

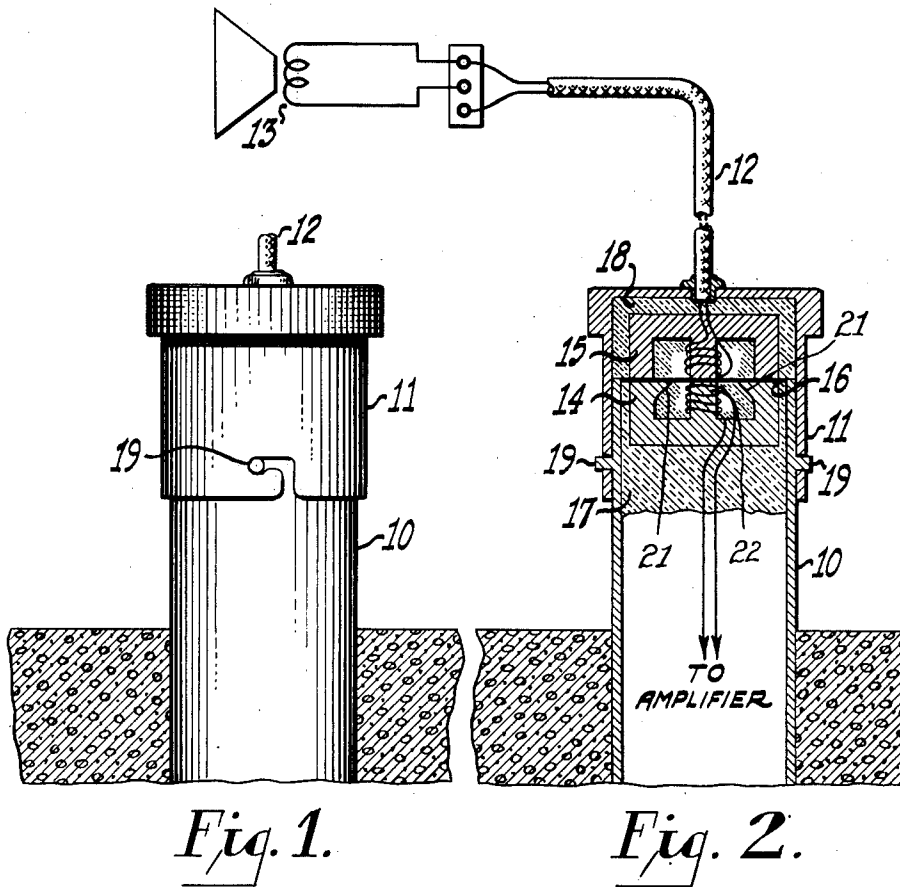
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ELECTRICAL CONNECTOR FOR LOUDSPEAKERS AND THE LIKE

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ELECTRICAL CONNECTOR FOR LOUD-
SPEAKERS AND THE LIKE

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1 Claim. (Cl. 175—361)

This invention relates to an improved electrical connector particularly adapted for use with loudspeakers and similar audio frequency appliances. The improved connector is especially adapted for use in damp or wet locations, as there are no conductive connectors exposed, either when the connection is completed or when the connector remains inoperative.

The device is peculiarly adapted for use in connecting loudspeakers in the drive-in type of outdoor motion picture theater, where the connectors are always exposed to rain and where low portions of the ground are often flooded.

The connector is equally adapted for use on ships, where an audio frequency connection is necessary which must remain operative despite immersion in salt water, or where a watertight connection must be secured.

The apparatus involves the use of a divided transformer, the primary portion of which is sealed into the fixed outlet with no apertures for the entry of moisture. The secondary of the transformer is located in a removable member which may be placed in inductive relation to the primary when signals or currents are to be transmitted, and which may be bodily removed with its connected apparatus.

One object of the invention is to provide an improved loudspeaker connection.

Another object of the invention is to provide a waterproof connector for audio frequency currents.

Another object of the invention is to provide a waterproof connector for alternating currents.

Another object of the invention is to provide an electric current transmitting device which is completely water tight.

Other and incidental objects of the invention will be apparent to those skilled in the art upon a reading of the following specification and an inspection of the accompanying drawing, in which:

Figure 1 is a side elevation of one form of my improved connector, assembled; and

Figure 2 is a vertical section through the device of Fig. 1.

Referring to the drawing, the stationary portion of the connector, generally indicated at 10, may be set into the ground or into a concrete base in an appropriate manner and connected to the usual conduit. If the device is to be used on shipboard, the portion 10 may be threaded into an appropriate deck plate or bulkhead, or secured thereto or to an appropriate outlet box in any suitable fashion.

The upper portion of the connector, generally indicated at 11 in the drawing, is provided with an appropriate connection cord or cable 12, which may be attached to the output devices, and these two elements together are bodily removable from the portion 10.

Referring more particularly to Fig. 2, the fixed portion 10 has therein a transformer half 14, including one-half of the transformer core and one winding. In the form of the invention shown, this winding is the primary winding of the transformer. This transformer half 14 is mounted in the fixed portion 10 and is preferably sealed therein with a suitable waterproof compound as indicated at 17. If this compound is one of the softer insulating waxes, then an appropriate cover plate 16 is sealed over the end of the member 10 for mechanical protection of the transformer elements. This member 16 may be of any appropriate non-magnetic material such, for example, as Bakelite, hard rubber or the like. This cover plate may even, if desired, be made of metal, such as brass, although this form of construction involves some losses. If desired, the sealing compound 17 may be one of the synthetic resins such, for example, as Bakelite, which may be carried to the top of the member 10 and thoroughly impregnate the transformer elements. In this arrangement, since the insulating material is hard and waterproof, no further mechanical protection is necessary.

The upper portion of the connector 11 includes the secondary of the transformer and its half of the core indicated at 15. The secondary transformer winding is connected to the output cord 12 which, in turn, is connected to the output device such, for example, as the loudspeaker 13. The removable portion 12 of the connector is filled with an appropriate insulating compound as indicated at 18, as in the case of the lower portion of the connector. Since the upper portion of the connector is not subject to as hard usage as the fixed portion, it does not require as complete mechanical protection for its electrically operative elements, and the protection for the elements thereof is also assisted by the extending skirt of the portion 11. It is desirable, however, that the transformer half 15 be rigidly secured in the member 11, and the insulating compound 18 is, therefore, preferably one of the harder plastics such as Bakelite or one of the vinyl resins, which should impregnate the transformer core and windings in case the connector must be used under water.

It will be apparent that, since the primary por-

tion 14 of the transformer remains at all times in the circuit of the amplifier or other device feeding current to the connector, the removal of the portion 11 and the output device 13 will have considerably less effect upon the load impedance on the amplifier than in the case of a conductive connector. Furthermore, it will be observed upon inspection of Fig. 2 that the two outer upstanding pole pieces of the lower half of the transformer core extend inwardly, as indicated at 21, toward the central pole piece 22. This reduces the reluctance of the magnetic path in this (lower) half of the core, hence its reluctance when the upper half is disconnected is relatively low and not very much different from the reluctance of the magnetic path through the transformer when both of its halves are in circuit. Thus, the removal of the upper half of the transformer has but little effect upon the output circuit of the amplifier.

Although the connector has been described as having the primary portion of the transformer stationary and the secondary portion removable, it will be understood that the functions of these parts may be reversed, as the connector may be used, for example, to connect a microphone to the input of an amplifier. It will also be apparent that the connector may be used as an impedance matching transformer, so that the primary impedance is appropriately matched to the output of the amplifier while the secondary impedance is appropriately matched to the impedance of the particular output device connected thereto.

If desired, the removable member 11 may be secured to the fixed member 10 by an appropriate bayonet joint, or the equivalent thereof, including pins 19. Either this arrangement or some equivalent orienting device is desirable if the transformer core halves are of the E type. If, however, the transformer core halves are circular, so that no specific orientation is required, other appropriate securing means may be used. In the case of outdoor motion picture theatres, the bayonet joint is particularly desirable to prevent the inadvertent removal of the output devices which may be temporarily hung on an automobile.

15 I claim as my invention:

A closed core transformer including a core comprising two discrete halves, each of said core halves comprising a magnetic structure having a pair of oppositely located upstanding pole pieces, a hermetically sealed casing in which one of said core halves is contained, the pole pieces of said one of said core halves having inwardly extending portions defining an air gap of relatively low reluctance within said casing, and means for removably mounting the other of said core halves upon said casing with its pole pieces in register with and magnetically coupled through said casing with the pole pieces of said encased halves of said core.

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