C. J. GRAHAM & J. A. FARRIS.

CIRCUIT CLOSER FOR AUTOMATIC TRAIN STOPS.

APPLICATION FILED JULY 26, 1916.

1,223,866.

Patented Apr. 24, 1917.

Fig. 1.

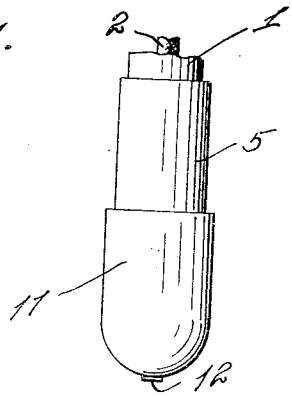


Fig. 2.

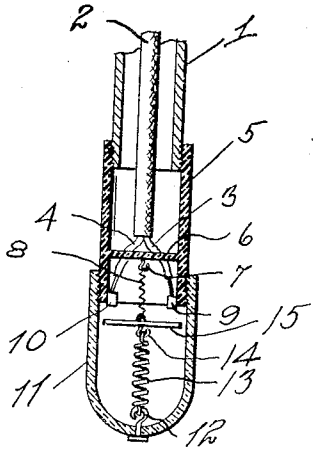
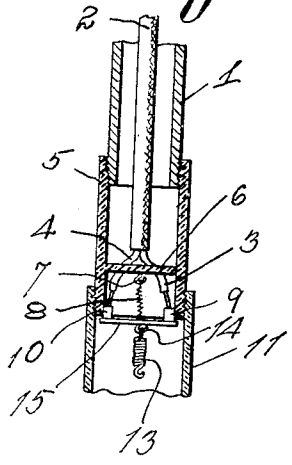


Fig. 3.



Witnesses

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THE NORRIS PETERS CO. PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CLARENCE J. GRAHAM AND JOSEPH A. FARRIS, OF CHICAGO, ILLINOIS.

CIRCUIT-CLOSER FOR AUTOMATIC TRAIN-STOPS.

1,223,866. Specification of Letters Patent. Patented Apr. 24, 1917.

Original application filed February 15, 1916, Serial No. 78,502, now Patent No. 1,200,339. Divided and this application filed July 26, 1916. Serial No. 111,453.

To all whom it may concern:

Be it known that we, CLARENCE J. GRAHAM and JOSEPH A. FARRIS, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Circuit-Closers for Automatic Train-Stops; and I do hereby declare the following to be a full, 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.

This invention relates to new and useful improvements in circuit closers for automatic train stops and is a division of our co-pending application for automatic train stops, filed February 15, 1916, Serial No. 78,502.

The principal object of the invention is to provide a novel form of circuit closer for completing an electric circuit should the truck of the train on which our improved train stop is attached leave the track.

Another object of the invention is to provide a circuit closer provided with a frangible shell which when the truck leaves the track is broken thereby allowing the contact to move into engagement with a pair of spaced contacts thereby completing a suitable electric circuit for operating a stop mechanism.

A still further object of the invention is to provide a circuit closer which may be attached to the lower end of a conduit and supported in close proximity to a railroad track which consists of a sleeve of insulating material supporting suitable spaced contacts and a substantially inverted dome-shaped cap which is secured to the lower end of the sleeve and is provided with a hook for supporting a relatively strong spring, the upper end of which is hooked to the bridging contact and a slightly weaker spring is attached to the sleeve and to the bridging contact so as to pull the same toward the spaced contacts when the dome-shaped cap is broken.

With these and other objects in view, the invention consists in the novel combination and arrangement of parts which will be fully set forth in the following specification and accompanying drawing, in which:—

Figure 1 is a side view in elevation of a circuit closer constructed in accordance with this invention showing the same attached to the lower end of a conduit.

Fig. 2 is a vertical sectional view through Fig. 1, and

Fig. 3 is a view similar to Fig. 2 showing the relative position of the parts after the cap has been broken.

Referring to the drawing the numeral 1 designates the conduit which may be of any preferred form and provided at its lower end with external screw threads. A suitable cable 2 passes through the conduit and carries a pair of wires 3 and 4 which are connected to the spaced stationary contacts hereinbefore referred to.

Threaded on to the lower end of the conduit 1 is the insulating sleeve designated by the numeral 5 which is provided at its upper end with internal screw threads and at its lower end with external screw threads. This sleeve is formed intermediate its ends with a web 6 which is provided with suitable apertures through which the wires 3 and 4 pass and this web is provided centrally of its under side with a hook 7 to which the weaker coil spring 8 is attached. A pair of spaced contacts 9 and 10 are supported at the lower end of the sleeve and project slightly below the same and to these contacts are attached the wires 3 and 4 respectively.

Threaded on to the lower terminal of the sleeve 5 is the dome-shaped cap 11 supporting at its lower end the hook 12 to which the lower end of the retractile coil spring 13 is attached. This spring 13 is stronger than the spring 8 so as to normally hold the bridging contact downwardly and away from engagement with the contacts 9 and 10 hereinbefore referred. The upper end of the spring 13 is connected to a hook 14 secured to the under side of the bridging contact 15. It will be apparent from the foregoing that in use the device is assembled in the manner illustrated in the drawing and when one of the trucks leaves the track it will be evident that the dome-shaped cap 11 will be broken due to the fact that the same is supported near the track rail and as soon as the wheel leaves the track it will contact with said rail and upon the breaking of said cap it will be evident that the tension on the spring 13 will be released thereby allowing the spring 8 to move the

bridging contact 15 upwardly and into engagement with the contacts 9 and 10. It will thus be seen that an electric circuit will be completed between the contacts 9 and 10 which may be used to operate any suitable stopping mechanism by which the train may be brought to a stand still.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that such changes may be made in the combination and arrangement of parts as will fall within the spirit and scope of the appended claims.

What is claimed is:—

1. In a circuit closer, a body, contacts supported by said body, a frangible member secured to the body, a hook carried by the body, a hook carried by the frangible member, a bridging contact, a relatively weak spring connected to one side of the bridging contact and to the hook connected to the body, said spring normally tending to move the bridging contact into engagement with the contacts carried by the body, and a spring of greater strength secured to the opposite side of the bridging contact and to the frangible element so that said frangible element will hold the bridging contact away from the contacts under normal conditions and when broken will allow the weak spring to move the bridging contact against the contacts carried by the body to complete an electric circuit.

2. In an automatic train stop, a circuit closer comprising a hollow cylindrical body, contacts at diametrically opposed points within said body, a disk for bridging said contacts, a glass bulb on the lower end of said body, a relatively heavy spring for holding the disk away from the contacts, said spring being connected to the lower end of the bulb whereby upon the breaking of the bulb the disk will be free to move upwardly and a relatively weak spring attached to the upper side of the disk for moving the same upwardly.

3. A circuit closer for an automatic train stop including a sleeve of insulated material having a web extending transversely thereof intermediate its ends, means to rigidly support the sleeve in vertical position, contacts at the lower end of the sleeve arranged at diametrically opposite points, an inverted dome-shaped cap secured to the lower terminal of the sleeve, a bridging contact within the cap, a relatively strong spring to hold the bridging contact away from the contacts and a relatively weak spring attached to the bridging contact and to the web to move the bridging contact into engagement with the contacts upon breakage of the cap.

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

CLARENCE J. GRAHAM.
JOSEPH A. FARRIS.

Witnesses:
JOSEPH T. KEARNS,
PETER F. BRONS.

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