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54 **Resilient element for electrically coupling blade contacts and the like.**

57 The resilient element comprises a doubly bent reed member having a convex dihedral shape, from end portions of which perpendicularly extend corresponding parallel flat portions including one or more windows and adapted to house, in opposite pairs, electrically conductive rods of equal or different cross-sections.

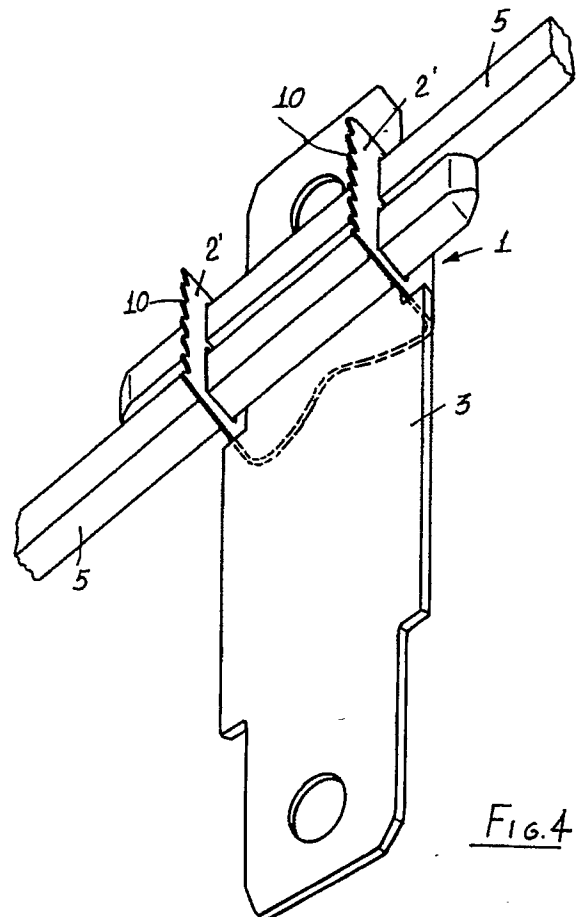


Fig. 4

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RESILIENT ELEMENT FOR ELECTRICALLY COUPLING BLADE CONTACTS AND THE LIKE

BACKGROUND OF THE INVENTION

The present invention relates to a resilient element for electrically coupling blade contacts and the like, specifically designed for timers and electrical components to be interfaced in general.

As is known timers and other like apparatus comprise a plurality of terminal lugs, or male blade connectors, provided for coupling with corresponding female terminal elements.

Also known is the fact that terminal lugs included in these apparatus can require particular interconnection arrangements, depending on a time sequence provided for carrying out set programmed operations.

At present, the above mentioned terminal lugs or blade connectors are electrically coupled by using wires or small cables which are mechanically and electrically coupled to the involved terminal lugs.

Such a coupling method, however, requires comparatively long coupling times with a very limited branching range.

The thus made electrical connections, moreover, have usually a comparatively high electrical resistance which negatively affects a proper operation of coupled apparatus.

SUMMARY OF THE INVENTION

Accordingly, the main object of the present invention is to overcome the above mentioned drawbacks, by providing a resilient electrically conductive element which affords the possibility of easily and quickly coupling two or more blade or reed connectors, with the further possibility of properly adjusting the coupling force and, accordingly, the contact resistance.

Another object of the present invention is to provide such a resilient electrically conductive coupling element which provides a proper electrical connection between the coupled parts.

Another object of the present invention is to provide such a resilient electrically conductive element which is very simple construction wise and very reliable in operation.

According to one aspect of the present invention, the above mentioned objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a resilient electrically conductive element for electrically coupling blade contacts and the like, in particular in timers or other

electrical apparatus to be interfaced, characterized in that said element essentially comprises a doubly bent reed member having a convex dihedral shape from end portions of which parallel flat portions perpendicularly extend, on said flat portions being formed, at corresponding positions, one or more windows adapted to house, in opposite pairs, and with a set perimetrical contact force, electrically conductive rod members of like cross-sections.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the resilient electrically conductive element according to the present invention will become more apparent from the following detailed disclosure of a preferred embodiment of this element, which is illustrated, by way of an indicative but not limitative example, in the figures of the accompanying drawings, where:

Figure 1 shows a generic blade or reed connector;

Figure 2 is a perspective view showing the shaped and perforated reed member adapted to be resiliently coupled to said connector;

Figure 3 schematically shows electrically conductive intercoupling rod members;

Figure 4 shows the resilient electrically conductive element according to the present invention coupled on an end portion of a blade or reed connector;

Figure 5 shows a portion of an interface for a timer;

Figure 6 shows a portion of that same interface, with electrical connectors intercoupled by the resilient element according to the invention;

Figure 7 shows a partial vertical cross-section view of the interface shown in Figure 6;

Figure 8 shows an interface of the insulated double-strip type, which has been made by using superimposed pairs of resilient blades having single side windows; and

Figure 9 shows a possible procedure for intercoupling two superimposed interfaces.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the Figures of the accompanying drawings, the resilient electrically conductive element to be coupled to blade connectors according to the invention, comprises a blade or

reed member, of set size and thickness, which has been overallly indicated at 1 and is made of a suitable metal material and has a suitable shape.

Metal materials which have been found to be suitable for making the mentioned blade member comprise spring steel, stainless steel, bronze, copper-beryllium and the like.

More specifically, this blade or reed member has a dihedral portion 2 from the ends of which extend, at its convex surface, corresponding flat parallel portions 2'.

The length of the mentioned dihedral portion, in particular, will depend on the width of one of the end portions of a blade connector 3, of generic type, so that said dihedral portion can be firmly resiliently applied to said connector, as shows in figure 4.

On the two flat portions of the blade member, moreover, are defined, at a preset distance from the mentioned dihedral portion, pairs of windows 4 having preferably a square or rectangular shape.

These window pairs can receive, with a force type of fitting, corresponding electrically conductive rods 5 having either like or different cross-sections, and the portions of these rods arranged between the legs 2' of the blade will tightly contact a corresponding portion of the blade connector because of the pulling force provided by the dihedral portion of the blade.

Thus, it should be apparent that the disclosed resilient element affords the possibility of quickly intercoupling a plurality of blade connectors 3, for example included in a timer 6 or other generic electrical apparatus to be interfaced or coupled.

The electrically conductive rods, in particular, can be rectilinear rods or doubly bent rods 5', depending on the mutual arrangement of the connectors to be coupled.

A mask or interface structure 7 is moreover provided, adapted to firmly restrain the pre-wired connector assembly, by means of restraining teeth 10 formed on the mentioned resilient element 1.

This small mask will be obviously provided with corresponding slots 8 for receiving the coupling rods and with seats 9 for housing the resilient blades.

In particular, by using single-window blades 1', it will be possible to make, as shown in Figure 8, insulated strips, and respectively a top 11 and bottom 12 strip at the opposite faces of the components to be intercoupled.

Thus, bridge connections can be easily made between the several connectors.

Moreover, as shown in Figure 9, it is possible to also couple two superimposed interfaces, indicated respectively at 13 and 14, the top interface having a double conductive strip arrangement.

In particular, these interfaces are coupled by

means of the connectors 3, timers 6 or by means auxiliary connectors 15, used for making all of the necessary connections.

From the above disclosure, it should be apparent that the invention fully achieved the intended objects.

While the invention has been disclosed and illustrated with reference to a preferred embodiment thereof it should be apparent that the disclosed embodiment is susceptible to several modifications and variations all of which will become within the spirit and scope of the appended claims.

Claims

1. A resilient electrically conductive element for electrically coupling blade contacts and the like, in particular in timers or other apparatus to be interfaced, characterized in that said element essentially comprises a doubly bent reed member having a convex dihedral shape from end portions of which parallel flat portions perpendicularly extend, on said flat portions being formed, at corresponding positions, one or more windows adapted to house, in opposite pairs, and with a set perimetrical contact force, electrically conductive rod members of like cross-sections.

2. A resilient element according to claim 1, wherein said reed member is made of a spring steel, stainless steel, bronze, copper-beryllium material.

3. A resilient element according to claim 1, wherein said dihedral portion has a length depending on a width of one of the end portions of a blade connector.

4. A resilient element according to claim 1, wherein said windows have a square or rectangular shape and are formed through said two flat portions of said reed member at a set distance from said dihedral portion of said reed member.

5. A resilient element according to claim 1, wherein said electrically conductive rods are rectilinear rods.

6. A resilient element according to claim 1, wherein said electrically conductive rods are doubly-bent rods.

7. A resilient element according to claim 1, wherein said resilient element comprises a mask member adapted to firmly restrain a pre-wired connector assembly, said mask member being provided with slots therethrough said rods can pass and with seats for housing resilient reed members.

8. A resilient element according to claim 1, wherein said element comprises a single-window reed member.

9. A resilient element according to claim 1, wherein said element comprises restraining tooth members for coupling with said mask member.

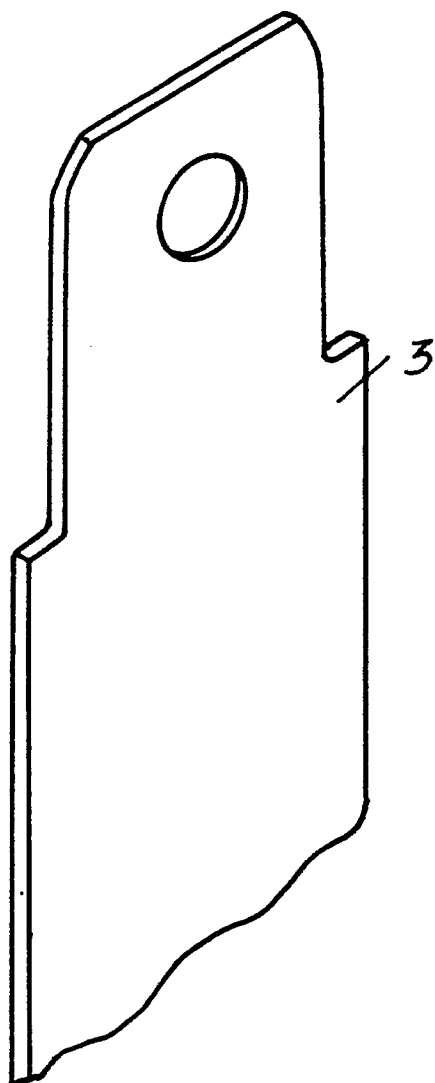


Fig. 1

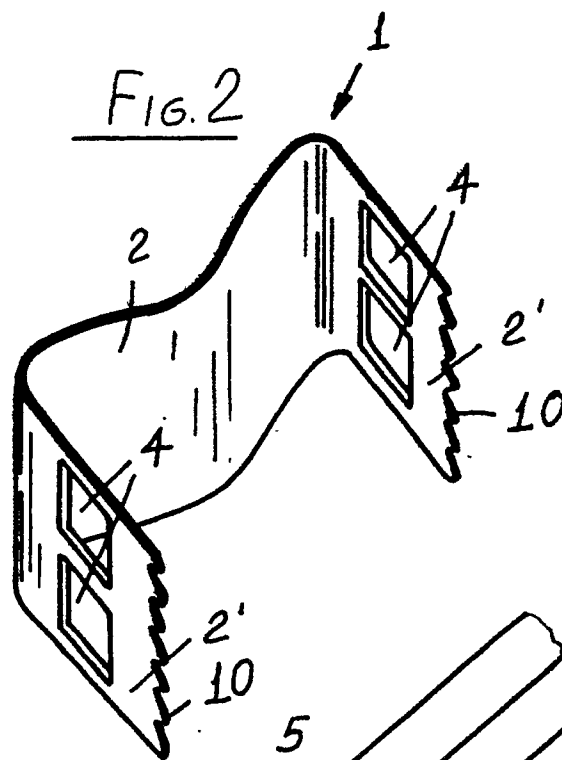


Fig. 2

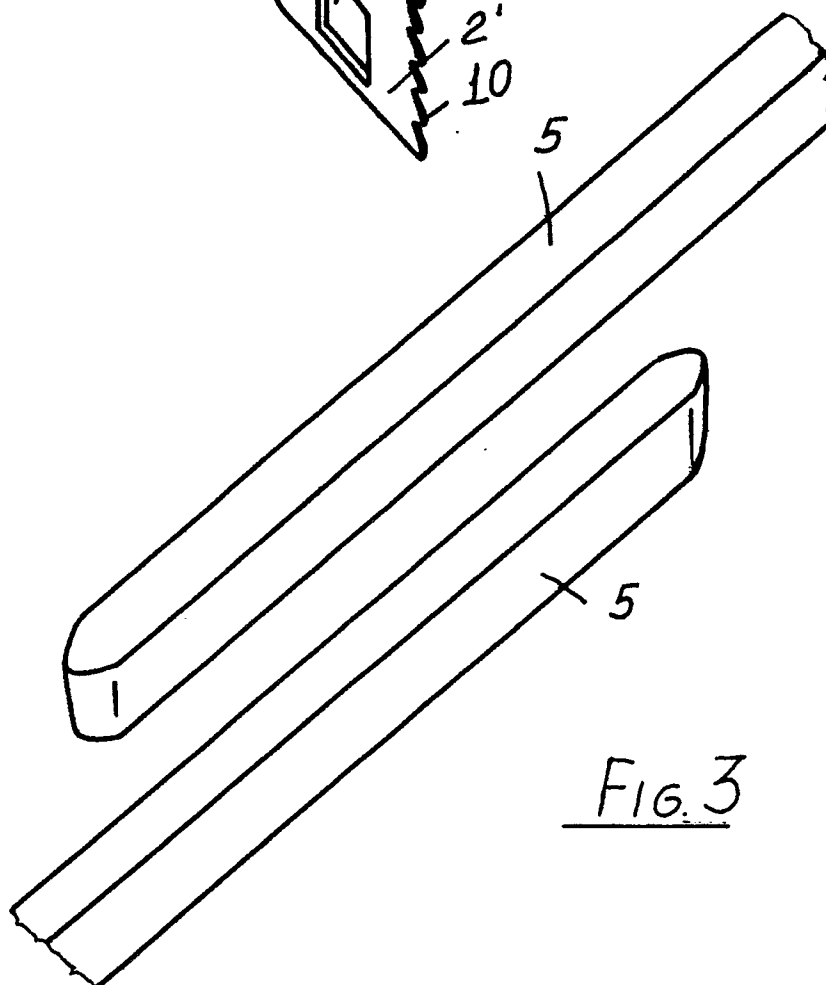


Fig. 3

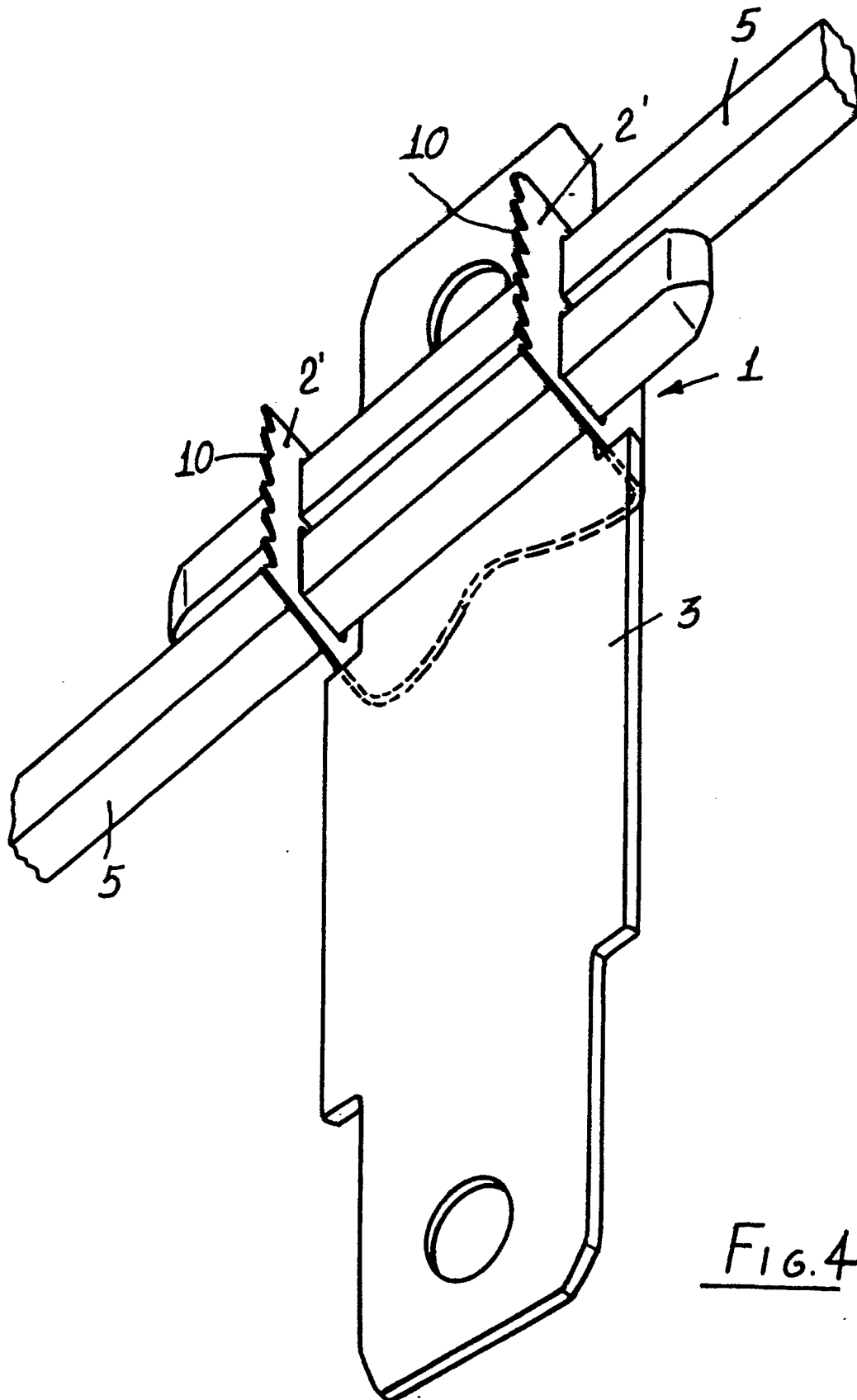
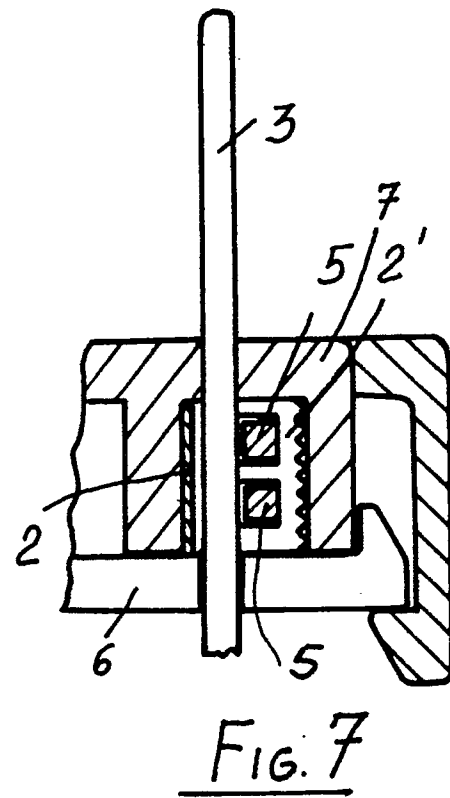
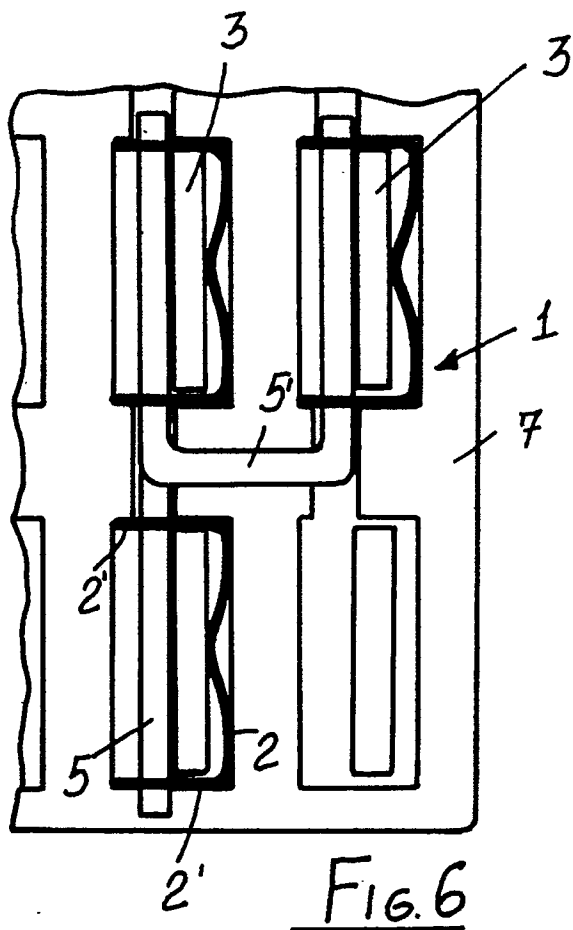
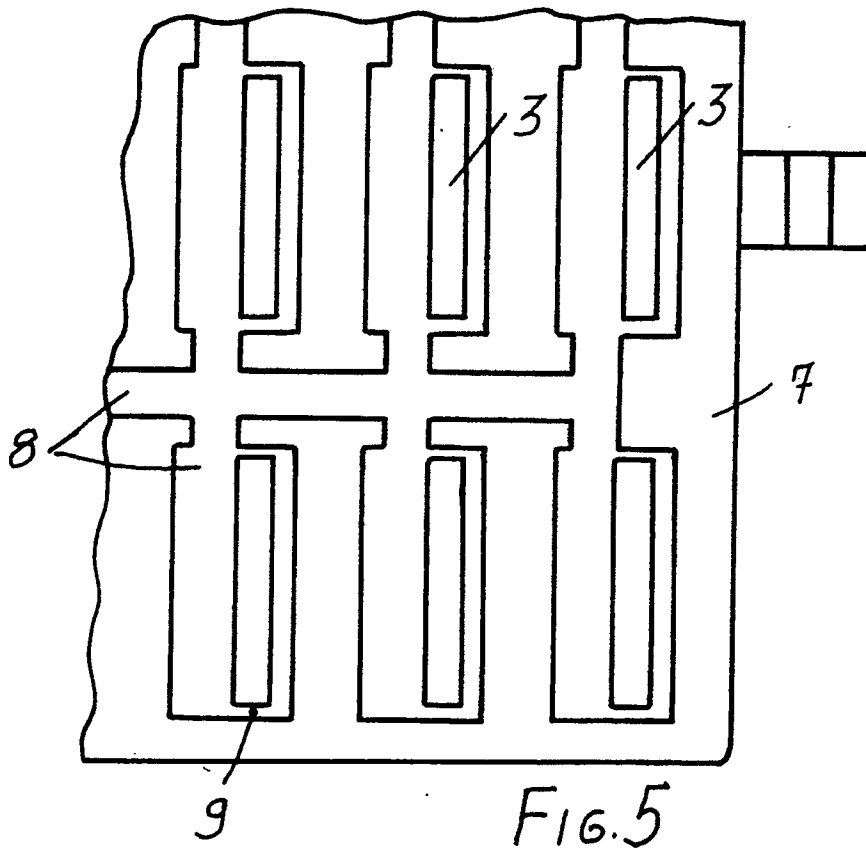


FIG. 4



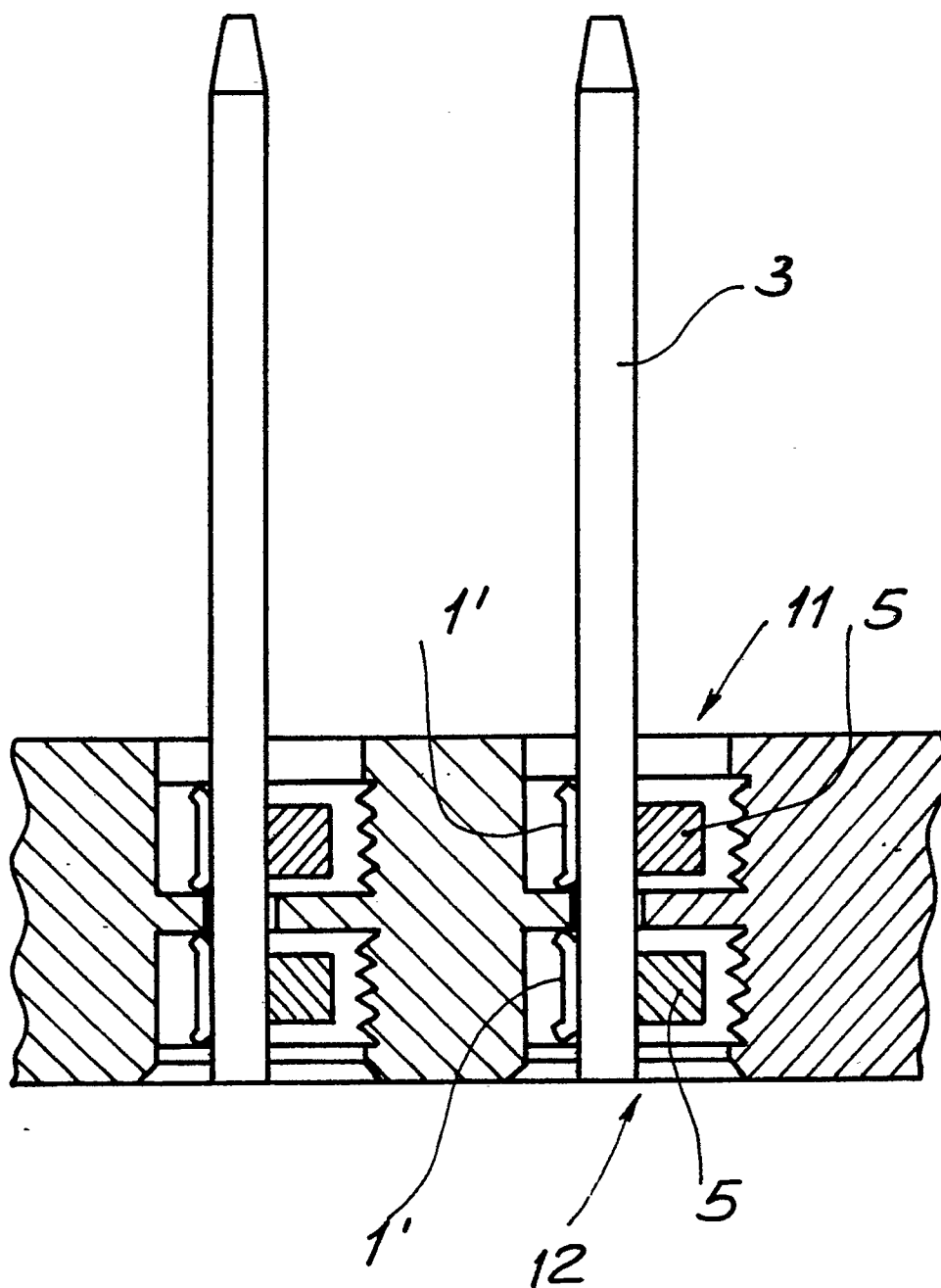


Fig. 8

