

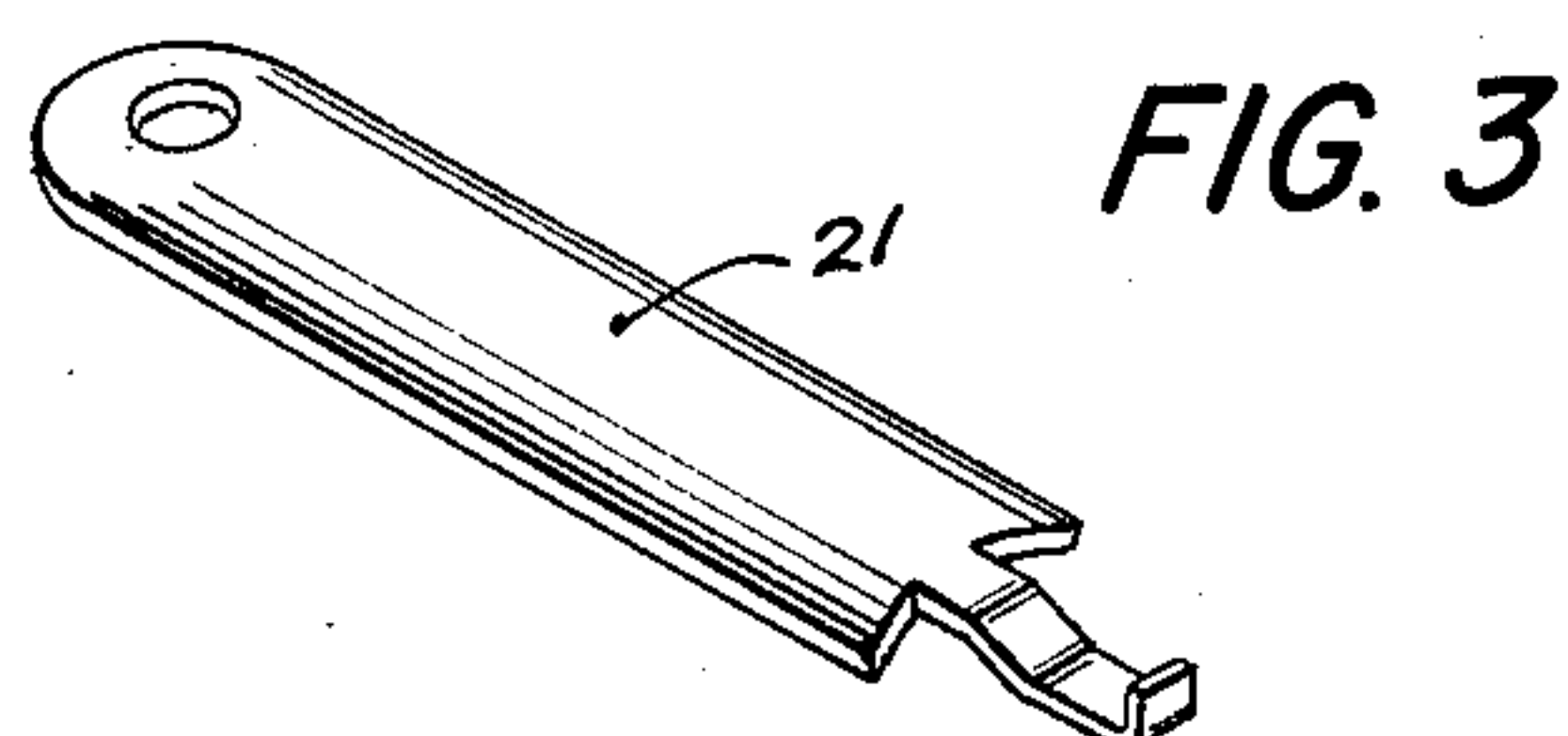
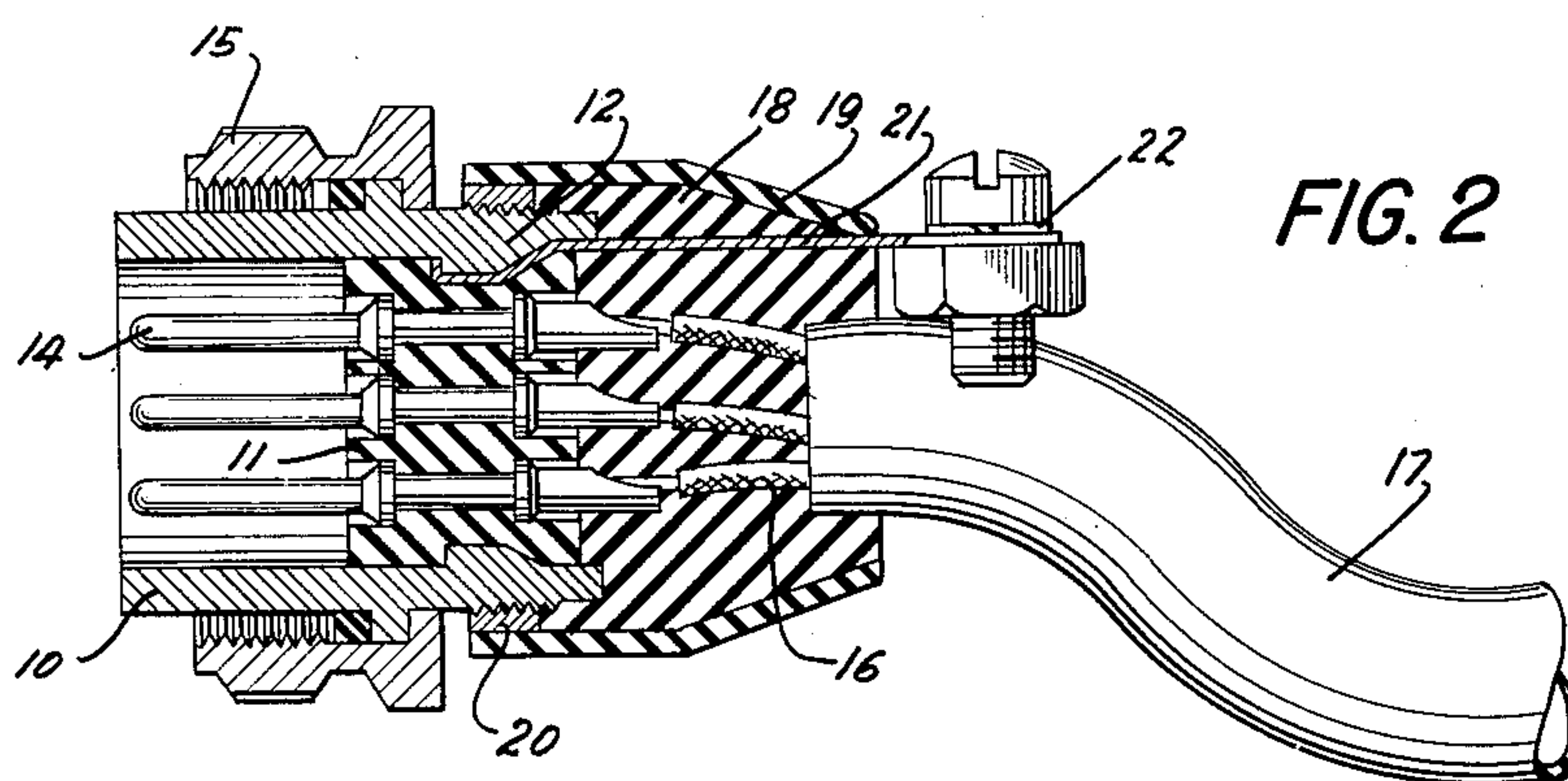
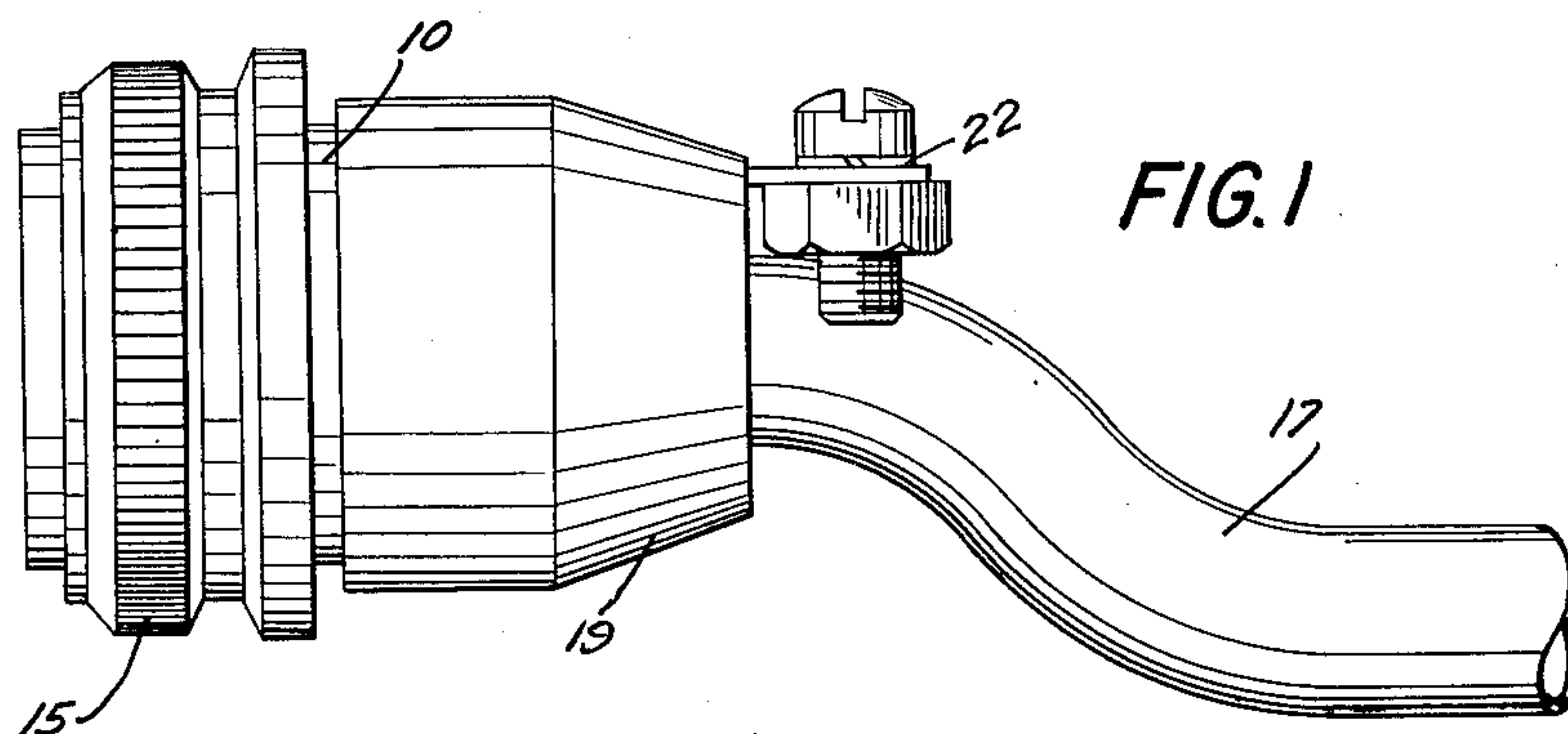
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ELECTRICAL CONNECTOR WITH GROUNDING STRIP

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ELECTRICAL CONNECTOR WITH GROUNDING STRIP

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This invention relates to electrical apparatus and more particularly to electrical connectors and means for effecting a ground connection to the outer casings thereof.

One of the objects of the present invention is to provide a plug and socket type connector embodying novel means for making a ground or other external connection to the shell or casing thereof.

Another object is to provide novel and convenient means for grounding the shell of a so-called potted connector.

Still another object is to provide novel grounding means for a connector shell which is of simple construction, inexpensive and durable.

The above and further objects and novel features of the present invention will more fully appear from the following detail description when the same is read in connection with the accompanying drawings. It is to be expressly understood, however, that the drawings are for the purpose of illustration only and are not intended as a definition of the limits of the invention.

In the drawings, wherein like reference characters refer to like parts throughout the several views:

FIG. 1 is a side elevation view of a mating half of a connector embodying one form of the present invention;

FIG. 2 is a longitudinal sectional view of the structure of FIG. 1; and,

FIG. 3 is a detail view of a grounding strip.

The single embodiment of the invention illustrated in the drawings, by way of example, is shown as being embodied in the pin contact mating half of a plug and socket connector of well-known construction. The connector half as shown comprises a tubular shell 10 in which a resilient contact carrying insert 11 is retained by an annular rib or land 12 which engages a mating groove in the insert. The latter preferably has a tight compression fit in shell 10 and supports a plurality of pin contacts 14. The contacts may, however, be socket contacts. The connector half thus constituted is adapted in a known manner to mate with a socket contact connector half (not shown) and can be mechanically connected thereto by means such as nut 15. At the right hand ends of contacts 14 as viewed in the drawings, the same are each connected, such as by soldering, crimping or the like, to an insulated conductor 16. If desired the extended portions of conductors 16 may be enclosed in a sheath or sleeve 17.

For the purpose of both physically and electrically protecting the connections between conductors 16 and contacts 14, the same may be potted or embedded in a mass 18 of electrical insulation. The molding of mass 18 may be effected with sectional removable molds in a known manner, but in the illustrated embodiment, a permanent mold 19 of insulating material is used. The latter is in the form of a tube or sleeve and has an internally threaded metallic ring 20 secured in one end thereof for threaded engagement with shell 10.

The present invention comprehends novel and unique means for quickly and easily effecting an external ground connection to shell 10. Such a ground connection is often desirable for several purposes which are not here important, and it is usually desirable that the means for effecting such connection be in effect a part of the con-

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connector assembly. In previously known structures, such a connection has usually been made through a metallic clamp for conductors 16 or cable 17, but such clamps are rendered unnecessary by the molded mass 18.

In the form shown, said grounding means comprises a flat strip or ribbon 21 which extends into shell 10 and is pressed into firm electrical engagement therewith by resilient insert 11. To prevent accidental withdrawal of strip 21, the same is shaped to fit over the rib or land 12 in shell 10, as is best seen in FIG. 2. The outer end of strip 21 projects outside of sleeve 19 and is there provided with a terminal 22 which may be of any known construction and to which a conductor may be readily connected.

Although only a single embodiment of the invention has been illustrated in the accompanying drawings and described in detail in the foregoing specification, it is to be expressly understood that the same is not limited thereto. For example, the insert may be provided with a retaining rib or shoulder engaging a groove in the shell, in which event the grounding strip 21 could be shaped to fit around the rib on the insert. Various other changes may also be made in the design and arrangement of the parts illustrated without departing from the spirit and scope of the invention as the same will now be understood by those skilled in the art.

What is claimed is:

1. An electrical connector comprising an elongated rigid metallic shell having an opening therein, a resilient electrically insulating insert spanning the opening in the shell and mounted in the shell by a compression fit, at least one contact mounted in the insert and insulated thereby from the shell, and an electrically conductive strip extending into the shell and having a portion thereof gripped tightly between the inner wall of the shell and the outer surface of the insert, whereby the said portion of the strip makes secure electrical contact with the shell.

2. Electrical apparatus as defined in claim 1 comprising cooperative means on said shell and strip for mechanically securing said strip in the shell.

3. Electrical apparatus as defined in claim 2 wherein said cooperative means includes a rib in said shell.

4. Electrical apparatus as defined in claim 1 comprising a molded mass of insulating material secured to and closing the end of said shell, said strip extending through said mass.

5. Electrical apparatus as defined in claim 1 comprising an open ended mold secured to the end of said shell and a mass of insulating material filling said mold, said strip extending through said mass.

6. Electrical apparatus as defined in claim 5 wherein said mold comprises a tubular sleeve of insulating material and an internally threaded ring securing in an end of said sleeve, said ring having threaded engagement with said shell.

7. Electrical apparatus as defined in claim 1 wherein said shell has an internal rib and said conductor strip comprises a portion contoured to closely engage said rib.

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