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B. C. BELLOWS, JR.
ELECTRICAL CONNECTING DEVICE

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Fig. 1.

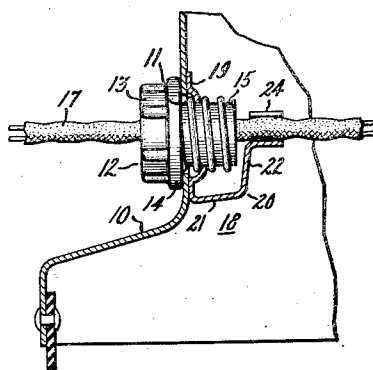
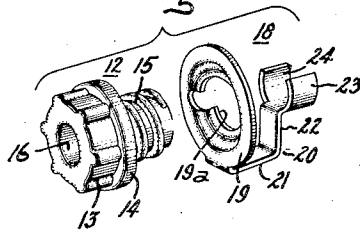


Fig. 2.



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UNITED STATES PATENT OFFICE

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ELECTRICAL CONNECTING DEVICE

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3 Claims. (Cl. 173—322)

My invention relates to an electrical connecting device suitable for use in electric appliances in which an electrical conductor is brought out through the casing of the appliance.

In most electrical appliances having permanently attached cord sets, the electrical conductor is brought out through an opening in the casing of the appliance and a bushing is provided in this opening in order to prevent chaffing of the covering of the conductor and short-circuiting of the conductor on the casing of the appliance. In those instances in which such a construction is used, the bushing is usually pressed into the casing and in order to provide some strain relief for the conductor, a large knot is tied in the portion of the conductor inside of the appliance adjacent the bushing. Such an arrangement has been found to be not entirely satisfactory due to the fact that the bushing may become loose and also due to the fact that the strain relief provided does not prevent the conductor from being twisted in or pushed through the bushing.

It is an object of my invention to provide a simple and inexpensive construction and arrangement by which a bushing is firmly maintained in its assembled relation with respect to an electrical appliance and a positive strain relief is provided for the conductor passing through the insulating bushing which prevents the conductor from being twisted in, pushed into, or pulled out of the bushing.

It is a more specific object of my invention to provide a fitting formed from a single piece of material and having means for retaining an insulating bushing in position and means for providing positive strain relief for the conductor passing through said bushing.

It is a further more specific object of my invention to provide, as a new article of manufacture, an integral metallic element having a disk portion adapted to engage an insulating bushing to firmly hold it in position and a clamp portion supported on said disk portion adapted to engage an electrical conductor to prevent it from being pushed into, pulled out of, or twisted in the insulating bushing once it has been assembled in its proper location.

It is a further more specific object of my invention to provide a construction of the aforementioned type which may be manufactured at low cost and which may be readily assembled in its operative position.

Further objects and advantages will become apparent as the following description proceeds and the features of novelty which characterize

my invention will be set forth with particularity in the claims appended to and forming a part of this specification.

For a more complete understanding of my invention, reference should be had to the accompanying drawing in which Fig. 1 is a view showing a portion of an electrical appliance provided with the electrical connection of my invention applied thereto and Fig. 2 is an exploded view showing details of my new and improved connection.

Referring to Fig. 1, 10 represents a side wall of an electrical appliance. No particular appliance has been illustrated since my connection may be applied to any appliance such as an electric hot plate, toaster, percolator, etc. Provided in the side wall 10 is an opening 11 in which is inserted a bushing 12 made from some suitable insulating material such as porcelain. As shown in Fig. 2, the bushing comprises a formed insulating member having a knob portion 13, a washer portion 14 and an elongated threaded portion 15. Extending centrally through the bushing is an opening 16 through which the electrical conductor 17 to be connected to the terminals of the appliance is adapted to pass.

In order to firmly secure the insulating bushing to the side wall of the housing 10 and also to provide a strain relief construction which prevents the conductor 17 from being pushed into, pulled out of, or twisted in the bushing once it has been inserted therethrough and connected to the electrical terminals of the appliance, I have provided in accordance with my invention a unitary element 18 which is stamped and formed from a single piece of some suitable metal. Referring to Fig. 2, it will be observed that the element 18 comprises a disk 19 in which is provided a threaded opening 19a to permit the disk to be threaded upon the threaded portion of the bushing 15. The threaded opening is formed by providing irregular depressions in the disk 19 which form a spiral thread of sufficient pitch to permit the disk to cooperate with the threads provided on the bushing to form a nut therefor. Integrally formed on the disk 19 and supported thereby is an angular bracket 20 having one leg portion 21 which extends outwardly from the surface of the disk and a second leg portion 22 which extends upwardly from the first leg portion so that the end thereof lies in substantial alignment with the axis of the opening in the disk. Integrally formed on the end of the leg 22 of the bracket 20 is a strain relief clamp comprising two upwardly extending curved

portions 23 and 24 spaced from each other at their upper extremities an amount sufficient to permit the conductor 17 to be readily inserted thereinto.

In assembling my improved connector, the bushing 12 is threaded on the conductor 17 and the conductor is inserted through the opening provided in the casing 10. The member 18 is then inserted inside the casing 10 and threaded on the conductor so that the clamping members 23 and 24 may engage the conductor 17 and be squeezed together thereabout at an appropriate distance from the end of the conductor. After the conductor has been connected to the terminals of the electrical appliance, the slack cord is pulled out of the casing until the disk 19 lies against the inside surface of the casing 10. The bushing 12 is then manipulated from the outside of the casing 10 and threaded through the disk 19 until the bushing and disk are firmly held against the side wall of the casing. This method of assembling my improved connector eliminates, in many instances, the need for slack cord inside an electrical appliance.

From the foregoing description, it is to be observed that I have provided a simple, inexpensive and easily applied connector for an electrical appliance which comprises an insulating bushing and a unitary metallic member having a disk constructed and arranged to serve as a retaining ring or nut for holding the bushing in position and an integrally formed strain relief clamp supported by the retaining ring.

While I have shown a particular embodiment of my invention, it will be understood, of course, that I do not wish to be limited thereto since many modifications may be made, and I, therefore, contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In an electrical device having a casing with an opening therein through which an electrical conductor is adapted to pass, a bushing in said opening constructed and arranged to insulate said conductor from said casing, said bushing having a washer portion which engages the outside surface of said casing and a threaded portion which extends through said opening and into said casing, a metallic disk having a threaded opening cooperating with the threaded portion of said bushing and engaging the inner surface of said casing to secure said bushing to said casing, and a bracket integrally formed on said metallic disk so as to be entirely within said casing and provided with clamping members

adapted to be bent around said conductor to prevent any substantial movement of said conductor out of said bushing.

2. In an electrical device having a casing with an opening therein through which an electrical conductor is adapted to pass, a bushing in said opening constructed and arranged to insulate said conductor from said casing, said bushing having a washer portion which engages the outside surface of said casing and a threaded portion which extends through said opening and into said casing, a retaining ring comprising a disk having a threaded opening therein cooperating with said threaded portion of said bushing and engaging the inner surface of said casing to secure said bushing to said casing, an integrally formed bracket extending from the periphery of said disk and lying substantially perpendicular thereto, and a pair of curved clamping members formed on said bracket so as to be spaced from the opening in said bushing and to lie in substantial alignment therewith, said clamping members being adapted to be bent into engagement with said conductor adapted to pass through said bushing so as to prevent substantial movement of said conductor with respect to said bushing and thereby prevent strain on the electrical terminals to which said conductor is connected.

3. In an electrical device having a casing with an opening therein through which an electrical conductor is adapted to pass, a bushing in said opening constructed and arranged to insulate said conductor from said casing, said bushing having a washer portion which engages the outside surface of said casing and a threaded portion which extends through said opening and into said casing, a retaining ring comprising a metallic disk having a pressed threaded opening centrally arranged therein cooperating with said threaded portion of said bushing and engaging the inner surface of said casing to secure said bushing to said casing, a substantially L-shaped bracket integrally formed on the periphery of said disk and having a portion spaced therefrom and extending substantially parallel thereto in a direction toward the center of said disk, and a pair of clamping arms integrally formed on said portion of said bracket so as to lie in substantial alignment with said opening in said bushing, said arms being curved to receive a conductor adapted to be inserted through said bushing and being adapted to be bent around said conductor to clamp said conductor to form a strain relief member therefor.

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