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METHOD OF MAKING AND PLATING SOCKET CONTACTS

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Fig. 1.

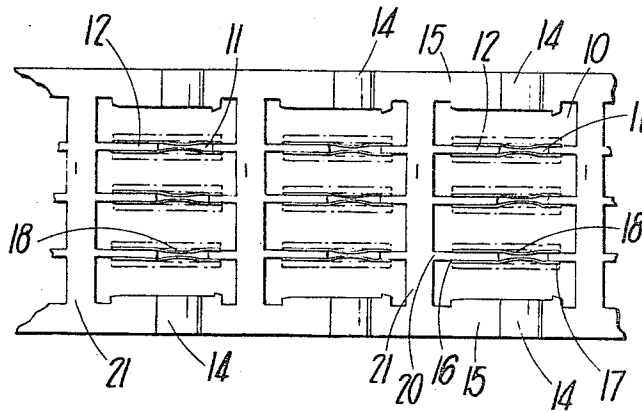
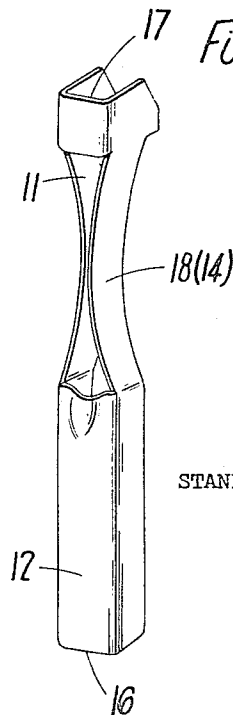


Fig. 2.



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METHOD OF MAKING AND PLATING
SOCKET CONTACTS

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1 Claim. (Cl. 29—155.55)

The invention relates to electrical socket contacts and in particular to a method of making such contacts.

The socket contact to which the invention relates is in the form of a channel-shaped member of resilient metal, the base of the channel being omitted, or severed from the side walls, along an intermediate portion of the length of the member and the side walls of the channel, or at least one of them, being bowed inwardly along the said portion to provide, within the channel shape, a resilient contact surface or surfaces for engagement with a wire or pin inserted lengthwise along the channel. Such sockets are disclosed in U.S. Patent No. 3,047,532.

The present invention provides the method of making socket contacts of the form described above which comprises the steps of punching or slitting and bending a strip of resilient metal to produce along the length of the strip a succession of lengthwise extending channels between continuous side portions of the strip, each channel constituting a contact and having part of the base removed to leave side walls which are curved inwardly towards one another to form the contact surfaces, and also bending the side portions to shorten the effective length thereof.

Preferably the side portions are bent or curved as aforesaid alongside the curved portions of the side walls (i.e. in alignment therewith transversely of the strip). It is further preferred that the bending or curving of the side walls is effected before the side walls are bent up to form the channel and the portions of the strip which are to form the side walls of the channel and the side portions of the strip are curved in conformity, the curvature being that appropriate to provide the inward curvature of the side walls after bending to the channel form.

In one form of the invention the strip is so bent that in the free state, the said curved side walls are in contact with one another, or very nearly so, and the method includes the further steps of applying tension lengthwise to the strip, thereby straightening to some extent both the side portions and the side walls, accompanied by separation of the latter, of plating the strip (e.g. with gold), of releasing the tension and of severing the contacts from the remainder of the strip.

The strip may be of hardenable metal (e.g. beryllium copper) and the strip may be hardened after bending as aforesaid and, when plating is employed, preferably before the plating step.

In carrying out the method a succession of groups of contacts may be formed along the strip, each group comprising several (e.g. three) contacts side-by-side across the strip.

A specific example of the method according to the invention will now be described with reference to the accompanying drawings in which:

FIGURE 1 shows a strip of beryllium copper punched and bent to form a number of contacts ready to be severed from the remainder of the strip, and

FIGURE 2 is a perspective view showing a finished contact.

The first operation on the strip is to punch a group of four H-shaped holes 10 of the form outlined partly in full lines and partly in chain lines. A rectangle 11 is also punched out from each bar 12 left between the holes 10. Further a shallow convexly curved hump 14 is

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pressed in each remaining side portion 15 of the strip and similar humps are pressed up from the bars 12 on each side of the rectangle 11. The sides of the bars, shown in chain lines, are then bent upwardly (out of the paper as seen in the drawing) to form channels extending from 16 to 17, the bases of the channels having been removed along the rectangles 11. The side walls 18 of the channels where the bases have been removed are curved inwardly into contact, as a result of the initial hump formation.

The next step is to plate the strip with gold and as the touching faces of the side walls 18 will form the electrical contact surfaces it is particularly important that they should be properly plated, which is unlikely if they remain touching during the plating operation. To effect separation of the surfaces during plating, tension is applied to the strip. This has the effect of lengthening the strip by straightening out the humps 14 in the remaining side portions and also of straightening the side walls 18.

After plating the contacts are severed from the strip either by cutting at 16 and 17, or, if tags are required on the contacts, by cutting at 20 and 17. This act of severing releases the tension which was applied to the strip.

If the contacts are cut at 20, tags extending from the base of the channels are provided and these can be made of any desired length by variation of the distance 16 to 20. In some cases however it may be desirable that a tag extends from one of the side walls 18. This can readily be achieved by extending one of the side walls towards the bar 21, and slitting it from the adjoining portion of the base of the channel, this portion of the base being subsequently removed, if desired. Moreover the tag may, if desired, extend laterally of the contact, either from a side wall or the base of the channel towards the adjacent contact in the strip (or towards the adjacent side portion), the separation of the contacts being increased if necessary. Such a contact may be held in a throughway in a block of insulating material, the arrangement permitting a plug pin to be inserted into the socket from either end. The tag may be located between one end of the block and a cover plate and extend to one side of the block where it may be soldered to a printed circuit.

I claim:

The method of making an electrical socket contact in the form of a channel-shaped member of resilient metal with the base of the channel omitted, or severed from the side walls, along an intermediate portion of the length of the member and the side walls of the channel being bowed inwardly along the said portion to provide, within the channel shape, resilient contact surfaces for engagement with a contact pin inserted lengthwise along the channel, which method comprises the steps of punching along a strip of resilient metal a succession of groups of apertures, each group comprising at least two apertures side by side across the strip, separated by a lengthwise bar left between the apertures, and bounded at the edges of the strip by side portions thereof, punching a lengthwise slot through each bar, intermediate in the length thereof; bending a portion of the strip out of the plane of said strip an aligned transverse curvature in the side portions and in the slotted portions of the bars, bending the portions of the bars on each side of the slots into positions perpendicular to the plane of the strip thereby to form two opposed contact surfaces curved towards one another on each bar, applying tension lengthwise to the strip thereby to reduce to some extent the curvature of the side portions and of the contact surfaces with consequential separation of the latter, plating the strip and then releasing the tension and severing from the rest of the strip the bars to constitute individual contacts.

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