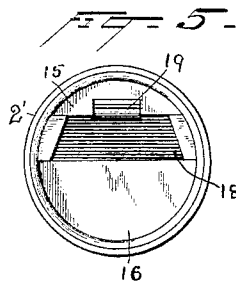
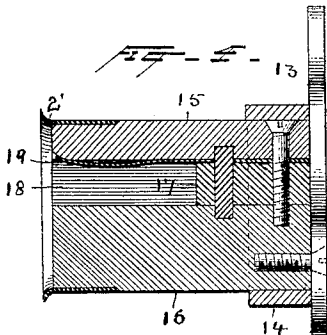
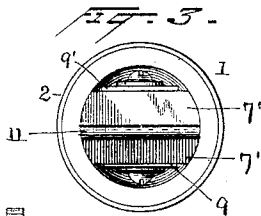
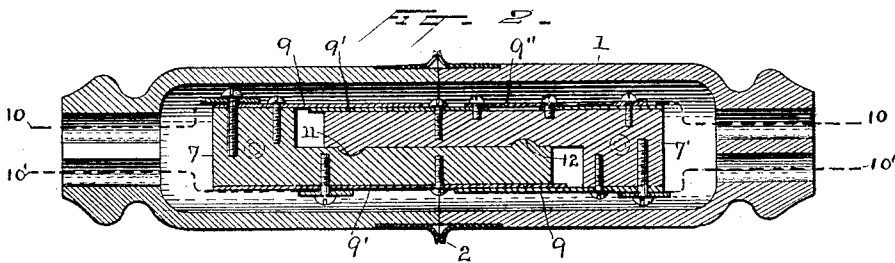
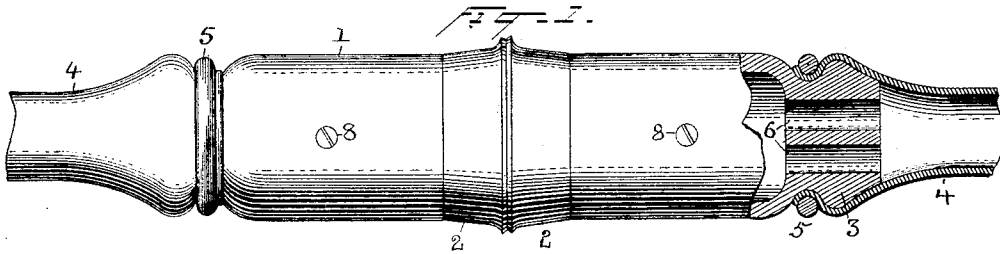


(No Model.)

J. H. DELANY.
COUPLER FOR ELECTRIC WIRES.

No. 461,568.

Patented Oct. 20, 1891.



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UNITED STATES PATENT OFFICE.

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COUPLER FOR ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 461,568, dated October 20, 1891.

Application filed December 29, 1890. Serial No. 376,042. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. DELANY, a citizen of the United States, residing at South Orange, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Couplers for Electric Wires, of which the following is a specification.

The present invention relates to improved devices for connecting the sections of wire constituting a circuit or circuits on a number of cars connected together to form a train or for connecting other circuits.

The device is illustrated in the accompanying drawings, in which—

Figure 1 is a side view, partly in section, of the coupler. Fig. 2 is a central section thereof. Fig. 3 is an end view of one member of the coupler. Fig. 4 is a sectional view of a holder for a coupler member when out of use, and Fig. 5 is an end view of the holder.

The device hereinafter to be described is designed especially for use in connection with lighting-circuits for railway-trains, in which conductors are supported on each car, preferably in rubber or other flexible tubes, which, when the cars are put together in making up trains, are connected together, the conductors being electrically connected at the same time, as is well understood by those familiar with the art.

In the drawings, 11 is a casing for the electrical contacts of the coupler, and is preferably of hard rubber or other similar insulating material. Each tube-section forming the casing has at one end a soft rubber or other similar flange 2 projecting beyond the end of the hard-rubber tube and forming when the tubes are fitted together end to end a water-tight and dust-tight joint. The outer end of each tube-section is provided with a knob or head 3, over which one end of the conductor-carrying tube 4 is placed. The tube is held in position by an elastic ring 5, stretched over it, as clearly shown. In the end of the tube are openings 6, there preferably being one opening for each wire of the circuit. Within the sections of the casing are supported insulating-blocks 7 7'. As shown in Fig. 3, these blocks conform in size and shape to the inner surface of the tube in

which they are placed, although they are not of sufficient thickness to entirely fill the tube. The blocks being slipped into position are securely held by one or more screws 3, inserted from the outside of the tube, suitable holes being provided in the casing for this purpose. On each block 7 7' are supported two circuit-closing springs or contacts 9 9'. It will be seen that spring 9 is short and terminates within the tube in which it is held, while the other projects out of the tube. This arrangement makes it practically impossible for a person handling the coupler member to touch both contacts, thereby closing a circuit through his hand. The insulating-blocks are preferably put in such position that these contacts will be in line, or substantially in line, with the two openings at the end of the tube in order that the wires may be led through the openings and directly to the contacts and all danger of contact between the two wires of the circuit at this point avoided.

10 10' indicate the wires of the circuit.

In order that the coupler members may be securely held together, each insulating-block is provided with an extension or rib 11 and a groove 12, the rib and groove of one block fitting corresponding parts of the other block. Within the casing of the coupler and preferably supported on the blocks 7 7' are placed fusible cut-outs or safety-catches in one or both of the circuit-wires. One such cut-out 9" is shown in Fig. 2. By utilizing the coupler-blocks a separate support for the cut-out is dispensed with. The casing protects the cut-out from mechanical injury and from dirt.

It is desirable when the coupler members are out of use to place them where they will be protected from injury and will be kept clean. For this purpose I provide a holder or socket, as shown in Figs. 4 and 5. 13 is a plate of suitable shape secured to the car in a convenient position. 14 is a short section of tube soldered to said plate. 15, 16, and 17 are blocks of wood or other suitable material fitted together and driven into the tube 14. This construction leaves an opening 18 of proper shape and dimension to receive the narrow portion of the insulating-blocks in a coupler member. A spring 19 is supported between the blocks 15 and 17, and the ten-

sion of said spring serves to hold the coupler member in the socket. Around the open end of the holder is placed a flexible flange 2', corresponding in size and shape to the flanges 2 on the coupler members, whereby when a member is inserted in the holder a tight joint is formed and all moisture and dirt excluded from the contacts. It will be evident that the device for forming a dust and water proof joint between the members may be varied and that the tube-sections forming the casing may be of any desired shape in cross-sections.

Having thus described the invention, what I claim is—

1. The combination, in a coupler for electric wires, of a casing consisting of two tube-sections adapted to fit end to end, an insulating-block held in each section, and springs or electrical contacts on each block, one of which terminates within the tube in which its supporting-block is held and the other of which projects from the tube, substantially as described.

2. The combination, in a coupler for electric wires, of a casing consisting of two tube-sections adapted to fit end to end, an insulating-block for each tube and closely fitting into the tube, said block being of less thickness in one direction than the diameter of the tube, whereby spaces are left on two sides of the block and held rigidly in place by screws or similar devices passing through the tube, and circuit-closing contacts on said blocks, substantially as described.

3. The combination, in a coupler for electric wires, of a casing consisting of two tube-sections adapted to fit end to end, insulating-blocks held in said sections, said blocks fitting snugly into the tube-sections in line with holes in the tubes, whereby they may be read-

ily secured in place, but being of less diameter in one direction than the tube, and circuit-contacts on the blocks for completing the circuit, substantially as described.

4. The combination, in a coupler for electric wires, of a casing consisting of two tube-sections adapted to fit end to end, forming a tight joint, and each section having at its outer end a groove in which is an elastic ring for securing in place thereon a flexible pipe in which the electrical wires are carried, and insulating-blocks within the tube and carrying contacts for completing an electric circuit, substantially as described.

5. A holder for a coupler member, consisting of a socket conforming in shape to said member and having means at its open end to form a tight joint with the coupler member, substantially as described.

6. A holder for a coupler member, consisting of a socket conforming in shape to said member, means for forming a tight joint with said member, and a spring to hold the latter in place, substantially as described.

7. The combination, in a coupler for electric wires, of a casing consisting of two tube-sections adapted to fit end to end, insulating-blocks held in said sections, said blocks fitting snugly into the tube-sections, but being of less diameter in one direction than the tube, circuit-contacts on the blocks for completing the circuit, and a fusible conductor also mounted on one of the blocks within a tube-section, substantially as described.

This specification signed and witnessed this 18th day of December, 1890.

JAMES H. DELANY.

Witnesses:

A. K. WARREN,
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