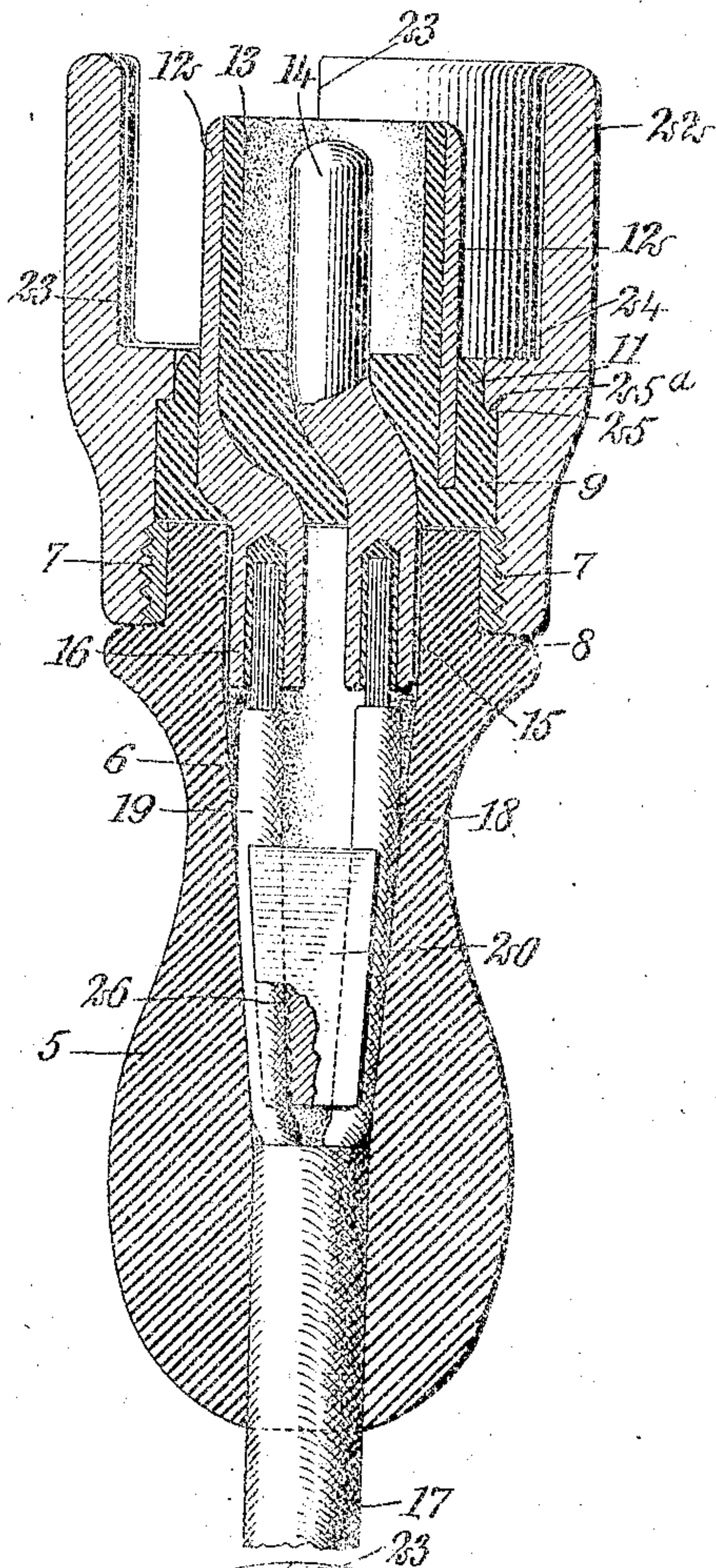


A. N. DODS.  
 PLUG FOR ELECTRICAL CONNECTIONS.  
 APPLICATION FILED MAR. 11, 1909.

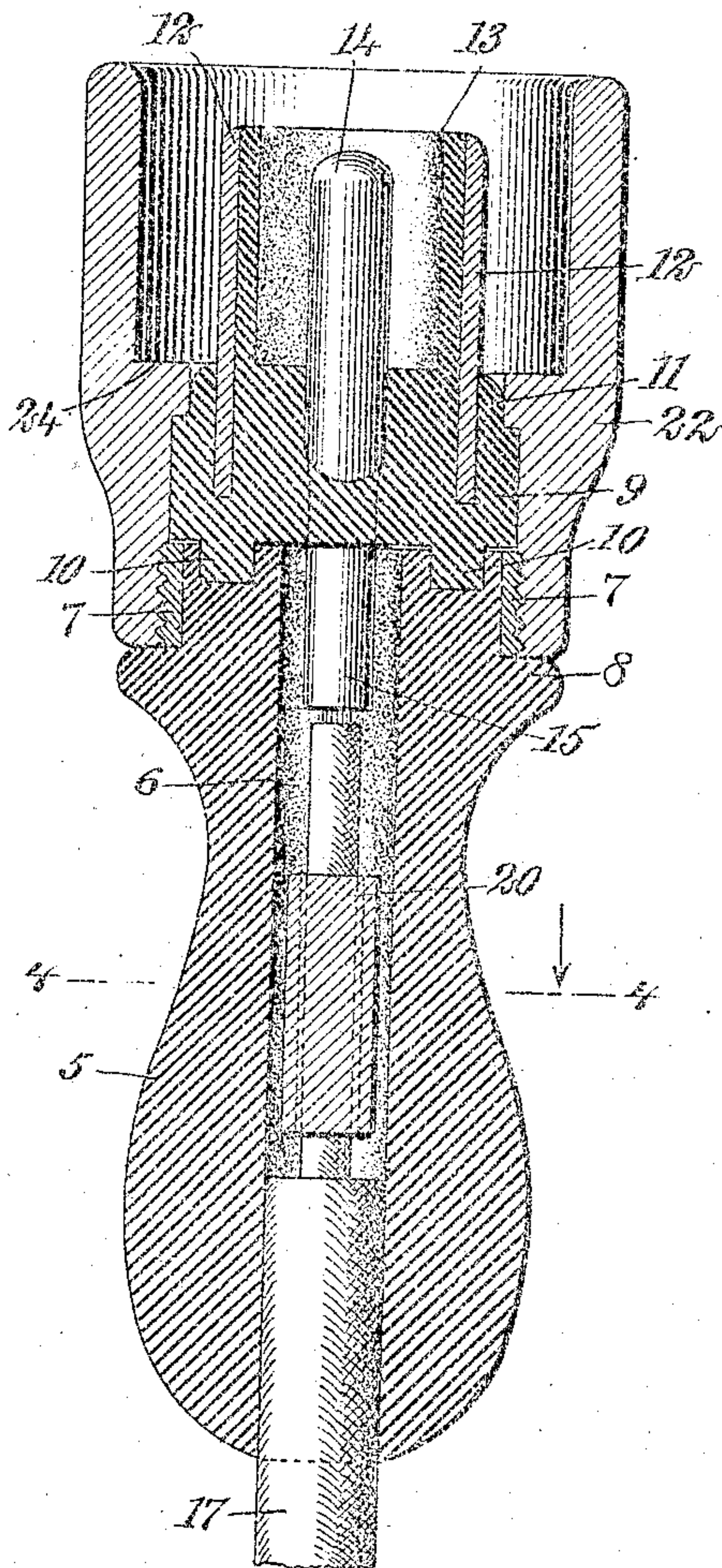
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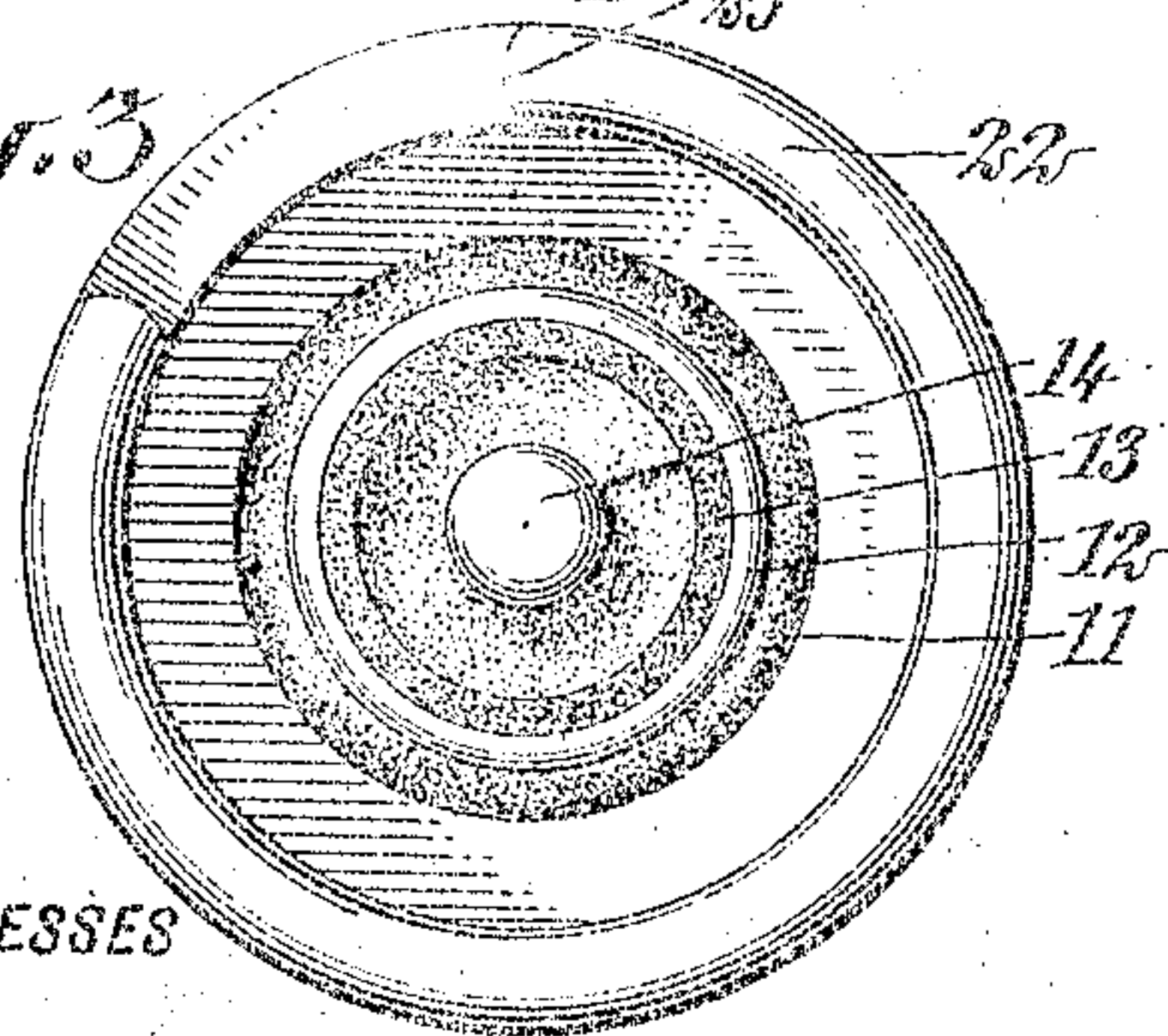
*Fig. 1.*



*Fig. 2.*



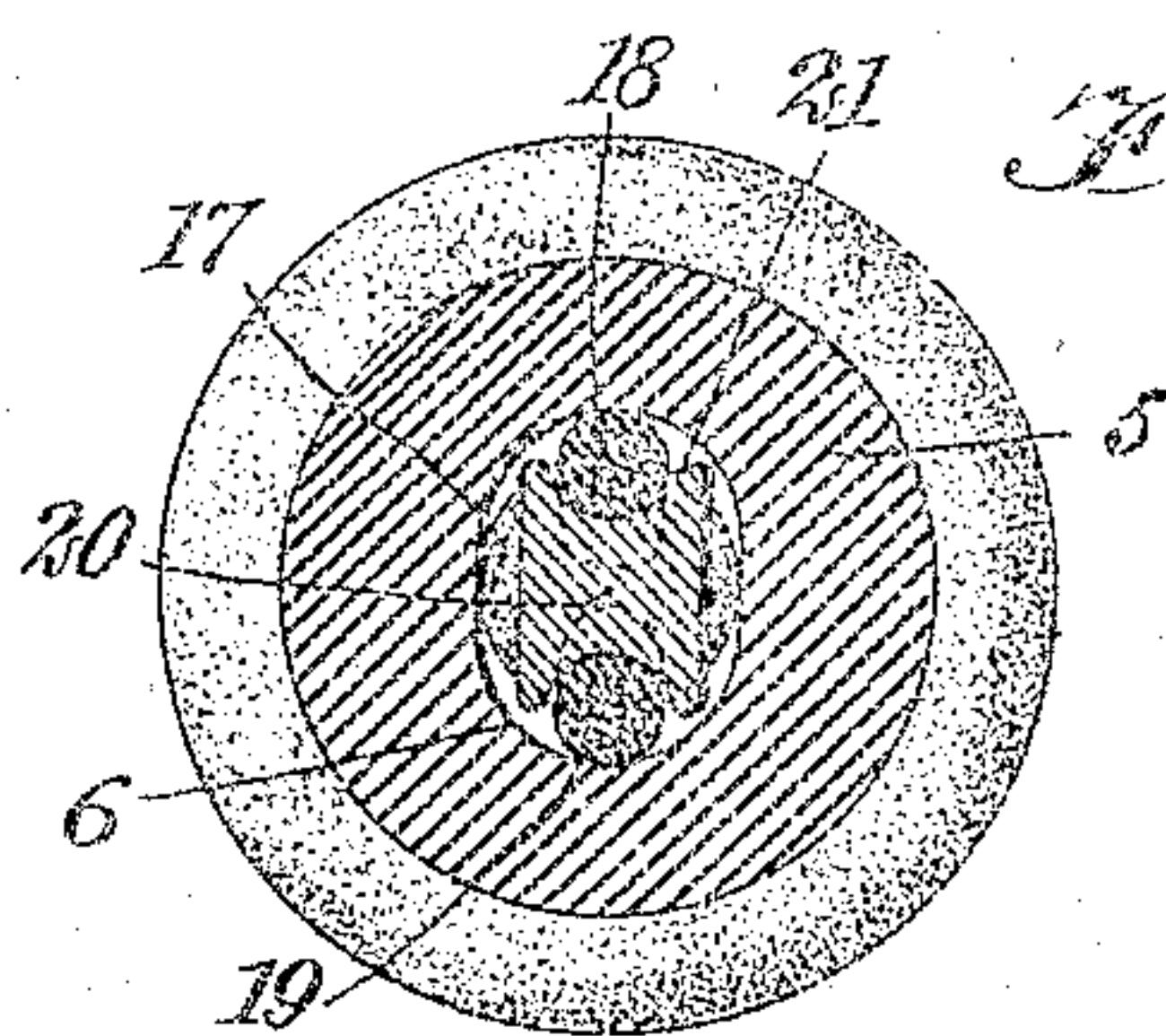
*Fig. 3.*



WITNESSES

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*Fig. 4.*



INVENTOR

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# UNITED STATES PATENT OFFICE.

AUGUSTUS N. DODS, OF MOUNT VERNON, NEW YORK.

PLUG FOR ELECTRICAL CONNECTIONS.

950,899.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed March 11, 1909. Serial No. 482,671.

To all whom it may concern:

Be it known that I, AUGUSTUS N. DODS, a citizen of the United States, and a resident of Mount Vernon, in the county of Westchester and State of New York, have invented a new and Improved Plug for Electrical Connections, of which the following is a full, clear, and exact description.

My invention relates to plugs for electrical connections, my more particular purpose being to provide a construction suitable for plugs of large size and used in connection with powerful currents such as characterize automobile charging, theater dimmer, and the like.

Stated more in detail, my invention comprehends a plug to be used for making temporary connections between a dynamo, or other source of electricity, and an automobile storage battery, or other analogous member to be charged, the plug being fitted with contact members which are for the most part protected by a shield, this shield having a suitable form to serve as a guide for fitting the contact members, and being so arranged as to reduce to a minimum the various dangers which may attend the making and breaking of a temporary electrical connection.

My invention further comprehends a plug provided with means whereby the strain of the cable or cord connected with the plug is thrown upon a portion of the plug capable of withstanding an excessive strain.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a substantially central section through a plug made in accordance with my invention; Fig. 2 is a section taken at a right angle to that appearing in Fig. 1; Fig. 3 is an elevation showing the plug as seen by an observer looking directly into its end provided with contact mechanism; and Fig. 4 is a section upon the line 4-4 of Fig. 2, looking in the direction of the arrow.

A handle 5 of hard rubber, or other appropriate insulating material, is provided with a passage 6 extending entirely through it, this passage being partly elliptical and partly cylindrical in cross section; that is to say, for about  $\frac{1}{3}$  of the length of the handle, reckoning from the lower end thereof according to Fig. 1, the passage is cylindrical in cross section, whereas, for about  $\frac{2}{3}$  of the handle, from the top thereof according to Fig. 1, the passage has generally an elliptical shape in cross section. The passage 6, therefore, as will be readily seen from Fig. 1, has in one direction a diameter which gradually tapers.

Mounted rigidly upon the handle 5 and encircling a portion thereof is a threaded collar 7 of metal, this collar lodging firmly against a shoulder 8 of the handle, which forms a bearing for the same. A block 9 of insulating material, is provided with lugs 10 which extend slightly into the adjacent end of the handle 5, as will be understood from Fig. 2, thus preventing the block 9 from turning relatively to the handle. The block 9 is provided with an annular portion 11 and is fitted with a metallic contact sleeve 12 into which extends a cylindrical portion 13 of insulating material integral with the block 9. This cylindrical portion 13 serves as an inner lining for the metallic contact sleeve 12.

A tip 14 of metal extends entirely through the block 9 and is thus secured firmly in relation to the same. The tip 14 is provided with a body portion 15 and the contact sleeve 12 is similarly provided with a portion 16, the portions 15, 16 being adapted to extend into the passage 6 of the handle.

A cable 17 contains two stranded insulated wires 18, 19 which are secured metallically to the portions 15, 16 of the tip 14 and contact sleeve 12, being connected preferably by soldering. At 20 is a wedge made of insulating material, and provided upon its opposite sides with substantially semi-cylindrical surfaces 21 which engage the insulated wires 18, 19 and press the same in opposite directions. At 22 is a metallic shield which is fitted upon the threaded collar 7 and is itself threaded for this purpose. The shield 22 has a large slot 23 and is provided internally with an annular shoulder 24, which registers substantially with the annular portion 11 of the block 9. This block is provided with an annular portion 25, which fits against an annular shoulder 25<sup>a</sup> formed on the shield 22. The wedge 20 has corrugations 26, upon its two opposite concave surfaces 21, for facilitating the gripping of these surfaces against the insulated wires 18 and 19.

The parts are assembled as follows: The cable 17 is drawn partially through the pas-



sage 6, the stranded or insulated wires 18, 19 are separated and the wedge 20 is placed intermediate these wires. The tip 14 and sleeve 12 are next soldered to the wires 18, 19, and the block 9 is placed in position. The threaded collar 7 having been previously secured upon the handle and jammed against the shoulder 8, the shield 22 is next secured in position, being simply screwed down upon the threaded collar. As the annular portion 25 of the block 9 fits upon the annular shoulder 25<sup>a</sup> on the shield 22, when the shield 22 is secured upon the threaded collar 7, the block 9 is securely held in position, and as this block carries the tip 14 and contact sleeve 12, the parts last mentioned are immovable. In soldering the wires 18, 19 to the portions 16, 15, no great superfluity of wire is left intermediate the cable 17 and the portions 15, 16. The wedge 20 being disposed intermediate the wires 18, 19 is worked or forced down, as indicated in Fig. 1, until it secures a good grip upon the insulation of the wires, by reason of the corrugations 26 on the surfaces 21 of the wedge. These surfaces, therefore, grip the wires securely and by forcing the wires in opposite directions, cause them to bind against the elliptical walls of the passage 6. The operator may now, by pulling upon the cord 17 or, what is the same thing, by pulling the handle 5 in such direction as to exert a slight strain upon the cable 17, cause the wedge 20 to be forced firmly down into the handle, and after this is done all strain upon the cable 17 is thrown directly upon the handle 5 which is strong enough to bear it. No sudden jerk or excessively hard pull upon the cable 17, therefore, is able to do any damage to the tip 14 or the contact sleeve 12, or any other member carrying the current and so exposed as to cause the current to do mischief.

The purpose of the slot 23 is to enable the shield 22 to fit around the binding post of the bridge of a fuse box, or anything of this kind. That is to say, the plug when complete may be brought into proper position to enable a circuit to be completed, and consequently a temporary electrical connection to be made, and the slot 23 is for accommodating a part which would otherwise be in the way.

Referring now to the construction shown in Fig. 1, it will be noted that the contact sleeve 12, though of considerable size and affording considerable contact surface, is completely protected by the shield 22 which extends a little distance beyond the end of the contact sleeve. Moreover the contact sleeve 12 and its inner lining 13 of insulating material both extend slightly beyond the end of the tip 14 and thus afford additional protection for the tip. Indeed, to cause a short circuit from the tip 14 is some-

thing not easily accomplished by accident. The lining 13 of insulating material extending out flush with the end of the contact sleeve 12, and thus being intermediate the contact sleeve and the tip, affords a further protection.

The operation of my device is as follows: The parts having been assembled as above described, the operator, in order to make a temporary electrical connection, merely grasps the plug by its handle 5 and brings it into engagement with the contact mechanism of the terminals from which the current is to be supplied. The slot 23 accommodating the connecting post or analogous member, as above described, the contact sleeve 12 is thus brought squarely into engagement with a mating contact member, and the tip 14 is similarly brought into contact with a mating contact member, so that the connection is complete. In order to disconnect, the operator merely grasps the handle 5, pulls out the plug and throws it upon the ground or upon the floor. This is done when the ordinary construction of plug is used, and in such case there may be more or less danger. Suppose, for instance, that the plug be thrown upon a floor which is partially saturated with gasoline so that more or less gasoline vapor is present. The plug being disconnected and quickly thrown down while the contacts are alive might bring either of the contacts into engagement with some grounded metallic body, such as an iron column, and thereby cause an arc to appear and ignite the gasoline vapor. With my construction this is impossible, for the reason that the shield, protruding say half an inch beyond the contact members, prevents either of them from coming into engagement with any metallic conductor which might cause an arc to start up. With my construction the plug can be quickly thrown aside, the operator paying no particular attention to the point where it is thrown, and no danger ensues in consequence.

I do not limit myself to any particular use to which this plug may be applied as regards the character of currents, or the special purpose for which said currents are to be used. Neither do I limit myself to the exact mechanical details of the construction shown, the scope of my invention being commensurate with my claims.

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

1. In a plug for electrical connections, the combination of a plug, a contact member mounted thereupon and having substantially the form of a cylinder, a portion of insulating material disposed within said cylinder and concentric thereto, a second contact member disposed inside said first-mentioned contact member and concentric to



the same, and a shield encircling both of said contact members and engaging said plug.

2. In a plug for electrical connections, the  
5 combination of a contact member having substantially a cylindrical form, a member of insulating material also having substantially a cylindrical form and disposed within said contact member, a second contact  
10 member disposed centrally within said portion of insulating material and spaced therefrom, and a shield having a slot and encircling both of said contact members.

3. A plug for electrical connections comprising a handle, a plug of insulating ma-

terial for engaging said handle, contact members mounted upon said plug and insulated from each other, a collar encircling a portion of said handle and provided with a thread, and a shield provided with a thread  
20 mating said thread of said collar, said shield being further provided with a portion for engaging said plug of insulating material.

In testimony whereof I have signed my name to this specification in the presence of  
25 two subscribing witnesses.

AUGUSTUS N. DODS.

Witnesses:

CHARLES LURCOTT,

PHILIP D. ROLLHAUS.