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Reed et al.

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[54] **SOCKET BASE ASSEMBLY**

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[52] **U.S. Cl.** ..... **339/219 R**; 317/107; 339/259 F

[51] **Int. Cl.** **H01r 13/16**; H01r 13/40

[58] **Field of Search** ..... 339/252, 253, 256, 258, 339/259, 262, 219, 198 M, 31 B; 317/104, 105, 106, 107, 108, 109, 110, 111

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[57] **ABSTRACT**

A socket base assembly is provided which includes an apertured insulating panel fixedly mounted on a support piece. The insulating panel is provided with a non-circular aperture which is aligned with a current-carrying means positioned therebehind. Removably mounted within the panel aperture is a conductive jaw means which is connected to the current-carrying means. The jaw means is provided with a base portion having a central segment disposed within the panel aperture and conforming substantially to the shape thereof and peripheral segments angularly disposed relative to the central segment and being impassable relative to the panel aperture. A pair of jaw-like protuberances project outwardly from and are integral with the base portion. Fastening means cooperate with the center segment of the base portion to removably secure the jaw means to the current-carrying means.

7 Claims, 5 Drawing Figures

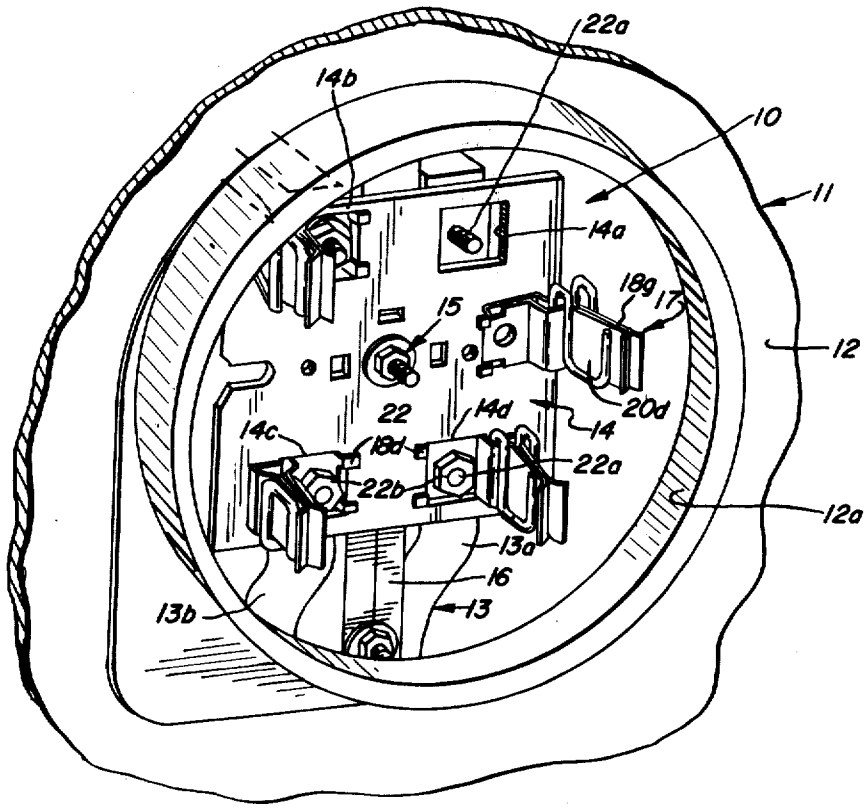


FIG. 1

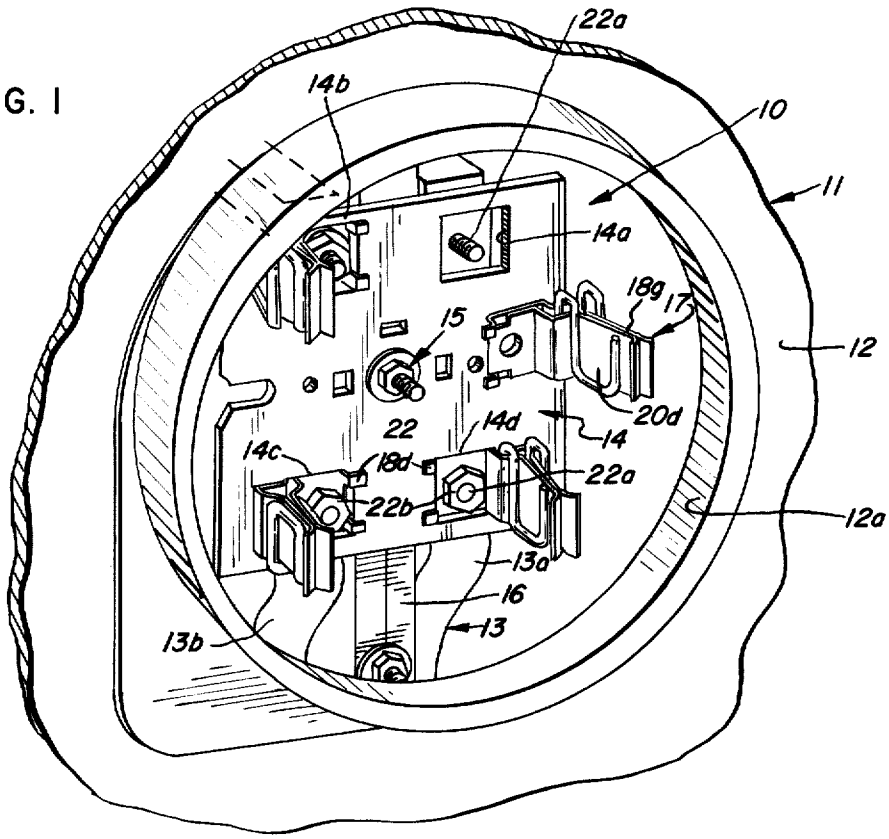


FIG. 2

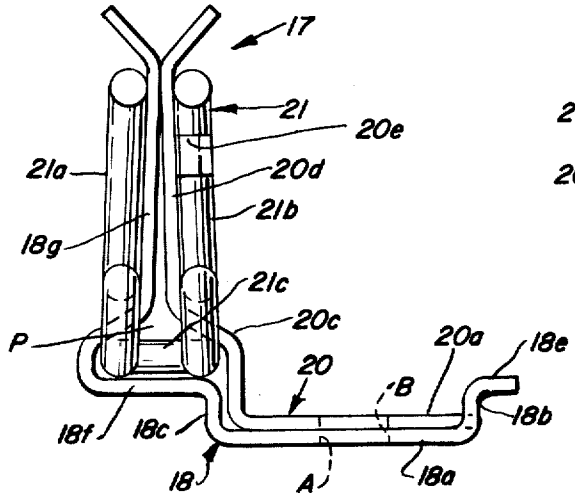


FIG. 3

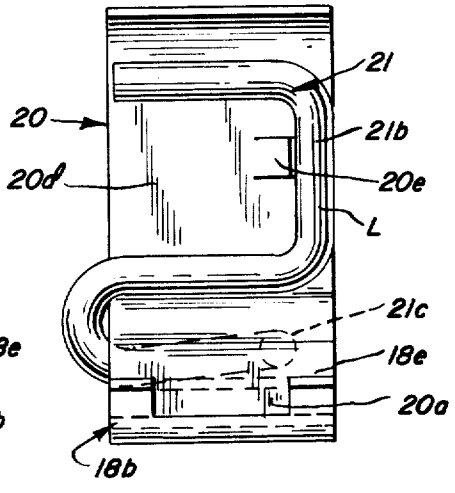


FIG. 5

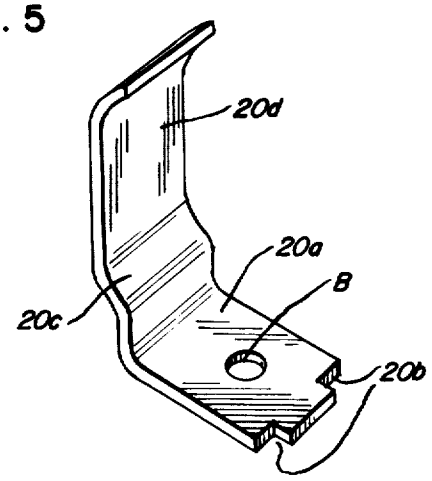
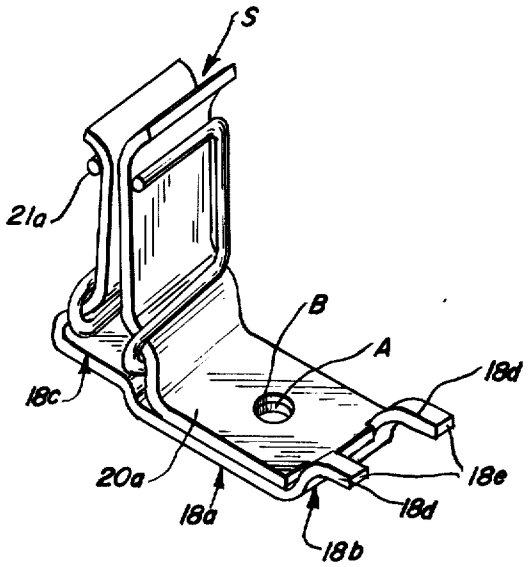


FIG. 4



SOCKET BASE ASSEMBLY

BACKGROUND OF THE INVENTION

When installing socket bases for electrical fixtures, it is desirable that their installation be simple, yet permanent, and once installed require a minimal amount of maintenance. Formerly, the jaw means and terminals comprising prior socket base assemblies were normally mounted on large panels of insulating material. In such constructions the jaw means were clamped directly onto the panel; however, frequently the compressive forces produced by the jaw means caused shrinkage of the insulating material resulting in breakage of the panel and a poor electrical connection. The jaw means in such assemblies generally consisted of several discrete components which resulted in installation, inventory, handling, and maintenance problems. Heretofore, in servicing prior socket assemblies it was necessary to remove the socket cover and insulating plate, thereby making such servicing an awkward time-consuming operation.

SUMMARY OF THE INVENTION

Accordingly, an object of this invention is to provide a socket base assembly which is not beset with the aforementioned shortcomings, yet is capable of readily accommodating a variety of electrical devices.

It is a further object of this invention to provide a socket base assembly wherein the jaw means thereof, when in place, are not in compressive relation with the insulating panel of the assembly.

It is a still further object of this invention to provide a unitized jaw means which may be mounted on or removed from the current-carring means by a simple manual manipulation without removing other components of the socket assembly.

It is a still further object of this invention to provide a unitized jaw means that is self-aligning within the panel aperture and is adapted to be interchangeable with other jaw means where a plurality of jaw means are embodied in the socket base assembly.

It is a still further object of this invention to provide a socket base assembly which utilizes unitized jaw means connectible to a current-carrying means by a single fastener accessible from the front of the assembly.

Further and additional objects will appear from the description, accompanying drawings, and appended claims.

In accordance with one embodiment of the invention is a socket base assembly having an apertured panel of insulating material fixedly mounted on a support piece. The aperture formed in the panel is aligned with a current-carrying means positioned behind the panel. Disposed within the panel aperture and extending outwardly therefrom is a jaw means. The jaw means includes a base portion having a central segment extending into the aperture and conforming substantially to the shape thereof. The base portion also includes peripheral segments offset from the central segment and being impassable relative to the panel aperture. Projecting outwardly from one of the peripheral segments is a pair of complemental elongated jaw-like protuberances which are biased towards one another for clamping engagement with an electrical device to be attached to the assembly. An exposed fastening means engages the central segment of the base portion and removably

connects same in conductive relation to the current-carrying means disposed behind the panel aperture. The fastening means, when interconnecting the central segment of the jaw means to the current-carrying means, is not causing the insulating panel to be subjected to undesirable compressive forces.

For a more complete understanding of the invention one should make reference to the drawing herein:

FIG. **1** is a fragmentary perspective view of one form of the socket base assembly shown positioned within a housing.

FIG. **2** is an enlarged side elevational view of the jaw means which is a component of the assembly shown in FIG. **1**.

FIG. **3** is a right-side view of the jaw means of FIG. **2**.

FIG. **4** is a perspective view of the jaw means of FIG. **2**.

FIG. **5** is a perspective view of a portion of the jaw means of FIG. **4**.

Referring now to FIG. **1**, one form of an improved socket base assembly **10** is shown mounted within a conventional housing **11**. The housing **11** includes a front panel **12** which is provided with one or more openings **12***a* to accommodate various electrical devices such as meters or the like, not shown, but well known in the art. Disposed within the housing **11** and behind the assembly **10** are current-carrying means such as bus bars **13**.

The socket base assembly **10**, as seen in FIG. **1**, includes a panel **14** formed of suitable insulating material which is sized in the illustrated embodiment so as to pass through opening **12***a* and yet provides a substantial shield from the bus bars **13**. The panel **14** is provided with apertures **14***a*, **14***b*, **14***c*, and **14***d* which are of non-circular configuration. The number, shape and relative location of the panel apertures may vary from that shown and will depend upon the type of current-carrying means disposed within the housing and the type of electrical device to be accommodated within the housing opening **12***a*. In the illustrated embodiment, the apertures **14***a–d* are substantially symmetrically arranged about a central aperture which is provided to receive a suitable fastener **15** for fixedly mounting the insulating panel **14** to a stationary support **16** within the housing. The support **16** may be a rod of insulating material which functions as a spacer between adjacent bus bar sections **13***a* and **13***b*.

Accommodated within each panel aperture **14***a–d* is a jaw means **17**. All of the jaw means are of like construction and thus are interchangeable. A preferred jaw means **17** is shown in FIGS. **2–4** and comprises first and second jaw sections **18** and **20**, respectively, and a biasing spring **21**. Each jaw section is formed of a conductive metallic material. First jaw section **18** includes a base portion having a central segment **18***a* and a pair of oppositely disposed peripheral segments **18***b* and **18***c* offset from the central segment. The central segment **18***a* is adapted to extend through a panel aperture and conforms to the shape of the aperture. The central segment is provided with an opening A through which the shank **22***a* of a fastener **22** extends when the jaw means is mounted in place on the panel **14**. The fastener **22** and its function will be described more fully hereinafter. The base portion peripheral segments **18***b* and **18***c* extend first outwardly from opposite sides of the central segment and then laterally in opposite directions so

as to prevent the remainder of the jaw means passing through the aperture.

Peripheral segment **18***b* comprises a pair of spaced tabs **18***d* of like configuration, see FIGS. **1** and **4.** The distal end **18***e* of each tab is adapted to overlie an exposed first portion of the panel circumjacent the aperture. Peripheral segment **18***c* comprises a single tongue-like portion **18***f* which overlies an exposed second portion of the panel. The outer edge of portion **18***f* is integral with an elongated jaw **18***g* which projects resiliently outwardly from the panel **14** towards the housing opening **12***a*.

The second jaw second **20,** as seen in FIG. **4,** interfits with section **18.** Jaw section **20** includes a base portion **20***a* which overlies the central segment **18***a* of jaw section **18.** An opening B is formed in the base portion **20***a* and is disposed in coincident relation with the opening A in jaw section **18.** The periphery of base portion **20***a* is provided with a pair of corner notches **20***b* through which extend the tabs **18***b* of jaw section **18.** Thus, the tabs **18***d* maintain jaw sections **18** and **20** in proper relative position.

Extending outwardly and laterally from the opposite side of base portion **20***a* is a tongue-like protuberance **20***c*. The protuberance terminates at and is integral with an elongated jaw **20***d* which projects resiliently outwardly from the panel **14** towards the housing opening **12***a*. Jaws **18***g* and **20***d* are complementary to one another and provide a socket S to receive a part of an electrical device mounted within the housing opening **12***a*. To facilitate entry into the socket, the ends of the jaw are flared outwardly, see FIGS. **2** and **4.**

To assure positive resilient engagement between the jaws and the part of the electrical device disposed therebetween, the spring **21** is provided. The spring is formed of relatively stiff wire-like material which has been bent to form a resilient clip. The clip includes a pair of C-shaped legs **21***a* and *b* which are adapted to overlie the outer surface of jaws **18***g* and **20***d*, respectively. The lower portions of the legs are interconnected by an integral bail segment **21***c*. The bail segment **21***c* is adapted to fit within a pocket P formed by the offset lower portions of the jaws **18***g* and **20***d*. To prevent accidental disengagement of the clip from the jaws, one of the jaws (jaw **20***d* in the illustrated embodiment) is provided with a struck-out or lug **20***e* which engages a loop L formed in the C-shaped leg **21***b* of the clip.

As aforenoted, each panel aperture **14***a–d* has a noncircular configuration; thus, once the central segment **18***a* and the base portion **20***a* of the jaw sections **18** and **20,** respectively, are disposed within a panel aperture, the jaw means will not twist or rotate relative to the panel. Furthermore, it will be noted from the drawings, particularly FIG. **1,** that the jaws **18***g* and **20***d* of a jaw means **17** are laterally offset relative to the openings A and B through which a portion **22***a* of the fastener **22** extends when the jaw means is secured in place. In the illustrated embodiment, fastener portion **22***a* comprises a threaded stud bolt which is carried by the bus bar **13***a* or **13***b*. The threaded end of the bolt projects outwardly beyond the base portion **20***a* of jaw section **21** and engaged by a suitable nut **22***b*. The nut may be readily screwed onto or from the protruding end of the stud bolt by a conventional socket wrench or the like without requiring removal of the housing front panel or any other component of the assembly. Other types of fasteners may be utilized, if desired, to secure the jaw means in place. Only the required number of jaw means need be installed to accommodate the electrical device mounted within the housing panel opening. It is important to note that when the nut is drawn up tight onto the stud bolt only the base portion of the jaw means is under compression between the nut and bus bar section and not the adjacent portions of the insulating panel. Thus, fracturing or shrinkage of a portion of the panel is avoided.

Each jaw means is preassembled at the time it is manufactured thereby greatly simplifying installation or servicing of the assembly. Because the jaw means are all of like configuration and interchangeable, the installer is required to carry to the job site only one type of jaw means for a given type of assembly.

We claim:

1. A socket base assembly for an electrical device comprising an apertured panel of insulating material fixedly mounted on a support, said panel having an aperture adapted to be aligned with a current-carrying means positioned therebehind; jaw means having a base portion with peripheral segments thereof impassable relative to said aperture and a central segment accommodated within said aperture, the configuration of said central segment corresponding substantially to the aperture configuration, a pair of complemental elongated jaws intergral with said base portion and offset relative to said central segment and projecting angularly outwardly from said base portion, said jaws being biased toward one another for clamping engagement with a portion of the electrical device; and exposed fastening means engaging said central segment for securing in electrically conductive relation said jaw means to the current-carrying means.

2. The socket base assembly of claim **1** wherein the central segment of said jaw means is provided with an opening, and said fastening means is provided with an elongated portion extending through said opening.

3. The socket base assembly of claim **1** wherein said panel is provided with a plurality of spaced apertures, and a corresponding number of jaw means is provided, each jaw means being of substantially like construction.

4. The socket base assembly of claim **1** wherein the jaws are biased towards one another by an encompassing spring.

5. The socket base assembly of claim **1** wherein the aperture of said panel has a noncircular perimetric configuration and the central segment of said jaw means has a corresponding peripheral configuration whereby said jaw means remains in a predetermined position with respect to said panel when the central segment of said jaw means is accommodated with said aperture.

6. The socket base assembly of claim **5** wherein the central segment of said jaw means base portion is in self-aligned relation with respect to the panel aperture when accommodated therein.

7. The socket base assembly of claim **5** wherein the peripheral segments of the base portion of said jaw means are disposed in non-compressive relation with the portion of said panel defining said aperture, when said jaw means is fixedly accommodated within said aperture.

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