A. B. ALLEN.

SWITCH OPERATING MECHANISM.

APPLICATION FILED JUNE 16, 1908.

922,233. Patented May 18, 1909.

Fig. 1.

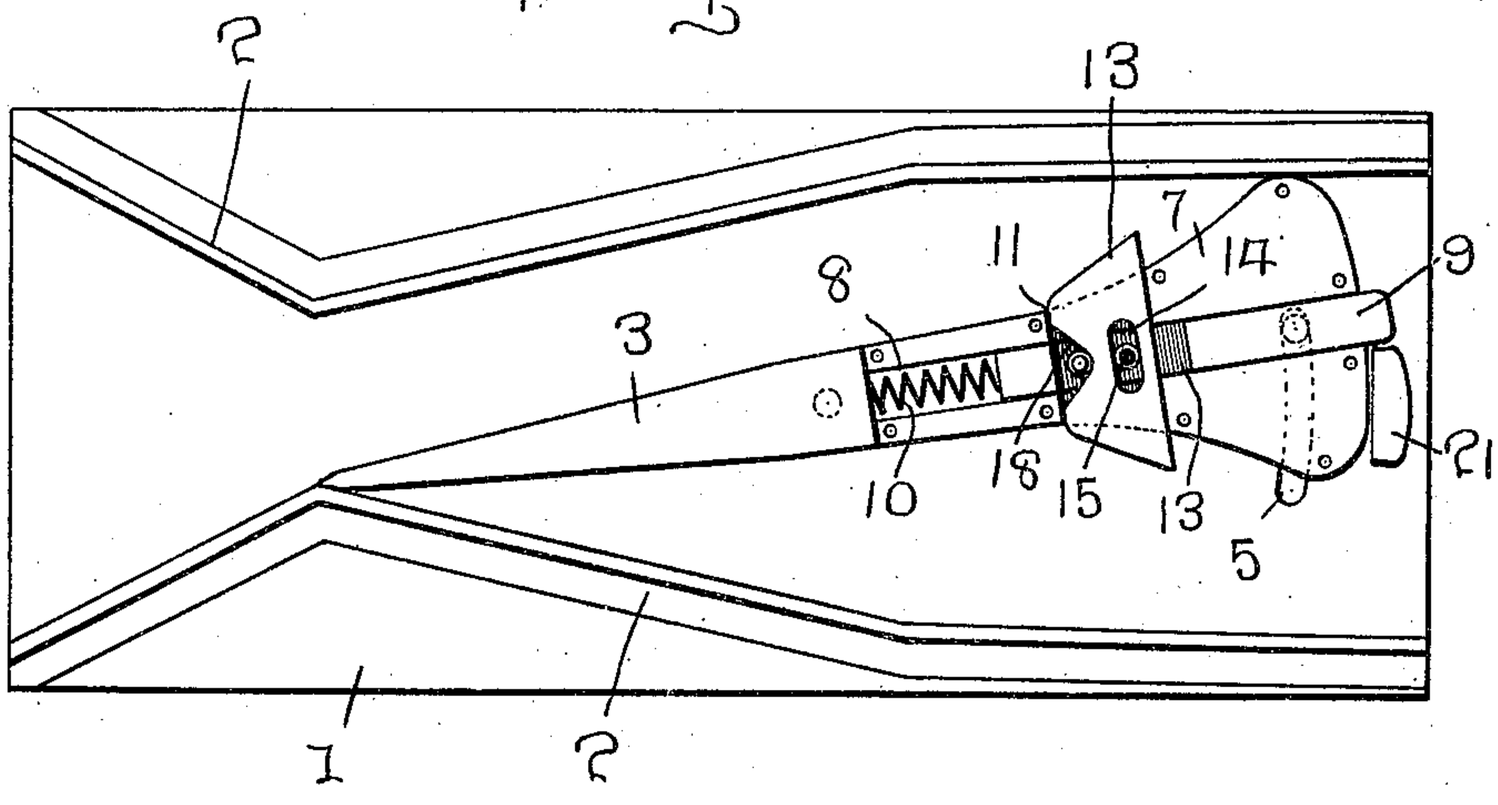


Fig. 2.

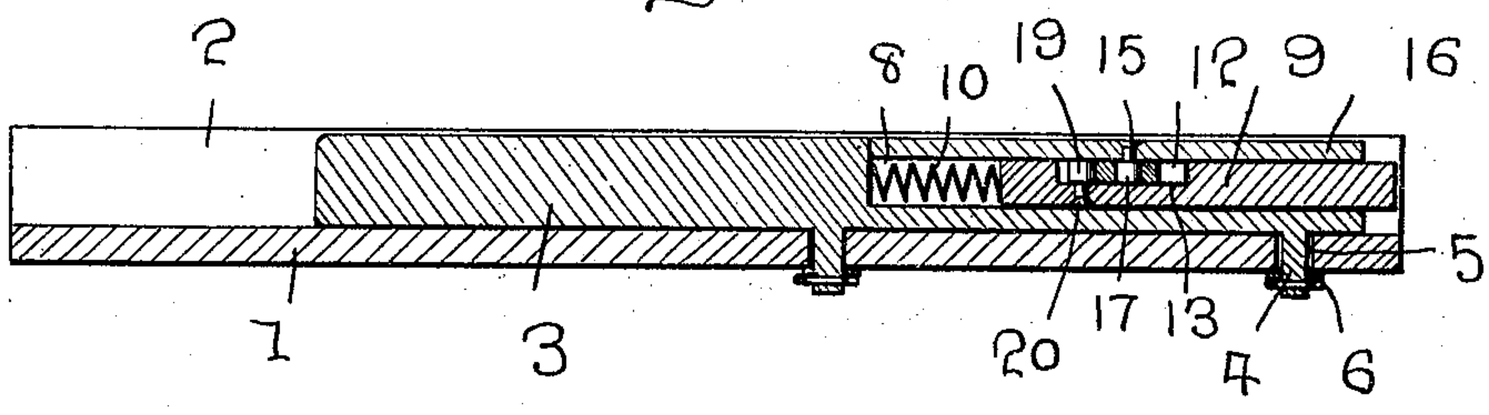
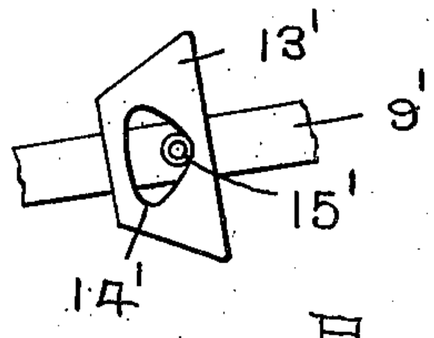


Fig. 3



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AARON BURR ALLEN, OF PUEBLO, COLORADO.

SWITCH-OPERATING MECHANISM.

No. 922,233. Specification of Letters Patent. Patented May 18, 1909.

Application filed June 16, 1908. Serial No. 438,858.

To all whom it may concern:

Be it known that I, AARON B. ALLEN, a citizen of the United States, residing at Pueblo, in the county of Pueblo and State of Colorado, 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 new and useful improvements in switch operating mechanism and it is primarily an object of the invention to provide a novel device of this character including a pivoted lever, said lever being provided with means to prevent it from rebounding.

It is also an object of the invention to provide a novel device of this character wherein the pivoted lever is provided with a sliding catch adapted to contact with a projection for holding the lever in its various positions.

It is also an object of the invention to provide a novel device of this character wherein the sliding catch of the lever is reciprocated by a cam movable transversely of the lever.

It is also an object of the invention to provide a novel device of this character which will be simple in construction, efficient and advantageous in practice and comparatively inexpensive to manufacture.

With the above and other objects in view the invention consists of the details of construction and in the novel arrangement and combination of parts to be hereinafter more particularly referred to.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification wherein like characters of reference denote corresponding parts in the several views, and in which—

Figure 1 is a view in top plan of the invention with the inclosing plate removed, Fig. 2 is a longitudinal sectional view through the operating lever illustrating additional details of the invention, and Fig. 3 is a detail plan view of a slightly modified form of latch controlling mechanism.

In the drawings, 1 denotes a plate provided with guiding flanges 2 for the mechanism depending from a car. The mechanism carried by a car may be as desired as such mechanism forms no part of the present invention. Pivotally held intermediate its length and the plate 1 between the guiding flanges 2 is the switch operating lever 3 which has adjacent one end, a depending member 4 passing through a segmental slot 5 in the plate 1. It is to this depending member 4 that the rod 6 for operating or throwing the switch point is connected. The details of this mechanism are not shown as they are well known. The rear of the lever 3 is flared at 7 and the major portion of its length from its pivotal connection is reduced in thickness as is fully shown in the drawings. The upper surface of the reduced portion of the lever 3 is provided with a longitudinal groove 8 in which is slidably mounted a latch 9 which is held slightly projected beyond the rear end of the lever 3 by an expansible spring 10 bearing against the inner end of the groove 8 and against the inner end of the latch 9. The reduced portions of the lever 3 are also provided with a transversely extending groove 11 intersecting the groove 8 and the latch 9 is also provided with a transverse groove 12. The groove 12 of the latch 9 is of greater width than that of the lateral groove 11. This arrangement is necessary so that the groove of the latch 9 will extend across the groove 11 in all of the positions of the latch 9.

Slidably mounted in the groove 11 is a plate 13 projecting beyond both sides of the lever 3. This plate is provided adjacent its outer edge with an elongated slot 14 through which passes a pin 15 depending from the closure plate 16 for the reduced portion of the lever. This pin is provided with an anti-friction roller 17. It is thought to be obvious that through the medium of the slot 14 and pin 15 that the plate 13 is assured of proper movement.

The inner edge of the plate 13 is provided with a V-notch 18, the points of which are adapted to contact with an anti-friction roller 19 carried by a pin 20 projecting outwardly from the latch 9 within its groove 12. It is thought to be apparent that when the operating device of a car contacts with either of the projected portions of the plate 13, said plate will be moved laterally of the lever 3 and owing to the V notch of the plate, the latch will be drawn inwardly and that after the operating device of the car has passed beyond the plate 13, the spring 10 will cause the latch 9 to project again. This latch 9 is adapted to act in conjunction with a projection 21 arranged centrally of the plate 1 in proximity to the

rear of the lever 3 and it is thought to be apparent how the lever 3 will be automatically locked in its different positions and thereby prevent said lever 3 from rebounding, a disadvantage which has been heretofore found most pronounced.

As the lever 3 is held firmly in position the switch rail can not rebound or spring partly back, and cause what is known as split switch which is so dangerous especially in icy weather and the cause of nearly every accident in street railway service.

In Fig. 3 is shown a slight form of invention wherein the plate 13′ is provided with a cam opening 14′ which has engaging the walls thereof the pin 15′ projecting upwardly from the latch 9′. This form has been found to perform its function with great facility and is of great benefit as it is of less structural complications than the form disclosed by Figs. 1 and 2.

I claim:

1. In combination with the operating lever of a point throwing switch; a latch movably held by the lever normally projecting beyond one end thereof, means with which said latch co-acts to hold said lever normally against movement, a pin carried by the latch and a plate movable transversely of the lever, said plate having a V notch in one edge thereof, the pin of the latch passing within the notch.

2. In a switch operating mechanism, the combination with a plate having guiding flanges thereon; of a lever pivoted to said plate, said lever having one of its ends provided with a longitudinal and a transverse groove; of a latch slidably mounted in the longitudinal groove, said latch also having a transverse groove registering with the transverse groove in the lever, a plate extended through the transverse groove in the lever and means carried by the latch and coöperating with the plate, to move said latch longitudinally when the plate in the transverse grooves is moved longitudinally.

3. In a switch-operating mechanism, the combination with a pivotally mounted lever, one end of which is provided with a longitudinally extending groove and a transversely extending groove intersecting the longitudinal groove; of a lever slidably mounted in the longitudinal groove, said lever having a transverse groove in its length, registering with the transverse groove in the lever, a plate extending through the transverse groove and beyond the edges of the lever, means to retain the plate in position, said plate having a notch therein and means on the latch coöperating with said notch, whereby the latch will be moved longitudinally when the plate is moved endwise through the transverse grooves.

4. In a switch-operating mechanism, the combination with a pivoted lever having a longitudinally extending groove and a transversely extending groove; of a latch slidably mounted in the longitudinal groove, means to normally hold the outer end of the latch beyond the end of the lever, a plate transversely slidable of the latch and means carried by the latch and coöperating with the plate adapted to move the latch inwardly when the plate is moved longitudinally.

5. In a switch-operating mechanism, the combination with a pivotally mounted lever; of a latch slidably mounted on the lever, means to hold the outer end of the latch normally extended beyond the end of the lever, a plate transversely slidable of the latch, said plate having a notch therein, a roller carried by the latch adapted to engage said notch, the walls of said notch being so arranged as to cause the latch to move longitudinally when the plate is moved transversely and means to retain the plate in cooperative relationship with the latch.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AARON BURR ALLEN.

Witnesses:
ISAAC BUTZ,
WILLIAM REID.