A. J. SNELL & R. C. DOLE.

STREET RAILWAY SWITCH.

APPLICATION FILED JUNE 22, 1908.

912,747. Patented Feb. 16, 1909.

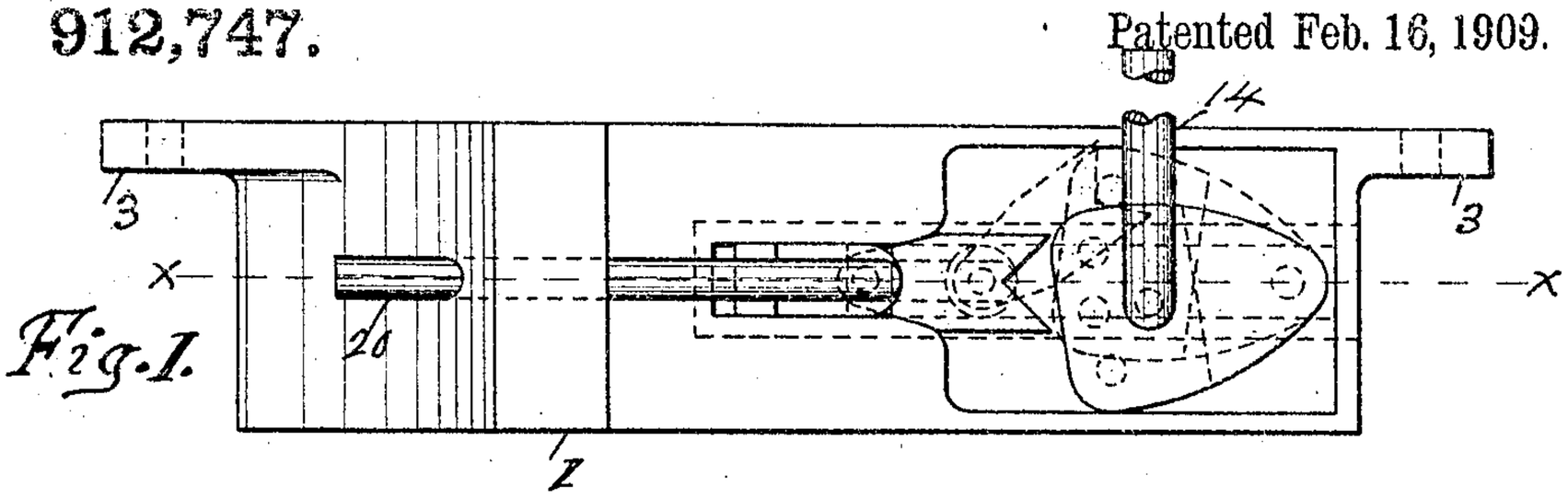


Fig. 1.

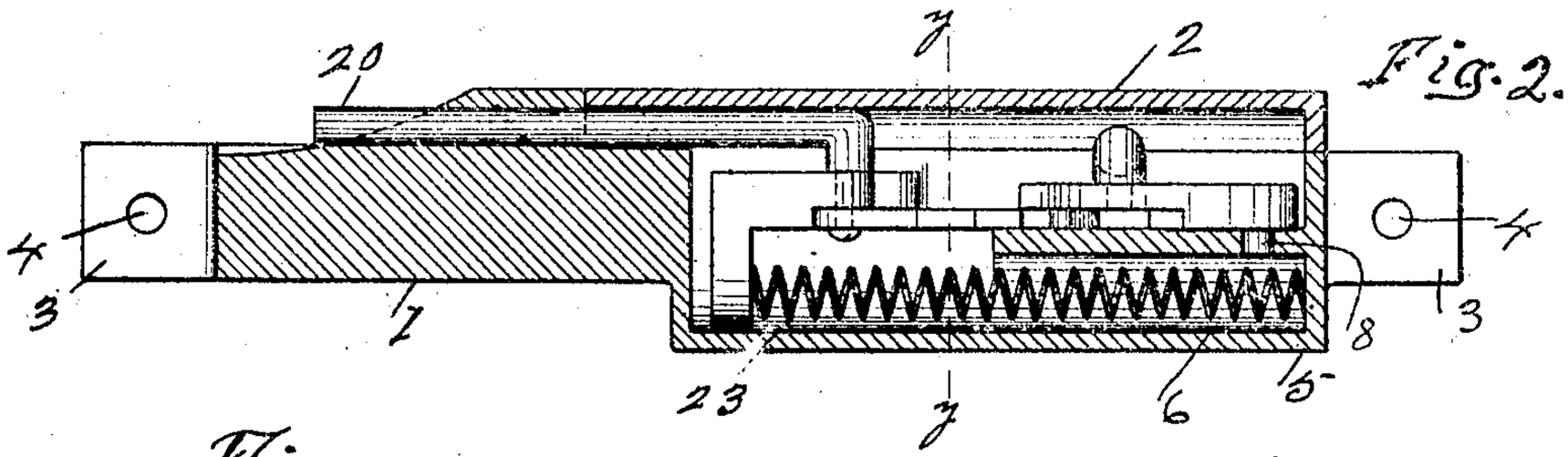


Fig. 2.

Fig. 3.

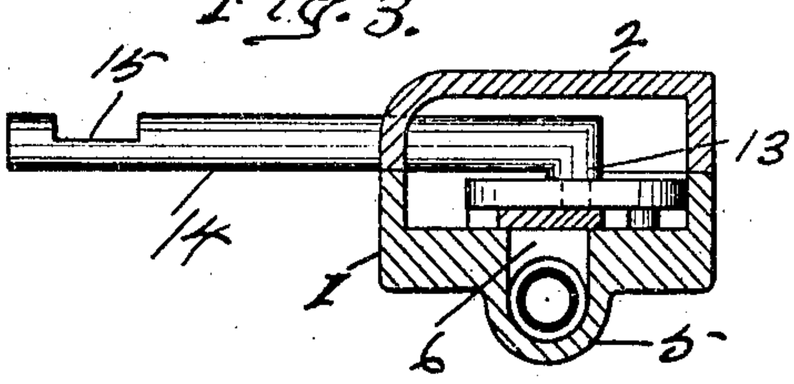


Fig. 4.

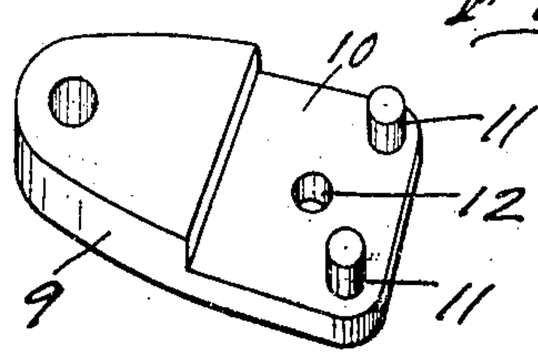


Fig. 5.

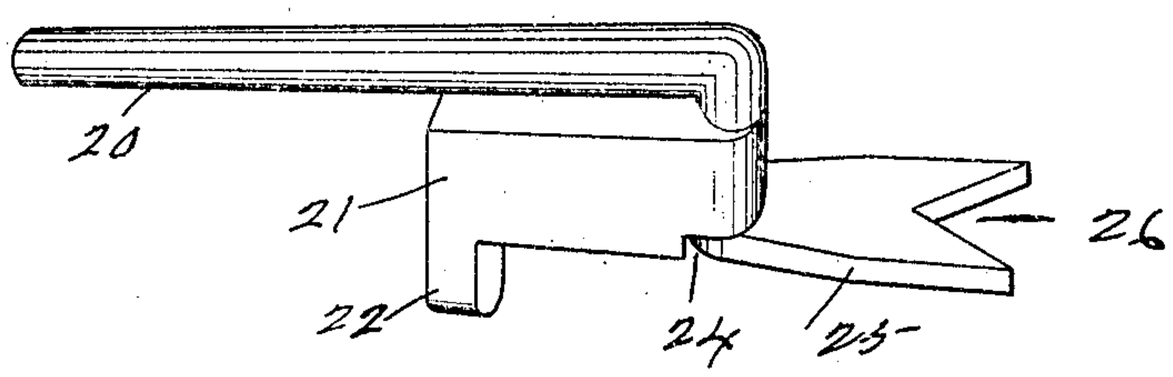
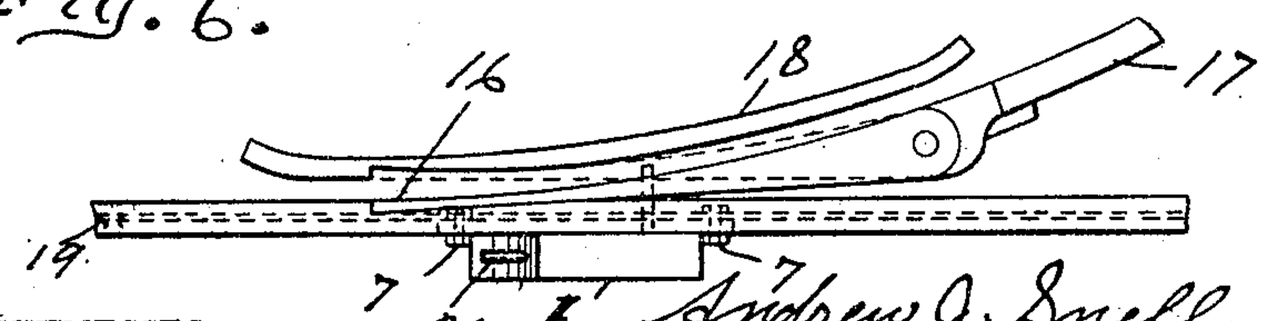


Fig. 6.



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UNITED STATES PATENT OFFICE.

ANDREW J. SNELL, OF FORT WAYNE, INDIANA, AND RAYMOND C. DOLE, OF KANSAS CITY, MISSOURI, ASSIGNORS OF ONE-FOURTH TO SIMEON P. LE VAN, OF FORT WAYNE, INDIANA.

STREET-RAILWAY SWITCH.

No. 912,747. Specification of Letters Patent. Patented Feb. 16, 1909.

Application filed June 22, 1908. Serial No. 439,703.

To all whom it may concern:

Be it known that we, ANDREW J. SNELL, a citizen of the United States, residing at Fort Wayne, Allen county, State of Indiana, and RAYMOND C. DOLE, a citizen of the United States, residing at Kansas City, in the county of Jackson, in the State of Missouri, have invented certain new and useful Improvements in Street-Railway Switches; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to improvements in street-railway switches.

It is well known that in the street-railway-switches now in common use, it is necessary for the motor-man to stop his car, or at least to materially slacken its speed, and then throw the switch by means of an iron rod which he carries on the car, thereby occasioning a loss of time, to the company as well as the passengers, particularly when it is necessary for him to back up the car, as is sometimes necessary, when he misses the actuating engagement with the switch point.

The primary object of our present invention is to provide a cheap, simple, efficient and reliable switch which is positive in action and is adapted to be operated from the car by the motor-man without the necessity of stopping the car or even slacking up its speed.

Our invention consists of a two-part casing or keeper which is fixed to the railway rail and contains the switch operating mechanism; means for shifting the rail-point contained within the said casing; and means for operating such mechanism adapted to be actuated by a suitable pedal-lever not shown.

The principal novel features of our present invention are the switch operating mechanism and its coöperative relation to the switch rail and to its actuating means.

Similar reference numerals indicate like parts throughout the several views of the drawing, in which—

Figure 1 is a plan view of our invention with the cover therefor removed, and the switch operating rod partly broken away, the operating mechanism being shown at one extended limit of its movement in dotted outline. Fig. 2 is a longitudinal central section of the containing casing taken on the line *x*—*x* of Fig. 1, showing the relative arrangement of the operating mechanism and the means for returning the switch lever automatically to its normal position. Fig. 3 is a cross-section of Fig. 2 on a line *y*—*y* showing the longitudinal recess in the bottom of the casing for the spring lever returning means. Fig. 4 is a perspective detail of the pivotally mounted switch rod actuating block showing the means for engagement with the switch lever tongue. Fig. 5 is a perspective detail of the switch lever in its pivotal connection with the switch tongue. Fig. 6 is a plan view of our invention secured in position to a track-rail and connected with a switch-point rail having an adjacent guard-rail of the usual construction, the switch point being shown at its outer limit by a dotted outline.

The containing casing, of proper dimensions and suitable material, preferably of metal, consists of a body portion 1 and a removable cover 2. The forward portion of the body 1 is hollow, as shown, and is adapted to contain the operating mechanism. This portion of the body 1 is also provided with a longitudinal recess 6 midway of its side adapted to loosely contain the mechanism hereafter described. Body portion 1 is also provided with a longitudinal opening at its other end in substantial alinement with the said recess 6. The body portion is also provided at its ends with the ears 3 having a lateral aperture 4, by means of which the casing is rigidly secured to the railway rail by means of suitable bolts, 7, Fig. 6 For the purpose of the recess 6, the forward end of the casing 1 has a downward extension 5, as shown.

In a suitable recess in the bottom of the forward end of the body portion is pivotally mounted a pin 8 whose upper end is fixed in the forward end of the switch block 9. This switch block has an undercut portion on its forward end as shown at 10, to the lower face of which and near the opposite sides thereof, are arranged the pendent pins 11, for the purpose hereafter described. This undercut portion 10 is also provided, substantially midway of its sides, with a vertical opening 12 tor eceive the reduced pivotally mounted pendent extension 13 of the switch rod 14, whose outer free end is provided upon its upper face with a transverse slot 15, adapted to receive and holdingly contain the

switch point reel 16, which is secured therein in any suitable manner. This switch point is of the usual or other proper construction, and is pivotally mounted at its inner end to the track rail 17, and is provided with a proper guard-rail 18 in the usual coöperative relation to the switch point and to the track rail 19, Fig. 6. In the said longitudinal opening in the casing 1, is loosely mounted the outer free end of the switch lever 20 whose inner downwardly bent end is rigidly fixed to the block 21, having at its rear end a pendent lug 22 adapted to form a bearing for the rear end of the horizontally arranged coiled spring 23, whose forward end forms a bearing against the forward end of the casing 1 in the said recess 6, Fig 2, which spring is adapted by its tension to automatically return the lever 20 and block 21 to their normal position as shown in Fig. 2. The forward end of the fixed block 21 has an undercut portion at 24 to the lower face of which is pivotally mounted the tongue 25 whose forward end has a notch 26 adapted to form an actuating engagement with the said pins 11 alternately in the manner about to be described.

The operation and manner of employing our invention thus described is obvious, and briefly stated is as follows: Assuming the operative parts of the switch to be in the positions shown in full lines in Figs. 1, 2, and 6, the operator desiring to shift the switch point over to the position shown in dotted lines in Fig. 6, and adjacent to the guard-rail, actuates the lever 20 by striking the outer extended end thereof a glancing blow by means of any suitable pendent means operated and controlled by the motor-man, preferably by a suitable pedal-lever, all in a well understood manner, which operation forces the pivoted notched tongue 25 forward to its engagement with that one of the pins 11, which lies in its path of forward movement, Fig. 1, which thereby forces the switch rod 14, outwardly carrying with it the switch point 16, to its dotted outline position, Fig. 6. Obviously the switch point will remain in this position until it has been operated again from the car, although the switch lever 20 and the tongue 25 will be promptly returned to their normal position by the reaction of the coil spring 23. When the operator desires to shift the rail point 16 back to its former position, he simply actuates the switch lever 20 by his pedal lever mechanism, as before, whereby the forward movement of the pivoted tongue 25 will engage the other pin 11, which now lies directly in its path, thereby returning the pivoted block 9 to its former position and carrying with it the switch rod 14 and the switch point 16, the spring pressed lever 20, promptly resuming its normal position as before described. The lid 2 is secured in its position in any suitable manner and preferably by a dust-proof and water-tight connection to prevent any interference with the inclosed operating mechanism.

It is obvious that our switch mechanism thus described is positive in action and reliable in its movements, since either one or the other of the pins 11 will in practice always rest directly in the path of the actuating tongue 25, and the actuating lever 20 will at each operation be promptly and automatically returned to its normal position by means of the coiled spring 23.

Having thus described our invention and the manner of employing the same, what we desire to secure by Letters Patent, is:

1. A street railway switch consisting of a containing casing; a block or plate pivotally mounted in said casing and provided upon its free end with a pair of pendent pins or lugs; a switch rod pivotally connecting the said block with the switch point rail; a movable switch point rail; a longitudinally movable switch lever in right angular relation with the said switch-rod; a block fixed on the inner end of the said lever; a notched tongue pivotally connected with the said lever, and adapted for an actuating engagement with the said pins one at a time; and means for automatically returning the said lever and tongue to their normal position after each operation thereof.

2. In a street railway switch a containing casing; a movable switch rail; a rod connected to said rail in a substantially right-angular relation; a plate or block pivotally fulcrumed at one end and pivotally connected near its other end to the said rod; means for so engaging the free end of the said block as to move it laterally alternately for the purpose of laterally actuating the said switch rail, consisting of a longitudinally movable switch lever and a notched tongue pivotally connected with the said lever and adapted to actuate the said block; and means for causing the said lever and tongue to resume their normal positions automatically.

Signed by ANDREW J. SNELL at Fort Wayne, Allen county, State of Indiana, on the 15th day of June, 1908, and by RAYMOND C. DOLE, at Kansas City, Jackson county, State of Missouri, on the 17th day of June, 1908.

ANDREW J. SNELL.
RAYMOND C. DOLE.

Witnesses to the signature of Andrew J. Snell:

AUGUSTA VIBERG,
WALTS P. DENNY.

Witnesses to the signature of Raymond C. Dole:

HENRY C. EMERY,
ELIZABETH A. EMREY.