

K. SCHMITT, JR.
 SWITCH OPERATING MECHANISM.
 APPLICATION FILED JAN. 26, 1910.

962,673.

Patented June 28, 1910.

2 SHEETS—SHEET 1.

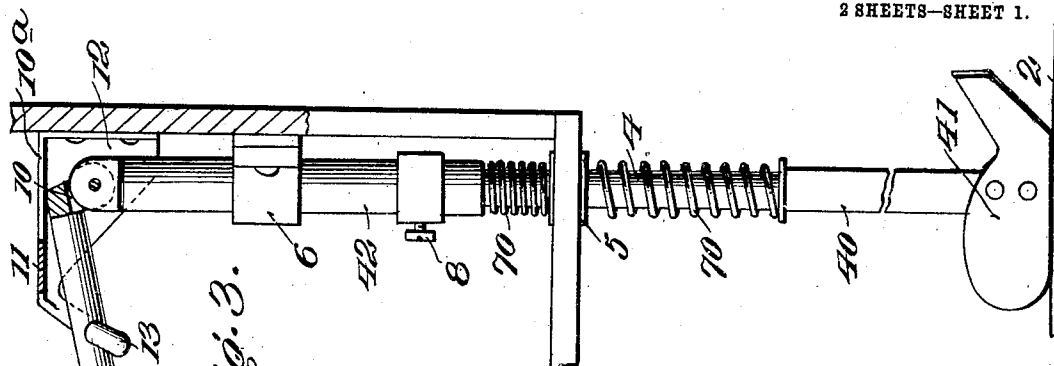


Fig. 3.

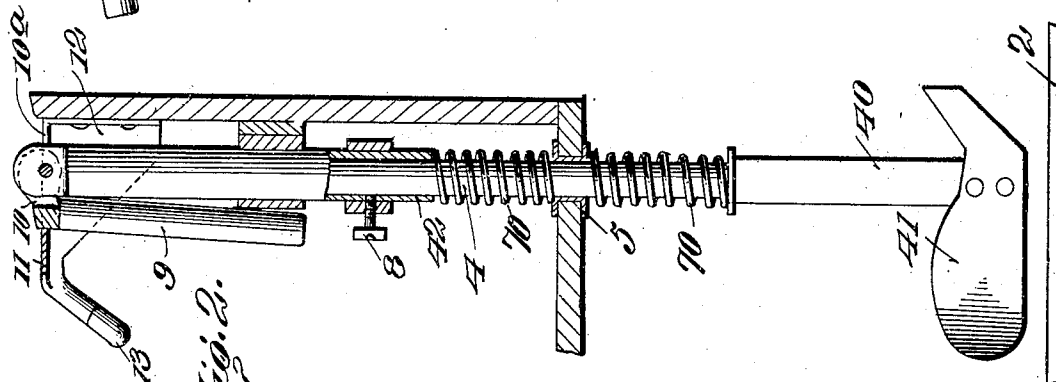


Fig. 2.

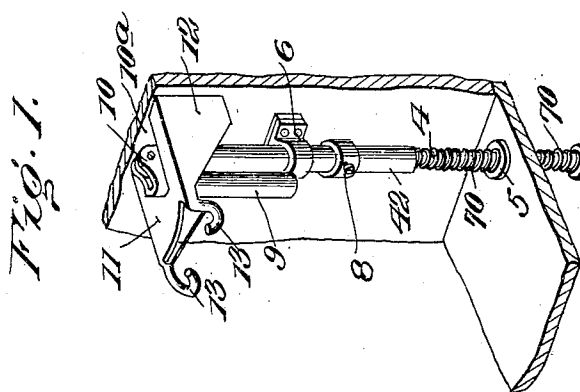


Fig. 1.

Witnesses

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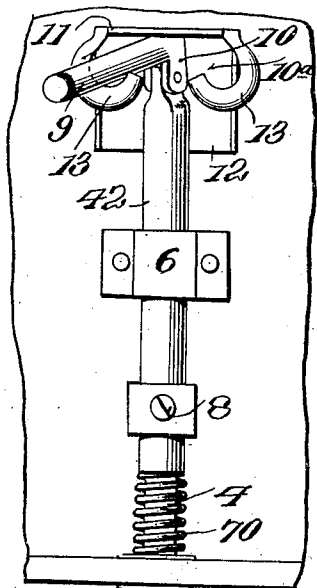


Fig. 4.

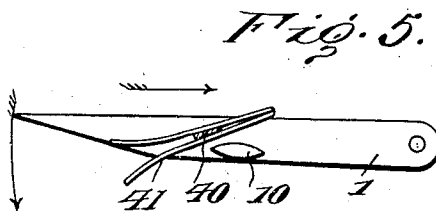


Fig. 5.

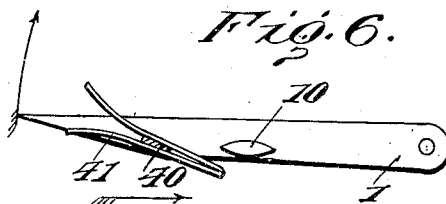


Fig. 6.

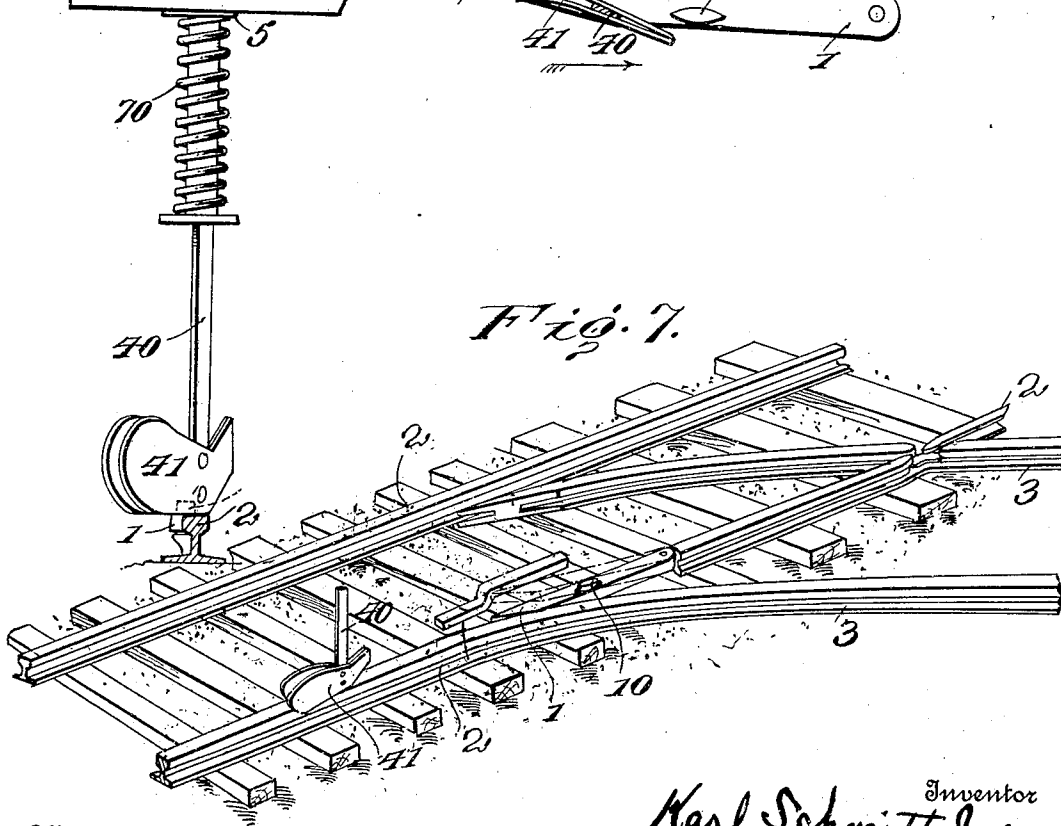


Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

KARL SCHMITT, JR., OF LINCOLN, NEBRASKA.

SWITCH-OPERATING MECHANISM.

962,673.

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To all whom it may concern:

Be it known that I, KARL SCHMITT, JR., a citizen of the United States, residing at Lincoln, Lancaster county, Nebraska, have invented certain new and useful Improvements in Switch-Operating Mechanism; and I do hereby 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.

This invention relates to certain improvements in switch operating devices; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the accompanying drawing illustrating what I now consider my preferred embodiment from among other formations and arrangements within the spirit and scope of the invention.

The invention consists in certain novel features in construction and in combinations or arrangements of parts as more fully and particularly set forth and specified hereinafter.

Referring to the accompanying drawings:—Figure 1, is a perspective view of the switch point operating mechanism carried by the car, a portion of the car being diagrammatically shown, said mechanism being shown in its normal inoperative position. Fig. 2, is a side elevation of the switch point operating mechanism carried by the car, said mechanism being shown in its normal inoperative position, parts being shown in section. Fig. 3, is a similar view showing the mechanism in operative or switch point throwing position, portions being shown in section. Fig. 4, is a rear elevation thereof. Figs. 5, and 6, are detail views. Fig. 7, is a perspective view generally indicating a portion of the track and switch point, and showing the switch point operating shoe detached from the car.

In the drawings, 1, is the switch point arranged in the main line track 2, and can be operated to direct a car to the branch track 3, or to direct the car past the branch and along the main line. The switch point 1, is formed with a short upwardly extending projection 10, arranged intermediate the length of the point and adjacent the outer longitudinal edge thereof so as not to interfere with the free passage of the car wheels along the point. This point-operating pro-

jection is preferably rounded or curved at the top so as not to cause damage to the tires of passing vehicles and is somewhat elongated longitudinally of the switch point and is longitudinally tapered in opposite directions whereby said point is approximately diamond-shaped.

Each car is provided with improved means for engaging switch-point-operating projection 10, and throwing the point in either direction according to the manipulation of the operator; said means being normally arranged in inoperative position with respect to the switch point. In the specific example illustrated, the switch operating device carried by the car, comprises a vertically disposed push rod or bar 4, depending below the car and extending upwardly to the platform thereof behind the dash board. This bar extends through guide and bearing box 5, in the floor of the car platform and is mounted to reciprocate vertically through said bar and to turn or oscillate axially therein. A box 6, can be fixed to the car dash board to receive the upper portion of said bar; said bar being vertically and axially movable in said box 6. The lower end of the bar preferably terminates in a laterally flexible section 40, to the lower end of which the switch-point-projection-engaging shoe 41, is rigidly secured. This shoe is preferably elongated horizontally in the direction of movement of the car and is of tapered or wedge-shape formation with its longitudinal vertical side faces converging forwardly, with the lower edge of its point or front end tapering or beveled downwardly and rearwardly.

If so desired, the lower end section 40, of the push bar is stiff or rigid in the direction of movement of the car but is formed, (as by a flat comparatively stiff spring bar or plate) as to yield or give laterally under excessive strain, for the purposes hereinafter set forth.

If so desired, one or more coiled expansive springs 70, can be arranged on the push bar to bear against the box through the floor of the car and one or more shoulders on the bar, to tend to yieldingly hold the bar in its normal elevated position.

If so desired, the push bar can be formed of separate sections relatively longitudinally adjustable to vary the vertical throw of the bar and normal position of the shoe. I show the bar comprising telescoping sections, the

upper end section 42, being longitudinally hollow to adjustably receive the lower section, an adjustable clamp, such as 8, being provided to lock the sections together in the desired adjustment.

The push bar is normally held at its limit of upward movement with the shoe elevated above the track and out of operative position with respect to the switch point and at its intermediate horizontal position, that is, pointed straight ahead or arranged parallel with the direction of movement of the car. Means are provided whereby the motorman or other operator can force the push bar down when it is desired to throw a switch point and can oscillate or turn the bar to direct the shoe to the right or left from its normal intermediate position, to throw the switch point in the desired direction. For accomplishing these results, I show a free end handle or lever 9, at its upper end having a right angle projection 10, pivoted to the upper end of the push bar to permit the handle to swing vertically on a transverse or horizontal axis and so arranged that the handle, when the parts are in normal position, will depend from the upper end of the bar and assume an approximate vertical position. The handle and bar are normally held in such relative positions by projecting vertically through a slot 10, in the horizontal top plate or wall 11, of a bracket 12, fixed to the dash board and projecting rearwardly therefrom. The slot 10, is closed at its outer end by the transverse front portion of the top wall 11. At its rear end, the bracket is provided with a pair of downwardly and rearwardly inclined opposite hooks, catches or sockets, 13, spaced a distance apart and open at their adjacent inner sides.

The arrangement of parts is such, that when the car approaches a switch to be operated, the motorman pulls the free end of the handle upwardly between the two hooks or catches 13, and thereby forces the push rod downwardly inasmuch as the handle fulcrums on the wall closing the front end of slot 10, and thereby acts as a lever in depressing the push bar against the tension of the lifting springs, and when the handle assumes the horizontal position bearing upwardly against the bottom face of wall 11, of the bracket, said handle is swung horizontally into one of the hooks 13, to oscillate or turn the push rod to direct the shoe to the right or left as desired. The bar lifting spring will yieldingly hold the handle in the hook and the bar and shoe will be thereby held in operative position. After the car has passed the switch, the motorman presses the handle up from its holding hook and swings the same laterally to the horizontal position and releases the same whereupon the push bar lifting spring will force

the upper ends of the push bar and handle upwardly into the slot in the bracket and thereby fold the handle down on the push bar. As the car moves along the track, the shoe when in operative position engages a beveled side face of the switch point projection and thereby throws the point to either the right or left according to the direction in which the shoe is set by the motorman see Figs. 5 and 6. The shock and excessive pressure of the engagement of the shoe and switch-point projection is compensated by the lateral flexibility of the spring shank of the push bar.

Each motor car can be provided with any suitable number of the switch-point-operating devices arranged in any desirable manner according to the trackage and switch arrangements. It is evident that various changes and modifications might be resorted to in the forms, constructions and arrangements of the parts described without departing from the spirit and scope of the invention and hence I do not wish to limit myself to the exact disclosure as made hereby.

What I claim is:—

1. In switch operating mechanism, a vertically reciprocatory and horizontally turnable push bar provided with switch point throwing means, a handle pivoted to said bar to swing on a vertical axis, and a bracket forming the fulcrum for said handle in depressing the bar.

2. In switch operating mechanism, a switch point throwing shoe, means adapted to be carried by a car, for raising and lowering said shoe and for oscillating the same horizontally, a handle for depressing said means, said handle being movable horizontally to oscillate said shoe, and a bracket having holding means to be engaged by said handle for maintaining the shoe in the desired position horizontally.

3. In switch operating mechanism, a vertically movable push bar adapted to be carried by a car and provided with switch point throwing mechanism, a vertically movable handle carried by said bar, and a bracket formed to receive the upper ends of the handle and bar and forming a fulcrum for the handle in depressing the bar, and provided with opposite spaced handle holding portions to hold the handle in its different horizontal positions.

4. In switch operating mechanism, a yieldingly-upheld vertically-movable rotatable push bar adapted to be carried by a car and at its lower end provided with a laterally yieldable section stiff in the direction of the movement of the car and at its lower end having an elongated tapered switch point throwing shoe, a bar-rotating-handle lever pivoted to said bar, and a fulcrum for said lever adapted to be engaged by the lever when swung upwardly to thereby depress

the bar, for purposes substantially as described.

5 In switch operating mechanism, in combination, a yieldingly upheld vertically-movable rotatable push bar adapted to be provided with a laterally yieldable switch point throwing shoe, a bar rotating handle lever pivotally joined to said bar, and a fixed ful-
10 crum for said lever adapted to engage the

lever when the same is swung upwardly, whereby the push bar will be depressed, substantially as described.

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

KARL SCHMITT, JR.

Witnesses:

R. H. HAGELEUR,
GRACE H. WILSON.