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GB 1142160 **US 4087906** **US 3915546**
EP A1 0105044

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Selected US specifications from IPC sub-class H01R

(54) **Contact pin**

(57) A portion of the pin B which cooperates with a plated-through hole in a backplane J is adapted to form an interference-fit within the hole, the portion being coated with solder to permit the pin to be subjected to a reflow solder process and thereby make a good electrical contact with the plated-through hole. The portion of the pin may have an H cross-section with the central lines of the H being provided with a slot F which collapses as the pin is fitted into the hole. The flanges of the H can be shaped as shown in Fig. 3 or Fig. 4.

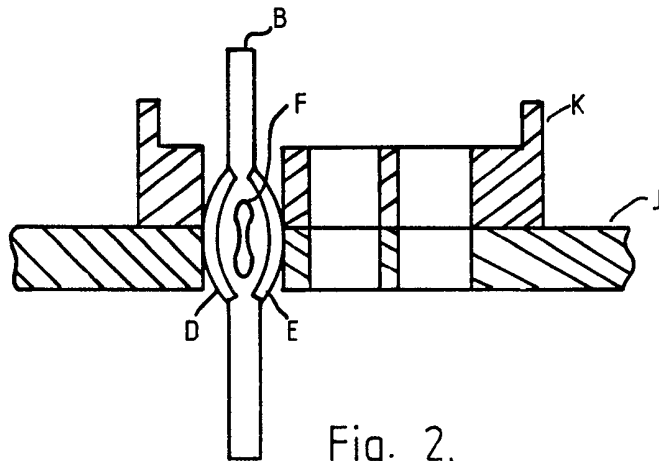


Fig. 2.

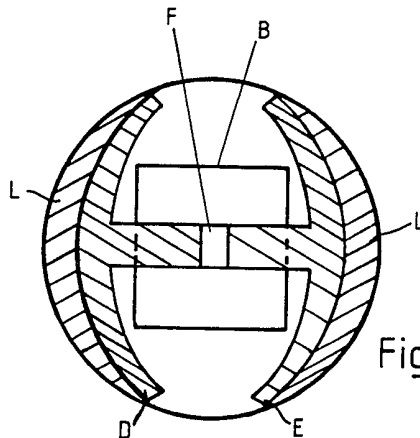


Fig. 3.

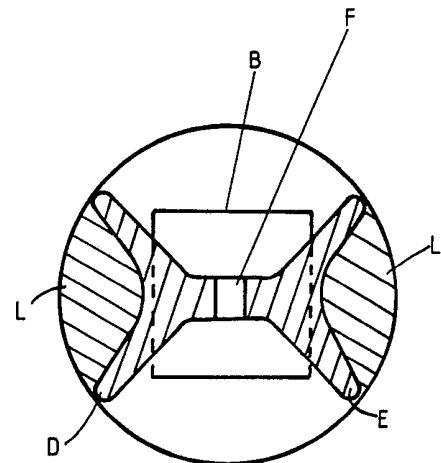
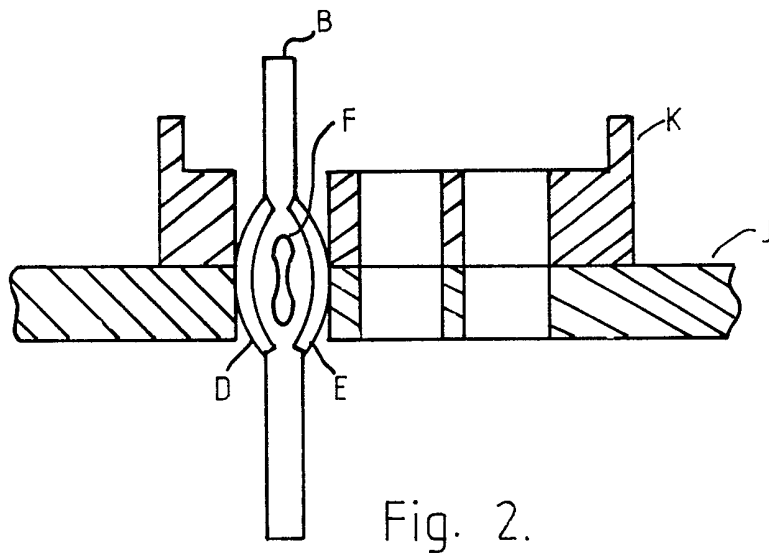
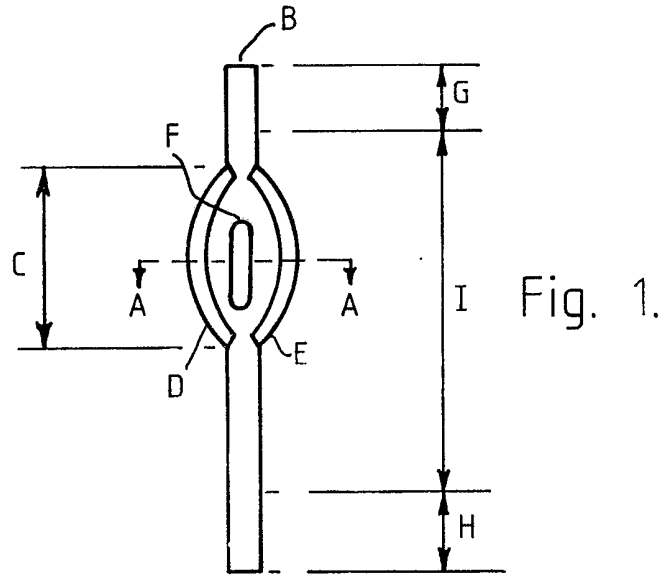


Fig. 4.

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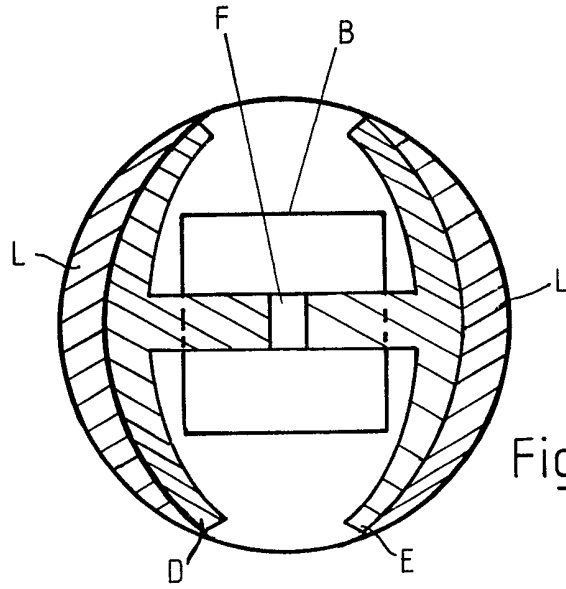


Fig. 3.

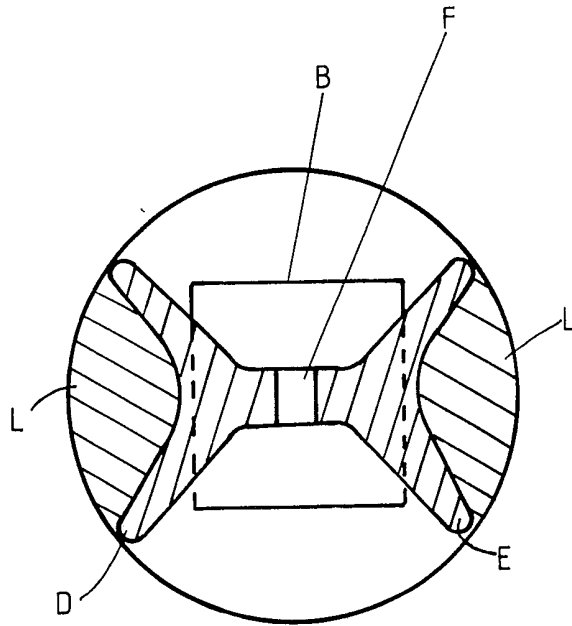


Fig. 4.

SPECIFICATION

Contact spill

5 The present invention relates to a contact spill for use in the manufacture of a backplane in a telecommunications environment, for example.

Hitherto 0.1 inch backplanes have used existing DIN 41612 spills, in the production of such backplanes, and employ preformed solder rings which are inserted over the pin and rest on the backplane and then heated until the ring melts thereby making an electrical connection.

15 The use of such rings make the cost of backplane manufacture expensive.

Accordingly an aim of the present invention is to provide a spill which enables good electrical contact to be made with the plated-through hole during manufacture of the backplanes, which is less expensive than previous used spills and solder preforms.

According to the present invention there is provided a contact spill, for use in the manufacture of a backplane provided with a plated-through hole for the reception of the spill, wherein the portion of the spill arranged to co-operate with the plated-through hole is formed in a manner which allows the spill to experience an interference-fit with the hole, and is further prepared with a coating to permit the spill to be subjected to reflow solder process and thereby make a good electrical contact with the plated-through hole.

According to a further aspect of the invention a portion of the spill is formed into an H cross-section and the central limb of the H cross-section is provided with a slot arranged to inwardly collapse as the pin is fitted into the plated-through hole.

According to yet a further aspect of the present invention, the flanges of the H cross-section are inwardly bent to allow the pin to be accommodated in the hole easily.

According to another aspect of the present invention, the flanges of the cross-section are outwardly bent to allow the pin to be accommodated in the hole easily.

An embodiment of the present invention will now be described with reference to the following drawing in which:

Figure 1 shows a view of a spill,

Figure 2 shows a spill fitted into a connector moulding and a plated-through hole of a backplane,

Figure 3 shows an enlarged cross-section when viewed in the direction of arrows A-A in Fig. 1, and

Figure 4 shows an alternative form of the cross-section shown in Fig. 3.

In Figs. 1 to 4, like parts have been given the same identification letter. The spill is made from a phosphor bronze drawn pin of square section.

65 Referring to Figs. 1 to 4 the portion of the

spill B which is to be accommodated in a plated-through hole is flattened in the area of C, and flanges D and E are formed on the edges of the web formed by flattening area C.

70 A longitudinal slot F is cut into the central web portion of area C.

Sections G and H of the spill B are gold plated to a thickness of 2.5 micrometres, and section I is coated with tin lead in readiness for use in solder reflow process.

Fig. 2 shows a backplane J having several plated-through holes and a connector moulding K having holes in alignment with the plated-through holes. A spill B is shown in position in one of the holes. As the spill B is inserted into a plated-through hole, the flanges D, E suffer compressive forces and the longitudinal hole F begins to collapse inwardly. The result is that the spill B is easily forced into the plated-through hole, and experiences an interference-fit therewith.

The backplane is then subjected to a solder reflow process causing the coating of tin-lead on the spill and the plated-through hole coating to melt and mix thereby giving a good solder joint at least in the areas L, Fig. 3, Fig. 4.

Fig. 4 shows an alternative form of cross-section to that shown in Fig. 3. The flanges D and E are bent outwardly. As the spill B is inserted into a plated-through hole, the flanges D, E suffer compressive forces and the longitudinal hole F begins to collapse inwardly. The result is that the spill B is easily forced into the plated-through hole, and experiences an interference-fit therewith.

As a result a good electrical connection with the backplane J is achieved together with reliably anchoring the spill B in the plated-through hole, at a manufacturing cost which is less than the solder ring method discussed above.

CLAIMS

110 1. A contact spill, for use in the manufacture of a backplane provided with a plated-through hole for the reception of the spill, wherein a portion of the spill, arranged to co-operate with the plated-through hole, is formed in a manner which allows the spill to experience an interference-fit with the hole, and is further prepared with a coating to permit the spill to be subjected to a reflow solder process and thereby make a good electrical contact with the plated-through hole.

120 2. A contact spill as claimed in claim 1, wherein the portion of the spill is formed into an H cross-section, and a central limb of the H cross-section is provided with a slot arranged to inwardly collapse as the spill is fitted into the plated-through hole.

125 3. A contact spill as claimed in claim 2, wherein flanges of the H cross-section are inwardly bent to allow the spill to be accommodated in the plated-through hole easily.

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4. A contact spill as claimed in claim 2, wherein flanges of the H cross-section are outwardly bent to allow the spill to be accommodated in the plated-through hole easily.
- 5 5. A contact spill substantially as hereinbefore described.
6. A contact spill substantially as hereinbefore described with reference to Fig. 1 of the accompanying drawings.
- 10 7. A contact spill substantially as hereinbefore described with reference to Fig. 2 of the accompanying drawings.
8. A contact spill substantially as hereinbefore described with reference to Figs. 3 or 4
- 15 of the accompanying drawings.

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