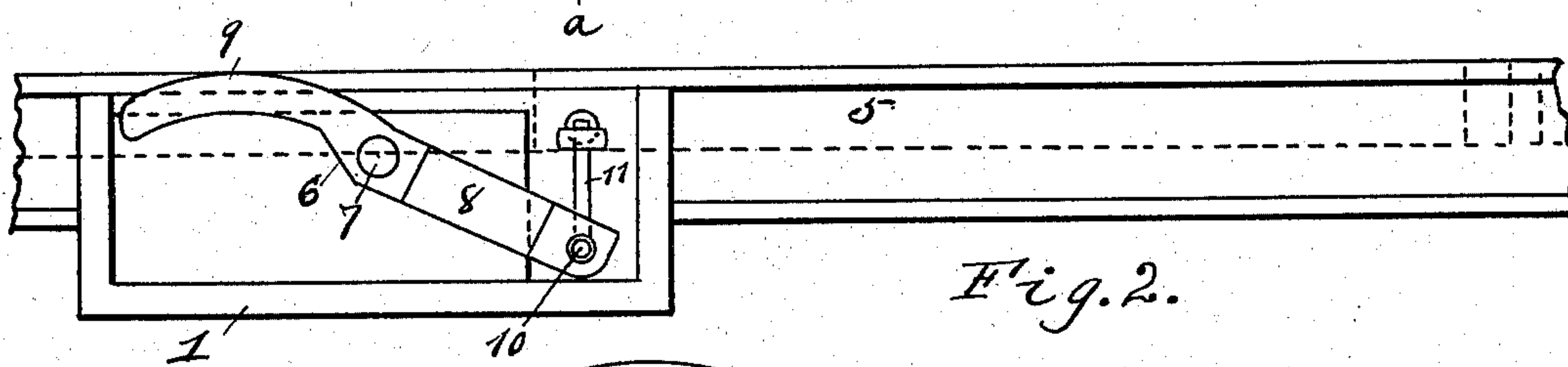


Fig. 2.

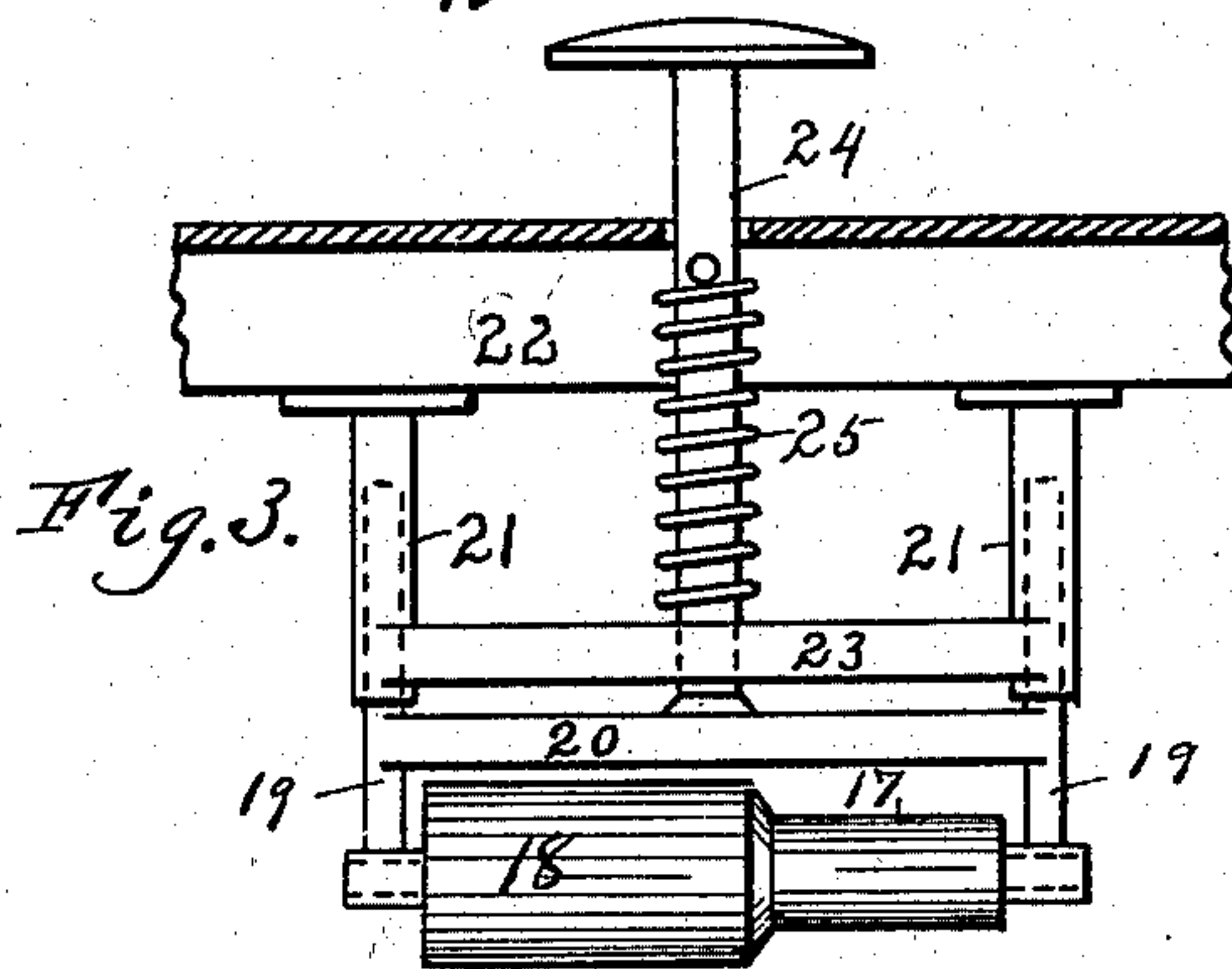


Fig. 3.

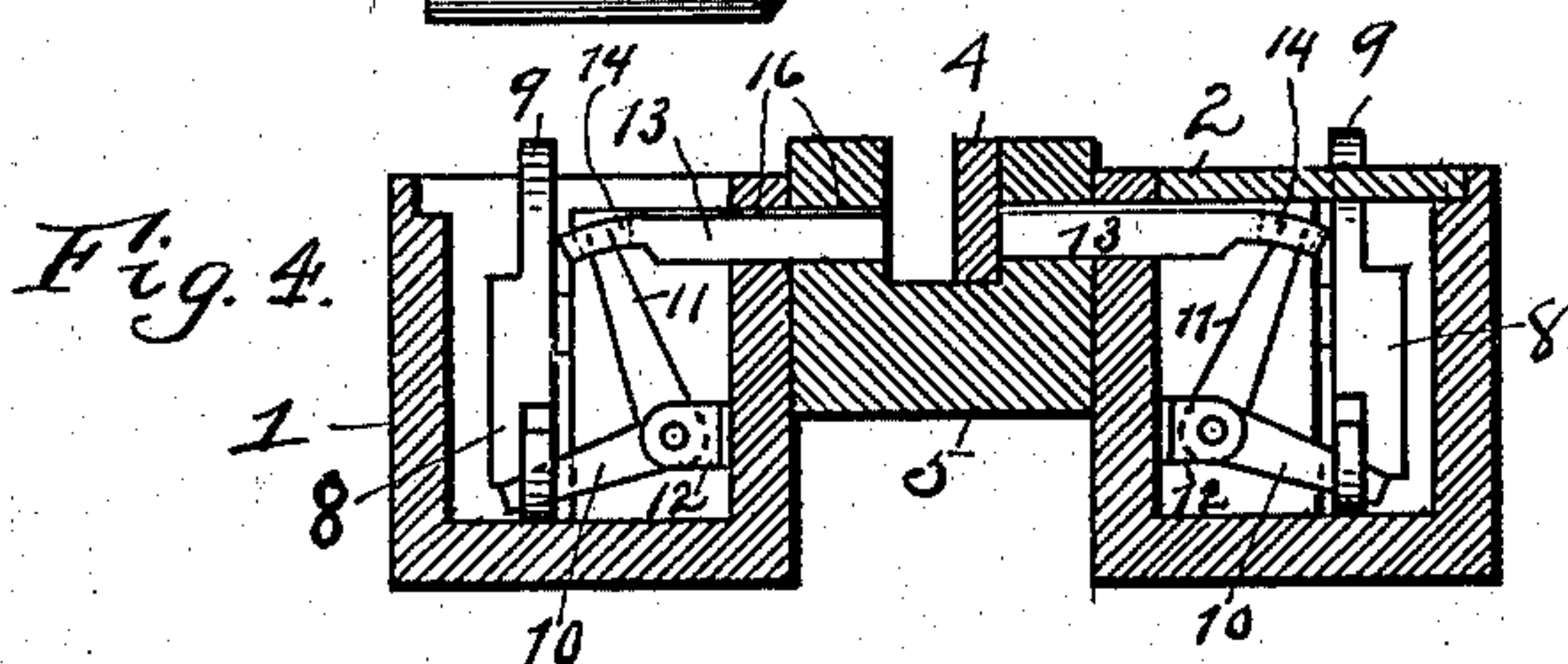


Fig. 4.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

LE ROY DEVERS, OF DAYTON, OHIO.

## AUTOMATIC STREET-CAR SWITCH.

SPECIFICATION forming part of Letters Patent No. 720,006, dated February 10, 1903.

Application filed September 10, 1902. Serial No. 122,834. (No model.)

*To all whom it may concern:*

Be it known that I, LE ROY DEVERS, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Automatic Street-Car Switches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to certain specific improvements in automatic switches of the type particularly adapted to street-railways.

The object of my invention is to provide mechanism of the above type which is compact and simple in its grouping—that is to say, it is devoid of the usual long connections between the switch-tongue and the lever connections by means of which the tongue is shifted.

A further object of my invention is to provide switch-shifting mechanism no portion of which is permitted to project above the track, as will be hereinafter described, and pointed out in the claims.

Preceding a detail description of the invention reference is made to the accompanying drawings, of which—

Figure 1 is a top plan view of a portion of a track with the switch mechanism in position. Fig. 2 is a side elevation of Fig. 1 with a side of one of the boxes removed. Fig. 3 is a detail elevation of the actuating devices for the switch-shifting mechanism. Fig. 4 is a cross-section on the line *a a* of Fig. 1.

In a detail description of the invention similar reference characters indicate corresponding parts.

1 designates a metallic inclosure or box, one of which is placed on each side of the track 5 and is inclosed at its top by a removable cover 2, which is provided with an opening 3, extending approximately half of the length of said cover.

6 designates a trip-lever, which is pivoted at 7 and is provided with an excess of weight on one side of said pivot, as at 8, which maintains the trip end 9 of said lever in an ele-

vated position in the opening 3 of the cover. The upper side of said exposed end of the lever is rounded, as at 9, and such rounded surface projects through said opening approximately in line with the surface of the track. Connected to the lower end of said lever is an arm 10 of a bell-crank lever, which is fulcrumed on a support 12 within the box. The arm 11 of said lever stands in an upright position, and the movement of said lever is essentially in a vertical plane. 13 designates a shifting-bar, which moves loosely in openings 16 in the inner side of the box and in the track-flanges. The outer end of this shifting-bar 13 is slightly curved downwardly, as at 14, and is provided with a suitable opening 15, through which the upper end of the upright member 11 of the bell-crank lever projects. The opening 15 in said shifting-bar is slightly larger than the end of said arm 11 in order that there may be some slight play between these parts in actuating the same. The inner ends of these shifting-bars 13 move the switch-tongue 4 in opposite directions, but have no connection with said switch-tongue.

From the illustrations set forth in the accompanying drawings it will be observed that the arrangement of this mechanism is very compact. As a consequence the moving parts—to wit, the actuating-lever 6 and the bell-crank lever—are relieved of considerable strain, and such movements are of a very positive and accurate nature. The projecting end 9 of said actuating-lever does not offer any obstructions to passing vehicles, for the reason that it projects but a slight distance above the cover 2, and the cover when in position lies flush with the surface of the street. The actuating mechanism, which is operated from the car, is illustrated in Fig. 3 and comprises a roller of two diameters, as indicated by 17 and 18, the former diameter being less than the latter. The portion of said roller having the greatest diameter is above the exposed end of the lever 6, while the remaining portion of said roller rolls on the rail when the roller is lowered. The journals of said roller are connected to supports 19 19, which are joined by a transverse bar 20, to the middle portion of which a plunger 24 is secured. The supports 19 19 telescope in



tubular projections 21 21, which are suitably secured below the platform of a car.

The plunger 24 projects through an opening in said platform, and the head of said plunger is within the usual reach of the motor-man's foot. The plunger and therewith the roller and its frame are held normally upward by a compression-spring 25. It is obvious that the plunger might be located elsewhere and the same actuated by a hand-lever.

Having described my invention, I claim—

1. In an automatic street-railway switch, a trip-lever maintained in an operative position by an excess of weight on one side of the fulcrum thereof, a two-arm lever placed in an upright position and movable upon its fulcrum in a vertical plane, the lower arm of said two-arm lever having a loose connection with said trip-lever, a shifting-bar movable to make contact with the switch-tongue, said shifting-bar having its outer end curved and provided with an opening into which the upright arm of said two-arm lever projects, and means substantially as described for actuating said trip-lever.

2. In a switch-shifting mechanism, a trip-lever having an excess of weight on one side of its fulcrum, and a rounded surface on its free end, said rounded surface lying normally in line with the upper surface of the track, a bell-crank lever having a horizontal pivot so that one arm of said lever stands in a vertical or upright position, and the other arm of said lever lies in a horizontal position, said horizontal arm having a loose connection with the trip-lever, a shifting-bar adapted to be moved in position to shift the position of the switch-

tongue, said shifting-bar having a loose connection at its outer end with the upright arm of the bell-crank lever, and means for actuating said trip-lever to move said shifting-bar against the switch-tongue, the whole being arranged within a compact form and operating substantially as set forth.

3. In a switch-shifting mechanism, the combination of a trip-lever, a bell-crank lever having a horizontal fulcrum on a bearing projecting from the inner side of the inclosing box, one arm of said lever standing in an upright position, and the other arm in a horizontal position, said horizontal arm having a loose connection with an end of the trip-lever, a shifting-bar loosely supported in openings in the inner side of the inclosing box and the adjacent rail-flange, said shifting-bar having a loose connection with the upright arm of the bell-crank lever, an actuating-roller adapted to be lowered into a position to move said trip-lever, said roller having two diameters, the greatest diameter being that portion which makes contact with the trip-lever, upright supports upon which said actuating-roller is mounted, tubular guides in which said upright supports are movable, and a spring-controlled plunger by which said roller and its supporting-frame are actuated, substantially as set forth.

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

LE ROY DEVERS.

Witnesses:

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W. H. WISMAN.