

No. 647,932.

Patented Apr. 24, 1900.

F. E. BALDWIN.

ELECTROMAGNETICALLY OPERATED RAILWAY SWITCH.

(Application filed Dec. 12, 1899.)

(No Model.)

Fig. 1

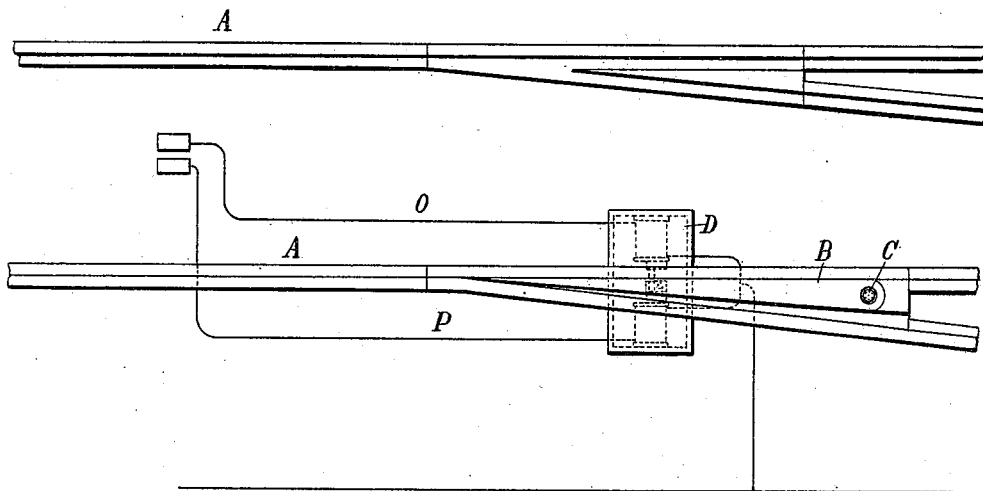


Fig. 2

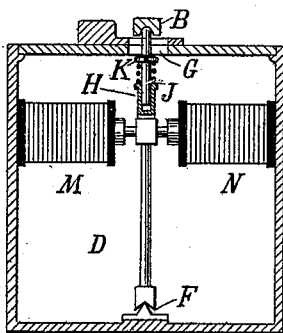
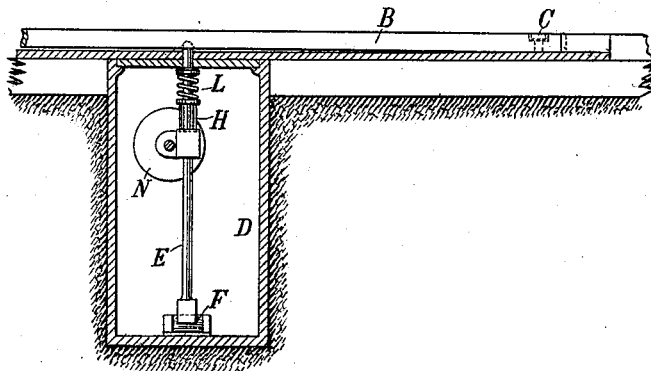


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERIC E. BALDWIN, OF NEW YORK, N. Y.

ELECTROMAGNETICALLY-OPERATED RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 647,932, dated April 24, 1900.

Application filed December 12, 1899. Serial No. 740,036. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC E. BALDWIN, a citizen of the United States, residing at New York, (New Brighton,) in the county of Richmond and State of New York, have invented certain new and useful Improvements in Electromagnetically-Operated Railway-Switches, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

Railway-switches have heretofore been operated automatically by an approaching car through the instrumentality of electromagnets and other forms of mechanism, and in the particular form of switch upon which my present invention is an improvement one, or usually two, electromagnets have been combined or connected with a movable switch-tongue and caused to shift the tongue in opposite directions, according to the particular magnet energized. It has also been usual in such cases to provide circuits for such magnets and terminal contact-plates at a given distance from the switch, so that a car approaching the switch by establishing a connection with one or the other terminal plate could throw the switch in advance of itself to either position desired. These switches have a defect in the uncertainty of their operation, due to the amount of work which the electromagnets are or may be called upon to perform, to reduce which to a minimum I pivot the switch-tongue so that its free end may have a slight vertical play, and under the tongue, in a suitable box or case, I arrange a vertical rod mounted on a knife-edge and extending up through a slot in the top of the box, above which it engages with the tongue near the free end of the latter. The shifting of the switch-tongue is effected by the oscillation of the rod through the instrumentality of the two solenoids and cores placed on opposite sides of the rod and connected therewith or by two electromagnets that act upon an armature which is carried by the rod. In order, however, that the rod may form a support for the tongue which will raise its end off from its bed and that at the same time it may not have to sustain the weight of a car or any other vehicle that passes over the tongue, it is made extensible by one part or section telescoping with the

other and combined with a spring of a strength slightly greater than is necessary to sustain the weight of the tongue when held in its tilted or elevated position. A pressure on the tongue therefore sufficient to overcome the force of the spring brings the tongue down upon its bed, which then sustains the weight imposed upon it.

From the nature of the invention above described it is evident that my improved switch-tongue or mounting therefor is useful with other means than electromagnets for shifting it, and my improvement includes the combination of such a switch-tongue with any devices for throwing or shifting it, whether these be electrical or mechanical.

In the drawings hereto annexed, Figure 1 is a plan view of a section of track, my improved switch, and the circuit connections necessary for its operation. Fig. 2 is a vertical section of the box containing the switch-operating devices. Fig. 3 is a similar view at right angles to the line of the previous figure.

A A are the rails of a track, and B the tongue of an ordinary switch. The tongue is pivoted in a suitable manner at C, so that its free end may be capable of a limited play in a vertical plane. Beneath the pivoted tongue is a box or casing D with suitable provision for drainage and for access to its interior, as is usual in such cases. In said box is a rod E, resting upon a knife-edge or similar support F and extending up through a slot G in the top of the box. The main portion of the rod terminates in a socket H, in which fits the short stem J. Between the socket H and a collar K on the stem J is a coiled spring L, that tends to raise the stem out of the socket. The end of the stem J enters a recess in the under side of the tongue B or is otherwise connected therewith near its free end, and the spring L keeps the end of the tongue raised slightly above its bed.

M N are two electromagnets or solenoids with movable cores that are placed on opposite sides of the rod E and when energized oscillate it to one side or the other, and thereby shift the tongue B.

Two circuits O P run from contact-plates R, set in any desired position alongside the track, through the two magnets, respectively, to ground. As a car approaches the switch

the motorman by depressing one of two contacts with which the car is provided closes through the desired contact-plate the circuit to the approximate electromagnet and operates the switch accordingly.

When a car or other vehicle passes over the tongue, it is simply forced down upon its bed, as above explained, and merely compresses the spring L without injury or impairing the switch mechanism.

Having now described my invention, what I claim is—

1. The combination with a pivoted switch-tongue of an oscillating elastic support for said tongue which is adapted to raise its free end from its bed, and means for oscillating the said support and thereby shifting the switch-tongue, as set forth.

2. The combination with a pivoted switch-tongue of an oscillating elastic support connected with the tongue and normally raising its free end from its bed, of electromagnets for acting upon and oscillating said support and thereby shifting the switch-tongue, as set forth.

3. The combination with a pivoted switch-tongue, of a rod composed of telescoping sections connected by a spring and supporting the tongue in a position slightly above its bed, and electromagnets on opposite sides of the rod and adapted to oscillate the same and thereby shift the switch, as set forth.

FREDERIC E. BALDWIN.

Witnesses:

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