United States Patent [19]

Paullus

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[45] **Apr. 24, 1973**

[54] **MANUFACTURING METHOD FOR CONTACT TERMINAL SOCKETS**

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Related U.S. Application Data

[62] Division of Ser. No. 801,436, Feb. 24, 1969, Pat. No. 3,605,078.

[52] **U.S. Cl.** **113/119**

[51] **Int. Cl.** **B21d 53/36**

[58] **Field of Search** ..... 113/119; 29/630 R; 339/217, 17 LM, 258, 259 R, 258 P

[56] **References Cited**

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FOREIGN PATENTS OR APPLICATIONS

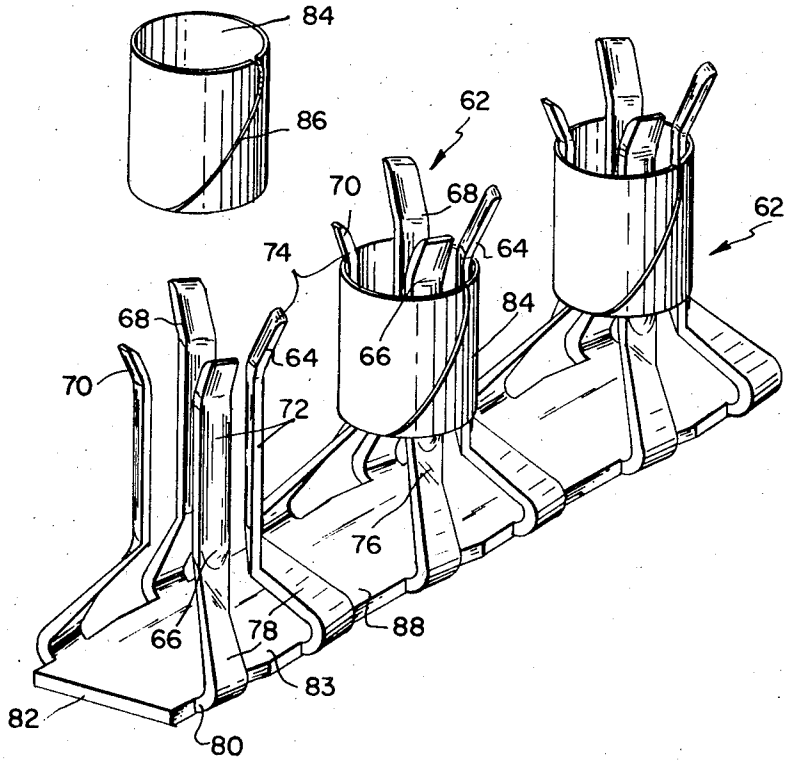
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Primary Examiner—Richard J. Herbst
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[57] **ABSTRACT**

A method of manufacturing electrical contact sockets by stamping and forming sheet metal comprises steps of blanking a strip to form two pairs of arms extending in opposite directions on each side of the strip. The arms are twisted and bent about their own longitudinal axes and are then bent adjacent to the center of the strip to define a socket.

4 Claims, 2 Drawing Figures



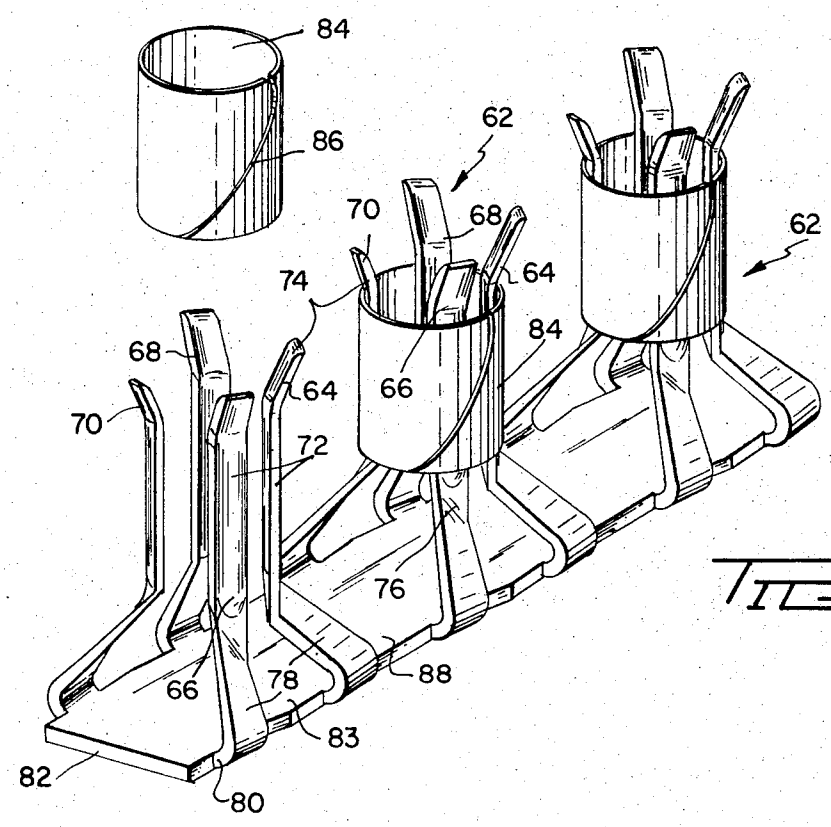

84
86
62
70
68
74
64
66
84
62
68
64
70
72
76
66
78
88
83
82
80

FIG 1

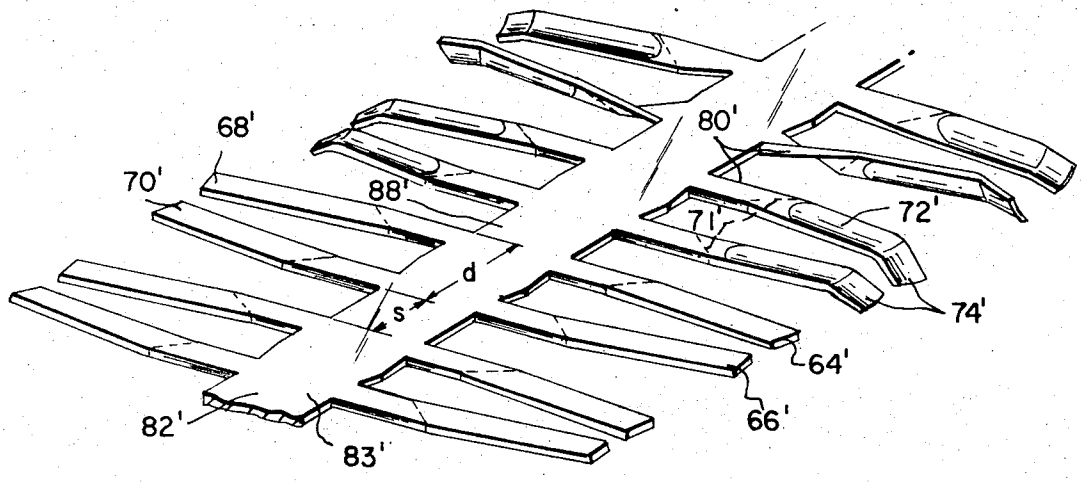

68'
70'
88'
80'
71'
72'
d
s
74'
64'
66'
82'
83'

FIG 2

MANUFACTURING METHOD FOR CONTACT TERMINAL SOCKETS

This application is a division of my prior application Ser. No. 801,436 filed Feb. 24, 1969 now U.S. Pat. No. 3,605,078. The prior patent is hereby incorporated by reference in its entirety.

The accompanying drawing, which comprises FIGS. 2 and 3 of my prior patent, now numbered FIGS. 1 and 2 respectively, illustrates one embodi-ment of my invention. The reference numerals used in the accompanying drawing are the same as those of my prior U.S. Pat. No. 3,605,078. Another embodiment is illustrated in FIGS. 9 and 10 and a further embodiment is illustrated in FIG. 10 and 11 of my prior patent.

In accordance with the embodiment of the accompanying drawing, a flat strip is blanked to provide laterally extending arm blanks **64'**, **66'** on one side thereof and **68'**, **70'** on the other side thereof. These arm blanks are then formed in a die to provide concave contact surfaces **72'** on their upper surfaces and the outer ends of the arms are bent downwardly at **74'**. The arms are then twisted as shown at the right in FIG. 2 so that the concave surfaces on each side face obliquely upwardly. Thereafter, the arms are bent upwardly until they extend over the center of the central section **82** as shown in FIG. 1 and split-sleeve springs **84** are assembled to each cluster of arms. The four arms of each cluster and their spring member **84** form a contact socket which is adapted to receive a complementary contact pin. A strip section as shown in FIG. 1 is mounted in an insulated housing as more fully described in U.S. Pat. No. 3,605,078.

The embodiment of the invention disclosed in FIGS. **8** and **9** of U.S. Pat. No. 3,605,078 is directed to the achievement of a connecting means having two parallel rows of contact sockets in side-by-side relationship. The embodiment of the invention shown in FIGS. **10** and **11** of U.S. Pat. No. 3,605,078 is directed to the achievement of a strip of contact sockets comprising sockets which are axially aligned with each other and which face in opposite directions. These further embodiments are in accordance with the following claims.

What is claimed is:

1. A method of making contact sockets which are adapted to receive cylindrical contact pins having a diameter *d*, said method comprising the steps of,

blanking an elongated strip of sheet metal to form associated pairs of contact arms extending from the sides of said strip, the two arms of each pair being spaced-apart by a distance substantially equal to the diameter *d* of said pin, said pairs being aligned on opposite sides of said strip,

twisting said arms about their longitudinal axes at a location intermediate their ends to orient surface portions of said arms on circular loci having a diameter substantially equal to said diameter *d*, the two arms of each pair on the same of said strip being oriented in opposite directions whereby, the four arms of two aligned pairs of arms extending from opposite sides of said strip constitute arms for a socket integral with said strip.

2. A method as set forth in claim **1** wherein said strip, after blanking, has a width substantially equal to *d* and including the steps of bending said arms in a common direction substantially normally of the plane of said strip whereby the four arms of two aligned pairs of arms on opposite sides of said strip define a contact socket with portions of said strip between said four arms defining the inner end of said socket, said method producing a continuous strip of sockets on parallel spaced-apart axes.

3. A method as set forth in claim **1** including the step of bending the base portions of said arms in a common first direction until said base portions of said arms extend transversely of the plane of said strip and bending intermediate portions of said arms in a common second direction which is transverse to said first direction and substantially parallel to the plane of said strip whereby, intermediate and end portions of said arms extend substantially parallel to the plane of said strip and away from said sides of said strip, the two arms of each pair of arms being twisted towards each other whereby, two of said strips and be placed against each other and secured to each other to provide a strip having contact sockets extending from each side thereof with the axes of said sockets being between the plane of said strips.

4. The method set forth in claim **1** wherein said strip, after blanking, has a width which is substantially equal to, and slightly greater than, 2 *d* and including the step of bending said arms in a common direction until they extend substantially normally of the plane of said strip, the two arms of each pair of arms being twisted in opposite directions towards each other and inwardly with respect to said strip, and including the further steps of blanking a second elongated strip to form arms as hereinabove set forth in claim **1**, twisting the arms of associated pairs of arms on each side of said strip outwardly with respect to said second strip and towards each other, positioning said second strip centrally on said first strip with each pair of arms of said second strip opposed to a pair of arms of said first strip and securing said strips to each other thereby to produce a composite terminal strip having two rows of side-by-side terminals.

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