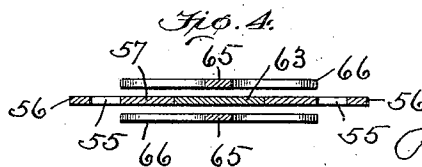
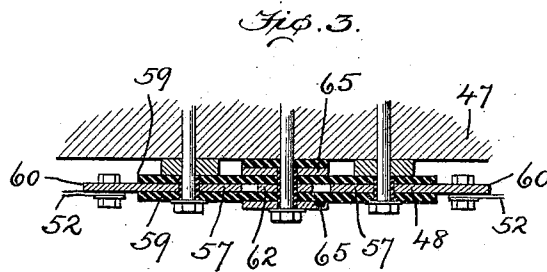
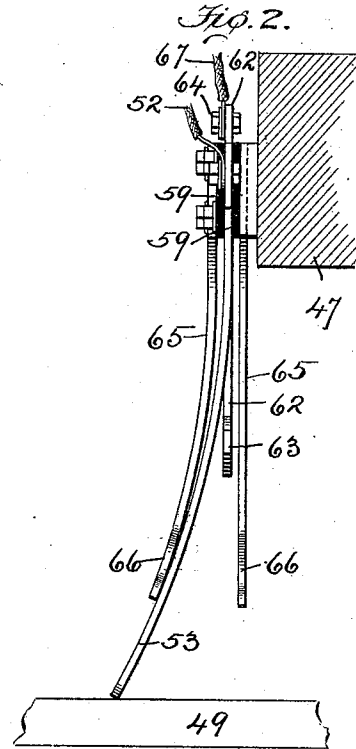
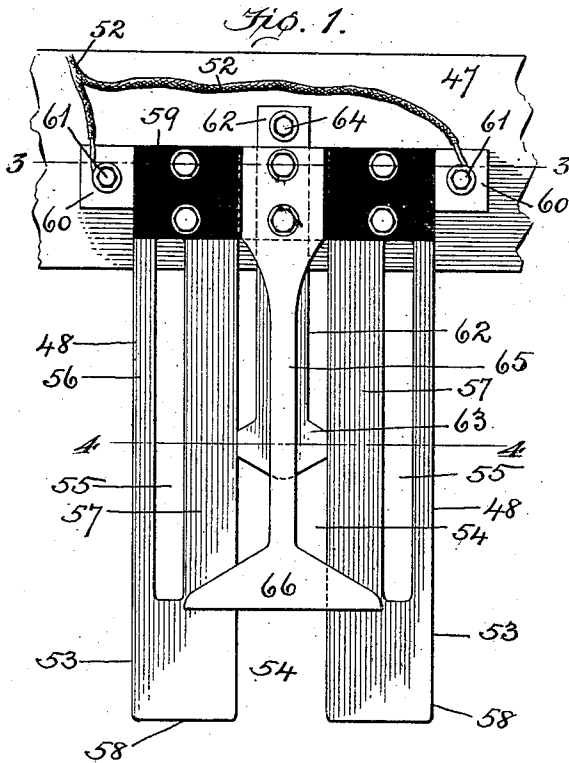


R. T. & F. T. JONES.
CONTACT SHOE.
APPLICATION FILED AUG. 16, 1909.

987,991.

Patented Mar. 28, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

RICHARD T. JONES AND FRANK T. JONES, OF BALTIMORE, MARYLAND.

CONTACT-SHOE.

987,991.

Specification of Letters Patent.

Patented Mar. 28, 1911.

Application filed August 16, 1909. Serial No. 512,939.

To all whom it may concern:

Be it known that we, RICHARD T. JONES and FRANK T. JONES, citizens of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Contact-Shoes, of which the following is a specification.

This invention relates to improvements in contact shoes for electrically-controlled signals for railways.

One object of the invention is to provide an improved arrangement of shoe mechanism and circuits therethrough for operating the air brakes on the vehicle.

Another object is to provide an improved form of contact shoe whereby a disarrangement or breaking thereof to such an extent as to render it inoperative will readily be detected.

With these and other objects in view the invention is illustrated in the accompanying drawing in which,—

Figures 1 and 2 are enlarged side and edge views respectively of the improved shoe or contact device. Fig. 3 is a cross-section of the same,—the section being taken on the line 3—3 of Fig. 1, and Fig. 4 is also a cross-section of the shoe or contact on the line 4—4 of Fig. 1.

Referring to the drawing it will be seen that the shoe employs two mechanically-disconnected spring-metal contact plates, 53, which are separated from each other so as to form a central vertical space, 54, for a purpose presently to be described. These contact plates are provided with vertical slots, 55, which extend downwardly from their upper ends so as to produce a plurality of members, 56, and, 57, which are disconnected at their upper ends but joined at their lower contact ends, 58. The upper disconnected ends of these plates are secured in the same vertical plane between suitable plates, 59, of insulating material so the members, 56, and, 57, thereof will be insulated from each other at their upper ends. A lug, 60, projects laterally from each plate and a binding post, 61, is carried on each lug, for a purpose which will presently be explained.

A central, substantially rigid plate, 62, is clamped between the insulating plates, 59, and depends therefrom and into the central vertical space, 54. The lower end, 63, of this plate, 62, extends laterally and forms a contact with the inner vertical edges of the

plates, 53, when the latter are in the normal vertical depending position and thereby forms a bridge for the passage of a current of electricity from either of the members, 56, 57, to the plate, 62.

It will be noted that the end, 63, of central plates, 62, has position in a horizontal plane above the lower ends of the slots, 55, that extend vertically between members, 56, and, 57. This relation of slots and said end, 63, is important because it requires the current to pass down through member, 56, to a point near the contact end and below the slots, 55, before it can reach the central plate, 62, by way of member, 57. The contact end of plate, 53, which includes both members, is subject to considerable strain and we have found it desirable that more than one plate be used for the reason that the bending or springing thereof is more readily accomplished and a more certain contact is insured. If one plate should become broken above the lower end of slot, 55, the other plate, still being serviceable will supply the current through the end, 63, of the central plate and consequently the circuit will be maintained although one plate should become broken.

The vertical slots, 55, in the plates, 53, beside serving to separate the members, 56, and, 57, except at their lower ends where the contact is made so as to require the current to pass below the end, 63, of the center plate before it can pass from one member to the other, also serves to render the members more flexible to meet the requirements of a contact that is to bend in either direction.

The plate, 62, in the present instance, has its upper end projected above the insulated plates and carries a binding post, 64, for an electric connection as will presently appear.

On the outer side of the plates, 59, we secure suitable depending arms, 65, which have a central position with respect to the plates, 53, and the lower end of each arm is provided with a horizontal contact arm, 66, that projects laterally with its opposite ends in front of the contact plates, 53. Normally the arms, 66, are out of contact with the plates, 53, and merely hang pendantly at opposite sides thereof but when the lower ends of said plates are bowed one of said arms, 66, will form a contact between the spaced-apart plates. It will thus be seen that when the spring contact plates, 53, are

in the vertical position they are in electrical contact with the central plate, 62, but when they are bowed, as seen in Fig. 2, they are backed up by the arm, 66. The arm, 66, thus serves to reinforce the spring contact plates when they are bowed.

Having thus described our invention what we claim and desire to secure by Letters Patent is,—

10 1. A contact shoe for moving vehicles comprising spaced-apart pendant spring plates each having an electrical connection from one side of the same source of energy and the lower ends of said plates being movable; a contact plate interposed between and
15 independent of said pendant spring plates and normally connecting them electrically,—said interposed plate being electrically connected to the other side of the said source
20 of energy whereby said spring plates may be moved independently of the interposed plate to interrupt the electrical connection between them.

25 2. A contact shoe for moving vehicles comprising two vertical spaced-apart spring plates each having a vertical slot to form a plurality of spring members; electric connections with said two plates and the members thereof to electrically connect them with

one side of the same source of energy; a
30 contact plate interposed between said two plates and normally connecting them electrically; means for connecting said interposed plate with the other side of the said source of energy whereby the free ends of
35 said spring plates may be moved independently of the interposed plate to break contact therewith.

3. A contact shoe for moving vehicles comprising spring plates mechanically dis-
40 connected and sustained from one end; means for electrically connecting each plate to one side of the same source of energy; a contact plate adjacent to the spring plates and in normal electrical connection there-
45 with; means for electrically connecting the said contact plate with the other side of said source of energy, and an arm sustained at the side of the spring plates to engage the
50 latter when they are moved out of contact with the said contact plate.

In testimony whereof we affix our signatures in presence of two witnesses.

RICHARD T. JONES.
FRANK T. JONES.

Witnesses:

G. FERDINAND VOGT,
CHARLES B. MANN, Jr.