

F. B. JEWETT.

INSULATOR.

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Patented July 16, 1912.

1,033,019.

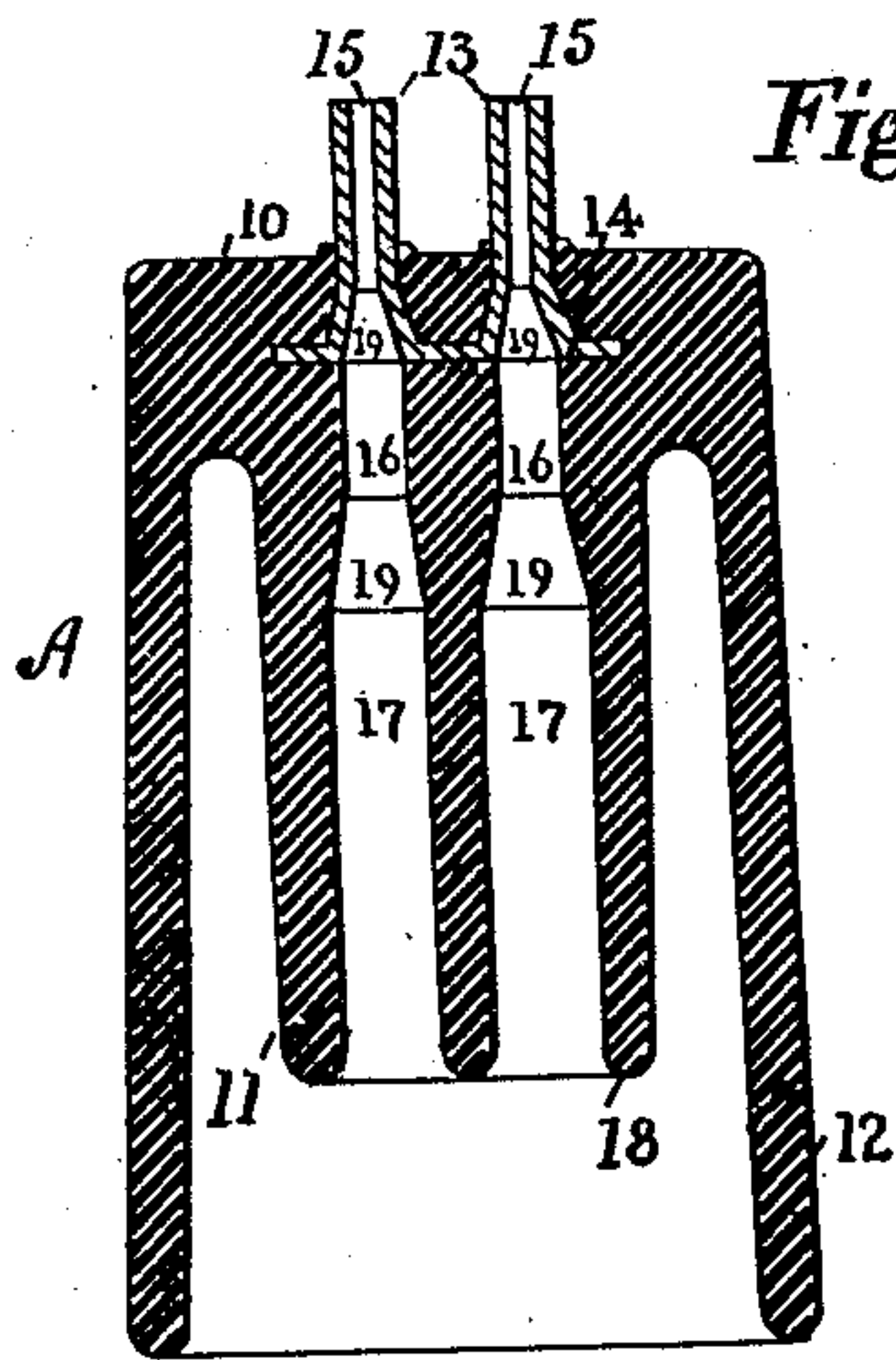
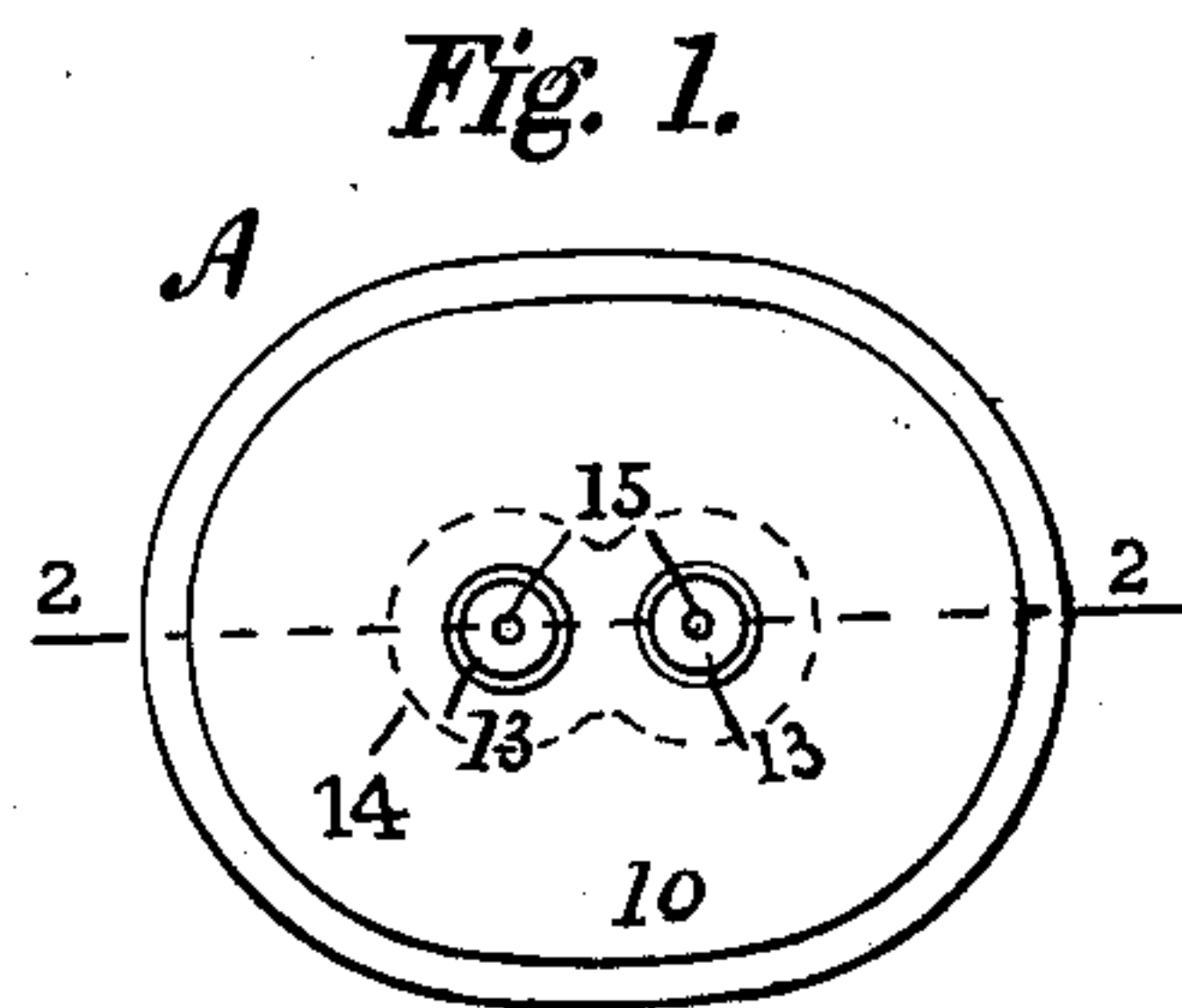
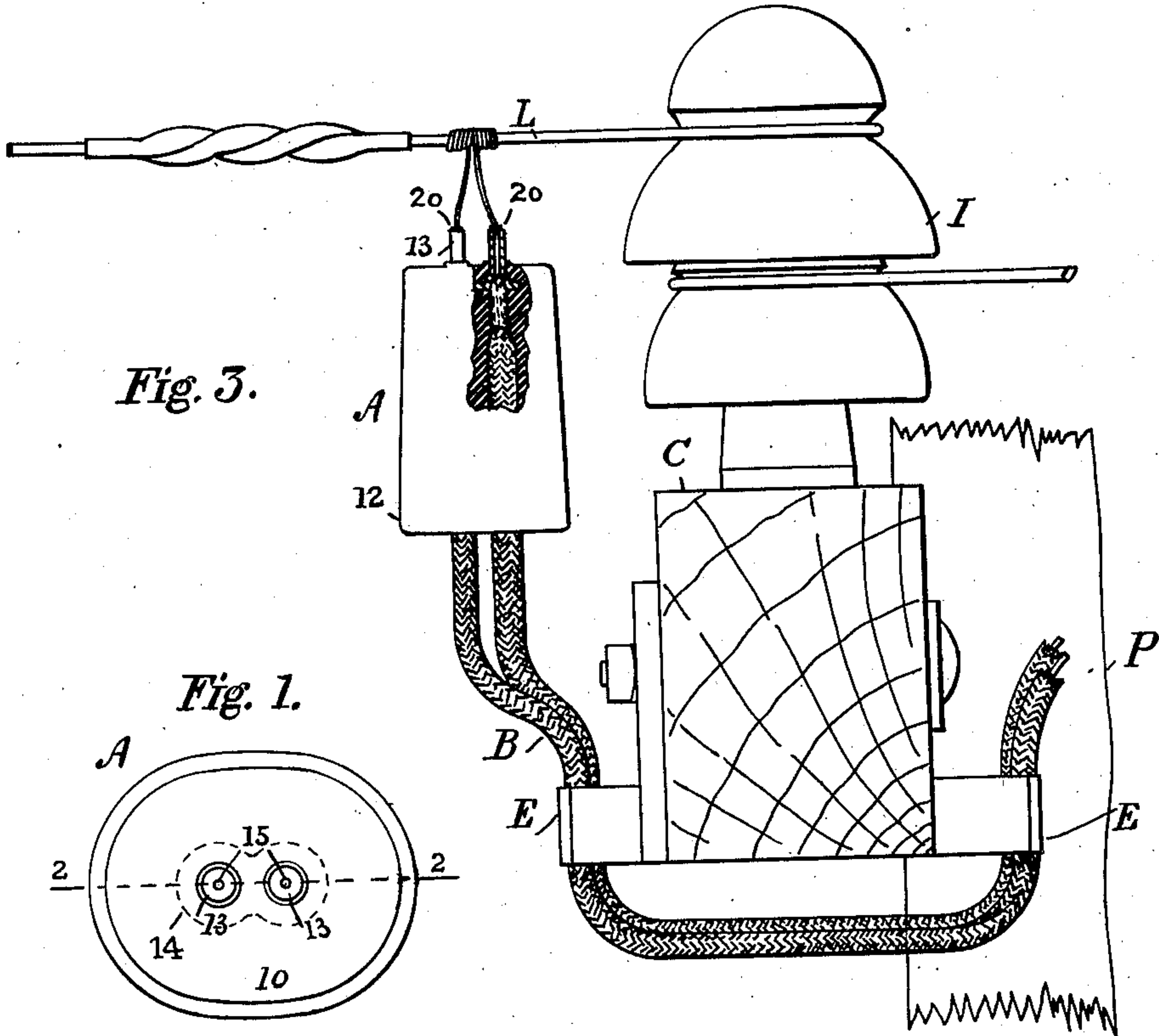


Fig. 2.

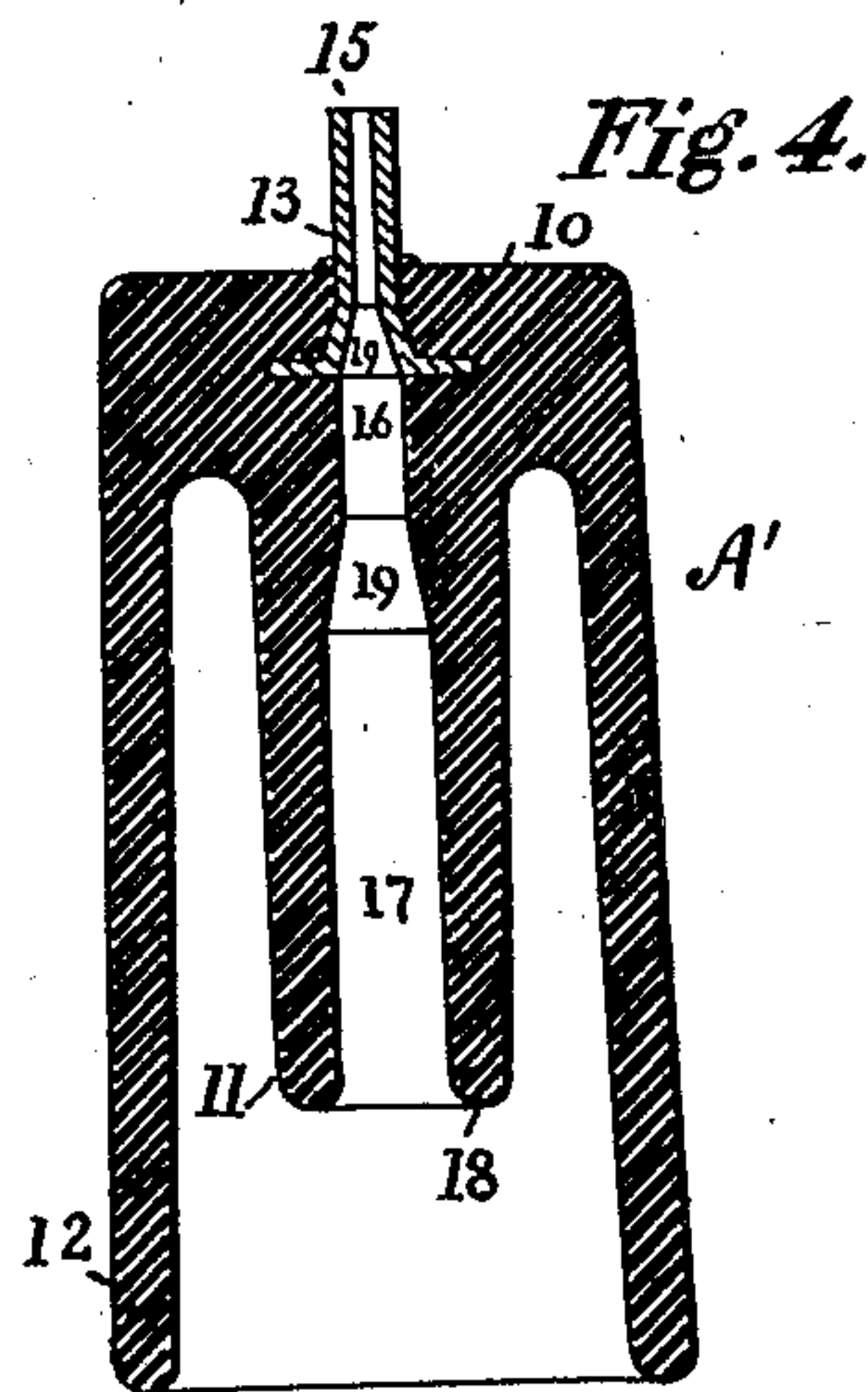


Fig. 4.

Attest.

Frank C. Lockwood
Joseph A. Gately

Inventor:

Frank B. Jewett
by his attorney
Thomas D. Lockwood

UNITED STATES PATENT OFFICE.

FRANK B. JEWETT, OF WYOMING, NEW JERSEY, ASSIGNOR TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION OF NEW YORK.

INSULATOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK B. JEWETT, residing at Wyoming, in the county of Essex and State of New Jersey, have invented certain Improvements in Insulators, of which the following is a specification.

In the construction of open lines for the transmission of electrical signals, it is a common practice to connect the bare line conductors to apparatus mounted upon the poles, as loading coils and their lightning arresters, or to the terminals of cables by means of depending conductors, termed "bridle wires," provided with the usual insulating covering, including an inner layer of some such material as rubber, and an outer protecting textile layer or braid impregnated with a substance which renders it more or less nonhygroscopic. Between the line and connected points these bridle wires are cleated to the cross-arms and are liable to come in contact with one another and with the arms. When the wires are new there is no marked leakage, but after exposure the outer covering becomes absorbent, and in damp weather this furnishes a conducting path between bare portions of the bridle wires and from them to ground. On some circuits, as high efficiency loaded telephone lines, very serious transmission losses are thus introduced. To prevent this it has been proposed to shelter against moisture a portion of the covering of each bridle wire, this including a continuous ring about its circumference, so that the path through which the leakage occurs is broken. The provision of an inexpensive insulator for this purpose, which will remain effective in use, has proven difficult and to this the present invention is directed.

Certain embodiments of my improved insulator are illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of one form; Fig. 2 a vertical section on the line 2—2 of Fig. 1; Fig. 3 represents the device in use, and Fig. 4 is a central vertical section of another form of the invention.

Throughout the figures of the drawings similar characters of reference are applied to like elements.

The insulator A is preferably molded in a single piece from some suitable material, for example what is known as "electrose,"

it having a body portion comprising a head 10, which in the form of Figs. 1 to 3 of the drawings is elliptical, with an extension 11 from the center thereof, this being also elliptical in horizontal section. From the edge of the head depends a flange or petticoat 12, which is shown as somewhat flaring and which is of considerably greater length than the extension 11. Through the head and extension are a plurality of vertical perforations, preferably two in number, symmetrically placed at opposite sides of the center of the major axis of the head. Continuing the perforations through the insulator body are metal sleeves or tubes 13, 13, which may be of brass, projecting outwardly from a brass plate 14 molded in the insulating material. Each of the perforations through the insulator and its tubes is preferably in three sections of different diameters. In the tube the opening 15 is just sufficient to admit the passage of the bare bridle wire; beyond in the body portion is a section 16 of greater diameter to receive the wire and its rubber covering with the braid removed; while in the section 17 the wire with its full insulation fits tightly, so that in drawing it in the braid will be compressed. At the outer end 18 of the section 17 the wall of the extension is rounded to avoid cutting the insulation. Between the sections the walls of the perforations may be tapered, as indicated at 19.

Referring to Fig. 3 as illustrating the device in use, a portion of a pole P is shown with its cross-arm C carrying the usual line insulator I. Upon this insulator the line conductor L is dead-ended, and from the line the bridle wires B lead through cleats E to apparatus not shown, but which, as previously indicated, may be a loading coil and its lightning arrester. When the bridle wires are prepared for connection to the line, enough of their ends is bared to extend through the tubes 13 and leave a portion for wrapping about the line wire, and below this a length of the braid is removed corresponding to the insulator opening at 16. Another portion of the covering, which will come within the section 17 of the opening, is preferably coated with asphaltum or like plastic insulating substance. Thus prepared the ends of the bridle wires are drawn through the openings, and the junctures of

the wires and tubes completely closed by solder as indicated at 20, the projecting extremities of the tubes 13 furnishing nipples to which the solder may be conveniently applied without danger of injuring the insulating material. The free ends of the bridle wires are joined to the line in the customary manner. The insulator hangs upon the wire in a vertical position, the double connection strengthening the support and tending to balance it. The metal tubes closely fitting the wires cooperate therewith to furnish an approximate closure at the top of the insulator, and the solder completes this, giving a joint which effectually excludes weather and which is amply strong to resist the weight of the insulator and the play which will be imparted by the wind, and which does not deteriorate in use. The wires passing downwardly through the extension are held away from the separated flange from which drops the water shed by the sealed head.

Sheltered in the recess beneath the head and flange a portion of the covering of the wires will be kept dry, except for the moisture which is carried along the absorbent braid by capillary attraction. This, however, is broken by the compression of the covering in the section 17 of the insulator opening, and by the coating applied in installing. The latter long maintains its effectiveness because protected against the weather. The path for leakage is further broken by the removal of the braid within the section 16.

In some situations, as at test station and terminal poles, it may be convenient to employ an insulator of this character having but a single passage for a bridle wire, such being illustrated in Fig. 4. This form A' of the device differs in no other essential particular from that previously described, except that it is circular in horizontal section, the metal tube being located in the vertical axis. The insulator first mentioned may also be employed with a single bridle wire, in which case a second supporting wire may join the otherwise unused tube to the line wire, thus closing the head and balancing and strengthening the support.

Having thus described my invention, I claim:

1. The combination with a bridle wire provided with an exposed insulating covering, said covering being removed from one extremity of the bridle wire, of an insulator having a recess and a tubular portion leading thereto, the bared end of the wire extending through the tubular portion and the insulating covering adjacent to the bared wire lying within the recess, and means for sealing the opposite ends of the tubular portion.

2. The combination with a bridle wire

provided with an exposed insulating covering, said covering being removed from one extremity of the bridle wire, of an insulator having a recess and a tubular portion leading thereto, the bared end of the wire extending through the tubular portion and the insulating covering adjacent to the bared wire lying within the recess, and means for compressing the insulating covering in the recess.

3. An insulator formed of molded material and having a head beneath which is a recess and an opening leading through the head to the recess, and a metal tube secured to and extending outside the head, said tube being adapted to receive a conductor and through its extension beyond the head to be readily soldered to said conductor.

4. An insulator formed of molded material and having a head in which is a plurality of openings, and a metal plate set in the head and having metal tubes continuing the opening.

5. The combination with a line conductor, of a plurality of conductors depending therefrom, and an insulator to which the last-named conductors are connected at separated points and which they jointly support.

6. The combination with a conductor having insulating covering, of an insulator formed with an opening of such diameter as to permit the movement of the conductor therethrough and a continuation of the opening into which the insulating covering tightly fits and is thereby compressed.

7. The combination with a conductor having insulating covering, of an insulating body provided with a metallic portion, there being in said metallic portion an opening through which the conductor passes and in the insulating body an opening to tightly receive the insulating covering.

8. The combination with a conductor having insulating covering, of an insulating body provided with a metallic portion, there being in said metallic portion an opening through which the conductor passes and in the insulating body an opening to receive the insulating covering, solder sealing the connection between the conductor and metallic portion, and a plastic seal between the insulating covering and the insulating body.

9. The combination with a conductor having an insulating covering, of an insulator provided with a head and an extension therefrom in which is an opening to receive the conductor, and a flange projecting from the head beyond the extension and over the insulating covering of the conductor.

10. The combination with a conductor having an insulating covering, of an insulator provided with a head in which is a metal tube through which the conductor passes, an extension from the head in which is an opening alined with that of the tube to

receive the insulating covering of the conductor, and a flange from the head separated from the extension and protecting the juncture between said extension and the insulating covering of the conductor.

5 11. An insulator formed of molded material and having a head, a central extension therefrom in which is a plurality of openings passing through the head, a flange projecting from the head outside the extension
10 and being longer than said extension, and a

metal plate set in the head and having metal tubes continuing the openings.

In testimony whereof, I have signed my name to this specification in the presence of 15 two subscribing witnesses, this 26th day of April 1910.

FRANK B. JEWETT.

Witnesses:

THOMAS SHAW,
JOHN F. TOOMEY.