

Jan. 21, 1941.

H. G. FRIANG
UNIVERSAL SOCKET DEVICE
Filed Sept. 18, 1939

2,229,377

Fig. 1.

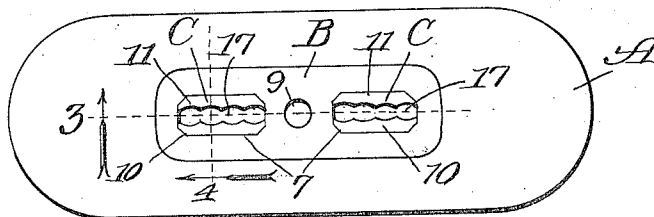


Fig. 2.

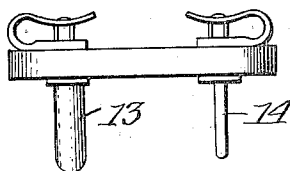


Fig. 3.

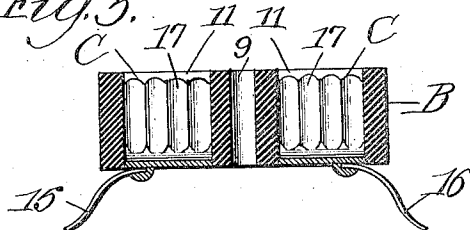


Fig. 4.

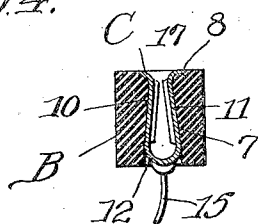


Fig. 5.

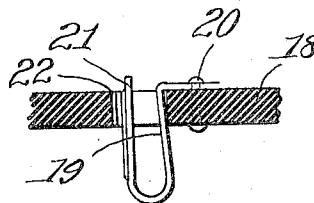
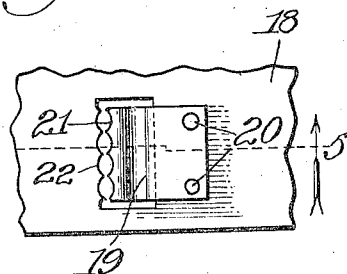


Fig. 6.



Inventor:
Henry G. Friang
By Chritton, Wiles, Daves, Hirsch & Dawson,
Attys.

UNITED STATES PATENT OFFICE

2,229,377

UNIVERSAL SOCKET DEVICE

Henry G. Friang, Madison, Wis., assignor to Ray-O-Vac Company, a corporation of Wisconsin

Application September 18, 1939, Serial No. 295,494

2 Claims. (Cl. 173—332)

This invention relates to socket devices for making electrical connections with plug members, and more particularly to an improved universal socket member which will accommodate sets of prong members of various diameters and spacings.

The primary object of the invention is to provide a simple and inexpensive resilient socket which is adapted to work satisfactorily with various types of plug members and will make good firm electrical connection with a minimum amount of resistance added to the circuit.

The device is particularly adapted for use in connection with small battery sets of the type used with hearing aids and the like. In such devices the batteries must be replaced occasionally and the socket member discarded with the battery. In using the batteries any relative movement between the prong and socket contacts will cause a grating sound in the ear of the wearer and of course is highly objectionable.

Hearing aid devices are manufactured by a number of different concerns and there is no standard for the diameter of the prong members or the spacing between the prongs. The present device affords transverse slots which will accommodate prong members of various spacings and the yielding jaws will accommodate prongs of various diameters.

The invention is illustrated in a preferred embodiment, in the accompanying drawing, in which:

Figure 1 is a plan view of a small battery having an improved socket member in its top face; Figure 2 is an elevational view of a conventional plug member having prongs of different diameters; Figure 3 is a sectional view of a universal socket device, taken as indicated at line 3 of Figure 1; Figure 4 is a sectional view, taken as indicated at line 4 of Figure 1; Figure 5 is a fragmentary sectional view showing a modified form of contact, taken as indicated at line 5 of Figure 6; and Figure 6 is a fragmentary plan view of the contact member and supporting plate shown in Figure 5.

In the embodiment illustrated A designates a battery case or similar electrical apparatus which requires an electrical connecting socket; B, a supporting block of insulating material; and C, electrical contacts supported in the insulating block B.

The battery A is of well known construction and is provided with a female electrical connector in its top surface. In the preferred construction the insulating material B is of soft

molded rubber and has a number of tapered perforations 7 to receive the contacts C. Preferably the perforations are larger on the lower side of the block and the upper side is flared outwardly, as indicated at 8, to receive the tips of the jaws of the contact members. As will be readily understood, two or more contacts may be provided, and, if desired, an additional perforation 9 may be provided to facilitate centering and holding the plug member on the battery.

In the preferred form, the contacts C comprise U-shaped clips which have two corrugated jaws 10 and 11 which are connected at their lower ends by the web portion 12. The contacts fit snugly into the tapered perforations in the resilient block and the upper ends of the jaws are urged inwardly by the inherent springiness of the metal and also by pressure of the insulating material which forms a cushion. The corrugations provide arcuate contacting surfaces which establish a better electrical contact with prongs 13 and 14 on a plug member. As the jaws are movable relative to each other, they are adapted to receive a prong of large diameter, such as 13, or one 14 of smaller diameter. Lead wires 15 and 16 may be soldered to the contacts C to establish electrical connection with the cells of the battery. As will be noted in Figure 4, narrow transverse slots 17 are afforded between the jaws of the contacts and preferably these slots are in longitudinal alignment so as to accommodate sets of prongs of substantially different spacing.

In the modification shown in Figures 5 and 6 the block of insulating material 18 may be of hard material such as hard rubber, "Bakelite," or the like. A U-shaped contact 19 is riveted thereto by means of a fastener 20.

In this form a prong member may also be inserted between the jaws but preferably only one jaw 21 of the contact member is urged into contact. The other side of the prong may bear against a wall 22 of the insulating block. The surfaces may be corrugated, if desired, and as the slot is of substantial width, prongs of various spacings may be accommodated.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, for some modifications will be obvious to those skilled in the art.

I claim:

1. In electrical apparatus of the character set forth, a socket member comprising: a perforate block of soft, resilient, insulating material; and a plurality of metal contacts embedded in said

block and insulated from each other, each of said contacts having a pair of coacting corrugated jaws disposed in parallel relation so as to be yieldingly urged towards each other by the supporting insulating material and providing a transverse slot of substantial width between the jaws so that prongs of desired diameter and spacing may be thrust into said slots at a desired

transverse position and be brought into firm electrical contact with said jaws.

2. A device as specified in claim 1, in which the slot between the jaws of one contact is in longitudinal alignment with the slot between the jaws of another contact.

HENRY G. FRIANG.