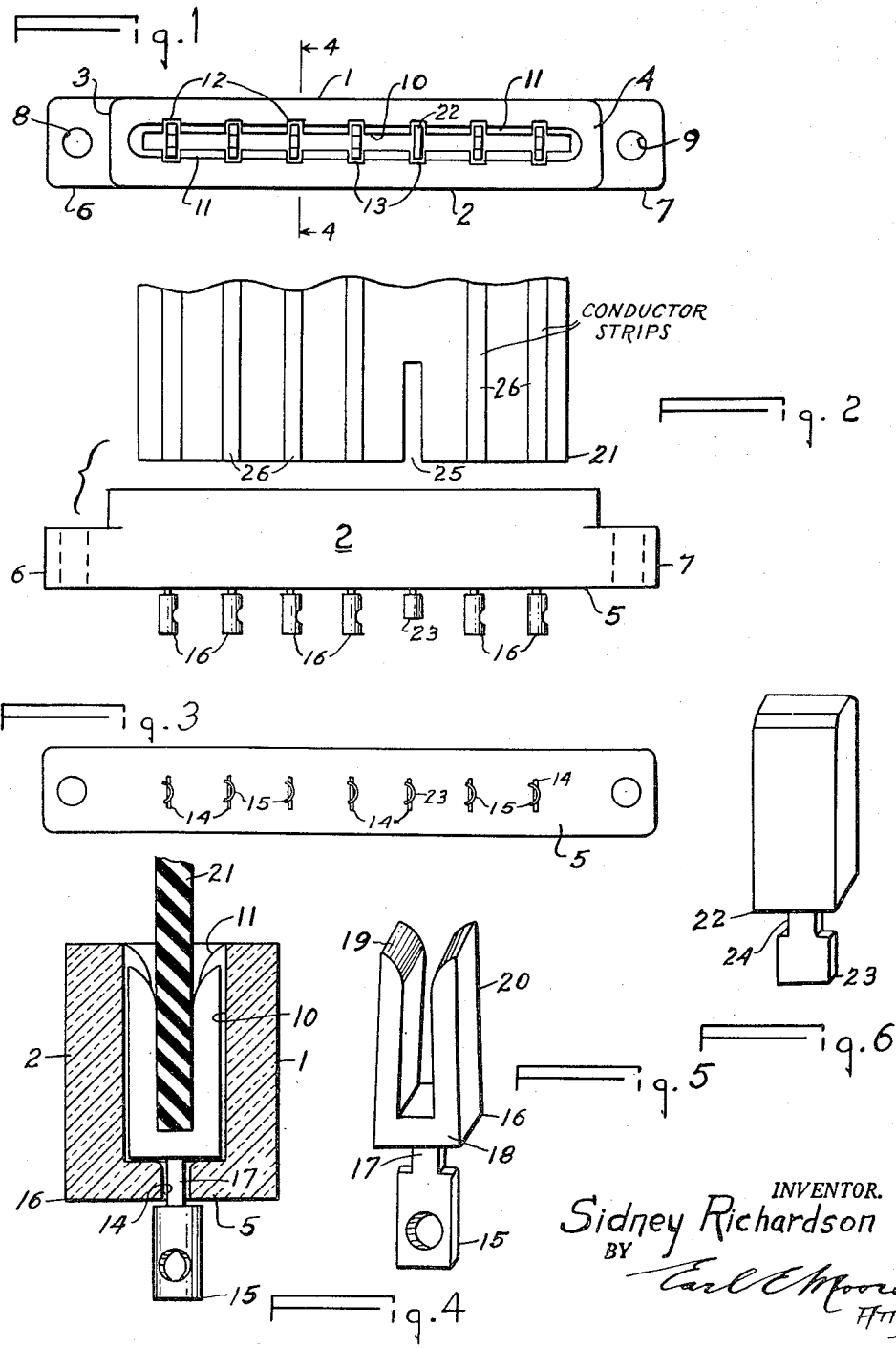


Oct. 2, 1956

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MULTIPLE ELECTRICAL SOCKETS

2,765,450

Filed Oct. 20, 1952



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1

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MULTIPLE ELECTRICAL SOCKETS

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Application October 20, 1952, Serial No. 315,659

1 Claim. (Cl. 339—192)

This invention belongs to that general class of devices known as sockets for electrical connection purposes and relates particularly to sockets with multiple contacts adapted to receive a plate type plug or panel end with a plurality of printed conductors of the type now employed in the electronic industry.

The socket means of this invention is so constructed and arranged that the harness boards and plates can be readily and quickly changed and substituted to meet the demands of the circuit involved. Such socket means leads the way to standardization of chassis and component parts and provides the way to combine circuits and systems through the use of printed or etched circuit boards or plates. Polarization means are also provided in each socket to prevent wrong insertions which may harm the connected circuits or cause unnecessary failures.

The invention has among its objects the production of the socket means and associated parts as described, a combination that is simple, durable and compact in structure and is inexpensive.

In the drawings:

Fig. 1 is a top plan view of a socket embodying the invention showing the arrangement of a plurality of contacts and the lobes for mounting the socket upon a suitable surface;

Fig. 2 is a side elevational view of the socket with a plate type plug or printed circuit board thereabove (the top portion of which is broken away);

Fig. 3 is a bottom plan view of the socket showing the various contact bottoms so curve formed so that the contacts will be held in proper position;

Fig. 4 is an enlarged sectional view taken substantially along the line 4—4 of Fig. 1;

Fig. 5 is an enlarged perspective view of one of the contacts, and

Fig. 6 is an enlarged perspective view of one of the keys.

The particular form of the invention illustrated in the drawings comprises a molded integral piece of plastic or ceramic material which is glazed or non-porous and having high weathering properties and capable of withstanding high electrical stresses. The integral unit has the opposite side walls 1 and 2, end walls 3 and 4, and bottom wall 5. The side lobes or ears 6 and 7 extend from the base portion of the unit and are provided with the screw holes 8 and 9, as shown. These lobes are short of the top portions of the unit to avoid interference of screw heads; such lobes and holes may be located at other places about the base of the unit to suit particular mounting requirements or the holes and their lobes may be omitted. The side walls and the bottom provide an open top receptacle or well 10 having the biased edging 11. This edging is recessed, as well as the side walls, at uniform spaced intervals to provide a plurality of vertical channels 12 and 13 for a purpose to be presently explained.

Through the bottom 5, there is a plurality of oblong bores or slots 14 which are relatively narrow and in alignment with their respective pairs of opposed channels

2

12 and 13. The purpose of these slots is for each one of them to allow a metallic lobe 15 of a metallic contact element 16 to pass therethrough. Such a lobe is integral with the main body portion of the element by a narrowed neck portion 17 which is an extension from the bottom bar or base 18 of the contact element. This base has the pair of upstanding fingers 19 and 20 which are spaced apart and designed to receive a printed plate 21 that is to be inserted between them. The top ends of the fingers are biased or rounded so as to guide the printed plate between them. The fingers are formed so as to be toed toward each other and thus have a compression spring action for firmly gripping the bottom portions of a circuit board. A hole is provided in the lobe 15 to accommodate a wire conductor which is to be soldered thereto. Note, that the lobe is curved when formed to lock contact in place. This curve portion provides a groove for receiving the wire to be soldered thereto.

A key member 22, preferably a metallic element, has a lobe portion 23 which is integral with the main body portion by means of the neck portion 24. This lobe 23 is sized for free passage through any one of the slots 14 of the socket base. The top opposed edges of the body is bevelled or rounded so that the key can easily enter an open key slot 25 of a printed circuit board. The key or keys may be made of any suitable material that can be formed so that when the key is mounted in the socket by passing the lobe thereof through one of the slots of the socket, the lobe is formed or curved so as to be non-removable unless the lobe 23 is re-formed to allow it to pass through the slot. The number of keys employed is dependent upon the number of key-ways provided in the printed circuit board.

The contact elements 16 are preferably made of high purity copper in that they must be good conductors of electricity. By die forming, curving or twisting the lobes 15 of the contact elements they are held in their respective slots 14 just like the key members 22. The size of the sockets, contact elements, and keys are dependent upon the size of the printed circuit boards 21. These boards or plates have one or more key-ways 25 and a plurality of conductor strips or paths 26 which may be on just one side of the board 21 or on both sides thereof.

It is, of course, understood that various changes and modifications may be made in the details of form, style, design, materials and construction of the whole or any part of the specifically described embodiment of this invention without departing from the spirit thereof; such changes and modifications are considered as being within the scope of the following claim.

I claim as my invention:

A multiple-contact socket member for making electrical connection with a slidable circuit board plug of the type having a plurality of parallel spaced conducting strips thereof, and having, in place of one of said strips nearer one side of the plug than the other, a polarizing key-way, said socket member comprising a body of insulating material provided with an elongated well having parallel opposed side walls, the side walls being formed with a plurality of spaced aligned pairs of vertical channels opening into the well, readily removable electric contact members loosely slidable in the pairs of channels to seat in the well and be held perpendicular to the side walls thereof, said contact members including parallel opposed spring fingers, the outermost ends of each pair of spring fingers being slightly separated and curvingly flared to provide an entrance way therebetween for the circuit board plug, the said entrance ways between the pairs of fingers being in alignment, whereby the plug may be pressed between the entrance ways of all of the pairs of spring fingers throughout the

length of said well to make simultaneous contact with the conducting strips of the plug, means movable with the contact members to anchor the individual contact members releasably in the well and thereby frictionally hold said plug within the said well when the plug is engaged by the anchored contact members, and a polarizing key releasably anchored in the pair of channels in registry with the key-way in the plug, whereby to prevent the plug from being incorrectly inserted in the socket member.

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