

Oct. 13, 1959

S. T. DEAKIN

2,908,885

SOCKET HOLDERS FOR ELECTRICAL COMPONENTS

Filed July 11, 1956

3 Sheets-Sheet 1

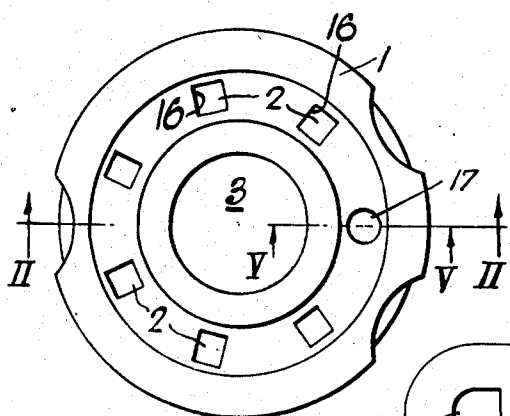


FIG. 1.

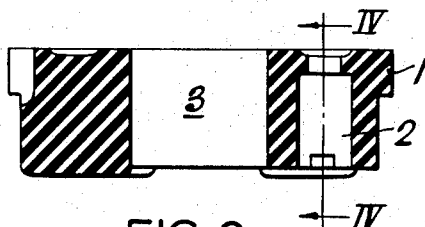


FIG. 2.

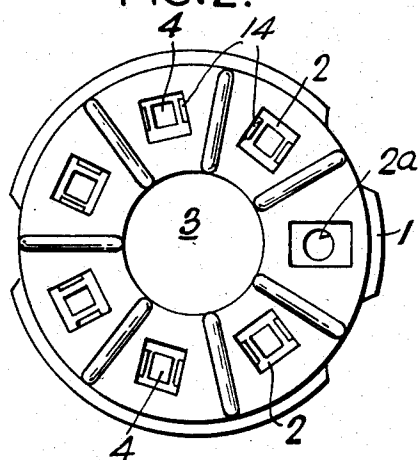


FIG. 3.

FIG. 4.

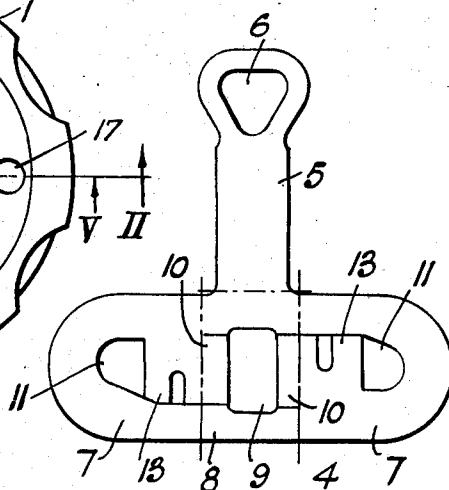


FIG. 10.

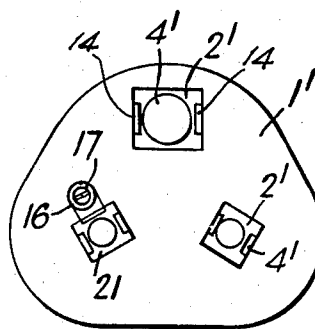
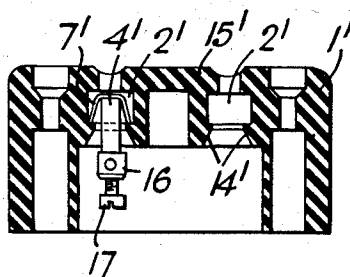


FIG. II.

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SOCKET HOLDERS FOR ELECTRICAL COMPONENTS

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3 Sheets-Sheet 2

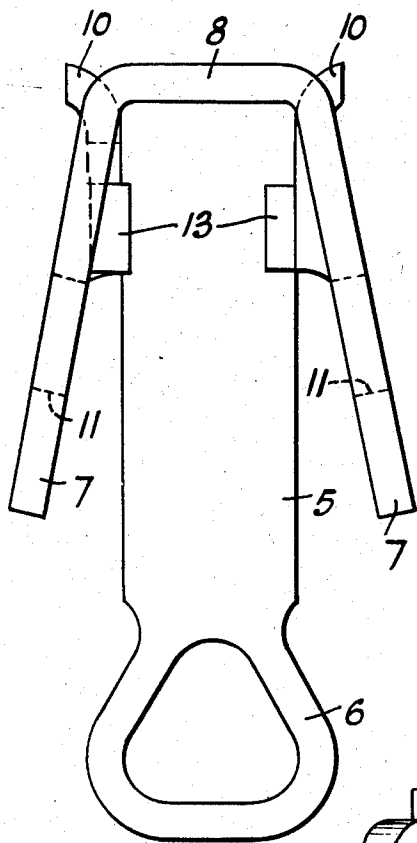


FIG. 6.

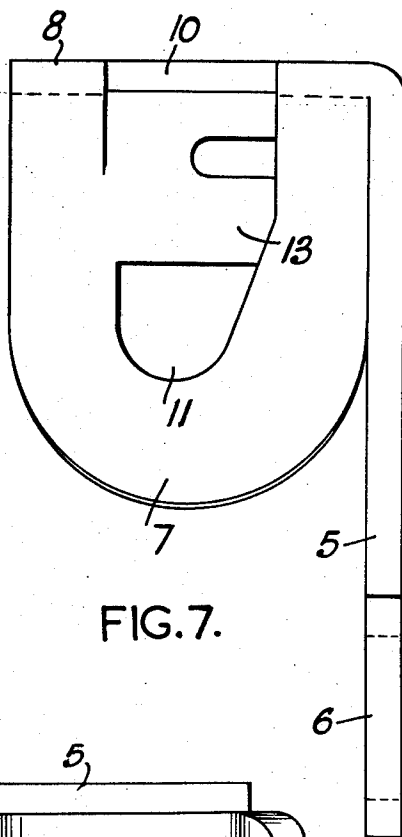


FIG. 7.

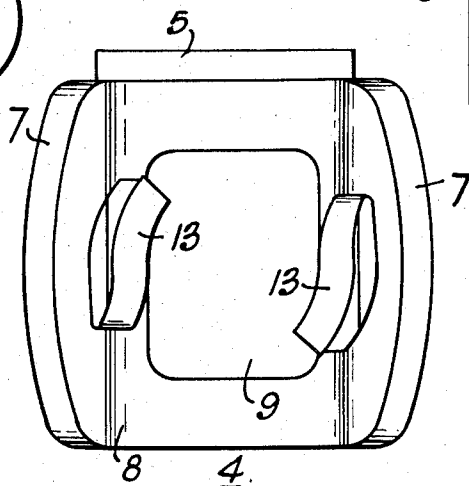


FIG. 9.

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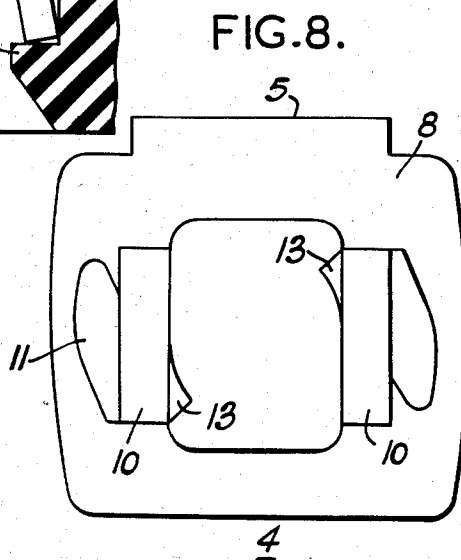
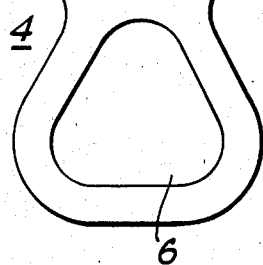
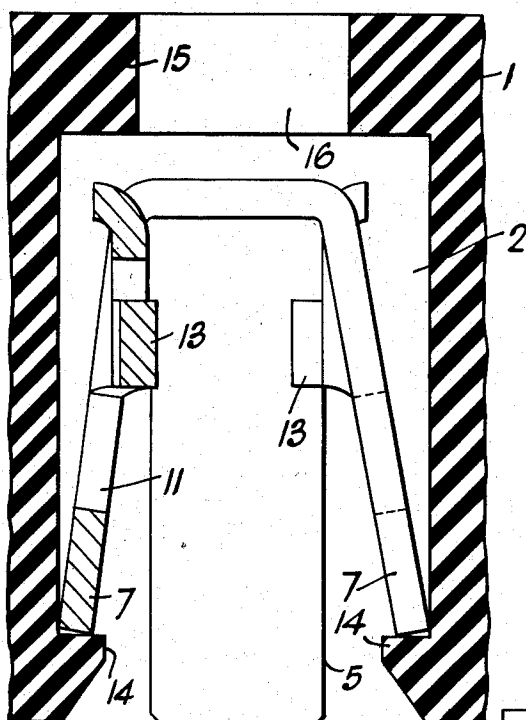
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SOCKET HOLDERS FOR ELECTRICAL COMPONENTS

Filed July 11, 1956

3 Sheets-Sheet 3



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SOCKET HOLDERS FOR ELECTRICAL COMPONENTS

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Application July 11, 1956, Serial No. 597,146

Claims priority, application Great Britain July 25, 1955

2 Claims. (Cl. 339—193)

This invention relates to socket holders for plug-in type electrical components and accessories of the kind in which the socket contacts are recessed below the surface of an insulating body or surround.

The invention has important applications in holders for electron discharge tubes such as thermionic valves, crystals and sockets for connector plugs.

Thermionic valve holders normally comprise an insulating body having apertures housing spring contacts which are recessed below the surface of the insulating body and are engaged by pins or lead-in-wires on the valve. In such devices it is usually necessary to construct the insulating body of two or more parts which are clamped together after insertion of the contacts so as to retain the contacts in position. Alternatively the socket contacts may be retained in position by screws or rivets. Joints between insulating parts are most undesirable, especially under tropical conditions, as they are liable to retain moisture and cause tracking, whilst fixing screws increase the cost.

The main object of the invention is to provide an improved holder assembly which is simple and cheap to construct and in which the insulating body is in one piece.

The present invention comprises a socket assembly for a plug-in type device including a one piece insulating body having one or more apertures containing resilient contact members for engaging lead-in wires or pins of components or accessories and the contact members each comprising side ears spring pressed outwardly and so arranged as to retain the contact against withdrawal after insertion in an aperture by engaging a lug or lugs or other formations formed on the insulating body during moulding.

Conveniently the apertures have a rectangular cross section and the contacts are formed from T-shaped blanks of sheet metal by bending the two side arms and the upright arm all at right angles to the blank so that the two side arms form the retaining ears and the apertures of the insulating block are formed with lugs extending from opposite sides so as to engage the retaining ears and thereby retain the contacts.

In order that the invention may be more clearly understood reference will now be made to the accompanying drawings in which:

Fig. 1 is a plan view of a thermionic valve holder moulding embodying the invention.

Fig. 2 is a cross section on the line II—II of Fig. 1.

Fig. 3 is an underneath plan view of the device shown in Figs. 1 and 2.

Fig. 4 shows a sheet metal blank from which the contacts are formed for insertion in the holder of Fig. 1.

Fig. 5 is a sectional view on the line V—V of Fig. 1, to an enlarged scale showing a contact inserted in an aperture.

Fig. 6 is an enlarged view of a contact looking in the same direction as in Fig. 5.

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Fig. 7 is a side view of a contact shown in Fig. 6.

Fig. 8 is a plan view.

Fig. 9 an underneath plan view.

Fig. 10 is a cross sectional view of a socket for a connector plug, and

Fig. 11 is an underneath view of the socket shown in Fig. 10.

Referring to Fig. 1 the holder comprises an insulating body 1 having a series of axial apertures 2 and a central circular opening 3.

In the arrangement shown the apertures 2 are disposed around a pitch circle.

Fig. 4 shows a blank from which the spring contacts, indicated by the reference numeral 4, are formed. This as shown comprises an upright arm 5 which is apertured at the end to form a wiring lug 6 and side arms 7. The arms 5 and 7 are bent along the dotted lines and the end piece 8 is apertured at 9 to allow the valve contact pins to enter whilst on opposite sides lead-in ramps 10 are formed, it being appreciated that the solid lines extending from the apertures 9 and 11 indicate cuts in the blank. Similarly, the side arms 7 are apertured at 11. The arms 7 and 5 are bent substantially about the dotted lines so that all these arms are extending generally in the same direction and substantially at right angles to the end section 8. The device has then the appearance as shown in Figs. 6-9. In addition the small arms 13 may be bent inwardly to engage the valve contact pin.

Fig. 5 shows a contact inserted in a cavity. It will be observed that the cavity wall is formed with lugs 14 which are engaged by the side ears 7 so that (referring to Fig. 5) the contacts would be pushed into the aperture 2 in an upward direction and then it will be held in position by the side ears 7 pressing outwardly against the sides of the aperture 2 and at the same time the ends of the ears would engage the lugs 14 and thereby prevent withdrawal, whilst the end wall 15 prevents the contacts being pushed right through the housing.

Whilst the end wall 15 forms a stop at the upper end of the cavity the wall 15 is formed with an aperture 16 through which a valve pin can pass downwardly to engage the contact. It will be appreciated that with this construction the contact is recessed below the wall 15 and this arrangement helps to prevent valve pins touching a contact if the valve is incorrectly positioned.

Referring back to Fig. 1 it will be observed that as shown there is an enlarged circular aperture 17. This is for the purpose of accommodating an enlarged valve contact pin which will not pass through any of the other apertures, i.e. apertures 16, and this prevents incorrect insertion of the valve in the holder.

Figs. 10 and 11 show a 3 pin electric supply socket outlet, for example, for a domestic supply plug which comprises a body portion 1' and three apertures 2' for housing the contacts 4'. These, as shown, are provided with connectors 16 having terminal screws 17 for clamping the supply wires.

The essential feature is that the apertures 2' are formed with an end wall 15' and side lugs 14' which retain the spring contacts by engaging side ears 7'.

The holder may be manufactured in various ways, for instance, by moulding the apertures with collapsible cores.

What I claim is:

1. A socket assembly for a plug-in type electrical device of the type having contact pins, comprising a one-piece insulating body, surfaces defining a plurality of bores extending from one end of said body and terminating in enlarged cavities within said body, said bores being adapted to receive the contact pins of said electrical device, means defining an entrance to each of said cavities from the other end of said body, socket

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contacts pressed into said cavities from the said other end of said body, said socket contacts each being formed from a T-shaped sheet metal plate blank having a main arm and a pair of side arms apertured at the junction of said arms and all three of said arms being bent to extend generally parallel to each other and in the same direction so that said junction forms a base having a lateral dimension that is at least as large as the diameter of associated ones of said bores, said main arm projecting out of the cavity and through said entrance to form a terminal and the side arms projecting laterally so that the ends of said side arms remote from said junction abut against the cavity walls, ears extending laterally from the side arms and adapted to engage the contact pins, and lugs integral with the insulating body projecting from the sides of the respective cavities and engageable with the ends of said side arms to thereby obstruct withdrawal of the contacts through associated ones of said entrances.

2. A socket assembly for a plug-in type electrical device of the type having contact pins, comprising a one-piece insulating body, surfaces defining a plurality of bores extending from one end of said body and terminating in enlarged cavities within said body, said bores being adapted to receive the contact pins of said electrical device, means defining an entrance to each of said cavities from the other end of said body, socket contacts pressed into said cavities from the said other side of

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said body, said contacts each being formed from a T-shaped sheet metal plate blank having a main arm and a pair of side arms and apertured at the junction of the arms and all three arms being bent to extend generally parallel to each other and in the same direction so that said junction forms a base having a lateral dimension that is larger than the diameter of associated ones of said bores, said main arm projecting downwardly out of the respective cavity to form a terminal and the side arms projecting laterally so that the ends of said side arms remote from said junction abut against the cavity walls, said side arms being formed of loops with side ears extending from the loops and adapted to engage the contact pins, and lugs integral with the insulating body and projecting from the sides of each of said cavities and engageable with the ends of the side arms to thereby obstruct withdrawal of the contact through said entrance.

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