

H. C. BARCUS.
SWITCH.
APPLICATION FILED JAN. 26, 1910.

971,817.

Patented Oct. 4, 1910.

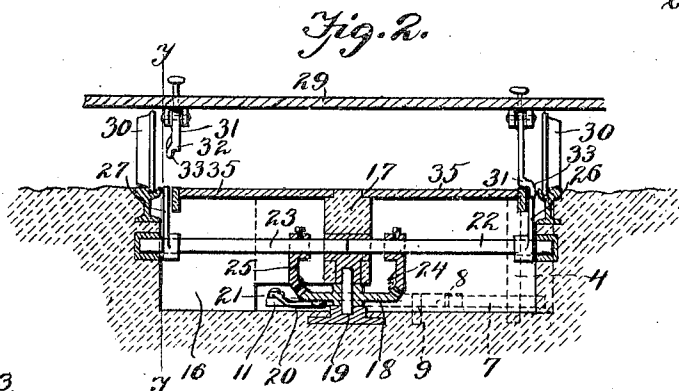
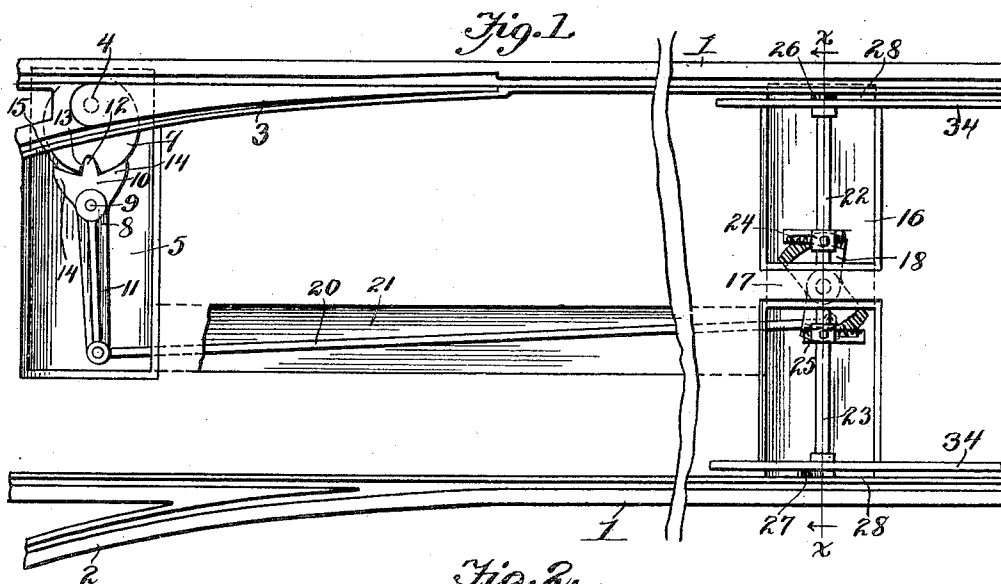
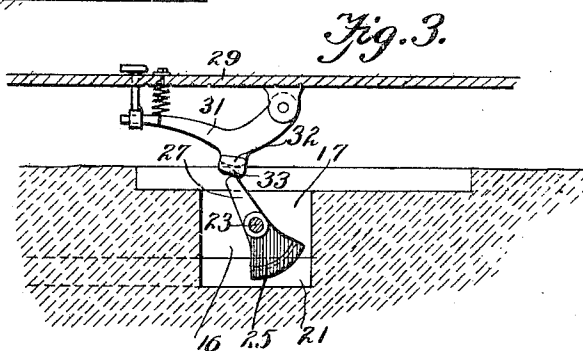
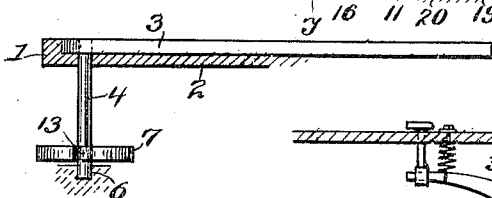


Fig. 4.



Inventor

Harvey C. Barcus.

Witnesses

H. S. Austin
W. C. Linton.

By

Joshua R. Hottel

Attorney

UNITED STATES PATENT OFFICE.

HARVEY CHESTER BARCUS, OF DAYTON, OHIO.

SWITCH.

971,817.

Specification of Letters Patent.

Patented Oct. 4, 1910.

Application filed January 26, 1910. Serial No. 540,238.

To all whom it may concern:

Be it known that I, HARVEY CHESTER BARCUS, a citizen of the United States, residing at Dayton, county of Montgomery, and State of Ohio, have invented certain new and useful Improvements in Switches, of which the following is a specification.

My invention relates to railway switches and particularly to switch operating mechanism.

More specifically my invention relates to switch operating devices adapted to be actuated from a moving car to open and close the switch in advance of the car.

The object of my invention is to provide a railway switch equipped with means for operating the same and to provide the cars with means for actuating the device at a distance from the switch in order that the switch may be in the desired position for the approaching car.

A further object of my invention is to provide a switch with means to be actuated from the car to open the switch and similar means for closing the switch, said means being so connected that when one is operated the other is thrown into position, to be readily operated when desired to throw the switch in the opposite direction.

A further object of my invention is to provide a switch operating mechanism with means for locking the switch when thrown against accidental displacement.

A further object of my invention is to provide a device as mentioned which will be of simple construction and one which shall not readily get out of order.

Other objects will appear hereinafter.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1 is a plan view of a switch and switch operating mechanism embodying my invention in its preferred form, Fig. 2 is a vertical transverse section taken on line $x-x$ of Fig. 1 and illustrating diagrammatically a portion of a car with one of the actuating devices depressed, Fig. 3 is a sec-

tion on the line $y-y$ of Fig 2 and Fig. 4 is a detail view of the switch point and the member fixed thereto.

Referring now to the drawings 1—1 indicate the rails of a track and 2 the switch of which 3 is the switch point. I have illustrated a track such as is ordinarily used for street railways, but it is to be understood that my invention is applicable to steam railroads as well. The switch point 3 is pivotally mounted upon a vertically disposed shaft 4 which extends downwardly into a pit 5, its lower end being journaled as at 6. Fixed to the shaft 4 near the lower end thereof, is a member 7 which preferably comprises an eccentrically mounted disk as shown clearly in Figs. 1 and 4. Arranged in the pit 5 adjacent to the disk 7 is a lever 8. This is pivotally mounted as at 9 and comprises a short arm 10 and a long arm 11. The end of the short arm is shaped to form a point or tooth 12 which engages a notch 13 formed in the periphery of the disk 7. It is obvious that by swinging the lever 8 the switch point 3 will be moved to open or close the switch. Formed on the short arm 10, each side of the portion 12 is an extension 14 having diagonally disposed outer edges or faces 15 which alternately engage the periphery of the disk 7 when the switch point is thrown in one direction or the other. The faces 15 by engaging the edges of the disk form a frictional contact which prevents accidental displacement of the switch point after having been set. It should be noted that the disk is arranged with its longest radius extending toward the lever 8, which increases the leverage of the disk and increases the frictional lock of the switch point as mentioned above.

At a distance from the switch equal to the distance it is desired that the car shall be when the switch is operated I provide a pit 16 which preferably extends from side to side of the track, that is from rail to rail and is provided with a transverse partition or arch 17 dividing the same into two portions. Arranged in the bottom of the pit 16 and be-

neath the arch 17 is a mutilated gear 18 mounted upon a vertical shaft 19 having bearings in said arch and the bottom of the pit. The gear 18 is connected to the long arm 11 of the lever 8 by a rod 20 extending through a conduit 21 connecting the pits 5 and 16. It is obvious that by partially rotating the gear 18 the switch point will be operated.

Arranged in the pit 16 above the gear 18 are a pair of alined shafts 22 and 23 having bearings in the arch 17 and the end walls of the pit adjacent the rails. Fixed to the shafts 22 and 23 are segment gears 24 and 25 respectively meshing with the gear 18 upon opposite sides thereof. The gears 18, 24 and 25 are of the ordinary bevel form. The outer ends of the shafts 22 and 23 are provided with arms or levers 26 and 27 respectively which extend upwardly through slots 28 arranged adjacent to the rails 1. The arms 26 and 27 and the gears above described are so positioned on their respective shafts that but one of the arms extends vertically upwardly at a time. It is obvious that by turning one of the arms downwardly the other will be extended upwardly and vice versa.

The switch is adapted to be operated from an approaching car, hence I provide the car with means for actuating the switch by turning one of the arms 26 or 27. By turning one of the arms the switch is opened and by turning the other it is closed. To this end the car, of which 29 indicates conventionally the floor or platform and 30 the wheels, is provided with a pair of pivotally mounted arms or levers 31 equipped with means for depressing the same and a spring for returning them to normal position. It is obvious that the arms or levers may be depressed either by hand or foot and I have illustrated a convenient form of the latter construction. Each arm 31 is provided with a shoe 32 having a depending portion 33 to engage the arms 26 and 27 and the lower edge of the portion 33 is preferably inclined as shown in Fig. 3 to facilitate the same riding over obstructions. Arranged parallel with the rails 1 and adjacent to the arms 26 and 27 are auxiliary rails 34 upon which the shoe 32 rides when the arm 31 is depressed.

The operation of the device is as follows: Assuming a car to be approaching the switch and that it is desired to open the switch, the arm 31 on the right of the car is depressed until the shoe 32 engages the rail 34. When the car reaches the switch throwing mechanism the portion 33 of the arm engages the arm or lever 26, throwing the same down and rotating the shaft 22. This in turn throws the switch point 3 through the medium of the gear 18, rod 20, lever 8 and disk 7 as described. If it is desired to close the

switch, or to be certain that the same is closed, the arm on the left hand side is depressed, actuating the mechanism in the same manner but in reverse direction. It is obvious that as one of the levers 26 is turned down the other will be raised into position to be engaged by the device on the car, and that the opposite movement on the switch point by throwing the two arms or levers 26 and 27 in the same direction, is due to the fact that the rod 21 is connected to the gear 18 upon one side of the center or eccentrically as shown in Figs. 1 and 2. The pits 5 and 16 may be closed by the plates or closures 35.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a device of the class described, a track, and switch point, in combination with a vertical shaft fixed to said switch point and rotatable therewith a member on said shaft, a lever pivoted adjacent said member and operatively engaging the same, an oscillatory member arranged adjacent said track at a point remote from the switch, a rod connecting said lever and said oscillatory member and means for engaging and turning said oscillatory member from a moving car approaching said switch, substantially as described.

2. In a device of the class described, a track, and switch point in combination with a vertical shaft fixed to said switch point and rotatable therewith a member fixed on said shaft, said member being provided with a peripheral notch a lever pivotally mounted adjacent said member and having one arm engaging said notch, means for turning said lever from a point remote from said switch and means on said lever for engaging the member on said shaft for locking the switch point against accidental displacement, substantially as described.

3. In a device of the class described, a track and a switchpoint, in combination with a vertical shaft fixed to said switchpoint and rotatable therewith, a member on said shaft, a lever pivoted adjacent said member and operatively engaging the same, a pair of alined shafts extending transversely of said track at a point remote from the switch, levers on said shafts adapted to extend upwardly to be engaged by a device on an approaching car, segmental gears on said shafts, a horizontally disposed gear meshing with said segmental gears, and a rod connecting said gear and the first said lever, substantially as described.

4. In a device of the class described, a track, and switch point in combination with a vertical shaft fixed on said switch point and rotatable therewith, a member fixed on said shaft and provided with a peripheral

notch, a lever mounted adjacent said member and having the end of one arm engaging said notch, a pair of alined shafts extending transversely of said track at a point remote
5 from said switch, levers on said shafts adapted to extend upwardly to be engaged by a device on an approaching car, segmental gears on said shafts, a horizontally disposed gear meshing with said segmental

gears and a rod connecting said gear and the 10 first said lever, substantially as described.

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

HARVEY CHESTER BARCUS.

Witnesses:

G. F. BISHOP,

CHAS. H. PROTSMAN.