No. 744,513. PATENTED NOV. 17, 1903.

H. T. DUMAS.

AUTOMATIC SWITCH OPERATING MECHANISM.

APPLICATION FILED APR. 1, 1903.

NO MODEL.

Fig. 1.

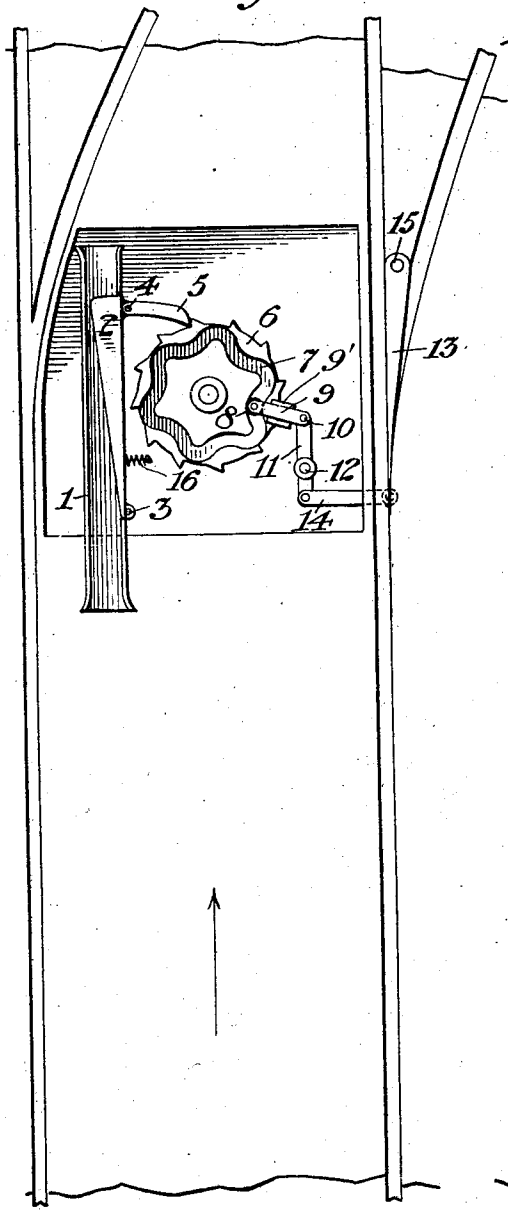
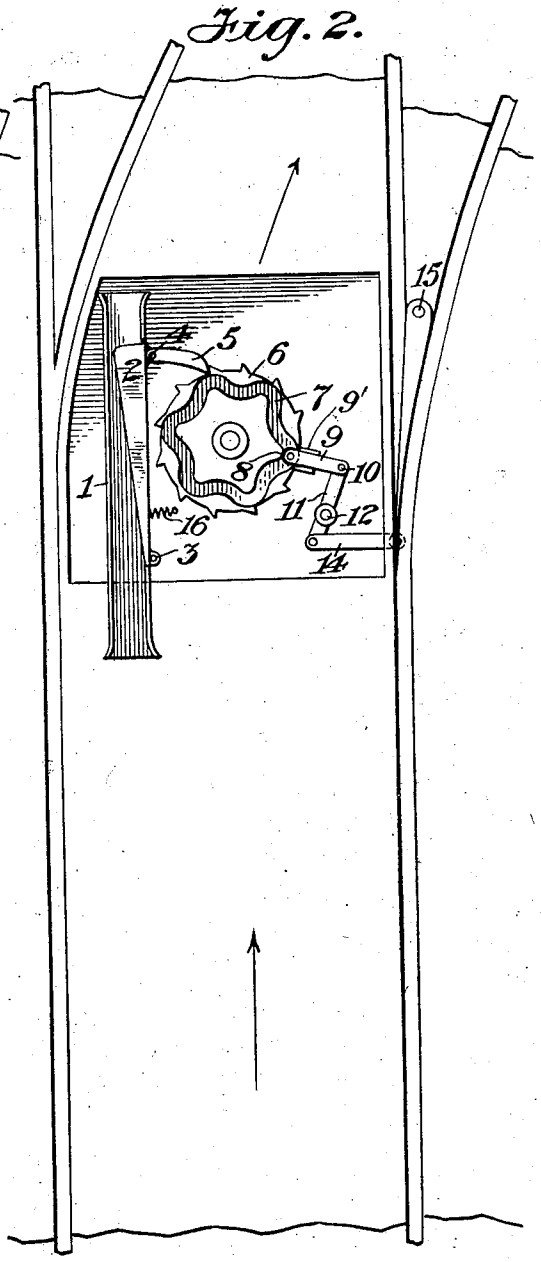


Fig. 2.



Witnesses
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No. 744,513. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

HENRY T. DUMAS, OF SOUTH HADLEY FALLS, MASSACHUSETTS, ASSIGNOR TO HIMSELF, AND OCTAVE A. LA RIVIERE, OF INDIAN ORCHARD, MASSACHUSETTS.

AUTOMATIC SWITCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 744,513, dated November 17, 1903.

Application filed April 1, 1903. Serial No. 150,584. (No model.)

To all whom it may concern:

Be it known that I, HENRY T. DUMAS, a citizen of the United States, and a resident of South Hadley Falls, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Automatic Switch-Operating Mechanisms, of which the following is a specification.

This invention relates to improvements in railroad-switches, and has for its object the production of a simplified mechanism which as it is composed of comparatively few parts is of inexpensive production and not so liable to get out of order or become deranged as more complicated devices often do.

It also has for its object the production of an automatic shifting device to be operated by the car when in motion, so that it will not be necessary for the car to be slowed or stopped to shift the switch.

It also has for its object the production of a switch-shifting mechanism which will not be materially affected by changes of the weather, snow, ice, and other similar contingencies.

It has for its object also many other novel features more fully hereinafter set forth.

The nature of the invention consists in the provision of a U-shaped channel arranged to guide an arm fastened on a car, so that it will be brought into contact with the moving parts of the mechanism. The nature of the invention also consists in the combination and arrangement of divers levers and other mechanism to be moved by said arm.

The nature of the invention also consists in the combination and arrangement of levers, a ratchet-wheel, and a pawl operating said wheel, and mechanism for actuating the same.

The invention also consists in the combination and arrangement of movable levers, a ratchet-wheel and pawl actuated thereby, an eccentric slot upon said ratchet-wheel, a roller turning in said slot, and connections enabling said mechanism to shift the tongue of a switch.

The invention also consists in divers other novel features, which will be fully understood by the following general description and the annexed drawings, and will be subsequently pointed out in the claims.

In the drawings, Figure 1 is a plan view of a railroad-track at a switch comprising my invention and showing the switch closed. Fig. 2 is a similar view showing the switch as having been moved into an open position by the action of said arm.

Corresponding parts in both figures are denoted by the same reference characters.

1 designates a U-shaped channel through which the said arm upon a car moves, so that in its passage it will impinge upon the lever 2. This lever, which is of tapering form, is pivoted by its smaller end at 3. To its larger end at 4 is pivoted the pawl 5. This pawl engages the teeth of the ratchet-wheel 6. Upon this wheel 6 is formed the six-cornered cam-slot 7. The lever 11 is pivoted at 12. By this arrangement one end of this lever is much shorter than the other. The shorter end is connected to the tongue of the switch 13 by the bar 14. This switch-tongue is pivoted to the track at 15 in the common and well-known way. To the longer end of the said lever 11 is pivoted the connecting-bar 9, which reciprocates in a slideway 9′. Upon its free end this bar 9 carries a roller 8, which engages the slot 7. A spring 16 is so arranged that it will restore the lever 2 to its normal position when it has been deflected by the said arm of the car.

This invention may with slight variations be adapted for use on any ordinary railroad; but I prefer to use it on an electric-trolley road.

In the operation of my device a car passing along the main track and which it is desired to retain on the same main track after it has passed the switch and which carries its said extending arm under its front end before the front wheels as it approaches the switch will on account of the said arm being guided by the channel 1 and on account of its motion carry the said arm against the said lever 2. This will deflect the said lever, compress the spring 16, and move the pawl 5. The pawl engaging one of the teeth of the ratchet-wheel 6 carries it through the whole length of its excursion. Thus the ratchet-wheel is turned through a corresponding part of its periphery, carrying the eccentric slot 7

with it. At the same time on account of the shape of the said eccentric slot, on account of the roller 8 engaging said slot, and on account of the connection of the switch-tongue 13 and the levers 9, 11, and 14 the longer end of the lever 11 will be drawn in toward the wheel 6, causing the other end of said lever 11 to move in the opposite direction and, pushing the lever 14 against the switch-tongue 13, close the switch and enable the car to pass on on the main line. As soon as the car has passed the spring 16, by reason of its resilience, will push back the lever 2, and in so doing restore it to its normal position. When the next car comes by, this operation is repeated, except that the parts of the mechanism between the slot 7 and the switch-tongue 13, on account of the form of said slot, will move in the opposite direction and opening the switch enable the car to pass off the main track onto such switch. Thus alternately the switch may be opened and closed at the pleasure of the operator. I do not, however, confine myself strictly to the construction and arrangement herein set forth, for it is evident from the scope of my invention as herein set forth that I am entitled to slight modifications and structural differences.

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

1. In a switch-shifting mechanism, the combination with a channel, adapted and arranged to guide an arm attached to a car, a lever pivoted on said channel and arranged to be engaged by said arm, of mechanism independent of said lever connected to the tongue of a switch and arranged to be operated by said lever to shift said switch.

2. In a switch-shifting device, the combination with a channel, adapted and arranged to guide an arm attached to a car, a lever pivoted by one end on said channel and arranged to be engaged by said arm, and a pawl pivoted upon the other end of said lever, of a ratchet-wheel arranged to be engaged by said pawl, and mechanism connecting said wheel with the tongue of a switch, and arranged to shift the said switch.

3. In a switch-shifting device, the combination with a channel adapted and arranged to guide an arm attached to a car, a lever pivoted by one end on said channel and arranged to be engaged by said arm, and a pawl pivoted upon the other end of said lever, of a ratchet-wheel engaged by said pawl, said wheel being formed with an eccentric slot, which is carried thereby, a roller engaging said slot, and mechanism connecting said roller with the tongue of a switch and all arranged to shift the said switch.

4. In a switch-shifting device, the combination with a channel, adapted and arranged to guide an arm attached to a car, a lever pivoted by one end on said channel, and arranged to be engaged by said arm, and a pawl pivoted upon the other end of said lever, of a ratchet-wheel formed with an eccentric slot thereon and engaged by said pawl, a roller engaging said slot, and levers connecting said roller with the tongue of a switch, and all arranged to shift said switch.

5. In a switch-shifting device the combination with a channel adapted and arranged to guide an arm attached to a car, a lever pivoted by one end to a car, a lever pivoted by one end on said channel, and arranged to be engaged by said arm, a pawl pivoted to the other end of said lever, and a ratchet-wheel formed with an eccentric slot and engaged by said pawl, of a roller engaging said slot, a rocking lever, and bars connecting said rocking lever with said roller and with the tongue of a switch, and all said mechanism adapted and arranged to shift said switch.

6. In a switch-shifting device, the combination with a channel adapted and arranged to guide an arm attached to a car, a lever pivoted to said channel and arranged and adapted to be engaged by said arm and mechanism independent of said lever connected to the tongue of a switch, and arranged to be operated by said lever, of means adapted and arranged to restore said lever to normal position after it has been deflected by engagement with said arm.

In testimony whereof I have signed my name in the presence of the subscribing witnesses.

HENRY T. DUMAS.

Witnesses:
A. P. TRUDEAU,
THOMAS FRANCK.