

F. W. RUTLEDGE & E. E. IRELAND.

BOOT LEG FOR TRACK CIRCUITS.

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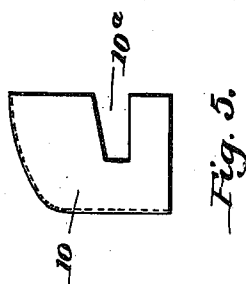
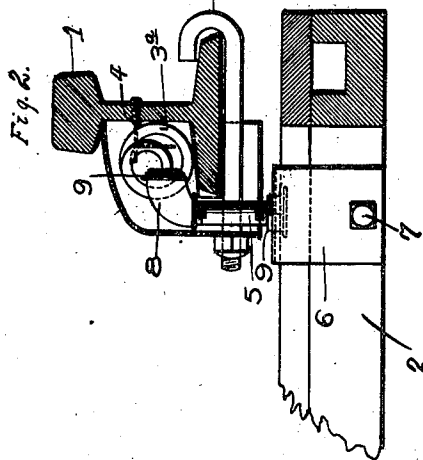
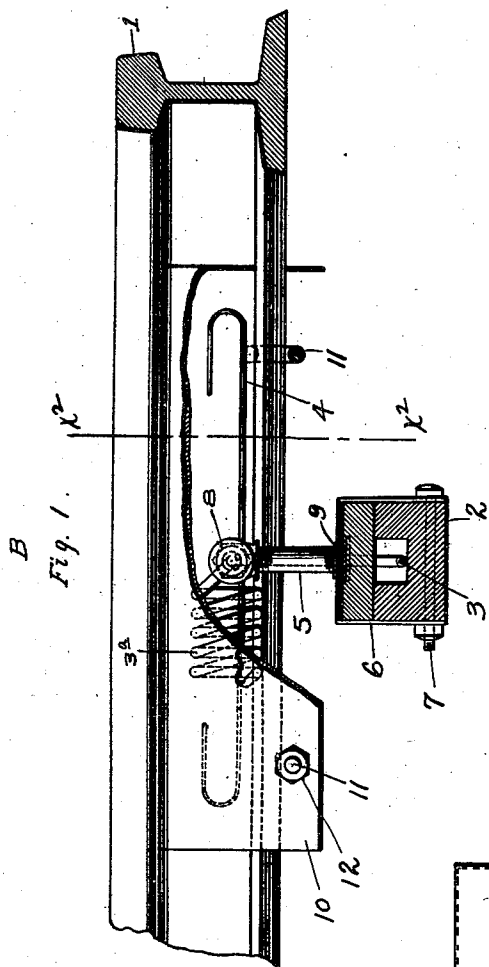
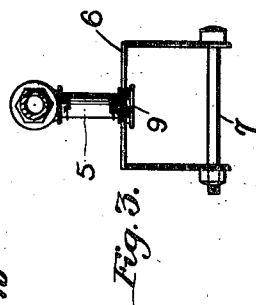
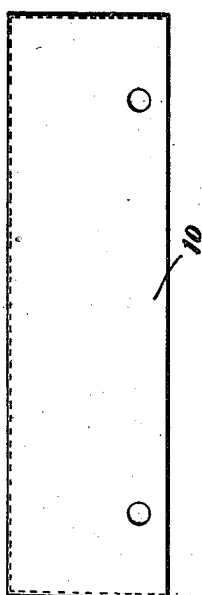


Fig. 4.



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BOOT-LEG FOR TRACK-CIRCUITS.

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To all whom it may concern:

Be it known that we, FRANK W. RUTLEDGE and ERNEST E. IRELAND, citizens of the United States, residing at Elk River, in the county of Sherburne and State of Minnesota, have invented certain new and useful Improvements in Boot-Legs for Track-Circuits; and we hereby declare the following to be a clear and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to electric track circuits as used in automatic signaling systems, and has for its particular object the provision of an improved boot leg structure for protecting the conducting wires at points where they lead from the conduits or trunking to the rails.

To the above ends, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view partly in side elevation and partly in section, and with some parts broken away illustrating the improved boot leg structure applied in connection with a rail and conduit; Fig. 2 is a transverse section taken approximately on the line x^2-x^2 of Fig. 1; Fig. 3 is a view in elevation showing the so-called saddle and conduit outlet removed from working position; Fig. 4 is a view in side elevation showing the shield removed from the rail; and Fig. 5 is an end elevation of the shield.

One of the track rails is indicated by the numeral 1 and a portion of one of the transverse extensions of the trunking or main conduit is indicated by the numeral 2.

The numeral 3 indicates one of the circuit wires which extends through the conduit 2 and is extended therefrom and connected to a bond wire 4, which latter is secured, in any suitable way, to the vertical web of the rail 1. Where the wire 3 extends from the conduit 2, it is passed through a so-called conduit terminal 5 in the form of a short pipe section, which, at its lower end, is screwed into, or otherwise secured into a saddle or yoke 6. This saddle 6 embraces the conduit 2 and is clamped thereto by a notched bolt or rod 7. An elbow 8 is screwed, or other-

wise attached to the upper end of the conduit extension 5 and is turned toward the web of the rail, and located above the flange of the rail. Reducing bushings 9 are preferably screwed, one into the lower end of the conduit extension 5, and the other into the open end of the elbow 8. The reducing bushings 9 guide the wire 3 and protect the same from sharp edges of the pipe and elbow. Between the point where the wire 3 leaves the elbow 8 and the point where it is attached to the bond wire 4, it is formed with a coil 3^a which compensates for all movements of the rail which will take place, either due to expansion and contraction, or to creeping of the rail.

The shield 10 may be either a cast or pressed steel structure and it is made of such size that it will embrace the conduit extension 5, the bond wire 4, and the coil 3^a. Its size will also depend on the size of the rail to which it is to be applied. Its upper surface should be rounded outward and downward, and its ends should be rounded over, so that the shield is adapted to shed dirt and not catch brake rigging or any other part that might be dragging from the train. The upper and inner edge of this shield fit against the web of the rail just below the rail tread, and in the end flanges of the shield are formed notches 10^a that fit the adjacent foot flange of the rail.

The shield is held to the rail by a pair of hook bolts 11 provided with nuts 12. The hooked ends of these bolts embrace the inner edges of the flange of the rail and their threaded ends are passed outward through perforations in the shield, and the nuts 12 when tightened, securely clamp the shield to the rail. The notches 10^a interlock the shield to the rail in such manner that the shield will not be tilted out of working position when the hook bolts are tightened. The shield may, of course, by this arrangement, be very easily and securely applied to the rail, and easily adjusted thereon so as to properly set the shield in respect to the conduit terminal and cooperating parts. The conduit and trunking are the relatively fixed elements and the rail with the attached shield is, as already indicated, capable of limited vertical movements and of very considerable endwise or creeping movements, without disturbing the electrical connection between the rail and the wire of the signaling system. In fact, the space between the

hook bolts 11 and the conduit extension 5 represents the maximum possible travel of the rails under creeping action which can take place without disturbing the said electrical connection.

The shield affords an extremely simple and efficient protection to the electrical connections and to the so-called conduit terminal, protecting the same, not only from movement of the parts that would be likely to break the same, but also from dirt and from rain, snow and ice. It may be also mentioned that it protects the said electrical connections from brine or other chemicals which sometimes are dropped thereon from refrigerator cars, and the like, and which are destructive to the electrical circuits of the signaling system. At the same time, the wires are easily accessible, simply by removing the hook bolts which allow the shield to be quickly removed and as easily again attached. Also, the wires cannot be tampered with by unauthorized parties unless properly equipped with tools, which is seldom the case.

The device is, of course, capable of modification within the scope of the invention, as herein claimed.

What we claim is:

1. The combination with a rail and a conduit, of a saddle embracing said conduit and detachably secured thereto, a conduit terminal secured to said saddle and extending therefrom toward said rail, and a circuit wire extending through said conduit and said conduit extension and electrically connected to the said rail.

2. The combination with a rail and an

electrical conduit, of a yoke-like saddle embracing the said conduit, a bolt passed through said conduit and through the prongs of said saddle, a conduit extension in the form of a pipe attached to the said saddle and having an upper end portion turned toward said rail, and a circuit wire extended through said conduit and said conduit extension and electrically connected to said rail.

3. The combination with a rail, of a conduit having a conduit terminal extending therefrom toward the rail, and a circuit wire extending to said conduit and its extension and from the latter to said rail, and a shield applied to the said rail and covering the said conduit terminal and the electrical connections to the rail and permitting limited vertical and endwise movements of the rail with respect to said conduit terminal, said shield having an inclined top and beveled ends, substantially as described.

4. The combination with a rail having an electrical connection thereto, of a metallic shield for protecting said electrical connection, said shield having in its ends notches that engage the foot flanges of the rail, in combination with nut-equipped hook bolts, the hooked ends of which are reengageable with the foot flange of the said rail, and the threaded ends of which are passed through perforations in the lower portion of said shield, substantially as described.

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