Jan. 19, 1932. J. E. FERGUSON 1,842,157

SOCKET FOR ELECTRICAL DEVICES

Filed Jan. 27, 1928

Fig 1

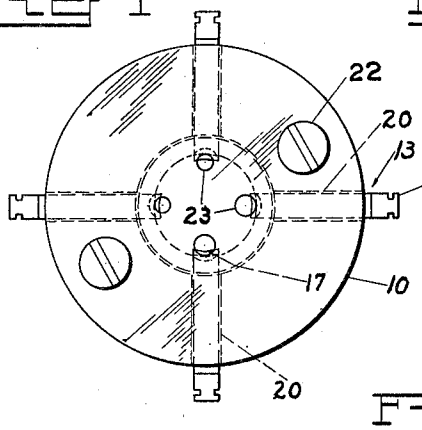


Fig 2

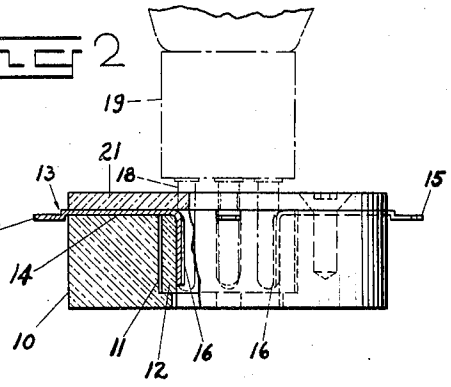


Fig 3

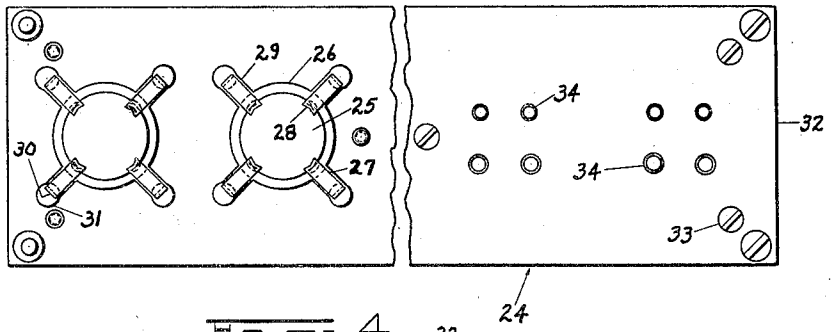
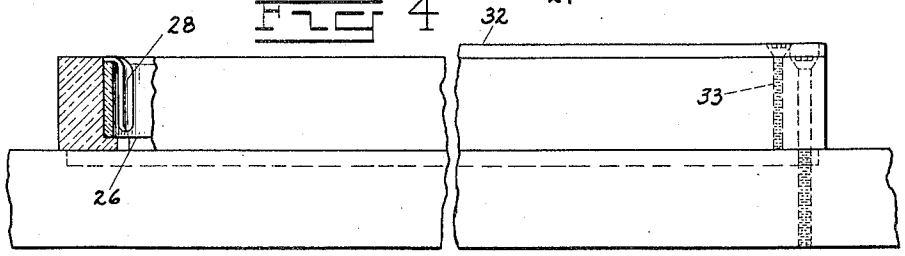


Fig 4



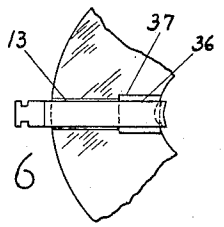


Fig 6

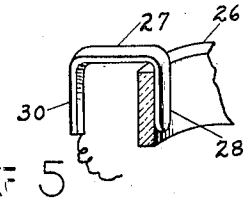


Fig 5

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UNITED STATES PATENT OFFICE

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SOCKET FOR ELECTRICAL DEVICES

Application filed January 27, 1928. Serial No. 249,805.

This invention relates to a holder for electrical devices such as radio tubes or the like and relates more particularly to holders or sockets for supporting such devices with their contact members in engagement with electrical conductors.

In the manufacture of devices such as radio tubes, it is the practice to provide the same with a plurality of metallic contact members extending from the base, the said members being adapted to enter a socket for engagement with electrical conductors. Various forms of sockets have been provided for the reception of the contact members and it is important to provide said sockets with means whereby the most effective electrical contact is attained.

The above is particularly true in connection with such sockets employed on machines where electrical devices such as radio tubes are inserted into and removed from the socket successively in vast numbers as, for example, in machines known as seasoning or testing machines in which bulbs are inserted into sockets for the flow of electrical energy through the elements within the bulb and where it is necessary to continuously apply and remove bulbs from the sockets during long periods of time.

It has been found that sockets as heretofore constructed, when subjected to this severe usage quickly deteriorated in that the contact elements which were usually of a metallic resilient character, became fatigued and in relatively short periods would rupture and become useless. Furthermore, when employing a socket to receive a bulb in a seasoning machine, for example, where the reading of the current passed through the elements of the bulb is necessary to an exceptionally fine degree, it has been found that unless the contact elements within the socket make a complete and effective engagement with the contact members of the bulb to be treated, variations occur in the reading of the current passed.

It is an object of the present invention, therefore, to provide a socket of simple and effective construction into which a plurality of contacts may be readily inserted or removed.

Another object of the invention is to provide a socket element capable of insuring a complete contact with the contact members of an electrical device.

Another object of the invention is to provide a socket for electrical devices of such construction as to avoid deterioration due to detrimental stresses during use.

Other objects and advantages of the invention will be apparent as the description proceeds.

A socket or electrical device holder constructed in accordance with the present invention may include a casing provided with a plurality of substantially angular or U-shaped members having contact portions surrounded by a ring-like resilient member, the said member being preferably of so-called gum-rubber. The casing may be provided with a cover having apertures disposed above each of the contact elements so that the contact members of an electrical device may be inserted into the apertures and pressed against the contact elements within the socket, thus insuring a complete electrical contact. The contact elements of the socket are free to move bodily and individually, thus avoiding any stresses therein, at the same time, they are held in firm relation to the contact members of the electrical device by reason of the elastic or resilient ring.

The invention will be more fully understood by reference to the accompanying drawings in which:

Fig. 1 is a plan view of a single socket embodying the present invention;

Fig. 2 is a side elevational view of the socket partly broken away;

Fig. 3 shows a plan view panel provided with a plurality of sockets for use in connection with an electrical device seasoning or testing machine;

Fig. 4 is a side elevational view of the panel shown in Fig. 3 and partly broken away and secured to the frame of a seasoning machine;

Fig. 5 is a detailed perspective view of one of the contact elements; and,

Fig. 6 is a fragmentary view of a modified form of the device.

As illustrated, the invention as shown in Figs. 1 and 2 may comprise a casing 10 which may be in the form of a disc having a counterbored aperture 11. Preferably, the casing 10 is constructed of an insulating material such as bakelite or other condensation product and the aperture 11 molded therein. Within the aperture 11 is positioned a resilient or ring-like member 12 composed of elastic material such as gum-rubber. A plurality of what may be termed base contacts or contact elements 13 are provided and disposed for bodily radial movement to and from a common center. These contacts may be of similar construction, each consisting of a metallic strip having one portion 14 disposed upon and extending through the casing 10 and terminating in a connector piece 15 for engagement with a conductor of an electrical circuit. The opposite end 16 of each contact element may extend at right angles to the portion 14 and be disposed upon the inner surface of the ring 12. The end 16 may be formed with a V-shaped recess 17 so as to more effectively engage with a pin 18 of an electrical device 19 indicated in dotted lines. Each of the base contact elements is free to move bodily and the portion 14 of each contact may be disposed in a slot 20 in the casing. The contacts may be held in position by a cover plate 21 which is secured to the casing 10 by screws 22.

For the purpose of guiding the contact members of an electrical device into the socket, the cover plate is provided with apertures 23 so disposed that when a contact member is inserted through an aperture it will engage the portion 16 of a contact element and press the same against the ring 12 which latter element opposing such movement, holds the portion 16 of the contact element in firm relation with a contact member 18.

It will readily be appreciated that by reason of the present construction there is no flexure of the metallic base contacts and that their movement is to and from the center of the casing, thus avoiding the disadvantage of wear and insuring a continually true contact between the portion 16 and the contact member of an electrical device.

The above described socket may have various uses as, for example, in receiving sets of radio tubes or in other cases where it is desirable to provide an effective holding means for an electrical device having projecting contact members, it, of course, being understood that although only four base contact members are shown, in the present construction, any number of such members may be employed in accordance with the number of contact members provided on the electrical device to be applied to the socket.

As illustrated in Fig. 3, the invention is particularly adapted for use in connection with a machine where a plurality of sockets are to be used and as illustrated in Figs. 3 and 4, a panel 24 is provided with a plurality of apertures 25. Each aperture may contain a resilient cylindrical or ring-like member 26 and be provided with contact elements 27 of inverted U-shape. These members may be of similar construction and one portion 28 may be disposed upon the inner side of the ring 26 while the other portion may be disposed in a slot 29 in the panel, while portion 30 may extend through an aperture 31 to provide a terminal for connection with an electrical conductor. A plate 32 may be secured to the panel by means of screws 33 and apertures 34 may be provided above each of the portions 28 in such position as to guide the contact members of an electrical device into engagement with the base contact elements. A panel such as shown in Figs. 3 and 4 may be used in connection with high speed seasoning machines, a plurality of such panels being employed and moved past mechanism which inserts radio tubes for seasoning and discharges them after the seasoning operation has been performed.

The use of a resilient ring in the form of a rubber band has been found to be of considerable advantage from an operative standpoint as above set forth. Furthermore, the resilient member as provided, also offers the advantage of being readily replaceable since if the same loses its resiliency after a long use, it may be conveniently replaced by a new ring.

It will also be obvious that, although the resilient member is shown in the form of a ring, it may consist of sections 36 as shown in Fig. 6 of resilient material and each base contact or contact element may be disposed adjacent to one of said sections. These sections may be in the form of blocks set in recesses 37 in the casing. It will be evident that with this arrangement, the same important features of having the contact elements free to move bodily and the elimination of fatigue of the metal through mechanical working, will still prevail.

With the above construction, it has been found that electrical devices may be inserted and removed from the sockets continuously over long periods of time, subjecting the sockets to severe usage without breakage as has heretofore occurred.

Although a preferred embodiment of the invention is shown and described herein, it is to be understood that modifications may be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A socket for supporting a radio tube or the like comprising, a body portion having a cavity, an elastic annulus disposed adja-

cent to the side wall of said cavity, a plurality of conductor elements having contact portions disposed adjacent to the inner surface of said annulus, extensions on said conductors projecting radially from said cavity, means for movably retaining said extensions and means for guiding contact members to positions contiguous with said contact portions.

2. A socket for supporting a radio tube or the like comprising a body portion having a cavity, a plurality of conductor elements having contact portions disposed in said cavity, extensions on said elements, a resilient member disposed between said contact portions and a wall of said cavity, a plate for retaining said extensions during movement of said contact portions when engaged by contact members of a radio tube.

3. A socket for supporting a radio tube or the like comprising a body portion having a cavity, a plurality of conductor elements having contact portions disposed within said cavity and extensions projecting laterally from the edge of said cavity, means for guiding contact members of a radio tube into engagement with said contact portions and a resilient annulus disposed between said contact portions and said wall for holding said portions and members in contacting relation.

In testimony whereof, I have hereunto subscribed my name this 26th day of January, 1928.

JOHN E. FERGUSON.