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Patented Oct. 29, 1901.

F. P. FREIN.
SWITCH THROWING DEVICE.

(Application filed Mar. 29, 1900.)

(No Model.)

Witnesses

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FRANK P. FREIN, OF ALLEGHENY, PENNSYLVANIA.

SWITCH-THROWING DEVICE.

SPECIFICATION forming part of Letters Patent No. 685,595, dated October 29, 1901.

Application filed March 29, 1900. Serial No. 10,644. (No model.)

To all whom it may concern:

Be it known that I, FRANK P. FREIN, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Switch-Throwing Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in switch-operating mechanism, and is particularly adapted for use in connection with street-railways.

The object of the invention is to arrange in relation to the road-bed of a railway-track suitable mechanism connected to the switch-tongue and which is adapted to be operated in either direction for throwing the switch-tongue by means of a trip-arm engaged and operated by a suitable device suspended from the car-platform.

Briefly described, the invention consists of a casing interposed at the side of one of the rail-sections of the track, in which is mounted an operating-lever connected at one end to the switch-tongue and secured at its opposite end by means of the universal joint to a rod extending transversely through the track-bed and opposite rail-section, this rod carrying at each end a trip-arm which is engaged by the operating-rods carried by the car-platform for throwing the switch-tongue in either direction.

The invention further consists in providing a device of this character which shall be extremely simple in construction, strong, durable, efficient in its operation, and comparatively inexpensive to manufacture.

The invention finally consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate corresponding parts throughout the several views, in which—

Figure 1 is a top plan view of a track-bed, showing my improved mechanism arranged in relation to the switch and main rail sections. Fig. 2 is a longitudinal sectional view

of the casing, showing the operating-lever arranged therein and one of the trip-arms engaged by the operating-rod. Fig. 3 is a transverse vertical sectional view taken on the line 3 3 of Fig. 1. Fig. 4 is a perspective view of the operating mechanism for the switch-tongue. Fig. 5 is a transverse vertical sectional view taken on the line 5 5, Fig. 1. Fig. 6 is a perspective view of one of the trip-arms. Fig. 7 is an enlarged detailed perspective view of the universal joint. Fig. 8 is an enlarged perspective view of the end of the operating-lever 10 and arms 11, forming a part of the universal joint. Fig. 9 is a similar view of the operating-rod 16 and arms 17.

Referring to the drawings by reference-numerals, 1 and 2 denote the rails of the main section, 3 and 4 the rails of the switch-section of a railway-track, and 5 denotes the switch-tongue. Arranged at one side of the main rail 2 is a rectangular casing 6, provided with a suitable cover 7, in which is formed a slot 8, and a bearing-post 9 is suitably secured to the bottom, as shown, in any desirable manner. Mounted in the bearing-post 9 is an operating-lever 10, one end of which is formed into a yoke 11, and the opposite end is bent at an angle, as at 12, and bifurcated, as at 13. Suitably secured to the bifurcated end 13 of the operating-lever 10 is one end of the L-shaped arm 14, while the opposite end of the arm 14 is connected, by means of the link 15, to the switch-tongue 5. The link 15 extends through one side of the casing and the main rail 2 and is connected to the switch in any desired manner. Extending transversely across the track-bed is an operating-rod 16, having on one end an integral yoke 17 and the opposite end bent in an angular manner, as at 18, and which operates in the trip-arm 19, pivotally secured to the outer face of the rail-section 1.

The reference-numeral 20 indicates a trip-arm arranged at the opposite end of the rod 16, adjacent to the rail-section 2, and which extends upwardly through the slot 8, formed in the cover of the box. The arms 17 and 11 are pivotally secured to the ball 21, forming the universal joint. The rod 16 extends through the rail-sections 1 and 2 as well as one side of the casing 6.

22 denotes a pair of operating or trip rods suspended from the platform of the car and which are adapted to engage the trip-arms 19 and 20 for operating the mechanism to throw the switch-tongue. The rod 16 is arranged within a casing 23, interposed in the track-bed.

It is thought the operation of my improved mechanism can be readily understood from the foregoing description, taken in connection with the accompanying drawings, and that the many advantages thereof can be understood from such description.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

1. In a switch-throwing mechanism, the combination with a railway-track provided with a suitable switch-tongue, of a rod secured transversely of the said track and provided with a pair of trip-arms, an operating-lever, a universal joint between said rod and said lever, an L-shaped arm connected to one end of said lever, and means for connecting said arm to said switch-tongue.

2. The combination with a railway-track provided with a suitable switch-tongue, of a casing arranged at one side thereof, a casing 23 arranged in said track, a rod mounted in said casing 23 and suitably connected to a

pair of trip-arms, an operating-lever arranged in the first-named casing, a universal joint between said rod and lever, an L-shaped arm suitably connected to said lever and arranged within the first-named casing, and a lever connected to said arm and to said switch-tongue for moving the latter in either direction when the trip-arms are operated.

3. The combination with a railway-track provided with a suitable switch-tongue, of a casing arranged at one side thereof and provided with a bearing-post, an operating-lever mounted in said post, an L-shaped arm connected to one end of said lever, connections between said arm and said switch-tongue, for moving the latter in the desired position, a rod extending across the said track and having one end bent in an angular manner, a universal joint connecting said arm and lever together, a trip-arm connected to said rod near the universal-joint connection, a trip-arm suitably secured to said track and engaged by said angular end of said rod, and means carried by a car and adapted to operate said trip-arm operating said lever causing thereby the movement of said switch-tongue, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

FRANK P. FREIN.

Witnesses:

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