

[72] Inventor **Albert P. De Vito**
Niles, Ill.
[21] Appl. No. 846,487
[22] Filed July 31, 1969
[45] Patented July 27, 1971
[73] Assignee **Akon Metal Products, Inc.**
Chicago, Ill.

FOREIGN PATENTS

274,256 11/1965 Australia 339/128
1,385,228 11/1964 France 339/128

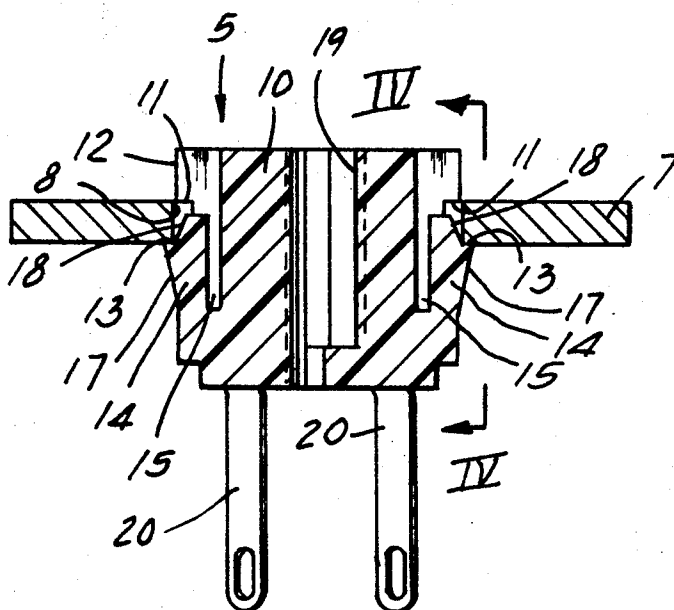
Primary Examiner—Richard E. Moore
Attorney—Hill, Sherman, Meroni, Gross and Simpson.

[54] ELECTRICAL SOCKET WITH SNAP-IN RETAINING MEANS 2 Claims, 4 Drawing Figs.

[52] U.S. Cl. 339/128
[51] Int. Cl. H01r 13/48
[50] Field of Search 339/128,
126, 127, 248/27

[56] **References Cited**
UNITED STATES PATENTS
3,079,581 2/1963 Klumpp, Jr. 339/128
3,305,823 2/1967 Dahlhaus et al. 339/128 X

ABSTRACT: For snap-in retention on a supporting panel an electrical socket body casting has a fixed stop shoulder to engage one side of the panel at a hole through which the body is inserted, and one or more locking shoulders oppose the stop shoulder in panel receiving spaced relation on a respective snap finger cast integrally in one piece with the body and spaced from the adjacent portion of the body to enable flexing of the finger toward the body upon deflection by an edge defining the hole during mounting of the socket and until the finger has cleared through the hole and flexes away from the body to move the locking shoulder into locking position, and having access to said finger through the stop shoulder.



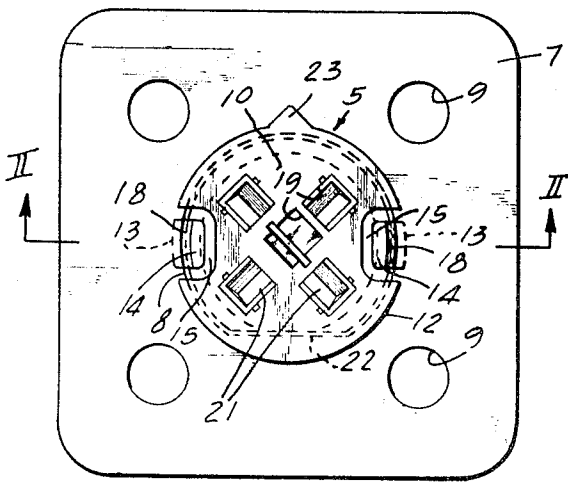


Fig. 1

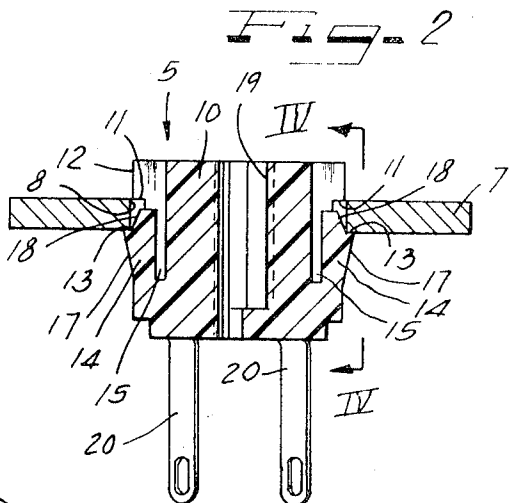


Fig. 2

Fig. 3

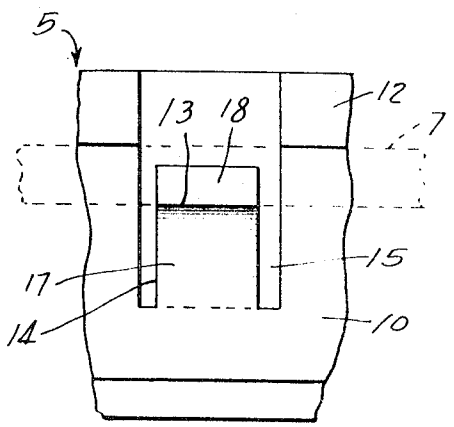
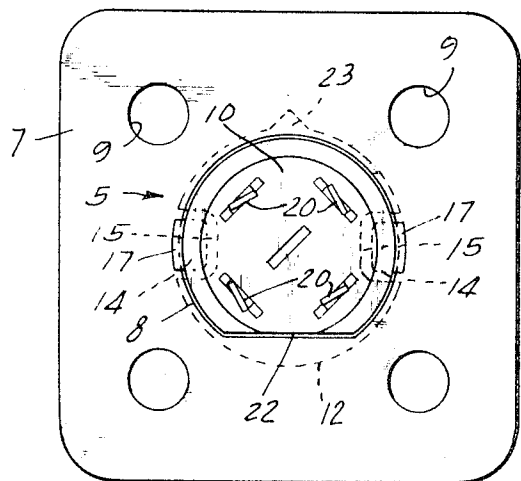


Fig. 4

INVENTOR

ALBERT P. DeVITO

BY *Tell Sherman Morris Chase & Simpson*

ATTORNEYS

ELECTRICAL SOCKET WITH SNAP-IN RETAINING MEANS

This invention relates to electrical socket construction and more particularly concerns new and improved means for snap-in retention of such a socket on a mounting panel.

Various expedients have been employed to retain electrical sockets in place on a mounting panel such as in or enabling mounting in a television or other chassis. Among such expedients may be mentioned rivets, screws, separable clamps, special clips, and the like. One disadvantage of such prior expedients has been that they have required separate parts on, connected to, or arranged to be assembled with the sockets, thus adding to the cost of the socket structure, liable to malfunction, become loose, and other deficiencies.

In order to overcome the shortcomings, deficiencies and disadvantages of prior constructions and devices, the present invention provides an electrical socket the body of which has cast integrally therewith a fixed stop shoulder structure and an opposing resilient finger locking shoulder structure, such that the socket can be mounted on a supporting panel by thrusting it through a receiving hole in the panel until the stop shoulder engages one side of the panel about the hole and the resilient locking finger structure snaps into retaining relation to the opposite side of the panel about the hole.

An important object of the present invention is to provide a new and simplified means for mounting an electrical socket on a supporting panel.

Another object of the invention is to provide new and improved resilient locking shoulder finger structure on a cast electrical socket body to cooperate with fixed shoulder means on the body.

A further object of the invention is to provide a new and improved electrical socket construction which can be mounted on a supporting panel simply by thrusting the socket into position in a receiving hole in the panel.

Other objects, features and advantages of the invention will be readily apparent from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawing, although variations and modifications may be effected without departing from the spirit and scope of the novel concepts of the disclosure, and in which:

FIG. 1 is a plan view at one end of an electrical socket embodying features of the invention applied to a mounting panel;

FIG. 2 is a sectional detail view taken substantially along the line II-II of FIG. 1;

FIG. 3 is an opposite end plan view of the socket and the panel; and

FIG. 4 is an enlarged fragmentary side elevational view of the socket taken substantially in the plane of line IV-IV of FIG. 2.

A socket 5 representative of electrical sockets adapted to be equipped with features of the invention is shown as of the type commonly referred to as a transistor socket, although it may be any of numerous other electrical sockets which are desirably mounted on a supporting panel 7 having a hole 8 to receive the socket in mounted relation. Such a panel may be part of an instrument chassis or may be equipped, as with attachment screw holes 9, for mounting on a chassis or instrument panel, or the like.

For mounting of the socket 5 on the panel 7 through and within the hole 8, the socket is provided with a body 10 which is proportioned to be received in the hole by inserting the body therethrough from one side of the panel. Desirably the hole 8 and the perimeter of the body 10 are complementary and of slightly differential size to permit free movement of the body into position within the hole until a stop shoulder 11 provided by a larger diameter integral lateral flange 12 on one end portion of the body engages against said one side of the panel. In a desirable construction, the body 10 is a molding or casting of a material possessed of substantial rigidity but which is resiliently flexible transversely of an elongated section

thereof, preferably a plastic such as polysulfone, glass filled nylon, and the like.

In order to retain the socket body 10 in position against endwise displacement from the panel, locking shoulder means are provided on the body in general opposition to the shoulder 11 and engageable with the opposite side of the panel 7 about the socket receiving hole 8. For this purpose, one or more locking shoulders 13, and in the illustrated instance a pair of such shoulders is provided in panel receiving spaced relation to the stop shoulder 11 and each located on a free end portion of a respective resiliently flexible finger 14 cast integrally in one piece with and joined at its opposite end portion to the body 10 but otherwise spaced from the adjacent portion of the body. This relationship of the fingers 14 to the body 10 is attained by the provision of a generally channel-shaped clearance space 15 in the body 10 about the finger 14 whereby to enable flexing of the finger inwardly toward the body portion by engagement of a normally laterally outwardly projecting shoulder-providing side of the finger in finger-deflecting relation by an edge defining the hole 8 during mounting of the socket and until the finger has cleared through the hole, whereupon the shoulder 13 snaps into locking engagement with the confronting side of the panel. To facilitate flexing displacement of the finger 14, the outwardly projecting side of the finger is desirably provided with a cam surface 17 leading from the base or attached end of the finger generally rearwardly and outwardly to the shoulder 13. For takeup purposes, the finger may be provided with a rearward extension having thereon an inwardly and rearwardly oblique cam surface 18 leading from the inner side of the shoulder 13 and engageable with the edge of the panel defining the opening 8. Through this arrangement all that need be done to mount the socket 5 on the panel 7 is to align the forward end of the socket body 10 with the opening 8, and then push the socket body into the opening until the edge of the panel 7 about the opening 8 is engaged between the shoulders 11 and 13. Thereupon the socket will be effectively retained against displacement from the panel unless all of the fingers 14 are intentionally compressed inwardly to clear the shoulders 13 inwardly relative to the edge defining the opening 8 so that the socket can be backed out of the opening.

As will be observed in FIGS. 1, 2 and 4, especially, the clearance spaces 15 for the fingers 14 lead in from an opening through the flange 12 and the shoulder 11, enabling access to the respective fingers from the adjacent end of the body 10. One advantage of this arrangement is that it facilitates the molding process for providing the fingers, and another advantage is that after the socket has been mounted on the panel, the fingers can be deflected by an instrument entering through the rearward openings in line therewith and the socket can be backed out of the opening without requiring access to the opposite side of the panel.

Mounting of the socket 5 on the panel 7 orients electrical contacts or other electrical devices supported by the dielectric body 10 for whatever purpose intended. In the example illustrated, the body 10 has electrically isolated bores 19 therethrough properly configured to receive therein electrical contacts or terminals 20 each of which has a solder lug projecting from the front end of the body 10 and has a respective tube pin receiving or jack socket 21 accessible from the rear end of the socket body. For orientation purposes, the perimeter of the body 10 and the opening 8 may be provided with a complementary flatted structure 22, and the flange 12 of the socket member may be provided with a radially extending indicator projection 23 opposite thereto.

I claim:

1. An integral electrical socket cast or molded in one piece from plastic material which is resiliently flexible transversely of an elongated section thereof, comprising:

a body portion,

a flange formed at one end of said body portion to provide a stop shoulder when said socket is mounted in a hole in a panel, a resiliently flexible finger, one end of which is

3

fastened to said body portion and the other end of which is free, said free end having a locking shoulder spaced from said stop shoulder to cooperate with the latter for locking the socket to a panel when mounted through a hole therein,
 5 the locking surfaces of said shoulders being substantially parallel,
 said free end of said finger having an extension beyond said locking shoulder extending in the direction of said stop shoulder to a locus intermediate said two shoulders and being adapted to pass through the hole of a panel in which said socket is mounted,
 10 the outer surface of said finger sloping outwardly from the locus of attachment to said body portion, to said locking shoulder in order to provide a cam surface to facilitate insertion of the socket into a hole in a panel,
 15 the outer surface of said extension sloping gradually, up-

4

wardly and inwardly from the inner edge of the shoulder to the end of said extension,
 an elongated channel formed on the outer surface of said body portion opposite said finger and extending from the locus of attachment of said finger to said body portion, to the flange end of the body portion,
 said channel providing a recess into which said finger can be squeezed inwardly toward said body portion, thereby allowing said locking shoulder to pass through said hole in the panel, and
 an opening in said flange in axial alignment with said finger to provide access to the free end of said finger.
 2. A socket in accordance with claim 1 having a plurality of said fingers, channels and openings circumferentially around said body portion.

20

25

30

35

40

45

50

55

60

65

70

75