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CIRCUIT BREAKER.
APPLICATION FILED APR. 30, 1915.

1,172,137. Patented Feb. 15, 1916.

FIG. 1.

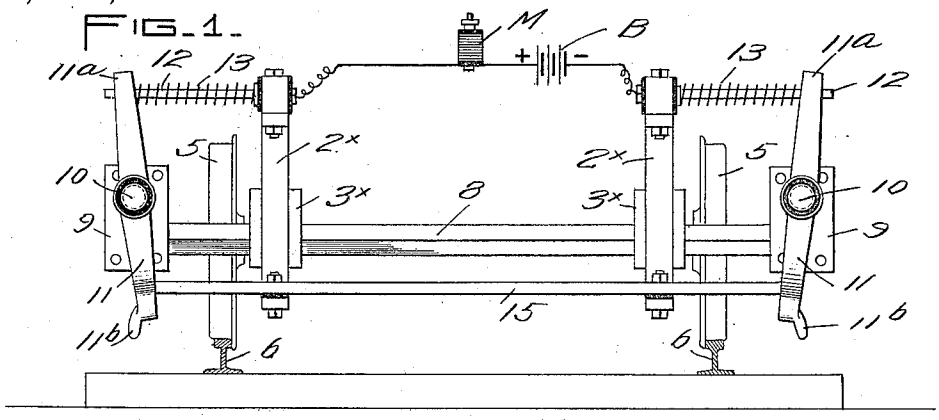


FIG. 2.

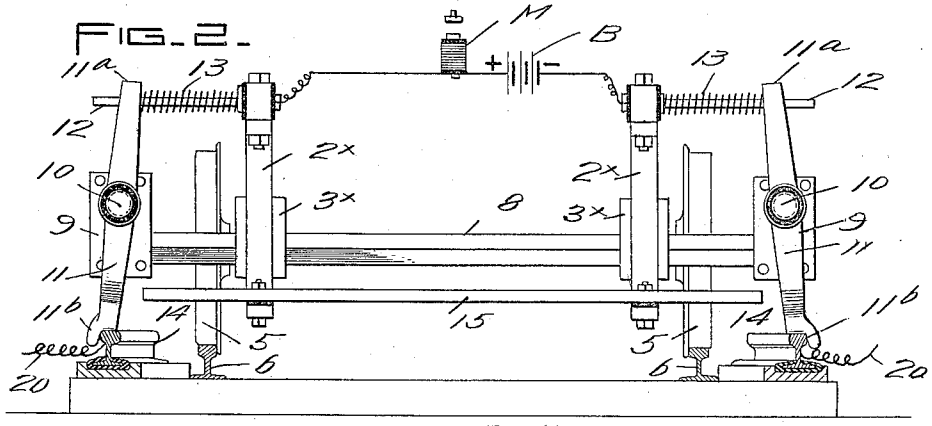


FIG. 3.

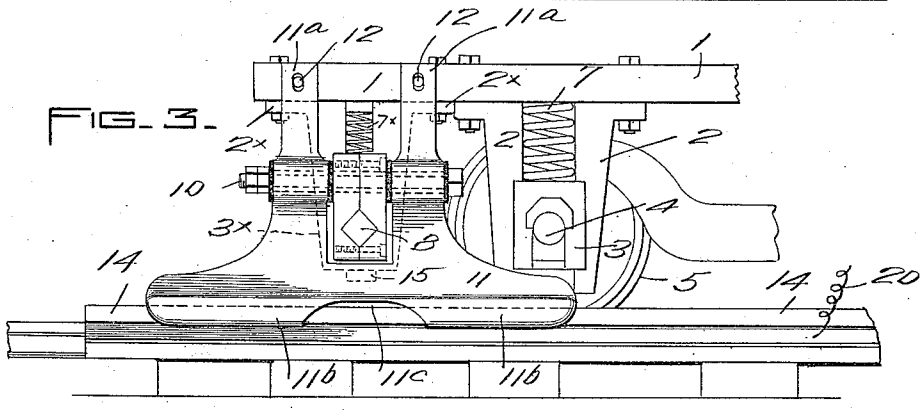
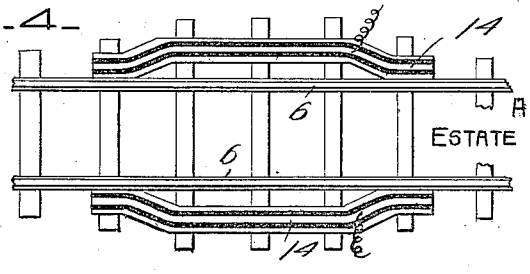


FIG. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK F. HUDSON, DECEASED, LATE OF MEMPHIS, TENNESSEE, BY ANNIE HUDSON, ADMINISTRATRIX, OF MEMPHIS, TENNESSEE, ASSIGNOR TO RECORDING SAFETY DEVICE COMPANY, OF MEMPHIS, TENNESSEE, A CORPORATION OF ARIZONA.

CIRCUIT-BREAKER.

1,172,137. Specification of Letters Patent. Patented Feb. 15, 1916.

Original application filed June 10, 1914, Serial No. 844,249. Divided and this application filed April 30, 1915. Serial No. 24,878.

To all whom it may concern:

Be it known that I, ANNIE HUDSON, a citizen of the United States, and a resident of Memphis, in the county of Shelby and State of Tennessee, am administratrix of the estate of FREDERICK F. HUDSON, late a citizen of the United States, deceased, and a resident of Memphis, in the county of Shelby and State of Tennessee, who during his lifetime made certain new and useful Improvements in Circuit-Breakers, of which the following is a specification.

This invention relates to an improvement in circuit breakers, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of the invention is to provide a novel form of contact shoe for establishing electrical connection between the contact rails and electrically operated devices on an engine.

A further object of the invention is to provide a novel form of circuit breaker, which is operated by contact rails disposed along the track.

A further object of the invention is to provide a circuit breaker by means of which a circuit on the engine which is kept normally closed may be broken at predetermined points along the track, by the provision of certain additional parts to those carried by the ordinary truck.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

The invention is illustrated in the accompanying drawings forming part of this application, in which—

Figure 1 is a front view of the circuit breaker and contact shoe showing the device in one position. Fig. 2 is a similar view showing the device in another position. Fig. 3 is a side view of the device, and Fig. 4 is a plan view of a pair of contact rails.

The device which forms the subject of this invention was fully set forth in a prior application, Serial Number 844249, filed June 10, 1914. This application is a division of said prior application.

In the prior application above referred to, the train stopping mechanism is controlled by a main magnet or relay carried by the engine and arranged to be normally actuated by a local circuit on the engine.

Referring now particularly to Fig. 3, it will be seen that the frame 1 of the engine truck is provided with hangers 2 for the movable boxing 3 of the axle 4, upon which are mounted the wheels 5, that are designed to run on the track rails 6, see Figs. 1 and 2. The boxing 3 is acted on by a spring 7 in the usual manner, so as to permit slight movement of the boxing with respect to the hangers 2 when obstructions are met. This is the ordinary form of construction of means for mounting the wheels. Secured to the frame member 1 are hangers $2^{\times}$ similar to those shown at 2, which support a boxing $3^{\times}$ similar to the boxing 3 which is acted on by a spring $7^{\times}$ similar to the spring 7. The shaft 8 which passes through the boxing $3^{\times}$ on opposite sides of the car, is preferably squared and is extended beyond the wheels 5. To each end of the shaft 8 is secured a block 9 formed by two members, held together by screw bolts or in any other suitable manner. The blocks 9 serve as supports for a pivot rod 10.

The shoe proper consists of a body portion 11 of a substantially U-shape, the arms 11^{a} extending upwardly and being slotted to receive the ends of rods or arms 12, which are secured to the frame member 1, and which are provided with springs such as those shown at 13 arranged to bear at one end on the frame member and at the other end upon the arms 11^{a}. The bottom part of the shoe has a curved extension, as shown at 11^{b} which is arranged to engage the contact rail 14. The construction and purpose of this contact rail will be explained later. The shoe has a central recess 11^{c}, see Fig. 3, which really divides the shoe longitudinally into two parts. It is found in practice that when the shoe is thus divided,

the advance portion of the shoe, when the engine is moving in either direction, will tend to remove any rust which may have accumulated on the contact rail by its frictional contact with the rail, the space 11^c allowing the rust to fall or to be blown off the track, thereby providing a clean rail for the rear portion of the shoe, and thus effecting a good contact at all times. It will be understood, of course, that shoes such as that described, are provided at each side of the track, as shown in Figs. 1 and 2, these shoes being on the common rod 8.

Carried by the hangers 2^x is a conducting bar 15 which is normally in contact with the inner sides of the opposed shoes, as shown in Fig. 1, these shoes being held by means of the springs 13 against the ends of the bar so as to afford a good electrical connection. When, however, the shoes are spread apart by the curved contact rails 14, the electrical connection of the shoes with the bar 15 is broken. The shoes are pivotally suspended on the pivot rod 10 so that the engagement of the lower ends of the shoes will cause them to be rotated on the pivot rod. As is shown in the drawings, the shoes 11 are completely insulated from the boxing, as is also the rod 15. The local circuit includes a battery B, and a magnet M, the normal position of the shoes being that shown in Fig. 1. In this position a circuit is closed from the battery B through the magnet M, the rod 12, shoe 11 at one side, bar 15, through the shoe 11 at the other side, and back through the rod 12 to the battery. When the circuit is broken at the end of the rod 15 by the contact rail 14, the magnet M is designed to be energized by a circuit completed through the contact rail and the contact shoe. The energization of the magnet M, however, through this external circuit, forms no part of the present invention, except in so far as it relates to the contact shoe itself.

Referring now to Fig. 4, it will be seen that the track is provided with auxiliary contact rails 14, these rails being disposed on opposite sides of the track and being arranged in pairs. One of these pairs is shown in Fig. 4. As has been before stated, the circuit breaker of the contact shoe is designed to be operated with the train stopping mechanism which forms the subject matter of the divisional application. In the present application it is sufficient to say that at certain predetermined places, it is desirable to break the local circuit by means of which the magnet M is energized, and to connect the shoes 11 with a contact rail to which a conductor such as that shown at 20, is attached, this conductor being connected with any suitable source of current not shown. It will be observed from Fig. 4, that the ends of the contact rails 14 are beveled or curved outwardly. Now when a train is proceeding along a track, the local circuit is closed through the magnet M in the manner shown in Fig. 1, but when the shoes reach that portion of the track provided with the contact rails 14, they will be thrown outwardly in the manner indicated in Fig. 2, thereby breaking the local circuit at the end of the bar 15. The shoes are then in connection with the contact rails 14 which are supplied by a suitable source of current through the conductor 20. The rails 14 serve, therefore, not only as a cam member for moving the shoes 11, but also serve as a conducting member for supplying current to the shoes. As soon as the train has passed the contact rails 14, the springs 13 cause the lower ends of the shoes to again be brought into contact with the bar 15, thereby establishing the local circuit.

What is claimed as new is:

1. The combination of a contact shoe comprising a shaft, a body portion pivotally mounted on the shaft, said body portion being provided with a pair of extensions on the lower portion thereof arranged to engage a contact rail, said extensions being spaced apart, and means for permitting a vertical movement of the shoe to compensate for inequalities in the contact rail.

2. The combination with a locomotive truck, of a pivoted contact shoe carried on each side of the truck, each of said contact shoes having a portion arranged to engage the contact rail for moving the shoes apart, and means for maintaining the electrical connection between the shoes, said last-named means comprising a bar carried by the truck, the ends of the bar being pressed upon by portions of the shoe.

3. The combination with a locomotive truck frame, of hangers carried thereby, a vertically movable boxing carried by said hangers at each end of the truck frame, a spring disposed between each of said boxings and said frame, a rod extending through said boxings, a block carried by each end of said last named rod, and a pivotally mounted spring pressed contact shoe carried by each of said blocks.

4. The combination with a locomotive truck frame, of hangers carried thereby, a vertically movable boxing carried by said hangers at each end of the truck frame, a spring disposed between each of said boxings and said frame, a rod extending through said boxings, a block carried by each end of said last named rod, a pivoted rod carried by each of said blocks, and U-shaped contact shoes mounted on said pivoted rods and arranged to straddle said blocks.

5. The combination with a locomotive truck frame, of hangers carried thereby, a vertically movable boxing carried by said

hangers at each end of the truck frame, a spring disposed between each of said boxings and said frame, a rod extending through said boxings, a block carried by each end of said last-named rod, a pivoted rod carried by each of said blocks, U-shaped contact shoes mounted on said pivoted rods and arranged to straddle said blocks, and means for guiding the contact shoes in their vertical movement.

MRS. ANNIE HUDSON,
Administratrix.

Witnesses:
JULIAN G. STRAUS,
J. E. DILLARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."