

(No Model.)

2 Sheets—Sheet 1.

L. V. JOHNSON.
RAILWAY SWITCH.

No. 540,100.

Patented May 28, 1895.

Fig. 1

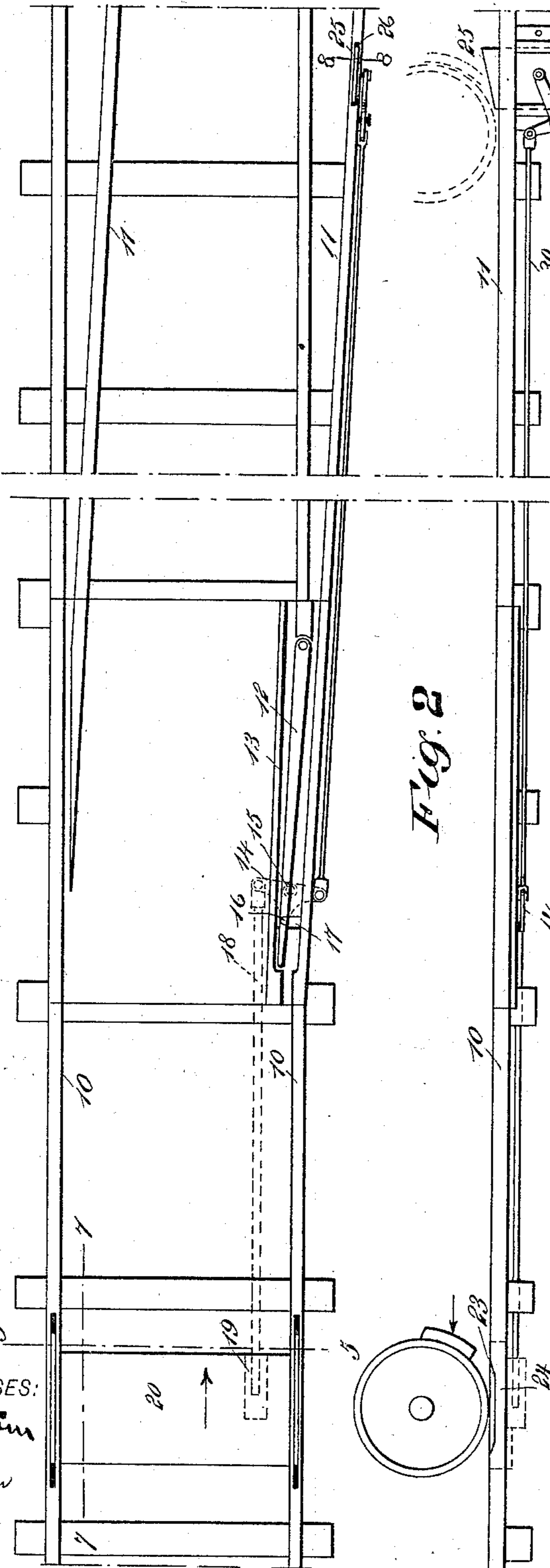


Fig. 2

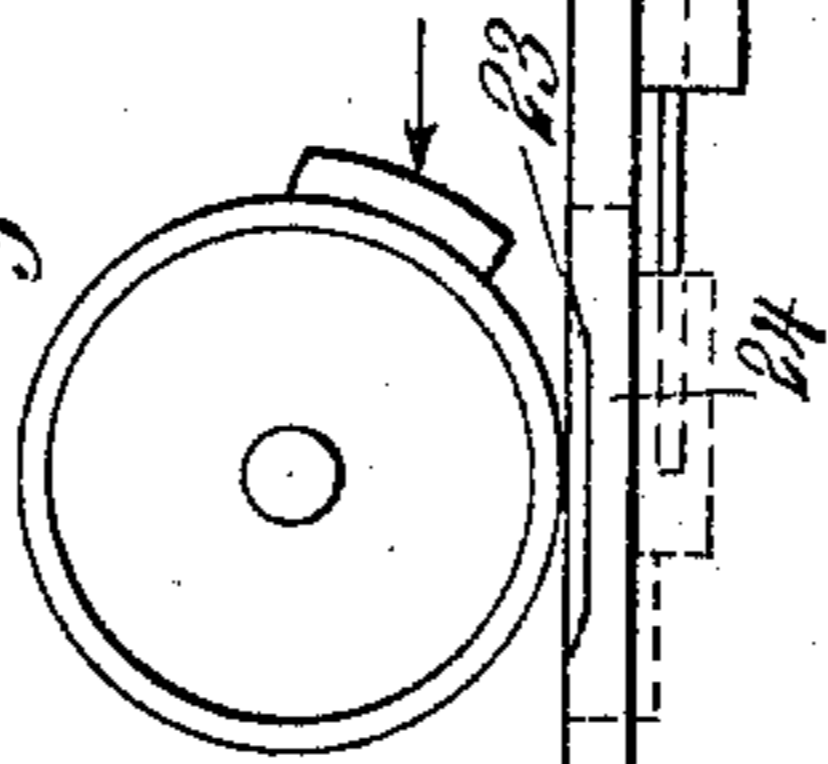


Fig. 3

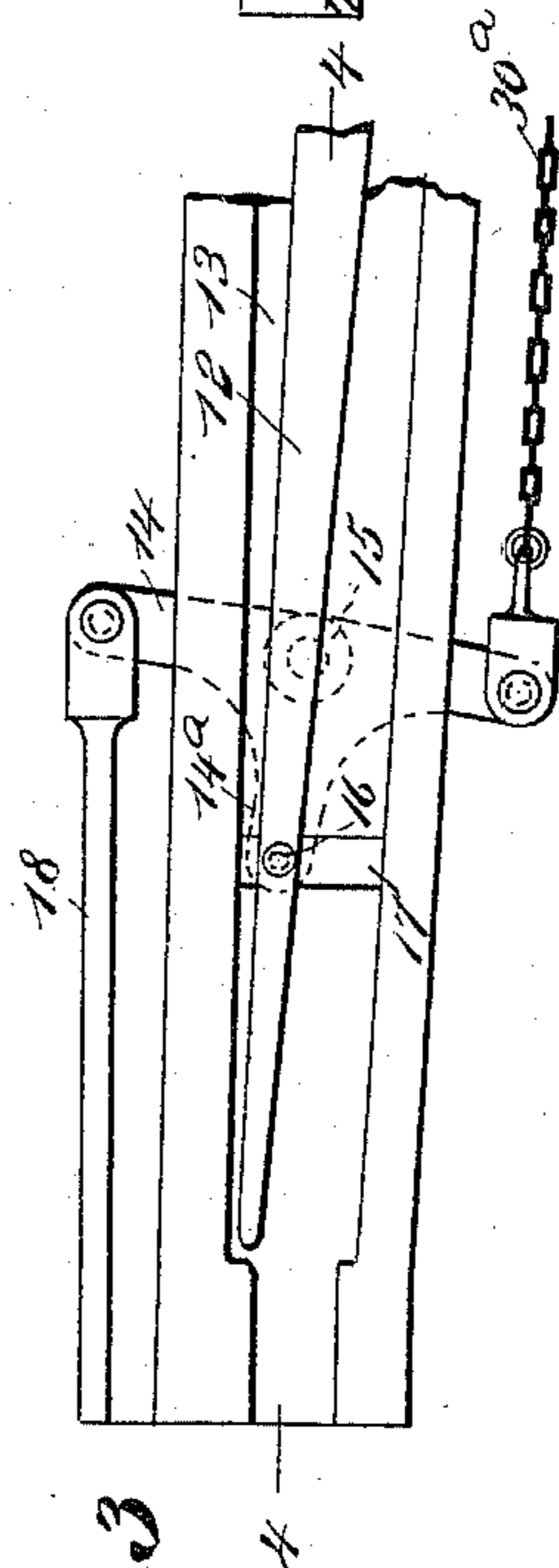
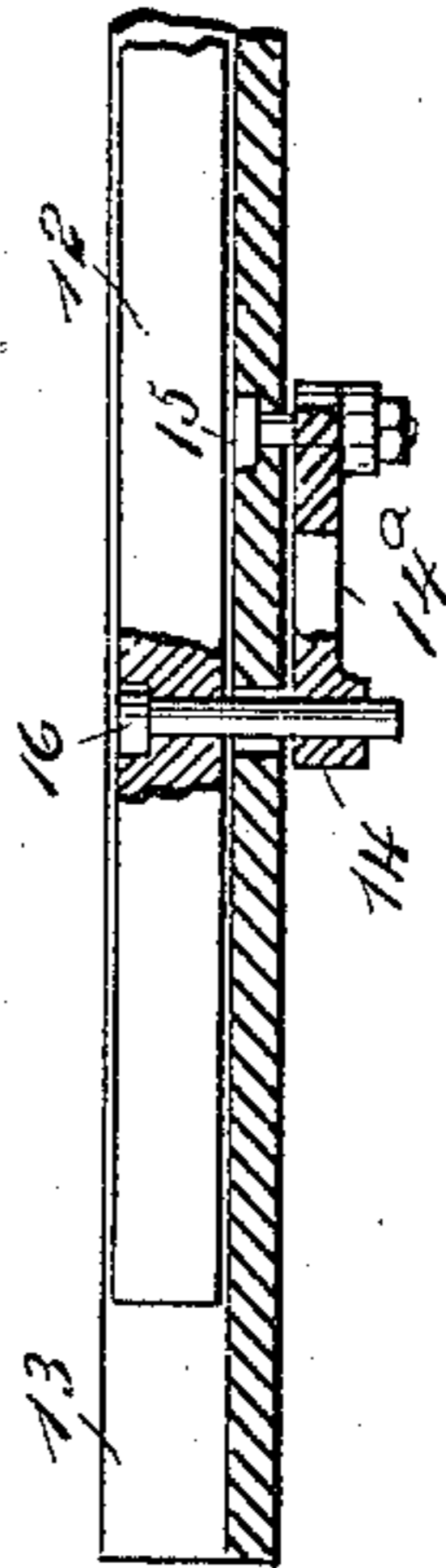


Fig. 4



WITNESSES:
John A. Berghman
W. B. Hutchinson

INVENTOR
L. V. Johnson
BY
Munn & Co
ATTORNEYS.

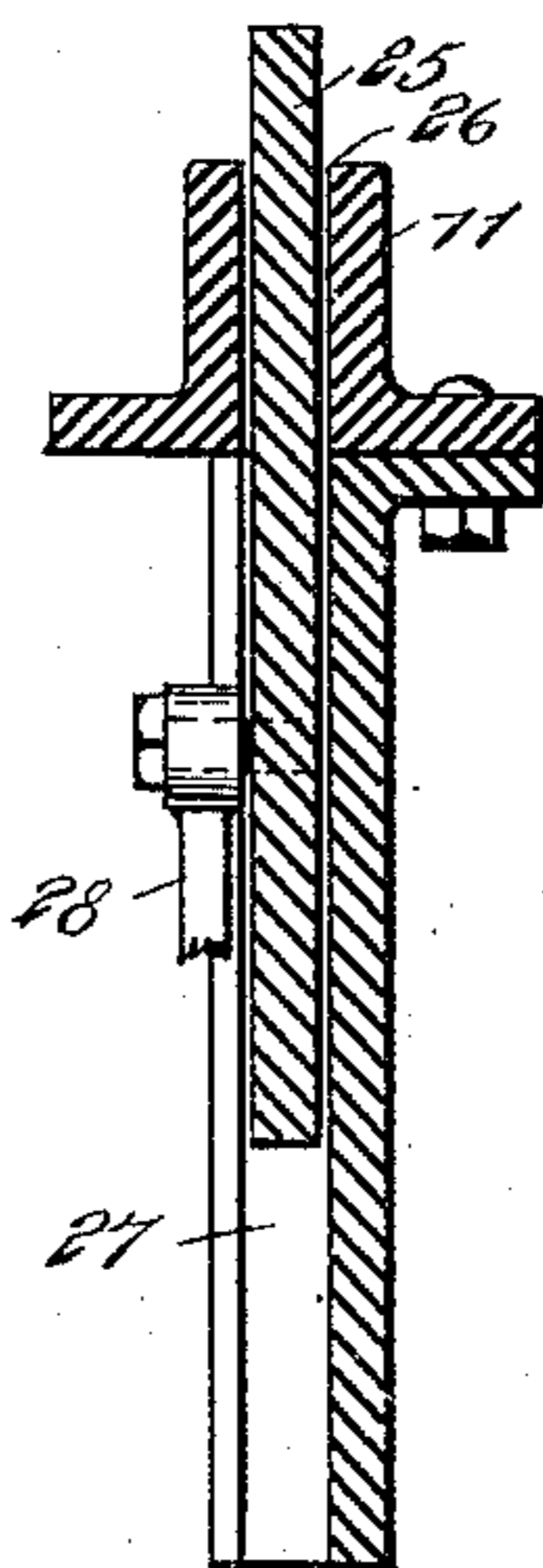
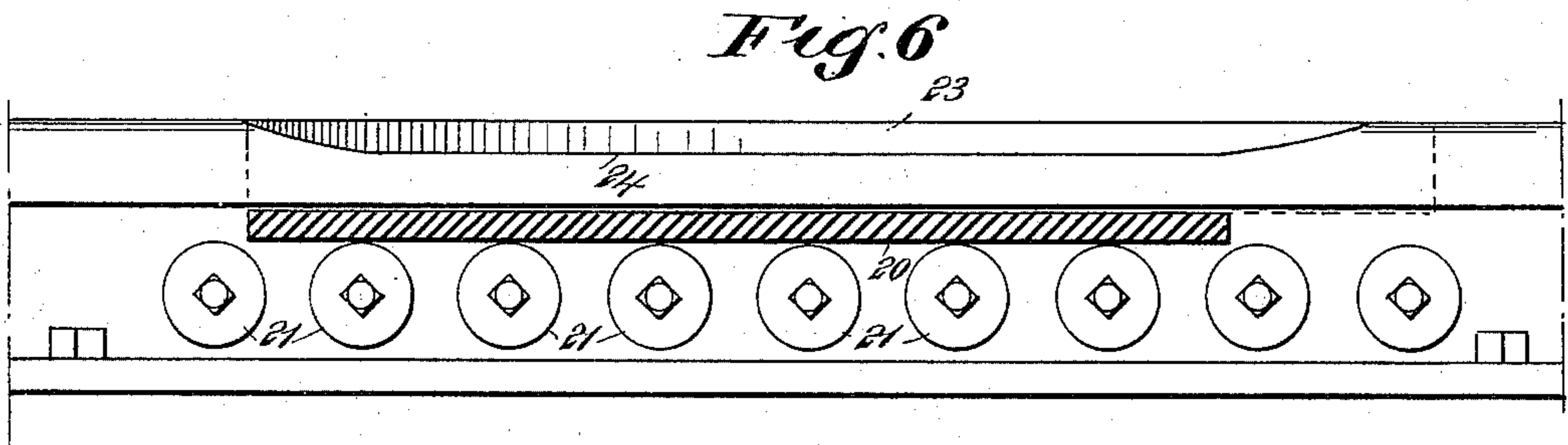
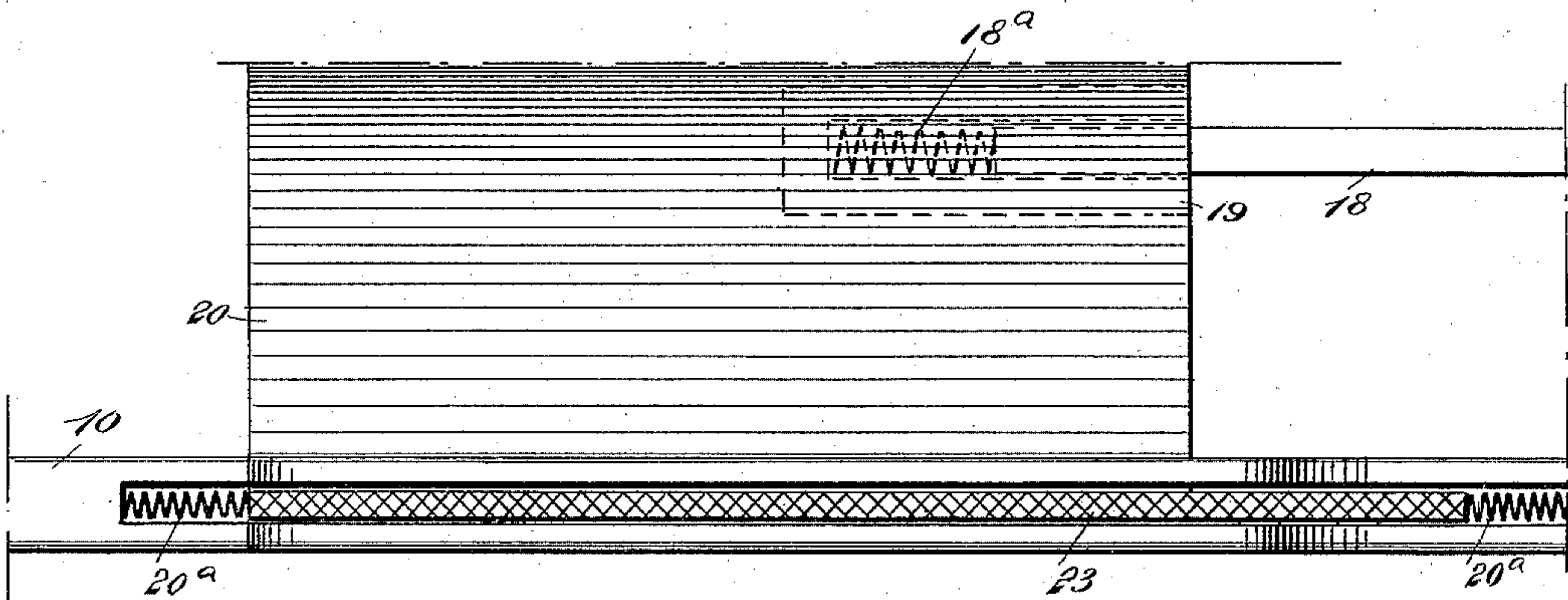
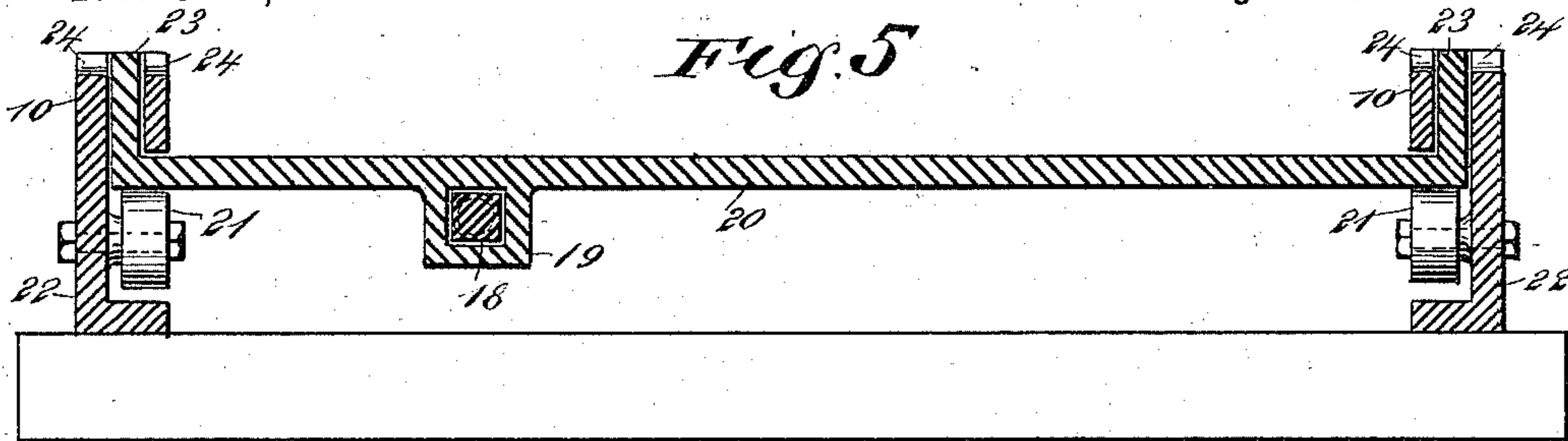
(No Model.)

2 Sheets—Sheet 2.

L. V. JOHNSON.
RAILWAY SWITCH.

No. 540,100.

Patented May 28, 1895.



WITNESSES:

John Bergstrom
W. P. Hutchinson

INVENTOR

L. V. Johnson
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

LOUIS V. JOHNSON, OF BROOKLYN, NEW YORK.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 540,100, dated May 28, 1895.

Application filed February 2, 1895. Serial No. 537,062. (No model.)

To all whom it may concern:

Be it known that I, LOUIS V. JOHNSON, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Railway-Switch, of which the following is a full, clear, and exact description.

My invention relates to improvements in railway switches and particularly to switches which are adapted for use on street railways.

The object of my invention is to produce a very simple and comparatively inexpensive switch which may be easily applied to any railroad, which may be worked by contact of the wheels with a shifting device on the rails, which, however, may be passed over by the wheels without working the switch if desired, and which is positive in its operation and is not likely to get out of order.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

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

Figure 1 is a plan view of my improved switch as applied to an ordinary street-railway. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged detail view of the lever mechanism directly connected to the switch. Fig. 4 is a detail section on the line 4 4 of Fig. 3, showing the connection between the switch and its operating-lever. Fig. 5 is a cross-section on the line 5 5 of Fig. 1. Fig. 6 is an enlarged detail plan of the movable shift-plate and its connection with the rails. Fig. 7 is a longitudinal section on the line 7 7 of Fig. 1, and Fig. 8 is a detail section on the line 8 8 of Fig. 1.

I have shown the switch in connection with the ordinary main rails 10 and siding rails 11, at the junction of which is the usual pivoted switch point 12 which moves in the usual guideway 13, and the switch point is connected by a pivot pin 16 with a lever 14 which is fulcrumed beneath the guide 13, the pin being removable, as shown in Fig. 4, and so if there is any accident to the switch-working mechanism, the pin can be removed and the switch point worked in the usual way.

The lever 14 is fulcrumed at its center, as

shown at 15 and has one arm 14^a connected with the switch point by the pin 16 referred to above, and to provide for the lateral swing of the switch point and pin the guideway 13 is provided with a bottom slot 17, as shown best in Fig. 3. The inner end of the lever 14 is pivoted to a rod 18 which extends longitudinally beneath the track, as shown by dotted lines in Fig. 1, and the rod enters a socket 19 on the under side of a shift plate 20, the rod having a cushion 18^a behind and within the socket, the cushion, as illustrated, being in the form of a spiral spring, although any suitable cushion may be used which will prevent a too rigid connection between the push rod 18 and the shift plate 20.

The shift plate 20 extends across the track at a convenient distance in front of the switch point, and in order that it may run easily it is mounted on rollers 21 which are journaled on suitable supports 22, as shown in Fig. 5, the supports as illustrated being integral with the rails 10, but any suitable supports may be utilized for the purpose. The shift plate has end flanges 23 which extend upward through slots in the rails 10, as shown best in Figs. 5 and 6, the slides being long enough to permit the longitudinal movement of the shift plate. The flanges 23 extend upward to a point level with the ordinary surface of the rails 10, but opposite the flanges the rails are cut away, as shown at 24, so that the car wheels are sure to contact with the flanges. Preferably the upper surfaces of the flanges 23 are roughened in order to be better engaged by the car wheels. The shift plate may be kept in a normal position by means of springs 20^a.

It will be seen that when the car wheels run in the usual way over the flanges 23 of the shift plate 20, the plate and switch are unaffected, but if the brake is applied to the wheels as they approach the flanges, the wheels have a sort of drag on the flanges and thus cause the flanges and shift plate 20 to move endwise and this pushes on the rod 18, swings the lever 14 and so moves the switch point 12.

The outer end of the lever 14 connects by a rod 30 with a bell crank 29 which is arranged at one side of a siding rail 11, but instead of the rod 30 a chain 30^a may be used

as shown in Fig. 3 if desired. The bell crank 29 is fulcrumed at its elbow on the slideway 27 and one arm 28 of the bell crank is pivoted to a slide 25 which moves vertically in the slideway and through a slot 26 in the rail 11. The top of the slide 25 is inclined, as shown best in Fig. 2, so that the wheel of a car will strike the slide without excessive shock. The top may be inclined toward each end, so that a car wheel traveling in either direction will strike an inclined surface. When the wheel strikes the slide 25 it depresses the slide, swings the bell crank 28, pulls the rod 30, swings the lever 14 and closes the switch, and the swinging of the lever 14 moves the push rod 18 and carries the shift plate 20 back to its normal position. It will be seen then that the car automatically opens the switch when desired, and also automatically closes it after the car has passed to the siding.

The main parts of the switch-operating mechanism are under ground and therefore protected from the influence of the weather.

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

1. The combination with a switch point, of a horizontally sliding shifting plate provided with a flange at each end, said flanges projecting above the tops of the rails for contact with the wheels of a car, and intermediate mechanism between the plate and switch point for operating the latter from the former, substantially as described.

2. The combination with a switch point, of a sliding and spring pressed shifting plate provided with flanges for contacting with the wheels of a car, a pivoted lever connected with the switch point, and a rod connecting the shifting plate and lever, said rod having a yielding connection with the shifting plate, substantially as described.

3. The combination with a switch point, of

a sliding shifting plate, provided with flanges for contacting with the wheels of a car and with a socket, a pivoted lever connected with a switch point, a rod having one end secured to the lever and its other end projecting into the socket of the shifting plate, and a spring in said socket, substantially as described.

4. The combination, with the switch point, of the slotted rails, the sliding shift plate having flanges projecting up through the slots in the rails, the swinging lever for moving the switch point, and the push rod extending from the shift plate to the lever, substantially as described.

5. The combination, with the switch point, of the slotted rails, the shift plate having flanges extending through the slots of the rails, the bearing rollers for the shift plate, and the rod and lever actuated by the shift plate and adapted to work the switch, substantially as described.

6. The combination with a switch point, of a plate fitted to slide and provided with flanges for contacting with the wheels of a car, a connection between the plate and switch point for operating the latter from the former, a slide for contacting with the wheels of a car and a connection between the slide and the switch point, substantially as described.

7. The combination with a switch point, of a pivoted three armed lever having one arm connected to the switch point, a horizontally sliding shifting plate, a rod connecting the plate with one arm of the said lever, a vertical slide, a pivoted elbow lever having one member connected with the slide, and a rod or chain connecting the other member of the elbow lever with one arm of the three armed lever, substantially as described.

LOUIS V. JOHNSON.

Witnesses:

ROBERT THOMAS,
EBURN F. HAIGHT.