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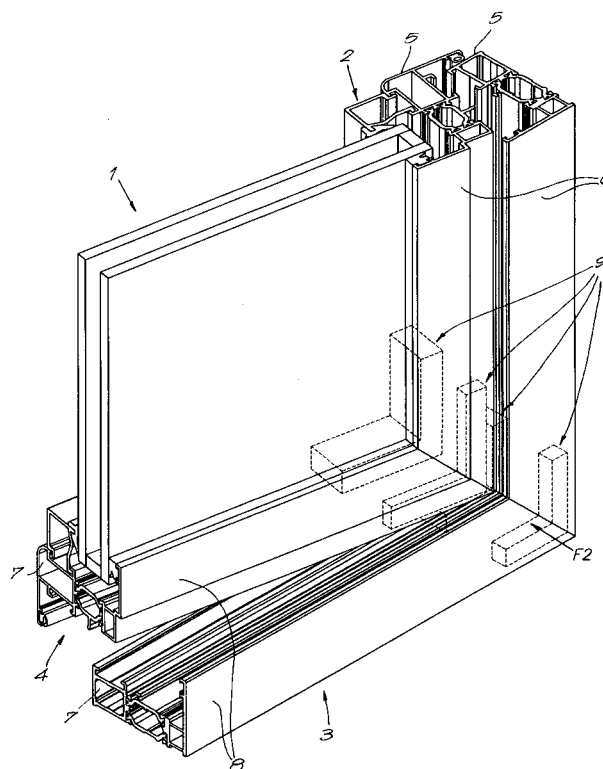
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(54) **Cabinetwork for windows and doors or the like, and insert element applied in such cabinetwork**

(57) Cabinetwork for windows, doors or the like, which cabinetwork (1) is provided with a number of connecting, hollow struts (5 and 6, 7 and 8 respectively) that are joint by means of an insert element (9) which is fixed with at least one part in a hollow far end of an aforesaid strut (5 or 6), and which is also joint with the connecting

strut (7 or 8) to be joint with the latter, characterised in that this insert element (9) is at least partly made of a fire-retardant, hydrous material (12) which makes sure that, in case of fire, the temperature in the struts (5 and 6, 7 and 8 respectively) is restricted thanks to the evaporation of the water.



**Fig. 1**

## Description

**[0001]** The present invention concerns cabinetwork for windows, doors or the like, which cabinetwork is provided with a number of struts connecting to one another.

**[0002]** In order to connect the above-mentioned struts to one another, it is known to make these struts hollow and, for example in order to make an angle joint, to join the connecting far ends of these struts by means of an insert element which is provided with two legs standing on each other in the respective hollow far ends of said struts, which legs are fixed therein.

**[0003]** Fixing the legs of the insert element in the respective hollow far ends of the struts is done, as is known, for example by clamping them in the struts by means of strut lips that are pressed inward and that push against said insert element, or by screwing the insert element in the struts.

**[0004]** In an analogous manner it is known, in order to make a T-joint with the struts, to make use of an insert element made in the shape of a T-piece which can be fixed for example on ribs of a first strut and which is fixed in a hollow end of a strut standing crosswise on the latter.

**[0005]** In order to increase the fire safety of cabinetworks, it is known to provide a fire-retardant material in the hollow struts.

**[0006]** A disadvantage of the known cabinetworks is that, because of the presence of the above-mentioned insert element at the links between the struts, it is not possible to provide any fire-retardant material in these links, such that the temperature at the insert elements will increase too strongly in case of fire, and the fire safety is no longer guaranteed.

**[0007]** The present invention aims to remedy one or several of the above-mentioned and other disadvantages.

**[0008]** To this end, the present invention concerns a cabinetwork for windows, doors or the like, which cabinetwork is provided with a number of connecting, hollow struts which are joint by means of an insert element which is fixed with at least one part in a hollow far end of an aforesaid strut, and which is also joint with the connecting strut to be joint with the latter, whereby this insert element is at least partly made of a fire-retardant, hydrous material which makes sure that, in case of fire, the temperature in the struts is restricted thanks to the evaporation of the water.

**[0009]** An advantage of such cabinetwork according to the invention is that, as the insert element is at least partly made of a fire-retardant, hydrous material, the temperature at the links will be restricted in case of fire, such that the serviceability of the used insert elements is preserved and they can still be fixed in the strut ends in the known manners.

**[0010]** The above-mentioned insert element is preferably provided with two legs standing on each other, fixed in the respective hollow far ends of the connecting struts. A further preferred characteristic of a cabinetwork ac-

cording to the invention consists in that the above-mentioned legs of the insert element are provided with at least one recess in one or both sides containing the above-mentioned fire-retardant material.

**[0011]** This is advantageous in that the mechanical strength of the insert element can be preserved, whereas a fire-retardant effect is nevertheless obtained.

**[0012]** According to a preferred embodiment of a cabinetwork according to the invention, the respective legs of the insert element have an L- or T-shaped section over at least one part of their length, and a fire-retardant material is provided on one or both sides of the insert element, on the walls of the L- or T-shaped strut.

**[0013]** By applying this specific construction, the serviceability of the insert element can be entirely preserved, and a good link is obtained between the fire-retardant material and the legs of the insert element thanks to the large contact surface between these legs and the fire-retardant material.

**[0014]** The present invention also concerns an insert element which can be applied in cabinetwork, as described above, as it is at least partly made of a fire-retardant, hydrous material which makes sure that, in case of fire, the temperature in the struts is restricted thanks to the evaporation of the water.

**[0015]** In order to better explain the characteristics, of the present invention, the following preferred embodiments of a cabinetwork according to the invention for windows, doors or the like and an insert element applied thereby are described as an example only without being limitative in any way, with reference to the accompanying drawings, in which:

figure 1 schematically represents a part of a cabinetwork according to the invention in perspective;  
figure 2 represents the insert element indicated by arrow F2 in figure 1;  
figure 3 is an exploded view of an insert element according to figure 2;  
figure 4 represents a variant of an insert element according to figure 3;  
figure 5 is an exploded view of an insert element according to figure 4;  
figure 6 represents another variant of an insert element according to figure 2.

**[0016]** Figure 1 represents a part of a cabinetwork 1 according to the invention of, in this case, a window 2, which window 2 is provided with a frame 3 and a leaf 4.

**[0017]** In this case, the frame 3 as well as the leaf 4 are built of a number of hollow inner struts 5 and 7 and hollow outer struts 6 and 8 connected at right angles, which are made for example of aluminium or the like.

**[0018]** The above-mentioned inner and outer struts 5 and 7, 6 and 8 respectively are connected, as is known, by means of connecting struts made of thermally insulating material.

**[0019]** At the connecting far ends, the above-men-

tioned inner struts 5 and 7, as well as the outer struts 6 and 8 are connected by means of insert elements 9 represented by means of a dashed line in figure 1.

**[0020]** In this example, each of the above-mentioned insert elements 9 is provided with two legs 10 and 11 standing on each other which are provided in the respective hollow far ends of the connecting struts 5 and 6, 7 and 8 respectively, and which are fixed therein, for example as the legs 10 and 11 are fixed in these struts 5 and 6, 7 and 8 respectively by means of screwing and/or gluing.

**[0021]** According to the invention, at least one of the above-mentioned insert elements 9 is at least partly made of a fire-retardant, hydrous material 12 such as a hydrous gypseous material or other materials in which water is chemically bonded.

**[0022]** Figures 2 and 3 represent an insert element 9 in greater detail, which is applied in a cabinetwork 1 according to the invention, which insert element 9 is in this case provided with a number of recesses 13 on one side containing fire-retardant material 12.

**[0023]** The above-mentioned recesses are in this case made such that the legs 10 and 11 of the insert element 9 have an L-shaped section over at least part of their lengths.

**[0024]** The above-mentioned fire-retardant material 12 is provided on the walls of the L-shaped strut of said legs 10 and 11, for example by means of gluing, injecting a paste or the like, or by means of mechanical fixing means which are not represented in the figures, such as a snap connection or the like.

**[0025]** According to the invention, the insert element 9 can be made of any material whatsoever which offers sufficient mechanical strength to obtain a rigid angle joint between the struts 5 and 6, 7 and 8 respectively.

**[0026]** As the insert element 9 is partly made of a fire-retardant material, the cabinetwork 1 according to the invention offers as a major advantageous that, in case of fire, a reduction in temperature can be obtained at the angle joints of the cabinetwork 1, as a result of which a construction is obtained which resists longer than the conventional cabinetworks.

**[0027]** As the insert element 9 is in this case partly made of another material, such as for example aluminium, one can make sure that the mechanical strength of the insert element 9 is at all times preserved. Naturally, the insert element 9 according to the invention must not necessarily be made of aluminium; on the contrary, it can also be made of many other materials.

**[0028]** Figures 4 and 5 represent a variant of an insert element 9 which can be used in a cabinetwork 1 according to the invention.

**[0029]** The insert element 9 from figures 4 and 5 mainly has an analogous construction as the above-described embodiment.

**[0030]** In this example, however, the insert element 9 is provided with recesses 13 on either side which contain a fire-retardant material 12.

**[0031]** The above-mentioned recesses 13 are in this case made such that the legs 10 and 11 of the insert element 9 have a T-shaped section over at least part of their lengths, coated on either side with fire-retardant material 12.

**[0032]** The application of such an insert element 9 provides a cabinetwork having the same advantages as described above with reference to figures 2 and 3.

**[0033]** Figure 6 represents another embodiment of an insert element 9 which can be applied in a cabinetwork 1 according to the invention, which insert element 9 is in this case entirely made of a fire-retardant material.

**[0034]** A cabinetwork 1 which is provided with such an embodiment of an insert element 9 is advantageous in that it offers an even better temperature resistance at the joints between the struts 5 and 6, 7 and 8 respectively, thanks to the large amount of fire-retardant material in these angle joints.

**[0035]** According to an embodiment of an insert element 9 which is not represented in the figures, said insert element 9 can be made entirely or partly hollow, for example as the legs 10 and 11 are hollow, and fire-retardant material can be provided in the hollow space or spaces in said insert element 9.

**[0036]** Such an embodiment of an insert element 9 has a very large mechanical strength and moreover provides an increased temperature resistance to the cabinetwork 1 in case of fire.

**[0037]** According to a variant of a cabinetwork according to the invention which is not represented in the figures, the above-mentioned insert element is not made as an L-shaped element with two legs standing on each other, but the insert element is made as a T-piece which can be fixed to the ribs of a first strut in a known manner, and in a hollow far end of a second strut standing crosswise on said first strut.

**[0038]** Naturally, according to the invention, in this case as well, the insert element can be entirely or partly made of a fire-retardant material.

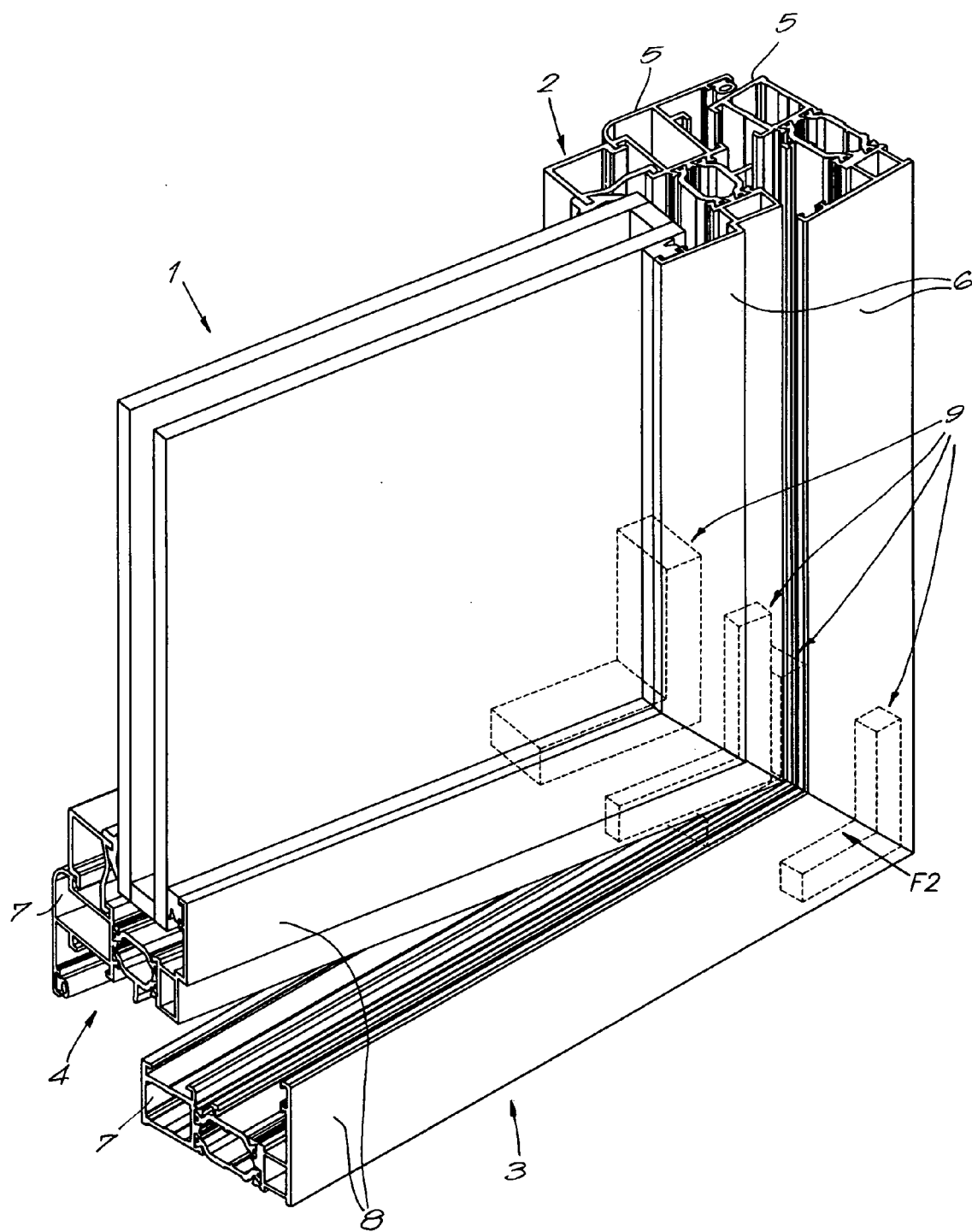
**[0039]** According to a variant of a cabinetwork according to the invention, the above-mentioned fire-retardant, hydrous material can be made as a mixture of a powder such as gypsum on the one hand, and water on the other hand, whereby this mixture is provided on and/or in the corner piece.

**[0040]** The present invention is by no means restricted to the embodiments given as an example and represented in the accompanying drawings; on the contrary, such a cabinetwork according to the invention for a door, window or the like and an insert element which can be applied in such a cabinetwork can be made in many shapes and dimensions while still remaining within the scope of the invention.

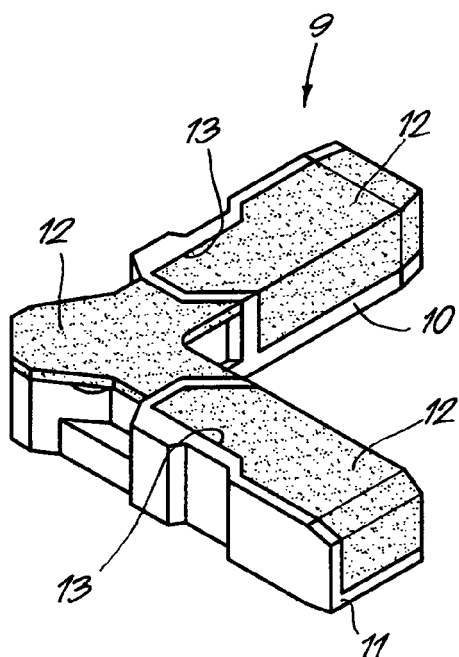
## Claims

1. Cabinetwork for windows, doors or the like, which

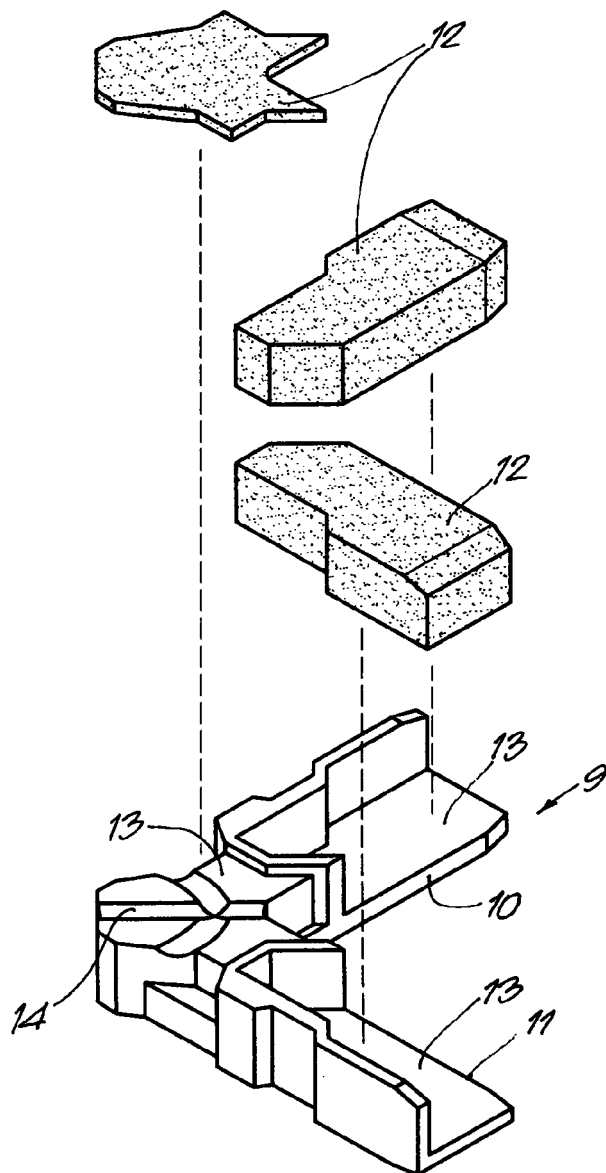
- cabinetwork (1) is provided with a number of connecting, hollow struts (5 and 6, 7 and 8 respectively) that are joint by means of an insert element (9) which is fixed with at least one part in a hollow far end of an aforesaid strut (5 or 6), and which is also joint with the connecting strut (7 or 8) to be joint with the latter, **characterised in that** this insert element (9) is at least partly made of a fire-retardant, hydrous material (12) which makes sure that, in case of fire, the temperature in the struts (5 and 6, 7 and 8 respectively) is restricted thanks to the evaporation of the water.
2. Cabinetwork according to claim 1, **characterised in that** the above-mentioned insert element (9) is provided with two legs (10 and 11) standing on each other which are fixed in the respective hollow far ends of the connecting struts (5 and 6, 7 and 8 respectively).
  3. Cabinetwork according to claim 2, **characterised in that** the above-mentioned legs (10 and 11) of the above-mentioned insert element (9) are provided with at least one recess (13) in one or either side containing the above-mentioned fire-retardant, hydrous material (12).
  4. Cabinetwork according to claim 2 or 3, **characterised in that** the respective legs (10 and 11) of the insert element have an L-shaped section over at least part of their lengths, and **in that** the fire-retardant, hydrous material (12) is provided on one side of the insert element (9), on the walls of the L-shaped strut.
  5. Cabinetwork according to claim 2 or 3, **characterised in that** the respective legs (10 and 11) of the insert element (9) have a T-shaped section over at least part of their lengths, and **in that** the fire-retardant, hydrous material (12) is provided on either side of the insert element (9), on the walls of the T-shaped strut.
  6. Cabinetwork according to any one of the preceding claims, **characterised in that** the above-mentioned insert element (9) is provided with fixing means to fix fire-retardant, hydrous material (12) to said insert element (9).
  7. Cabinetwork according to claim 2, **characterised in that** the above-mentioned legs (10 and 11) of the insert element (9) are made hollow and **in that** in the cavities in these legs (10 and 11) has been provided the above-mentioned fire-retardant, hydrous material (12).
  8. Cabinetwork according to claim 1, **characterised in that** the above-mentioned insert element (9) is entirely made of a fire-retardant, hydrous material (12).
  9. Cabinetwork according to claim 1, **characterised in that** the insert element (9) is made in the shape of a T-piece which can be fixed on ribs of a first strut and which can be fixed in a hollow end of a strut standing crosswise on the latter.
  10. Cabinetwork according to any one of the preceding claims, **characterised in that** the above-mentioned fire-retardant, hydrous material consists of a gypseous hydrous material.
  11. Insert element, **characterised in that** it can be applied in a cabinetwork (1) according to any one of the preceding claims **characterised in that** it is at least partly made of fire-retardant, hydrous material (12).



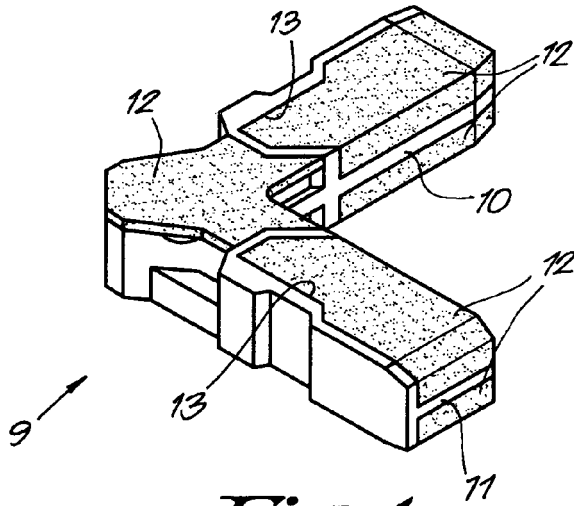
*Fig. 1*



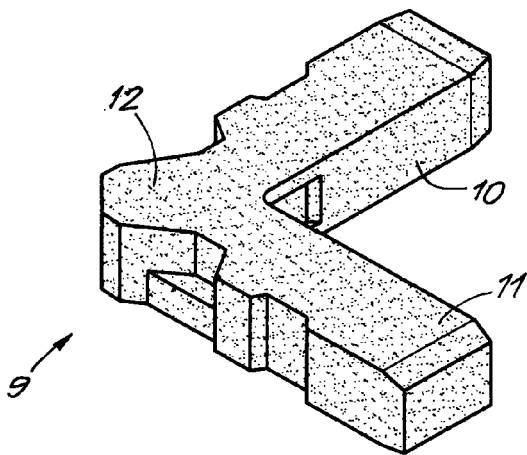
*Fig. 2*



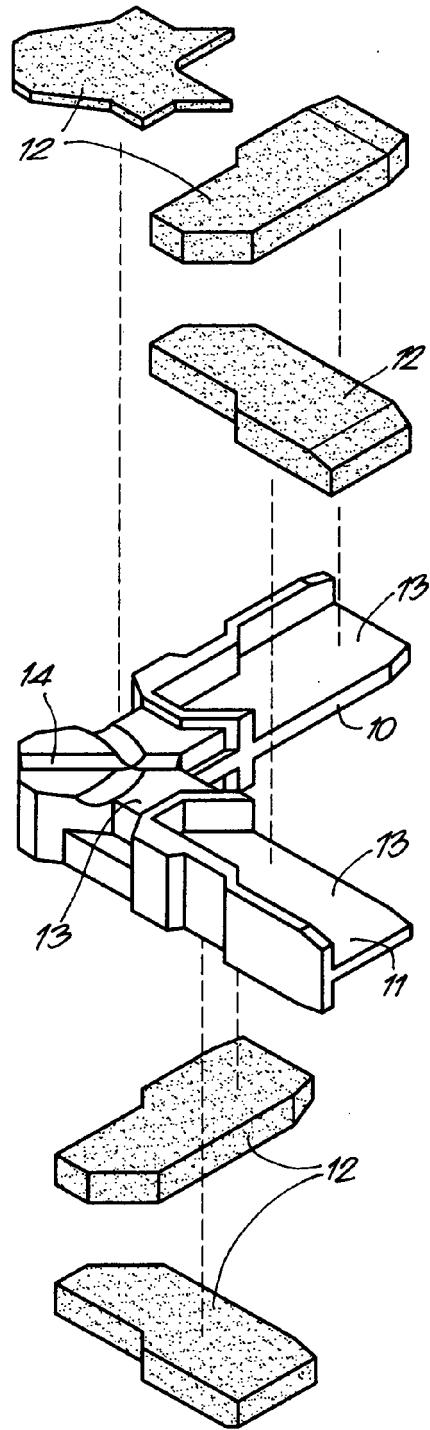
*Fig. 3*



*Fig. 4*



*Fig. 6*



*Fig. 5*