

(No Model.)

Z. KRULIS.
SIGNALING DEVICE FOR RAILWAYS.

No. 487,904.

Patented Dec. 13, 1892.

Fig. 2.

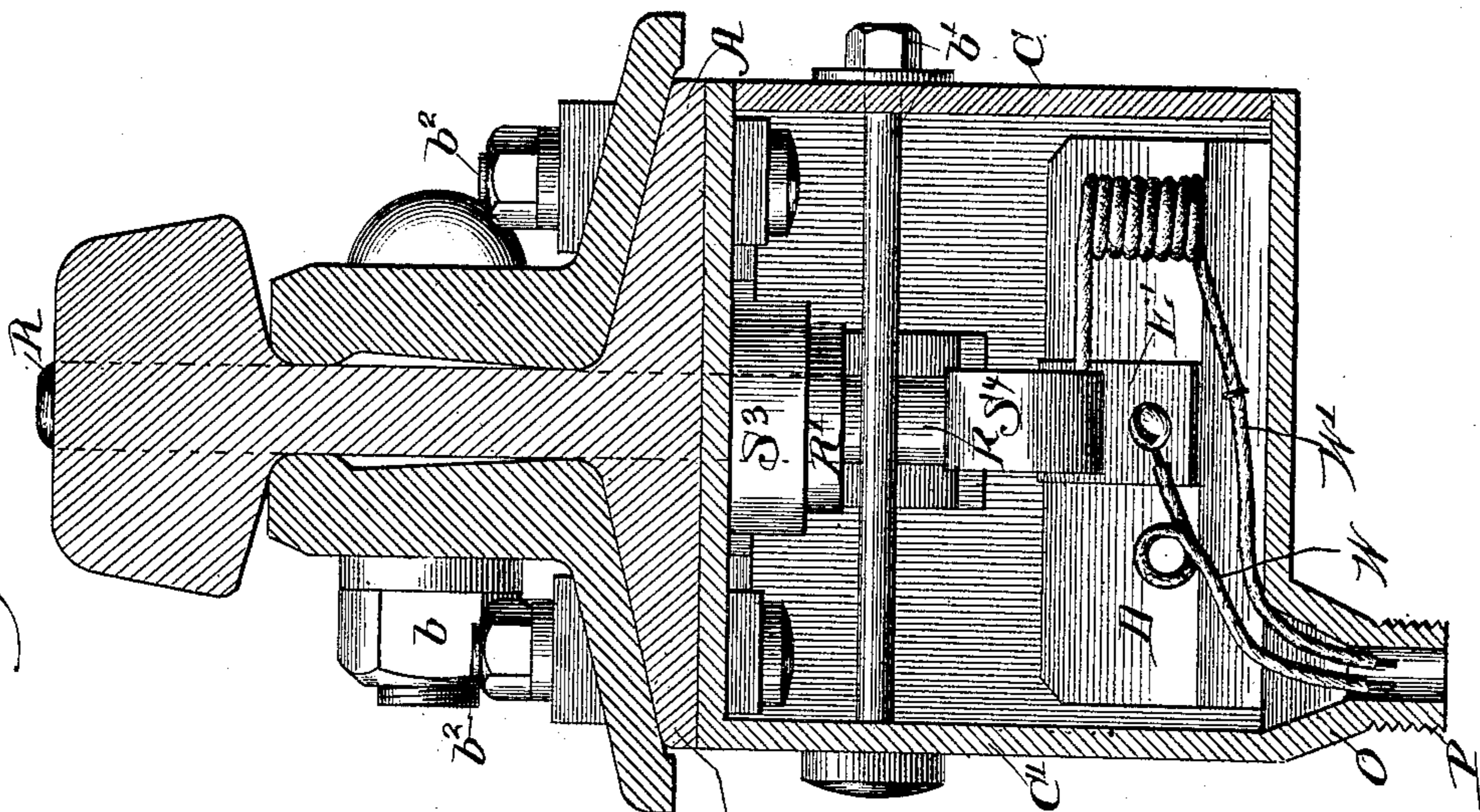
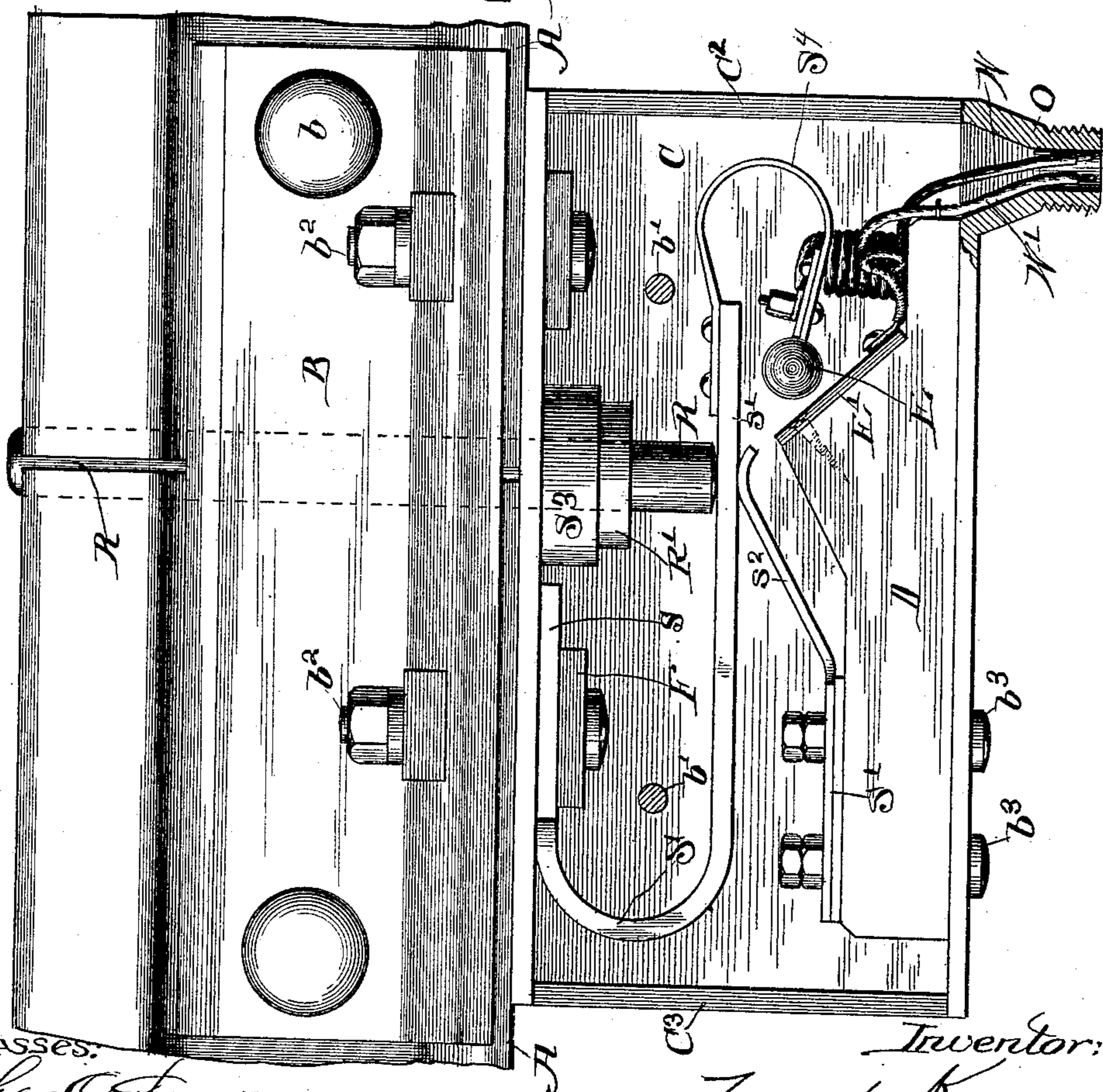


Fig. 1.



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SIGNALING DEVICE FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 487,904, dated December 13, 1892.

Application filed March 28, 1892. Serial No. 426,689. (No model.)

To all whom it may concern:

Be it known that I, ZDENKO KRULIS, a subject of the Emperor of Austria-Hungary, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Signaling Devices for Railways, of which the following is a specification.

My invention relates to improvements in electrically-operated signaling apparatus for railways, and more particularly to the circuit-closing devices of such apparatus, its object being to provide a circuit-closer adapted for use as a part of such an apparatus and to be operated by the passage of a car over the track in which it is set.

The invention is fully described and explained in this specification and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of parts of two meeting rails of a track, together with my improved circuit-closing device, one of the sides of the case in which the device is inclosed being removed to show the parts within; and Fig. 2 is a transverse section of one of the rails and an end elevation of the circuit-closing device, one of the ends of the case being removed to show the parts within.

In the views, A A are two rails lying end to end and separated by a slight space, and B B are fish-plates of suitable form connected by bolts b , passing through the web of the rails and forming a connection for the ends thereof. Beneath the ends of the rails lies a case made up of side walls C C', end walls C² C³, and a suitable top and bottom, this case being held in place by means of bolts b^2 in the manner shown in Figs. 1 and 2. The two bolts b^2 at one end of the case serve not only to hold the case in position beneath the rails, but also to support a spring S, Figs. 1 and 2, having two parallel legs s s' , the shorter leg s being held in contact with the top of the case by means of a transverse bar F, lying beneath it, and the bar itself being held firmly in place by means of the bolts b^2 , Figs. 1 and 2.

Upon the upper face of the longer leg s' of the spring S rests the lower end of a vertical rod R, which extends upward between the ends of the rails A A, the meeting ends of the

rails being recessed to receive the rod and permit it to slide freely up and down. The rod is encircled near its lower end by a rigidly-attached collar R', which is pressed upward by the spring S against a rubber ring S³, forming a spring-cushion between the collar R' and the top of the box. The length of the rod and the arrangement of the collar R' and cushion S³ are such that the upper end of the rod projects slightly above the tread of the rail in the manner shown in Fig. 1, so that when a car-wheel passes over the end of the rod and presses it down to the level of the top of the tread the lower end of the rod and the lower leg of the spring S are correspondingly depressed.

Beneath the spring S is a block D, upon which is mounted a spring S', whose end s^2 is turned upward and presses against the lower face of the spring S at a point immediately under the end of the rod R, the block D and the spring S' being secured in place by means of bolts b^3 , passing upward through the bottom of the box and also through longitudinal slots in the block and the end of the spring, said slot being for the purpose of permitting longitudinal adjustment of the block.

On the block D at a point under the free end of the spring S is fastened an inclined plate E', of suitable conducting material, which forms the terminal of one of the wires W' of an electric circuit, and upon the free end of the spring S is fastened a light curved spring S⁴, provided at its end with a ball or button E, which forms the terminal of the other wire W of said circuit, the circuit being of course so arranged as to include some suitable source of electrical energy and also any such devices for producing visible or audible signals, as it may be desired to operate by means of the circuit. The two wires W W' are carried from the terminals E E' through an opening O and pipe P at one of angles of the case, the pipe being preferably screw-threaded to adapt it for coupling it to other pipes, if necessary.

It is evident from the drawings and the relations of the parts shown therein that the passage of a car-wheel over the upper end of the rod R must press it downward, overcoming the force of the springs S S' and depress-

ing the free end of the spring S sufficiently to bring the button E into contact with the plate E', thereby closing the circuit and bringing it into operation. The spring S⁴,
 5 upon which the button E is mounted, is preferably of such size and form as to be given a slight vibratory motion, so that when suddenly pressed down by the passage of a wheel over the rod R it may strike the plate E' a
 10 number of times in rapid succession. The inclination of the plate E' provides a suitable means for regulating the distance between it and the button E, since a slight longitudinal movement of the block D is all that
 15 is necessary to bring the plate nearer to the button or farther from it, and this longitudinal movement of the block is provided for by slotting it for the reception of the bolts b³ in the manner already referred to.
 20 The case may be so constructed as to have all its sides detachably fastened in place, if desired; but I have only found it necessary to make one of the sides—as, for instance, the side C', Fig. 2—detachable by securing it in
 25 place with one or more bolts b', Fig. 2. The placing of the vertically-sliding rod R at the junction of the two rails is of course not absolutely essential to the operation of my device; but it is a very advantageous feature of
 30 construction, since it permits the forming of a chamber for the rod without the weakening of the rail, which would result from drilling a vertical hole through the rail for its reception.
 35 Having now described and explained my invention, what I claim as new, and desire to secure by Letters Patent, is—
 1. The combination, with two meeting railroad-rails, of a vertically-sliding rod lying in
 40 a chamber formed in the ends of said rails and projecting slightly above the tread of the

rails, a spring pressing the rod upward and holding it normally in its raised position, and two terminals of an electric circuit, one of said terminals being operated by said spring 45 and thereby pressed against the other when the spring is pressed downward by downward movement of the rod.

2. The combination, with the rails A A, of the case lying beneath the rails, the rod R, 50 having its lower end in the case and its upper end slightly above the tread of the rails, the spring S, pressing the rod upward, the terminal E, controlled by the spring, the terminal E', and wires W W', attached to said terminals, respectively, substantially as shown 55 and described.

3. The combination, with the rails and the case secured beneath the rails, of the rod R, spring S, terminal E, and wire W of the wire 60 W', the inclined plate E', forming the terminal of the wire and supported beneath the terminal E, and means, substantially as shown and described, for adjusting the plate E' horizontally and thereby varying its distance 65 from the terminal E, substantially as shown and described.

4. The combination, with the rails A A and the case secured beneath the rails, of the rod R, having the collar R', the cushion S³, the 70 spring S, the spring S⁴, and the terminal E, the block D, fastened to the bottom of the case and longitudinally adjustable thereon, the spring S, the inclined plate E', fastened to the block, and the wires W W', connected 75 with the terminal E and plate E', substantially as shown and described.

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