No. 650,123. Patented May 22, 1900.

W. M. BROWN.

CONTACT DEVICE FOR ELECTRIC RAILWAYS.

(Application filed Sept. 20, 1899.)

(No Model.)

Fig. 1.

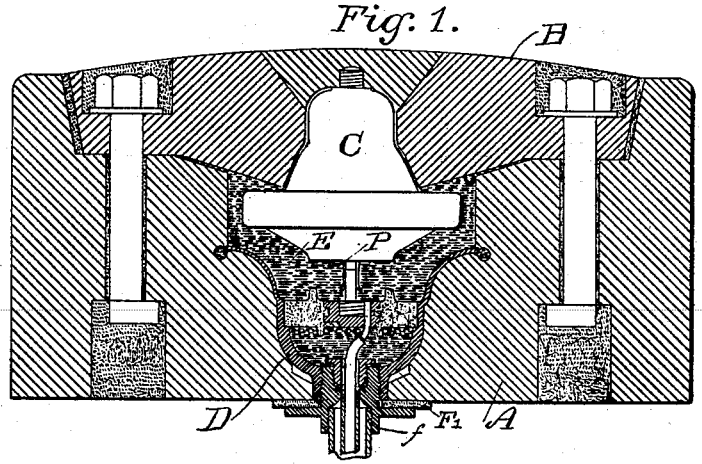


Fig. 2.

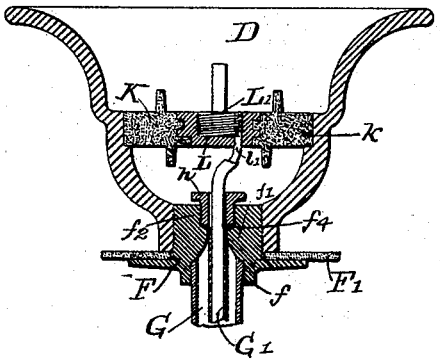


Fig. 3.

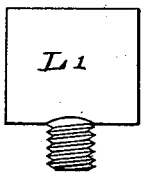
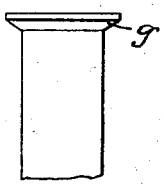


Fig. 4.



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CONTACT DEVICE FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 650,123, dated May 22, 1900.

Application filed September 20, 1899. Serial No. 731,133. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILTON BROWN, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Electric Contact Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates, primarily, to electric contact devices for use in connection with that class of electric railways which employ isolated contacts located at about the ground-level and normally disconnected from the source of electric supply—such, for instance, as the system described and claimed in my Patent No. 558,151, of April 14, 1896. Certain features of my invention have, however, a much wider application and may be used to advantage wherever it is desired to make a waterproof joint between a lead-covered electric cable and the parts to which it is connected.

An object of my invention is to provide means of simple and inexpensive character for making a joint between the lead covering of an electric cable and the contact box or device into which said cable extends of a character to exclude the possibility of any moisture finding its way into said box or device along the surface of the lead covering; also, to provide a joint of this character in which the parts composing it may be readily removed and replaced at any time.

A further object of my invention is to provide simple and effective means for making proper electrical connection between the bared conductor within the contact-box and the parts to which the current is taken from said conductor.

I attain these objects by the novel construction and arrangement of parts which I will now describe and which are particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a contact-box embodying my invention. Fig. 2 is a similar view, on a larger scale, of the parts in which the invention more particularly resides; and Figs. 3 and 4 are detail views.

For the purpose of illustration I have shown in Fig. 1 a contact-box of the general construction illustrated in the patent granted to me on the 27th day of June, 1899, No. 627,476. The letter A in said drawings designates the base or body of the box; B, its cover; C, the cup or vessel which contains the movable contact device; D, the vessel or inverted bell which is seated within said base, and E the liquid insulating material, all substantially as in the said patent.

F is a large nut having a threaded seat f at its under side to receive the end of the tubular covering G, which incloses the lead-covered cable G′, and on its upper side a tubular externally-threaded boss f', upon which is screwed the bell D. F′ is a rubber washer or packing which is interposed between the broad body-flange of said nut and the bell, said washer also extending underneath the adjacent portion of the base A. The interior of the boss f' is formed with a counterbore f^2, having a thread and a beveled or concaved seat f^4 below the said thread. In the formation of the said seat care is taken that its diameter shall be slightly less than the diameter of the threaded portion, so that the thread of the latter will not form an obstruction by projecting over the said seat.

In forming the joint the end of the cable is passed up through the nut F and through the boss f', as shown. The lead covering is removed from the upper end portion of the cable and its end is flared outwardly, as shown at g, to fit the seat f^4. A nut h is then slipped over the end of the cable and is screwed tightly down onto the flared portion g. As will be readily seen, if the above-described construction and arrangement be properly made, it will be impossible for moisture to find its way into the box along the lead cable-covering, as it will be effectually stopped and turned back by the flared end g.

If for any purpose it is desired to remove the cable, it may be readily done by opening the contact-box and removing the nut h. The cable, having been disconnected from the junction-box from which it proceeds, can be readily drawn up through the contact-box and replaced or a new cable be inserted.

The opening in the nut h, through which

the insulated cable extends, is preferably made sufficiently large to permit the insulating compound to surround the cable, as shown.

The connection between the cable conductor and the cup or vessel C is made in the following manner:

K is a circular insulator similar to that shown in the said Patent No. 627,476, which is supported on lugs or a shoulder *k* on the interior of the bell D, with the insulating compound E above and below it. Molded into said insulator is a block or pedestal L, of brass or other suitable material, having therein a threaded seat for a contact-screw L', and to one side of said opening and intersecting the wall of the same a smaller opening *l'* to receive the bared conductor. The opening *l'* intersects the screw-seat sufficiently to permit a small portion of the periphery of the bared conductor to project through into the seat, so that when the screw L' is turned in its thread will embed itself slightly in the conductor, and thus not only secure the latter in place, but also effect a perfect electrical connection between said conductor and the screw. The screw is formed with a broad plate-like head, which is engaged by a spring clip or contact P on the bottom of the cup or vessel C. I thus provide in a simple way for effecting an electrical and mechanical connection which is otherwise somewhat difficult to make properly, owing to the fact that after the insulator K has been seated in the bell with the bared conductor extending into the block L there is obviously no means of access to the bottom or sides of the conductor to bind it in place. The arrangement also readily permits the disconnection of the conductor and the removal of the insulator K.

It will be readily seen that my invention is not limited in its application to the particular contact-box which is herein shown and described; also, that the means employed for effecting the water-tight connection of the lead-covered cable as well as the means for making contact with the bared conductor are capable of use in other kinds of electrical work. I do not wish, therefore, to be limited to all the details which are herein shown and described, as the same may be varied without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

1. The combination with a lead-covered cable having the end portion of its lead covering flanged or flared outwardly, of a member provided with an opening to receive the cable and with a seat therein to receive its flared or flanged end, and means for holding the said flared or flanged end to the said seat.

2. The combination with a lead-covered cable having the end portion of its lead covering flanged or flared outwardly, of a member formed with an opening to receive the said cable and with a seat for its flanged or flared end, of a nut screwed in the said opening against the said end, said nut also having an opening for the cable.

3. In an electrical contact-box, the combination with the body or base, the bell therein, the nut upon which said bell is screwed, and which has a cable opening therethrough, and a seat surrounding said opening, of a lead-covered cable extending through the said nut and having the end portion of its lead covering flanged or flared to fit the said seat, and means for holding said end to the said seat.

4. In an electrical contact-box, the combination with the body or base, the bell therein, the bottom member to which the bell is secured, and which has an opening therethrough to receive a cable and a seat surrounding the said opening and counterbored in the said member, of a cable extending through the said opening and having the end portion of its lead covering flared or flanged to fit the said seat, and a nut seated in said bottom member and holding the said end portion of the cable firmly against the said seat.

5. In an electrical contact-box, the combination of the bell, the nut screwed in the bottom thereof and having an opening therethrough for a cable, said opening having a counterbore formed with a seat at the bottom, the cable having the end portion of its lead covering flanged or flared to fit the said seat, and the smaller nut screwed in said counterbore against the flanged or flared end of the said covering.

6. In an electrical contact-box, the combination of the bell, the nut screwed in the bottom thereof and having an opening therethrough for a cable, said opening having a counterbore formed with a seat at the bottom, the cable having the end portion of its lead covering flanged or flared to fit the said seat, and the smaller nut screwed in said counterbore against the flanged or flared end of the said covering, said smaller nut having an opening therethrough for the cable-conductor, and for insulation.

7. In an electrical contact-box, the combination with a conductor extending into the said box from the under side and having a bared portion therein, and a cap or vessel also in said box and having a split spring clip or contact, of an insulated metallic piece having an opening for the bared conductor, and a screw seated in said piece and engaging the said conductor and having its head engaged by the said clip or contact.

In testimony whereof I have affixed my signature in presence of two witnesses.

W. MILT. BROWN.

Witnesses:
M. E. SHARPE,
H. W. SMITH.