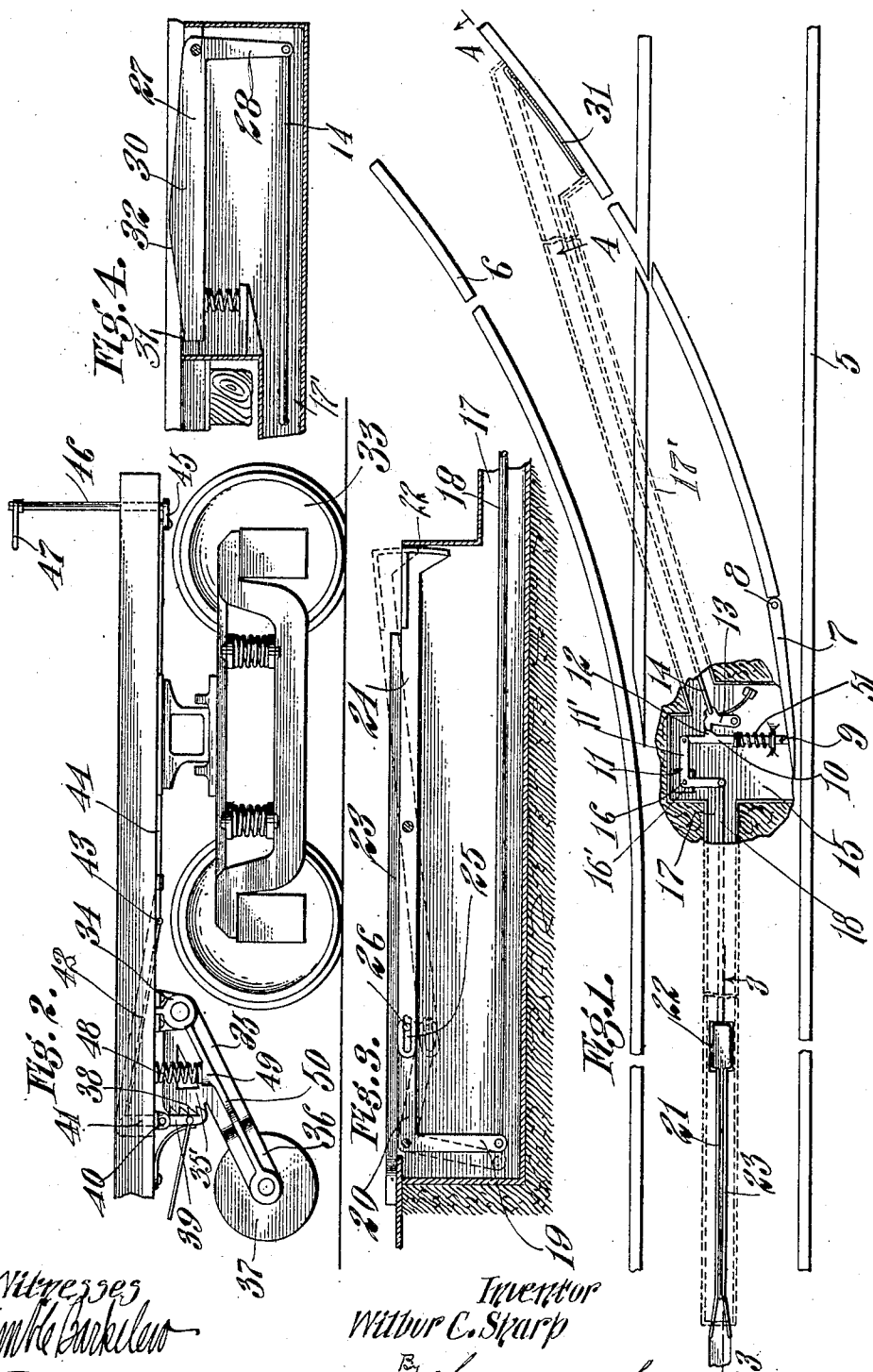


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W. C. SHARP.
SWITCHING MECHANISM FOR RAILWAY CARS.

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WILBUR C. SHARP, OF LOS ANGELES, CALIFORNIA.

SWITCHING MECHANISM FOR RAILWAY-CARS.

No. 844,757.

Specification of Letters Patent.

Patented Feb. 19, 1907.

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To all whom it may concern:

Be it known that I, WILBUR C. SHARP, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Switching Mechanism for Railway-Cars, of which the following is a specification.

My invention relates to switching mechanism; and an object thereof is to provide switch-operating mechanism that may be applied to the under side of a car, so that the switch-throwing mechanism connected to the switch-point is under the complete control of the motorman and may be operated by him without getting off or stopping the car and which will be returned to its normal condition when the car has passed over the switch. I accomplish this object by means of the device described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a street-railway track with my switching and releasing device applied thereto. Fig. 2 is a side elevation of a portion of a street-railway car, showing the switch-operating means applied thereto. Fig. 3 is an enlarged longitudinal section, taken on line 3 3 of Fig. 1, of the switch-throwing mechanism. Fig. 4 is a longitudinal section taken on line 4 4 of Fig. 1, showing the releasing mechanism.

Referring to the drawings, 5 is the main track, and 6 is the switch track which carries the operating-switch 7. This operating-switch is pivoted to the switch-track, as at 8, and pivotally connected at its free end, as at 9, to the transverse switch-operating bar 10. This bar is pivotally connected to an arm 11' of the bell-crank lever 11 and is provided with a ratchet-tooth 12, which is adapted to be engaged by a spring-pressed pivoted dog 13, the free end of which is pivotally connected to a pull-rod 14 and whose other end is connected to the releasing mechanism, which will be hereinafter described.

Most of the switch throwing and releasing mechanism is located below the surface of the track, and preferably in a rectangular box 15, which has arms or conduits 17 and 17', which extend, respectively, to the switch operating and releasing mechanisms. The bell-crank lever 11 is pivotally secured, as at 16, to a lug 16' in the bottom of the rectangular box 15. One arm of the bell-crank lever 11 is pivotally connected to a rod 18, the other end of which is pivotally connected to a down-

wardly-depending arm 19 of a bell-crank lever 20, which is pivotally secured at one end of an elongated slot 21, which is located in the top of the enlarged outer portion of the conduit 17. The elongated slot 21 terminates in an enlarged opening 22 for the accommodation of the switch-operating bar and has guide-bars 23, which extend the length of the slot and act as a guide to the switch-operating mechanism attached to the under side of the car, the operation of which will be explained later. Pivotally secured in the slot 21 and near its center is a switch-operating bar 24, in one end of which is a slot 25, in which works a pin 26, secured to one side of the upper arm of the bell-crank lever 20.

The switch-releasing mechanism that is located at the enlarged outer end of the trough 17' preferably consists of a bell-crank lever 27, one arm 28 of which extends downwardly and is pivotally connected to the rod 14 and whose other end is pivotally connected to the free end of the spring-pressed dog 13, which engages the tooth on the switch-operating bar 10. The upper arm 30 of the bell-crank lever 27 is preferably mounted in a slot 31, which is located close to the inner rail of the switch-track. The upper arm 30 of the bell-crank lever is preferably inclined from both ends to the center, as at 32, and is intended to be operated by the flange on the car-wheel 33.

Secured to the under side of the car in bearings 34 is a bifurcated frame 35, in whose furcations 36 is mounted an operating-wheel 37. On the upper side of the frame 35 and forming a part of it is an angular lug 35', on whose vertical face is a series of ratchet-teeth 38, which are engaged by a spring-pressed pivoted dog 39. This dog is pivoted in bearings 40 to the under side of the frame of the car and has an upwardly-extending arm 41, to which is pivotally connected a pull-rod 42. This rod is pivotally connected, as at 43, to a longitudinally-mounted pull-rod 44, whose other end is connected to a crank 45, which is rigidly secured to an end of a vertical operating-shaft 46 and to whose upper end is secured an operating-handle 47. Secured to the under frame of the car and directly over the frame 35 is a coil-spring 48, which bears against the lug 49 on the rib 50 of the frame. The purpose of this spring is to force the wheel downwardly into its operative position when it is desired to switch the car.

The operation of the device is as follows: When it is desired to switch a car from the

main line to the switch-line, the motorman rotates the handle 47 on the vertical shaft 46, which operates the pull-levers 42 and 44, thereby releasing the spring-pressed dog 39 from engagement with the ratchet-teeth 38. The frame 35 is then forced downwardly by the coiled spring 48, so that the operating-wheel 37 engages the upper arm of the bell-crank lever 20, forcing it downwardly and at the same time throwing the outer end of the pivoted arm 24 upwardly and pulling rod 18, which rod rocks the bell-crank lever 11, one end of which is attached to the pull-rod 18, which forces the switch 7 over into its operative position. As the operating-bar 10 is forced outwardly the tooth 12 on the operating-bar 10 is engaged by the spring-pressed dog 13 and is held in that position until the car has passed from the main track 5 to the switch-track 6. As the car passes from the main to the switch track the operating-wheel 37 contacts with the enlarged outer end of the pivoted arm 24, which forces the operating-wheel upwardly into its normal position, as shown in Fig. 2, the dog 13 holding the operating-bar 10 in its operative position until released by the operation of the releasing mechanism. When the car has completely passed over the switch, the flange of the wheel 33 contacts with the arm 30 of the bell-crank lever 27 of the releasing mechanism, thereby releasing the dog 13 from engaging the tooth 12 on the operating-bar 10, the spring 51 forcing the bar 10 and the switch attached thereto back to its normal position, as shown in the drawings.

It will thus be seen from the foregoing description that I have produced a highly-efficient switching device which is simple in operation and positive in action and that can be applied to any car.

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

1. In a switch-operating mechanism of the character herein described, comprising a pivoted operating-bar lying in a plane parallel to the surface of the track and having a slot in one end thereof; a bell-crank lever pivotally secured in a longitudinal slot in the center of the track, one arm of which has a pin on the outer end thereof projecting into the slot in the end of the operating-bar; a pull-rod connected to the other arm of the bell-crank lever, a second bell-crank lever, one arm of which is connected to said pull-rod; a switch-operating bar connected to the other arm of the second bell-crank lever; a pivoted switch-point, the free end of which is connected to said operating-bar; in combination with mechanism secured to the car for engaging said operating-bar whereby the movement of the switch is effected.

2. In a switch-operating mechanism of the character herein described, comprising a piv-

oted operating-bar lying in a plane parallel to the surface of the track and having a slot in one end thereof; a bell-crank lever pivotally secured in a longitudinal slot in the center of the track, one arm of which has a pin on the outer end thereof projecting into the slot in the end of the operating-bar; a pull-rod connected to the other arm of the bell-crank lever; a second bell-crank lever, one arm of which is connected to said pull-rod; a spring-retracted operating-bar connected to the other arm of the second bell-crank lever; a pivoted switch-point, the free end of which is connected to said operating-bar; in combination with mechanism secured to the car for engaging said operating-bar whereby the movement of the switch is effected; means to lock said switch-operating mechanism; and means connected to said locking means to release said locking means.

3. In a switch-operating mechanism of the character herein described, comprising a pivoted operating-bar lying in a plane parallel to the surface of the track and having a slot in one end thereof; a bell-crank lever pivotally secured in a longitudinal slot in the center of the track, one arm of which has a pin on the end thereof projecting into the slot in the end of the operating-bar; a pull-rod connected to the other arm of the bell-crank lever; a second bell-crank lever, one arm of which is connected to said pull-rod; a spring-retracted operating-bar connected to the other arm of the second bell-crank lever; a pivoted switch-point, the free end of which is connected to said operating-bar; means secured to the car for engaging said switch-operating means whereby the movement of the switch is effected, said means comprising a bifurcated frame pivotally secured in bearings to the under side of the car; a revoluble disk mounted in the furcations of said frame; ratchet-teeth on said frame; a spring-pressed dog adapted to engage said ratchet-teeth; means secured to said dog whereby the movement of the dog is effected; means to lock said switch-operating mechanism, comprising a spring-pressed dog, said dog engaging a tooth on the spring-retracted operating-bar; and means to release said lock, comprising a pull-rod secured to the free end of said spring-pressed dog; a bell-crank lever pivotally secured in a longitudinal slot at the side of a rail, one arm of which is secured to said pull-rod, the free arm being spring-supported and resting in said last longitudinal slot and adapted to be engaged by the flange of the car-wheel.

In witness that I claim the foregoing I have hereunto subscribed my name this 17th day of May, 1906.

WILBUR C. SHARP.

Witnesses:

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