No. 662,463. Patented Nov. 27, 1900.

G. H. PAUL.

CASING FOR ELECTRICAL CONDUCTOR JOINTS.

(Application filed June 2, 1900.)

(No Model.) 2 Sheets—Sheet 1.

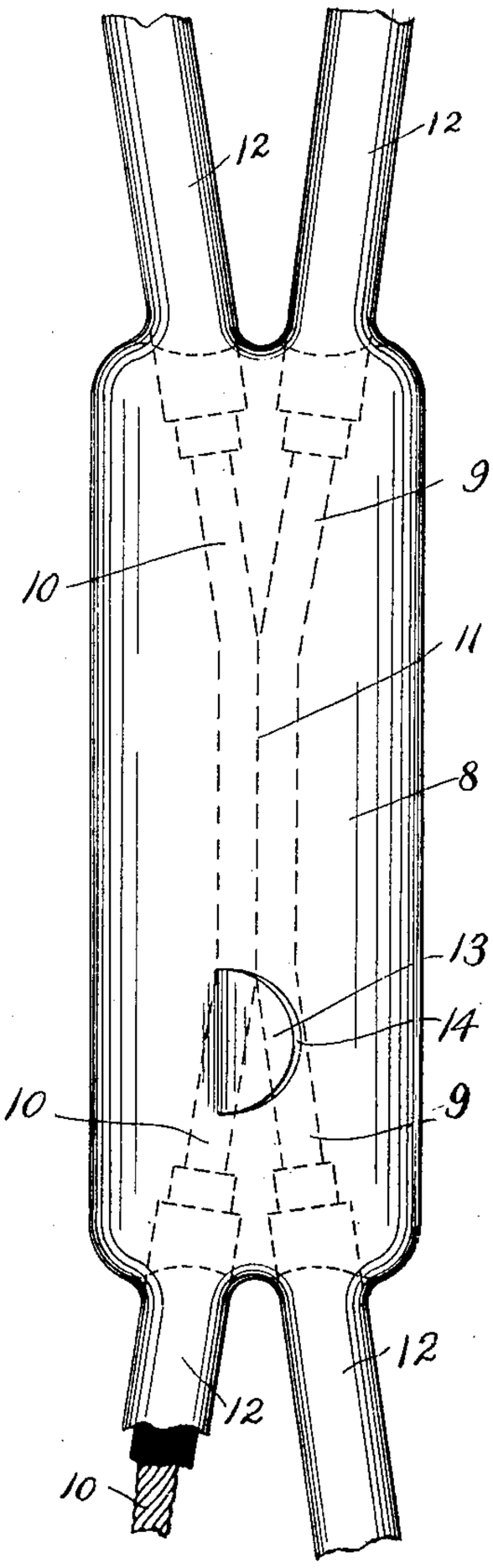

Fig. 1

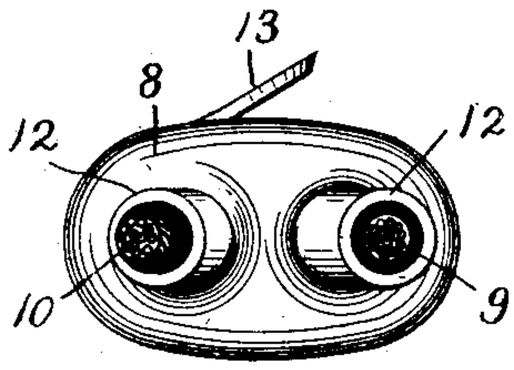

Fig. 2

WITNESSES

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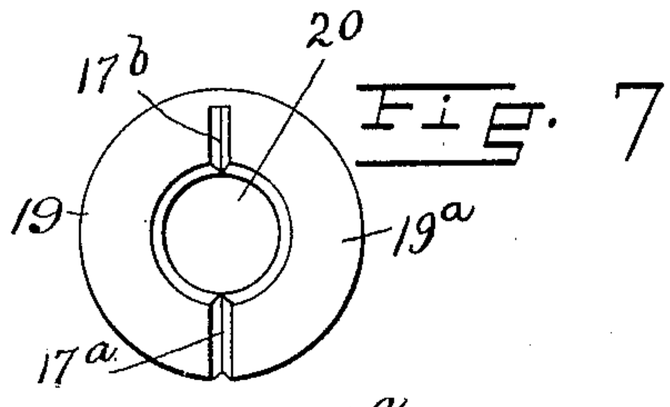

Fig. 7

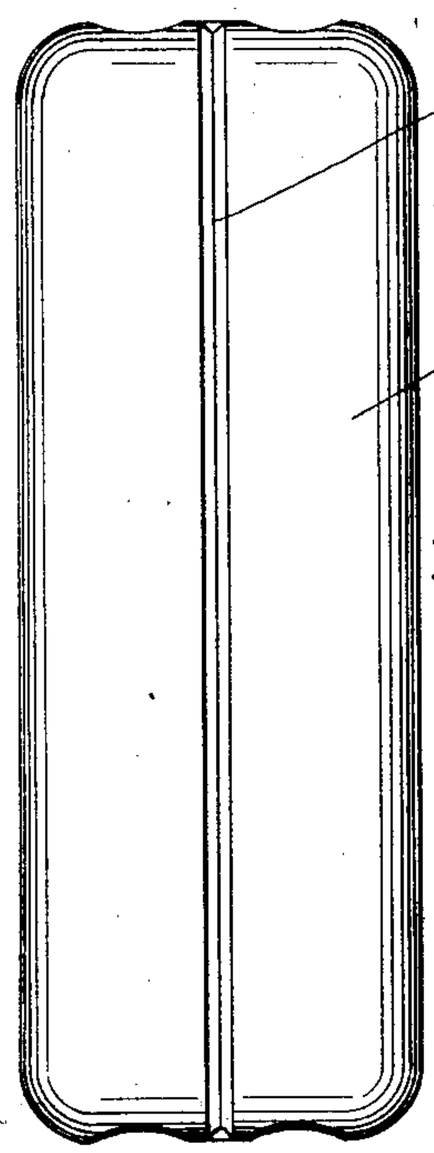

Fig. 3

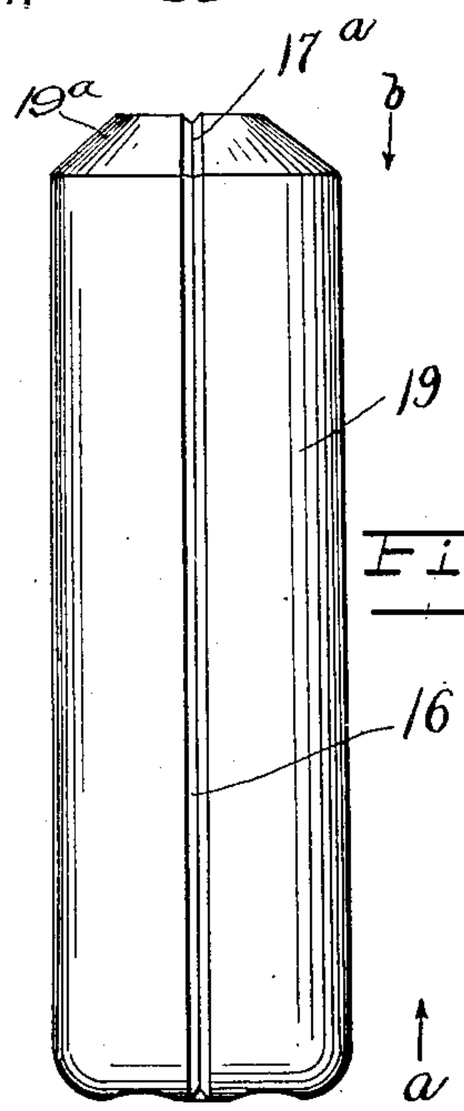

Fig. 5

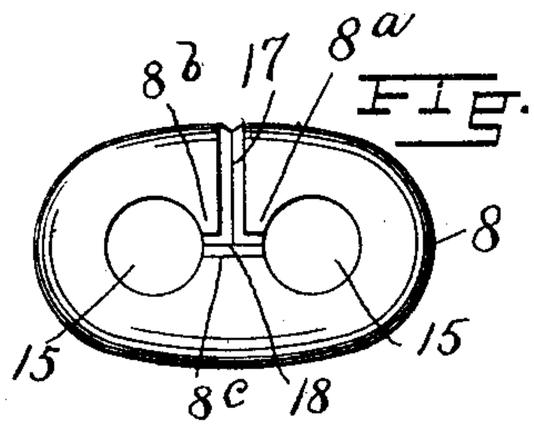

Fig. 4

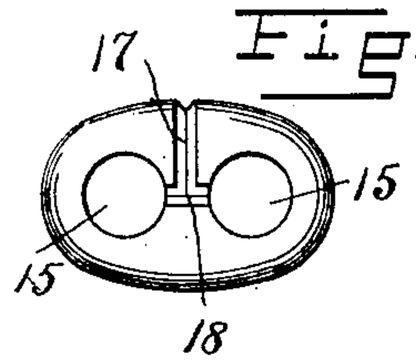

Fig. 6

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CASING FOR ELECTRICAL-CONDUCTOR JOINTS.

SPECIFICATION forming part of Letters Patent No. 662,463, dated November 27, 1900.

Application filed June 2, 1900. Serial No. 18,816. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HENRY PAUL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Casings for Electrical-Conductor Joints, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to casings for electrical-conductor joints; and the object thereof is to provide a casing for joints of this class whereby the joint may be maintained effectually insulated and protected from attack by water and other extraneous substances. Joint-casings of this class are commonly formed by passing a length of suitable flexible piping about the joint, bending the same together, and finally wiping the entire joint with solder and filling the same with an insulating or protective compound. It often occurs, however, that the casing improperly fits the joint and leaves the same subject to attack by water and other extraneous substances, with the result that the current carried by the joined conductors is short-circuited, causing leakage thereof and an insufficient supply to the apparatus dependent thereon. This short-circuiting often results from the entrance of the solder applied during the process of wiping the joint through the interstices between the roughly-formed casing and the conductors which are joined therein.

It is the object of the present invention to provide an improved article of manufacture consisting of a completely-formed joint-casing for electrical conductors which may be applied in completed form to the joint by a ready manipulation of the same and which does not require the rough shaping and forming incident to the employment of the ordinary joint-casing.

An essential feature of improvement of the joint-casing constructed according to my invention consists in its close-fitting and accurate formation, which is not attained in joint-casings as at present constructed, and due to which feature the attack upon the joint by extraneous substances, with the resultant short-circuiting, is obviated.

The invention consists in the construction and arrangement of parts hereinafter described.

In the accompanying drawings, forming part of this specification, in which like reference characters denote like parts in the several views, Figure 1 is a plan view of a joint-casing constructed according to my invention and applied operatively to a joint of electrical conductors, which joint is shown in dotted lines; Fig. 2, an end view of Fig. 1; Fig. 3, a plan view of a joint-casing constructed according to my invention and before the same is applied to the joint; Fig. 4, an end view thereof; Fig. 5, a plan view of a modified form of construction; Fig. 6, an end view thereof looking in the direction of the arrow *a*, and Fig. 7 an end view thereof looking in the direction of the arrow *b*.

In the practice of my invention, referring to Figs. 1 and 2, I provide a joint-casing for electrical conductors denoted by the general reference character 8, the conductors being denoted by the reference characters 9 and 10, respectively, which are joined in electrical contact at 11 and each of which projects from both ends of the casing 8 and is incased in said projecting portion in an envelop 12, of solder or other composition, which is applied thereto and to the adjacent portions of the casing 8. The casing 8 is of oval transverse form, as clearly shown in Fig. 2, and the sides and ends thereof are preferably rounded at the edges, producing a firmer and more finished construction. The casing 8 is provided upon one side with an integral lip 13, which is adapted to be turned up into the position shown in the drawings to allow of the introduction through the opening 14 therebeneath and into the casing of an insulating or protective substance, preferably in liquid or semi-liquid form.

In Figs. 3 and 4 is shown the complete article of manufacture constituting the present invention and embodying the casing 8 in the form in which it is supplied for application to the joined conductors. The casing 8 is molded, cast, drawn, or otherwise formed of

lead or other suitable metal or composition of metals and closed upon all sides, but provided with two end openings 15 at each end, which openings are preferably circular in form, as shown.

The casing 8 is provided with a longitudinal top groove 16, extending from end to end thereof and of such depth that but the slightest shell of the material of which the casing 8 is composed remains beneath the deepest portion of said groove. The groove 16 is extended transversely of the ends of the casing 8 at 17 to a point at each end thereof between the adjacent end openings 15, which openings 15 are connected by a transverse groove 18, similar to the groove 16, and communicating with the end portion 17 thereof, whereby the groove 18 practically constitutes a transverse branch of the portion 17 of the groove 16. In the operation of passing the casing 8 upon the assembled conductors 9 and 10 to incase the joint formed by the union of said conductors in the manner shown in Fig. 1 the casing is slitted longitudinally through the groove 16 and end portions 17 thereof and transversely through the groove 18, and the sides of the casing 8 are separated at the line of the groove 16, whereby the conductors 9 and 10 may be laid into the casing, and the projecting ends of said conductors are passed through the openings 15 at each end of the casing, admission of which conductors to said openings is obtained by separating the sides of the casing in the manner above described, the portions 8^a and 8^b of the casing formed by the junction of the grooves 18 and groove portion 17 being separated from the portion 8^c of the casing.

After the conductors have been laid within the casing 8, as above described, the two sides of the casing are brought together at the line of the groove 16, and the portions 8^a and 8^b of the casing are forced downwardly into engagement with the portions 8^c of the casing, completely housing the joint within the casing. The grooves 16, the groove portions 17, and the grooves 18 are thoroughly wiped with solder or other suitable material, thus thoroughly dressing the casing, and the projecting portions of the conductors 9 and 10 are wiped, as well as are the end portions of the casing at the margins of the openings 15, forming the protective envelops 12, (shown in Fig. 1 and above described,) whereby the casing 8 is tightly closed at every point and the admission of water or other extraneous material thereto at any point is prevented. The casing 8 is then slit at 14 to form the lip 13 above described and a suitable insulating or protective compound is introduced through the slit 14 into the casing 8 and about the joint 11. The lip 13 is then pressed downwardly to seal the slitted portion 14 of the casing and is wiped with solder or other suitable substance. The result of the above-described application of the casing 8 to the joint 11 is clearly shown in Fig. 1, and said application requires but little labor and skill, all that is necessary being to slit the said casing in the lines of the grooved portions 16, 17, and 18 thereof, open up the casing, place the joint therein, and then close the casing about the joint, thoroughly wiping the same and the projecting portions of the conductors, and finally filling the casing with protective or insulating compound and closing the opening through which the compound is passed.

In Figs. 5, 6, and 7 I have shown a modified form of construction embodying a casing 19 identical in form with the casing 8, with the exception that one end thereof 19^a (shown in Fig. 7) is formed with but a single opening 20, and the groove 16 is extended downwardly at 17^a thereto and from the lower edge portion of said opening downwardly at 17^b. This last-described form of joint-casing is intended for use in connection with joints in which one of the conductors embraced by the joint terminates within the casing 19, the other of the conductors embraced by said joint extending through both the opening 20 and one of the openings 15, the conductor which terminates within said casing passing through the other opening 15. The casing 19 is applied to the joint in the same manner as the casing 8 above described, the casing being laid open upon the lines of the grooved portions 16, 17, 18, 17^a, and 17^b, and after the joint has been laid within the casing the latter is sealed in the manner hereinabove described.

I do not limit myself to the specific form and arrangement of parts herein described, but reserve the right to vary the same within the scope of my invention.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. As an improved article of manufacture, a joint-casing provided at its ends with openings through which the several conductors enter the casing, said casing being provided with grooves or marks so arranged and extended that said casing may be opened by slitting the same upon said grooves or marks, to receive the joint, substantially as shown and described.

2. As an improved article of manufacture, a tubular joint-casing provided at its opposite ends with openings through which the conductors enter said casing, said casing being longitudinally grooved from end to end, to communicate with the openings in both ends thereof, substantially as shown and described.

3. As an improved article of manufacture, a joint-casing provided at each end with two openings 15, upon its surface with a longitudinal groove 16, having end portions 17 which traverse the ends of said casing and communicate with transverse grooves 18, each of which communicates with the openings at one

end of said casing whereby the parts 8^a, 8^b 8^c are formed, which are relatively separable when said casing is opened upon the lines of said grooves, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 19th day of April, 1900.

GEORGE H. PAUL.

Witnesses:
F. A. STEWART,
V. M. VOSLER.