A. V. WORTHINGTON.

STREET RAILWAY SWITCH.

APPLICATION FILED JULY 3, 1912.

1,068,831. Patented July 29, 1913.

Fig 1

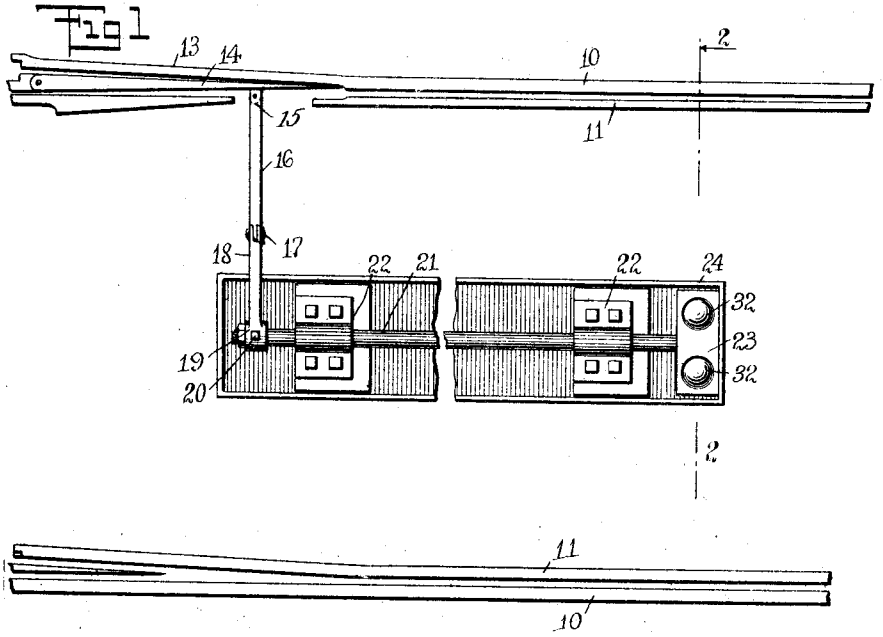
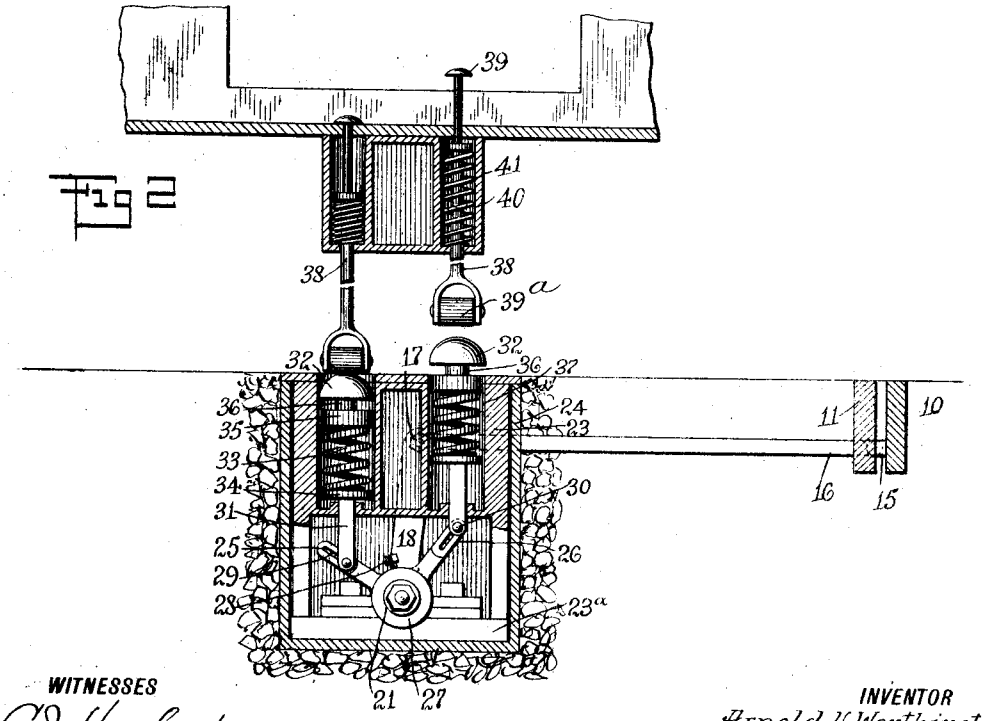


Fig 2



WITNESSES

C. J. Hachenberg.

J. L. McAuliffe

INVENTOR

Arnold V. Worthington

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

ARNOLD VANDORAN WORTHINGTON, OF OAKLAND, CALIFORNIA.

STREET-RAILWAY SWITCH.

1,068,831. Specification of Letters Patent. Patented July 29, 1913.

Application filed July 3, 1912. Serial No. 707,478.

To all whom it may concern:

Be it known that I, ARNOLD V. WORTHINGTON, a citizen of the United States, and a resident of Oakland, in the county of Alameda and State of California, have invented a new and Improved Street-Railway Switch, of which the following is a full, clear, and exact description.

The invention relates to a switch in which manually-controlled means on the car serve to engage devices located in the track to throw the switch element in either direction to close or open the switch.

The invention consists in the novel construction and combination of parts, as will be particularly explained in the specific description hereinafter to be given.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a plan view of a section of track having a switch constructed in accordance with my invention: and Fig. 2 is a transverse vertical section approximately on the line 2—2 of Fig. 1.

In constructing a practical embodiment of my switch, main rails 10 are provided in the usual form, as well as guard rails 11, and in connection with the main rails and a siding rail indicated at 13, an ordinary pivoted switch tongue or point 14 is employed. In carrying out my invention, the tongue 14 is formed with, or otherwise provided with a horizontal bracket lug 15 to which is pivoted on the outer end a transverse switch bar 16, and said switch bar is pivoted at its inner end, as at 17, to the upper end of a crank arm 18, which is formed at its lower end with a hub 19, said hub being secured by a set screw 20 to a rock shaft 21. The shaft 21 rests in bearings 22 provided on the bottom of a case or box 24, said box being set in the track between the rails thereof, to be flush with, or below the level of the ground. The box 24 and the shaft 21 range parallel with the track rails, or essentially so, and in said box is supported the base 23^a of a casting 23 that sustains operative elements to rock the shaft 21, as hereinafter described. At the end of the shaft 21 opposite that to which the crank arm 18 is secured, the said shaft carries diverging arms 25, 26, which constitute a bell crank, and may be formed integral with a hub 27, the hub being secured to the shaft 21 by a set screw 28.

The outer ends of the diverging crank arms 21 are formed with slots 29 that receive pins 30, said pins extending also through vertical tappets. Each tappet consists of a shank 31, through which the pin 30 passes, a tappet head 32, and a spiral spring 33 which is interposed between the upper and lower ends of each tappet. The spring seats at its lower end on a disk 34 formed on the upper end of the shank 31 and abuts at its upper end against the under side of a disk 35 that constitutes the bottom of the tappet head 32. The tappets, which are designated as a whole, for convenience, by the numeral 36, are arranged in connection with pockets 37 formed in the casting 23, the shank 31 of each tappet extending snugly through the bottom of the pocket and guided vertically thereby, while the disks 34, 35 of the shank 31 and head 32 respectively, fit the interior of the pocket for guided movement therein, and the disk 35 forms, normally, a closure for its pocket to exclude dirt.

The devices on the car for engaging the tappets may consist of vertical rods 38 having heads 39 at the upper end to be pressed upon by the foot of the motorman, the operating rods being provided at the lower end desirably with rollers 39^a to contact with the tappet heads 32. The rods 38 pass through a housing 40 on the under side of the car floor or platform, and are encircled by spiral springs 41 so arranged as to normally tend to press the rods 38 upward.

In operation, the motorman may depress either of the rods 38 to contact with the right or left tappet head 32, so that as the roller 39^a passes over the tappet head, it will depress the tappet to actuate either the crank arm 25 or the crank arm 26 for rocking the shaft 21 in the direction to close or open the switch by moving the tongue 14. By providing tappets of the novel arrangement shown, should the two tappets be depressed simultaneously by a wagon wheel or otherwise, there would be no damage to the operative parts, as the springs 33, which are interposed between the upper and lower ends of the tappets and which sustain the tappet heads 32, will yield simultaneously.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent:

A street railway switch, comprising the following instrumentalities: a switch point, an operating rod connected at one end with said point, a rock shaft, an upwardly extending crank arm pivotally connected with the operating rod at the end opposite the switch point, a box set in the track between the rails thereof, bearings in the bottom of said box for the mentioned rock shaft, upwardly diverging crank arms at the end of the shaft opposite the first-mentioned crank arm, said diverging crank arms being integral with a hub, means securing said hub to the rock shaft, a casting in the box adjacent to the crank arms, a tappet mounted on each of the diverging crank arms, said tappets each comprising a lower shank having a slot and pin connection with its respective crank arm, each shank extending upwardly into a vertical pocket formed in the casting through the bottom of said pocket, a disk on the upper end of the shank, a head at the upper end of the tappet, and a coil spring interposed between the said head and the disk on the shank, the said spring being seated on the disk and abutting by its upper end against the under side of the head, the lower end of each head having sliding movement in a pocket and normally closing the pocket at the upper end.

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

ARNOLD VANDORAN WORTHINGTON.

Witnesses:
MARTHA J. WORTHINGTON,
ETHYL F. PIERCE.