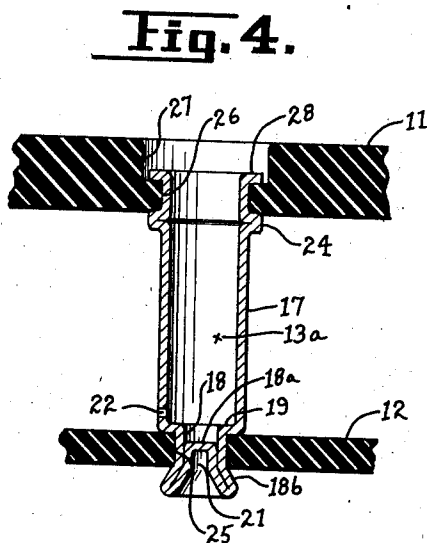
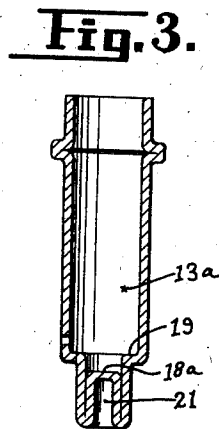
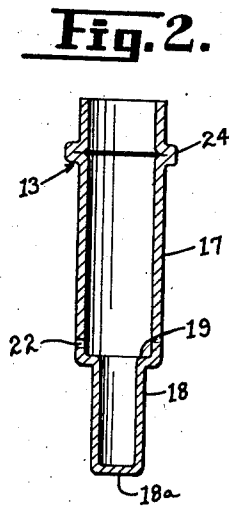
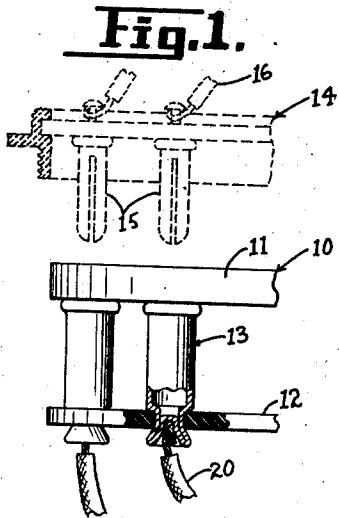


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ELECTRIC SOCKET
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ELECTRIC SOCKET

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This invention relates to electrical socket members for use in conjunction with electrical devices having plug-in connections such as employed, for example, in radio tube connections, numerous applications in the electronic arts and various other electrical devices requiring quick detachable electric circuit connections.

The particular sockets that are involved in this invention are those that are used in connection with electrical devices employing spaced insulation plates to which the opposite ends of the sockets are permanently anchored, and which sockets serve as a means for holding the plates in spaced relationship. Heretofore, sockets of this character have been made of solid rod or bar stock which itself is quite expensive and which involves a relatively slow machining operation as well as considerable waste of materials in lost turnings, all of which add materially to the cost of making the sockets. Furthermore, sockets that are made from rod stock require leaded alloys for machining purposes which is not considered suitable as the ideal material for riveting as is necessary in anchoring the opposite ends of sockets to their respective bases.

It is the principal object of this invention to overcome the above difficulties and expense by making the sockets entirely from sheet metal blanks drawn up into tubular eyelet form by successive drawing operations and providing shoulder and beaded portions that cooperate with the insulation bases in making the final permanent assembly thereto.

Sockets of this character are made of various brass alloys suitable for drawing operations and having the normal electrical conductive properties. In some applications, however, a maximum degree of electrical conductivity is required which is attained by coating the sockets with a silver plate. Also in the units which these sockets are placed provision is made to connect a current conductor directly to one end of the socket by a soldering operation, and it is another object of the invention to provide a means to preclude acid, soldering flux or other injurious materials from entering the socket chamber when the electrical connections are being made. This is accomplished by having the reduced neck portion formed with a closed end drawn out considerably beyond its normal length, and of then inverting the closed end into the reduced neck portion, and thus provide for a leak-proof recess in that end of the sockets into which the end of a current conductor, may be soldered.

The full nature of this invention, along with

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the other objects and various advantages thereof, will be more apparent from a consideration of the following description when read in connection with the accompanying drawing in which—

Fig. 1 shows two of the sockets as they appear attached to fragmentary portions of their supporting insulation bases, with portions of one socket in section to show the interior construction and also showing in dotted outline the complementary connecting member supporting push-in resilient plugs.

Fig. 2 shows a sectional view through the socket on an enlarged scale as it appears prior to the inverting of the closed end of the reduced neck portion.

Fig. 3 is a similar view to Fig. 2 but showing how the closed end of the restricted neck portion is inverted into itself, and

Fig. 4 shows the socket in section as it appears in its final state assembled to its supporting insulation bases.

Referring now to the drawing in which like reference numerals denote corresponding parts throughout the several views, numeral 10 designates the electrical unit in which there are employed spaced insulation plates 11 and 12 to which numerous sockets or jacks 13 may be attached and serve as pedestals to hold the plates in spaced relationship. The unit 10 is generally referred to in the trade as a multiple jack. A complementary plug member 14 carries a corresponding number of resilient plug pins 15 which are supported in the plug member in properly aligned relationship to the sockets and suitable electric connections 16 may be made to the individual pins in the usual manner.

The socket members or jacks 13 within the teachings of this invention are made from a single piece of sheet metal by successive drawing operations to provide for a tubular body portion 17 encompassing a socket chamber 13a for the reception of the plug pins 15 and initially having an exceptionally long drawn tubular neck 18 at one end joined integrally into the body portion 17 by a connecting shoulder 19. The outer end of the neck 18 is closed as at 18a and the socket member 13 in this form is as shown in Fig. 2.

In order to provide a suitable recess in the socket members 13 into which the terminal ends of electrical conductors 20 may be fitted and soldered, and which recesses will be sealed off from the socket chamber 13a without the need of extra parts, I accomplish this by inverting the closed end of the tubular neck 18 up within itself. Spe-

cifically this is shown in Fig. 3 wherein the closed end 18a is forced into the tubular neck 18 and becomes the base of an inverted socket 21 having a double surrounding wall. The manner in which the inverted socket 21 is formed assures that this socket will be completely sealed from the chamber 13a so that no acids, soldering material or other injurious materials will accidentally get into said chamber 13a coincident with making the electrical connections.

As pointed out in the objects of this invention in applications where it is desired to have the maximum electrical conductive efficiency in the socket members 13 they are silver plated, it being essential that a particularly good silver plate be provided on the interior of the body portion where the actual electrical contact is made with the plug pins 15. In order to assure that the cleaning solution and electrolyte can be properly carried into the socket chamber 13 and drained therefrom, it is necessary to have suitable drainage adjacent the base of the socket chamber 13a which may be accomplished by having one or more drain holes 22 pierced or drilled into the wall of the body portion 17 adjacent the shoulder 19.

A projecting circumferential bead 24 is provided adjacent the opposite open end of the body portion 17 and preferably this bead 24 is formed outwardly of the body wall to provide a bead of double wall thickness which bead is removed a prescribed distance from the end of the body, the purpose of which will appear later.

The manner in which the socket member 13 may be assembled to the spaced plates 11 and 12 is best shown in Fig. 4. Specifically the plate 12, which is the lower plate of the unit 10, is provided with a suitable aperture 25 through which the tubular neck 18 may be inserted to a position where the shoulder 19 seats against the adjacent face of the base 12. The projecting portion of the neck 18, which is now a double walled section by reason of the inverted recess 21, may be flared or diametrically increased in size as at 18b for riveting that end of the socket permanently to its respective base.

The opposite end of the socket member 13 is attached to the other insulation plate 11 which happens to be this disclosure of somewhat greater thickness than the plate 12. The plate 11 is provided with a requisite number of openings 26 of a size to receive the tubular body portions 17 of the socket member 13, and a countersunk recess 27 is aligned with each opening 26. The open end of the socket member is assembled through the opening 26 to a position where the bead 24 seats against the adjacent face of said plate 11 and the outer end of the socket may be flared or spun over as at 28 within the recess 27 to anchor or rivet that end of said socket member 13 permanently to said plate 11.

When the proper number of sockets are assembled into the electrical unit 10, which is usually then known as a multiple jack, the electrical connections 20 may be made in the usual manner by soldering the exposed ends of the conductor wires 20 into the inverted recesses 21 within the tubular neck 18 as shown in the sectionalized portion of Fig. 1.

While the form of the invention herein shown and described embraces a preferred embodiment of the same, it is to be understood that the construction may be varied as to mechanical details without departing from the spirit of the invention and the scope of what is claimed.

I claim:

1. A socket for electrical devices comprising a tubular body shell having a reduced hollow neck portion with a closed end, the closed end of said neck being inverted into the hollow of said neck with its adjacent walls in substantially intimate contact with each other, said inverted section providing for a recess completely sealed from the hollow portion of said shell.

2. A socket for electrical devices comprising a tubular body shell having a reduced hollow neck portion with a closed end, said neck portion being integrally connected to said shell by a connecting shoulder, the closed end of said neck being inverted into said neck portion and in intimate contact with the interior neck wall, said inverted portion serving to seal the hollow of said neck from the hollow of said shell.

3. A socket for electrical devices comprising a tubular eyelet shell of drawn sheet metal having a reduced hollow neck portion with a closed end, said neck portion being integrally connected to said shell by a connecting shoulder, the closed end of said neck being forced up into itself to provide for an inverted recess within the neck portion that is sealed from the hollow of said eyelet shell.

4. A socket for electrical devices comprising a tubular eyelet shell of drawn sheet metal having a reduced hollow neck portion with a closed end, said neck portion being integrally connected to said shell by a connecting shoulder, the closed end of said neck being forced up into itself to provide for an inverted recess within the neck portion with a double surrounding wall and the base of which recess seals the latter from the hollow of said eyelet shell.

5. As an article of manufacture, a thin walled tubular shell having a reduced hollow neck portion joined to said shell by a connecting shoulder, a cup shaped closure formed as an integral part of said neck portion and fitted into intimate contact with the interior of said neck portion with its closed end inwardly relative thereto to provide for an open end recess in said neck portion that is sealed from the hollow of said shell.

6. As an article of manufacture, a thin walled tubular shell having a reduced hollow neck portion joined to said shell by a connecting shoulder, a cup shaped closure disposed in said neck portion by a forced fit with its closed end inwardly relative to said neck portion and its outer end joined integrally to the outer free end of said neck portion, said cup shaped closure providing for an open end recess of double wall thickness in said neck portion that is sealed from the hollow of said shell.

7. As an article of manufacture, a tubular eyelet shell comprising an enlarged hollow tubular body portion and a reduced hollow neck portion having an outer closed end, said neck portion being joined to said body portion by a connecting shoulder, the closed end of said neck portion being inverted into said neck portion in intimate contact with the interior thereof and providing for a closed end recess in said neck portion completely sealed from the hollow of the body portion.

8. A socket member adapted to be secured in an opening in a support base, said socket comprising a tubular body shell having a reduced hollow neck portion with a closed end, said neck portion being connected to said body shell by an integral shoulder, the closed end of said neck portion being inverted into said neck portion in

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intimate contact therewith and providing for a recess in said neck portion of double wall thickness, the remaining neck portion being of a length greater than the thickness of said support and adapted to be inserted into the opening of said support base up to said shoulder as a stop, and the projecting end of said neck portion of double wall thickness being deflected outwardly as a means of riveting said socket member to said support base.

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