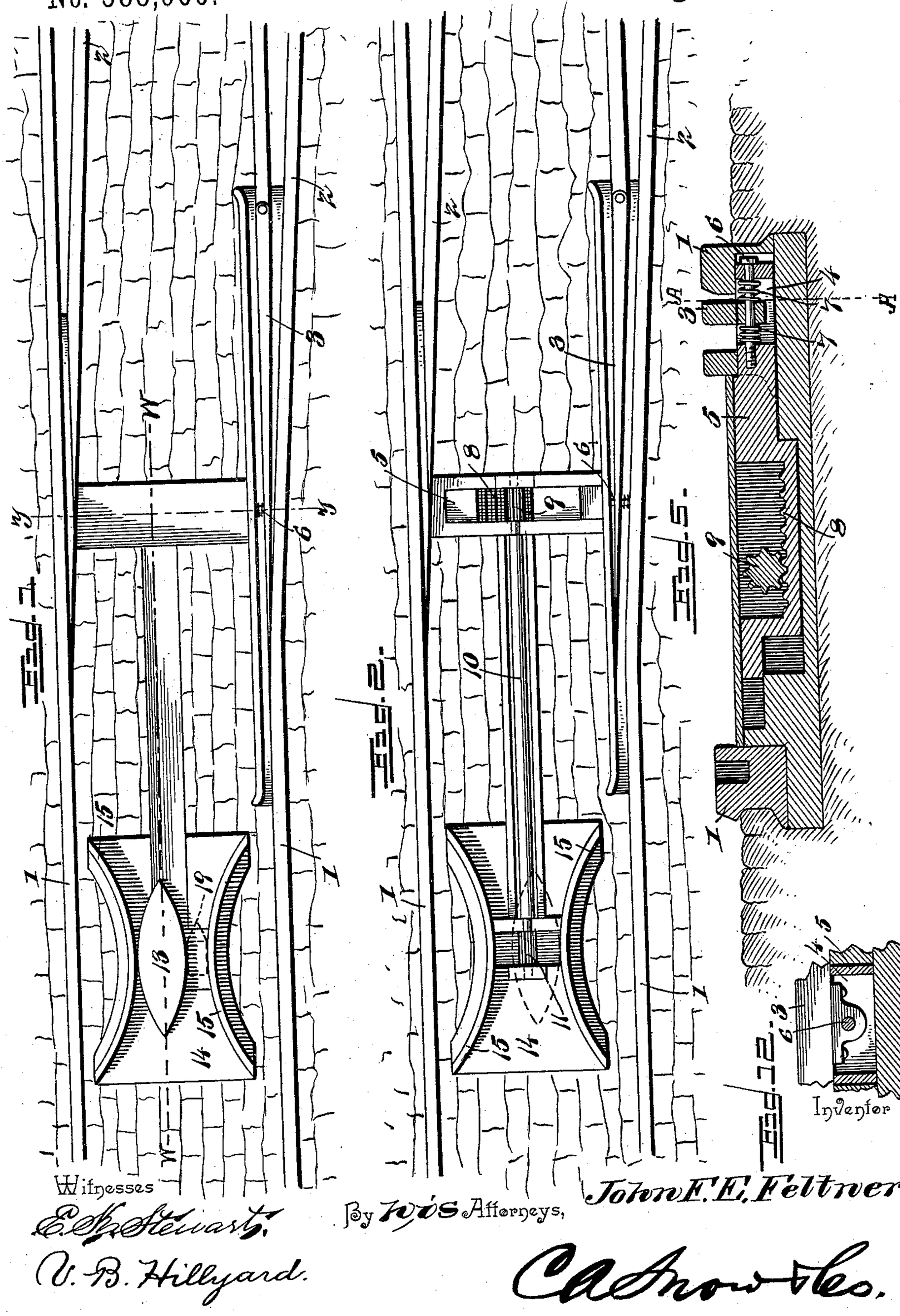
(No Model.) 2 Sheets—Sheet 1.

J. F. E. FELTNER.

STREET RAILWAY SWITCH.

No. 588,966. Patented Aug. 31, 1897.



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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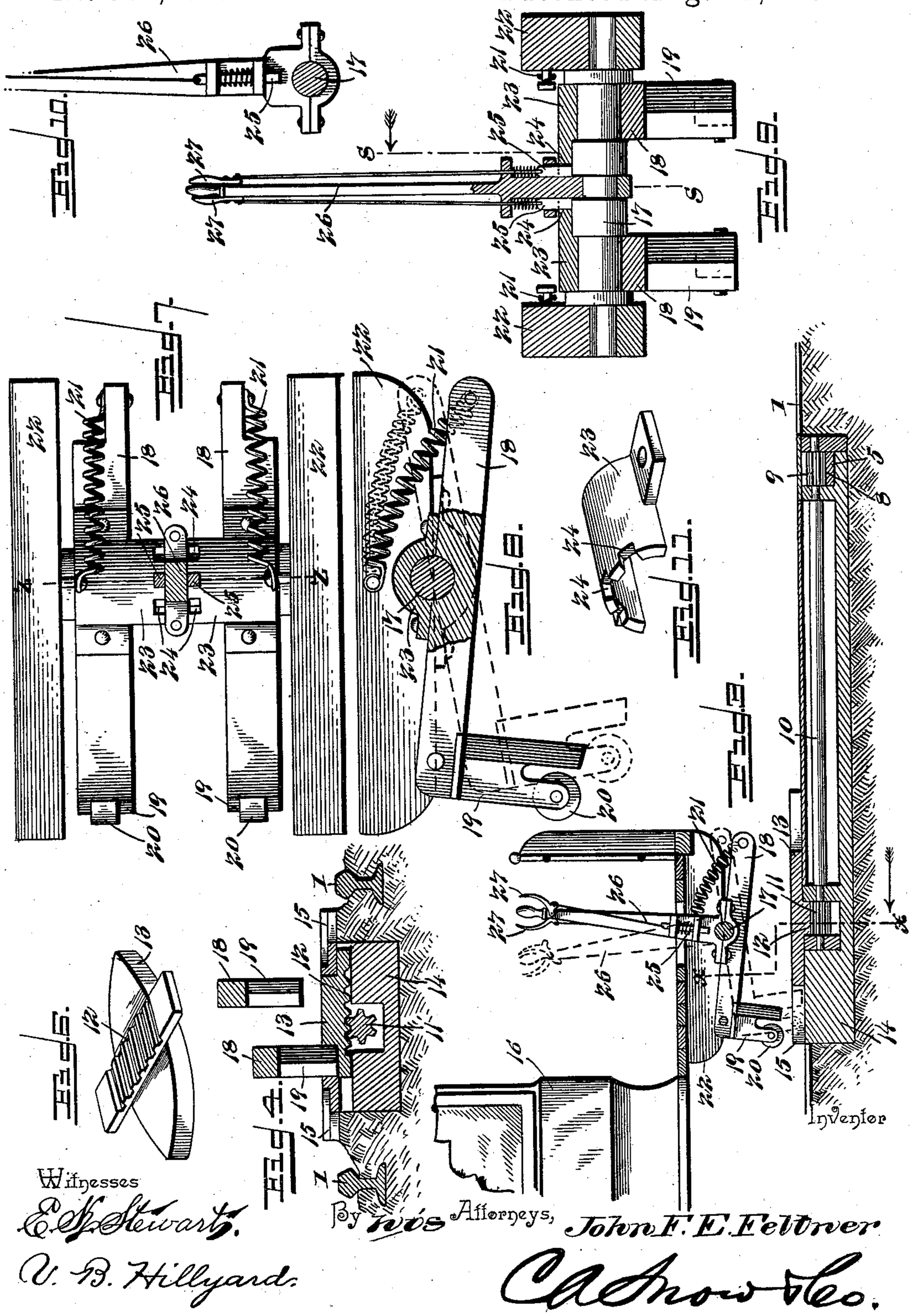

Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

JOHN FRANZ ELOF FELTNER, OF LEADVILLE, COLORADO, ASSIGNOR OF ONE-HALF TO JOHN MONSON, OF SAME PLACE.

STREET-RAILWAY SWITCH.

SPECIFICATION forming part of Letters Patent No. 588,966, dated August 31, 1897.

Application filed November 21, 1896. Serial No. 612,987. (No model.)

To all whom it may concern:

Be it known that I, JOHN FRANZ ELOF FELTNER, a citizen of the United States, residing at Leadville, in the county of Lake and State of Colorado, have invented a new and useful Street-Railway Switch, of which the following is a specification.

This invention relates to railroad-switches, and particularly to such as are designed for street-railway traffic, so as to enable a driver, motorman, or gripman to throw the switch without stopping the car or requiring the conductor or an attendant to perform this operation.

The invention is especially adapted for mechanically-propelled street-cars, and places the switch-throwing mechanism wholly under the control of the motorman or gripman.

The switch-controlling mechanism embodies a laterally-shiftable cam provided with cogs, a longitudinal shaft having a pinion or toothed portion meshing with the cogs of the cam, a switch-bar connected with the switch-point and having a toothed portion meshing with a toothed portion of the said shaft, and switch-throwers normally held out of the path of the cam and adapted to be thrown into the path of the said cam to move the latter in the required direction to open or close the switch as required.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a plan view of a railway-switch, showing the main track closed to the branch or siding. Fig. 2 is a view similar to Fig. 1, showing the main track open to the branch or siding to a car moving from the left toward the right. Fig. 3 is a longitudinal section on the line W W of Fig. 1. Fig. 4 is a transverse section on the line X X of Fig. 3, looking in the direction of the arrow. Fig. 5 is a section on the line Y Y of Fig. 1 on a larger scale. Fig. 6 is a detail perspective view of the cam. Fig. 7 is a detail view of the switch-throwers. Fig. 8 is a side elevation of a switch-thrower, parts being broken away and in section, as indicated by the line S S of Fig. 9, looking in the direction of the arrow. Fig. 9 is a transverse section on the line Z Z of Fig. 7. Fig. 10 is a detail view in elevation of the lever for operating the switch-throwers. Fig. 11 is a detail view of a notched cap applied to a switch-thrower to receive the engaging end of the latch-bolt. Fig. 12 is a detail section on the line A A of Fig. 5, showing the lug pendent from the switch-point and entering the opening in the switch-bar.

Corresponding and like parts are referred to in the following description and indicated in the several views of the accompanying drawings by the same reference-characters.

The rails of the main track are represented by the numeral 1 and those of the side or branch by the numeral 2. The switch-point 3 has a pivotal connection with a plate applied to the road-bed in the usual way, and has a depending lug which enters an opening 4 at one end of the switch-bar 5, a pin 6 extending across the opening 4 and passing through an opening in the pendent lug and supporting springs 7, located upon opposite sides of the switch-point and confined between it and the end of the opening 4. By this means the inertia of the parts is gradually overcome, thereby preventing abnormal strain and injury to the working parts of the switch. It will be understood that the switch-bar is operated suddenly, and the springs 7 prevent this sudden movement being instantly imparted to the switch-point, as will be readily understood. The switch-bar has a toothed portion 8, which meshes with a toothed portion 9 of a longitudinal shaft 10, the latter having a corresponding toothed portion 11 intermeshing with a toothed portion 12 of a cam 13, the latter being mounted to move transversely of the road-bed between the rails. The operating parts, with the exception of the cam 13, are suitably housed and are located below the surface of the road-bed, so as to be out of the way and not interfere with traffic. A plate 14 is placed upon the road-bed, and the cam 13 moves thereon, and guard-rails 15

are secured to the plate upon opposite sides of the cam and curve in opposite directions, corresponding end portions flaring or curving outwardly, so as to give proper direction to the switch-throwers when the latter are lowered, so as to engage with the cam and move it in the proper direction. The cam 13 and guard-rails 15 are about of the same height, and the active portion of the switch-throwers wedges into the space between the guard-rails and the cam, as indicated by the dotted lines in Fig. 1, thereby moving the cam and throwing the switch.

The switch-throwers are mounted upon the front end of a car 16, so as to be in advance of the front wheels and to be within convenient reach of the driver. The switch-throwers, two in number, are similarly constructed and mounted alike upon a shaft 17, and each consists of a lever 18, having a pendent portion 19 at its rear end, and which is oppositely inclined at its forward edge, so as the more readily to enter the space formed between a side of the cam and the adjacent guard-rail. A roller 20 is located at the lower rear end of the pendent portion 19 to engage with the plate 14 or road-bed and prevent the end of the part 19 engaging injuriously therewith. A spring 21 engages at one end with the lever 18 and is connected at its opposite end to a beam 22 or convenient part of the car, and serves to normally hold the switch-thrower out of operation. A cap 23 is secured to each lever 18 and extends over the shaft 17 and retains the lever in place, and is formed at its inner edge with a series of notches 24 to receive the lower or active end of a latch-bolt 25, carried by an operating-lever 26, whereby positive connection is had between the operating-lever and the cap, so as to operate a switch-thrower when required. The operating-lever 26 is loosely mounted upon the shaft 17 between the switch-throwers, and is provided on each side with lugs, in which is mounted a latch-bolt 25, which is operated by means of a hand-latch 27, located at the upper end of the lever 26.

The hand-latches are oppositely disposed and are adapted to be independently operated to move one or the other of the switch-throwers into position for setting the switch.

Normally the switch-throwers are held up out of the path of the cam 13, as indicated by the full lines in Fig. 3, and when it is required to throw the switch the hand-lever 26 is operated and lowers a switch-thrower into such position as to engage with the cam and move the latter, as shown by the dotted lines in said Fig. 3. The switch-throwers are located a distance apart, so as to move the cam from one side to the other in order to open or close the switch, as may be required.

Having thus described the invention, what is claimed as new is—

1. In a railway-switch, the combination of a switch-bar having a toothed portion, a laterally-shiftable cam having a toothed portion, and a longitudinal shaft having toothed portions at its ends intermeshing with the toothed portions of the cam and switch-bar, substantially as set forth.

2. In a railway-switch, the combination of a switch-point, a switch-bar having connection with the switch-point and provided with a toothed portion, a plate having oppositely-curving guard-rails, a cam mounted upon the plate and movable laterally between the guard-rails, and having a toothed portion, and a longitudinal shaft having toothed portions intermeshing with the toothed portions of the cam and switch-bar, substantially as set forth.

3. In a railway-switch, the combination with a switch-point, and a cam operatively connected with the switch-point for moving the latter, of a lever fulcrumed upon a car and having a pendent portion, a cap applied to the lever and having a series of notches, and a hand-lever provided with a latch-bolt to engage with any one of the notches of the said cap, substantially as and for the purpose set forth.

4. In a railway-switch, the combination of a switch-point, and a cam operatively connected with the switch-point for moving the latter, a shaft attached to a car, a pair of switch-throwers mounted upon the said shaft, and a lever mounted upon the shaft between the switch-throwers and having independent latch-bolts to engage with the respective levers to throw the required one into position to engage with the cam, substantially as and for the purpose set forth.

5. In a railway-switch, the combination of a switch-point, a cam operatively connected with the switch-point for moving the latter, a shaft mounted upon a car, a pair of levers fulcrumed upon the shaft and having pendent portions provided at their lower ends with rollers, springs for normally holding the levers out of action, caps secured to the levers and having their inner ends notched, a lever loosely mounted upon the said shaft between the switch-throwing levers, and latch-bolts upon each side of the hand-lever to engage with the notched caps, substantially as and for the purpose set forth.

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

JOHN FRANZ ELOF FELTNER.

Witnesses:

AXEL OLSON,

A. NELSON.