

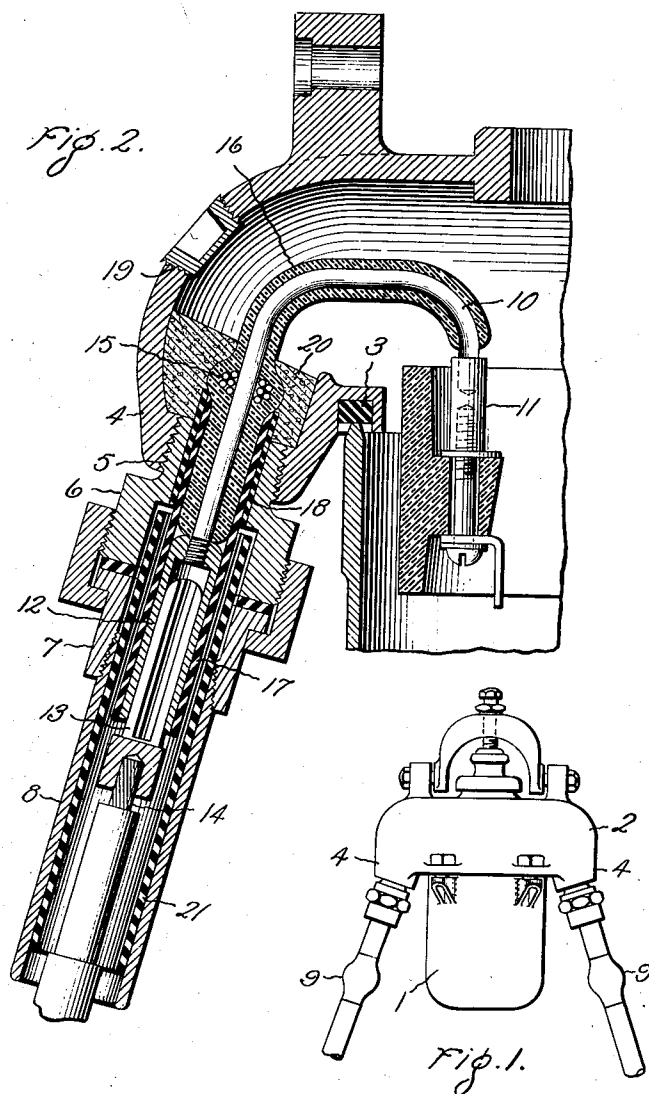
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1,576,102

L. W. DOWNES

TERMINAL CONNECTION FOR ELECTRICAL APPARATUS

Filed Feb. 14, 1922



Inventor:
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UNITED STATES PATENT OFFICE.

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TERMINAL CONNECTION FOR ELECTRICAL APPARATUS.

Application filed February 14, 1922. Serial No. 536,549.

To all whom it may concern:

Be it known that I, LOUIS W. DOWNES, a citizen of the United States, residing at Providence, in the county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Terminal Connections for Electrical Apparatus, of which the following is a specification.

The present invention relates to terminal connections for high potential electrical apparatus whereby conductor wires or cables may be connected detachably thereto.

Among the objects of my invention are the provision of a terminal for electrical apparatus extending through the casing thereof and so anchored therein through insulation that no mechanical stresses imposed thereon in use can be transmitted to the apparatus within the casing; the provision of a thoroughly efficient detachable connection for electrical apparatus which shall be compact and capable of application without necessitating enlargement of the apparatus casing over that employed with continuous cable leads; and the provision of a detachable connection for electrical apparatus which shall permanently maintain its insulative properties irrespective of the various heat and moisture conditions to which it may be subjected.

I have found the invention to be especially useful in connection with the form of electrical apparatus known as oil fuses in which a safety fuse link is immersed in a bath of oil contained in the casing, such as is shown and described in the patents to myself and another No. 1,195,790, August 22, 1916, and No. 1,248,090, November 27, 1917.

In the accompanying drawing, Fig. 1 shows in outline elevation an oil fuse with my terminal connections applied thereto, and Fig. 2 is a vertical section on a larger scale of the terminal and adjacent portion of the apparatus casing.

As shown in the drawing, the apparatus casing comprises an oil receptacle part 1 and a cover part 2 of cast iron rigidly bolted together with an oil-tight joint 3 between them. The opposite ends of the cover part 2 are formed into downwardly-directed nozzle-like projections 4 having threaded openings 5.

Into each of the threaded openings 5 is screwed one end 6 of a pipe union while the opposite end 7 thereof receives a short sec-

tion of brass pipe 8 to which the lead armor of the conductor cable may be connected by a wiped joint as indicated at 9 in Fig. 1.

The apparatus terminal is in the form of a U-shaped copper rod or wire 10 extending from the binding post 11 outwardly through the pipe union end 6 and provided at its outer end with a slip contact sleeve 12 adapted to telescopically receive a split plug terminal 13 secured to the end of the detachable conductor cable 14.

In order to securely anchor the U-shaped terminal rod 10 relatively to the casing and at the same time effectually insulate it therefrom, I provide it with a shouldered enlargement 15 by soldering or welding thereto a wrapping of wire at a point slightly above the threaded opening 5 in the casing, and then tightly wrap about the rod 10 and its enlargement several thicknesses of fibrous insulating tape 16, such as oiled cambric. An insulating sleeve 17 is slipped over the contact sleeve 12 and over the wrapping of tape 16 to just beneath the enlargement 15. A second and shorter sleeve 18 of paper or the like is passed over sleeve 17 to firmly support the latter within the bore of the end 6 of the pipe union. The inner wall of the nozzle-like projection 4 has a relatively rough surface, being of cast iron, and this is first coated with shellac varnish and then a cement filling 20 of artificial rosin or other substance capable of resisting weather and temperature effects, is poured in melted form through a hole 19 into the pocket of the nozzle-shaped end, about the enlarged portion of the taped terminal rod 10, and the upper end of the sleeve 17 where upon solidifying it unites and seals the insulating parts together and to the casing cover.

In order to insulate the cable terminal plug 13 from the surrounding metal parts, a sleeve 21 of insulation is forced into the brass pipe 8 and extends freely through the pipe union so that when the parts of the union are coupled together, its upper end is disposed adjacent the lower end of the short fiber tube 18 and for about one-half its length telescopes with the fixed sleeve 17 and thereby providing ample creepage surface.

It is to be noted that the terminal connection and its insulation require no greater opening in the casing than in the case of a continuous conductor cable entering the cas-

ing as has been the prior practice. Also any stresses that may be imposed upon the slip contact sleeve 12, as in inserting and withdrawing the plug contact 13, cannot disturb the position of the U-shaped copper rod 10.

While I have shown and described the best embodiment of the invention known to me; I do not desire to be restricted thereto.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. The combination with a metallic casing having an opening therein, an electric conductor extending through said opening and provided inside thereof with a rigidly connected enlargement, insulation surrounding said conductor and enlargement, and insulating cement positively anchoring said insulated conductor to said casing.

2. The combination with a metallic casing having an opening therein, a pipe union connected to the casing at said opening, an electric conductor extending out of said casing and into said union and having at its outer end a slip contact member, fibrous insulation

surrounding said conductor, an insulating sleeve surrounding said slip contact member and a portion of the fibrous insulation of said conductor, and insulating cement surrounding the upper end of said sleeve and embracing the fibrous insulation of said electric conductor and serving positively to anchor said conductor and the parts connected thereto to said metallic casing.

3. The combination with a metallic casing having an opening therein, an electric conductor extending through said opening and provided with a shouldered enlargement inside said casing, fibrous insulation surrounding said conductor and its shouldered enlargement and artificial rosin poured in melted state into the space between said fibrous insulation and the inner surface of said casing to anchor said conductor positively to said casing.

In witness whereof, I have hereunto set my hand this 7th day of February, 1922.

LOUIS W. DOWNES.