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(54) **Production of connectors for interlocking containers placed side-by-side.**

(57) A method of cutting a blank from which a container can be erected is disclosed, the blank being cut from a rectangular sheet of cardboard, corrugated board etc. The shape of the blank is such that corner portions of the sheet are cut away as waste. These corner portions are trimmed to rectangular shape, simultaneously with the cutting of the blank, and one or more slots are cut in them. These trimmed portions are used in a stack of containers to interlink upstanding pegs of adjacent containers, the pegs being passed through said slots.

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THIS INVENTION relates to the production of connectors for interlocking containers placed side-by-side.

According to the present invention there is provided a method of producing connectors for interlocking containers placed side-by-side, each container having upstanding tongues and each connector having slots in it for receiving the tongues, the method comprising cutting, from a rectangular sheet of material, a blank which can be erected to form a container, the shape of the blank being such that pieces of said sheet are not incorporated into the blank, these pieces each having at least two slots cut therein thereby converting said pieces into connectors.

In a preferred method said slots are cut in said pieces simultaneously with the step of cutting said blank from said sheet. Similarly, it is preferred that said pieces be trimmed to rectangular form simultaneously with the step of cutting said blank from said sheet.

Said pieces are preferably corner pieces of said sheet.

For a better understanding of the present invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings in which:

Figure 1 is a pictorial view of a container for food or other perishable goods;

Figure 2 illustrates the cutting of a blank which constitutes the main component of the container of Figure 1;

Figure 3 is a view of one end of the container of Figure 1 in 'exploded' condition and also shows two connectors;

Figure 4 is an underneath plan view of a moulded synthetic plastics material end piece of the container;

Figure 5 is an elevation of the end piece of Figure 4;

Figure 6 is an isometric view of two containers and a connector;

Figure 7 is a pictorial view of four containers and a connector;

Figure 8 is a pictorial view of nine boxes secured to one another by means of connectors; and

Figures 9a, 9b and 9c show various forms of connectors.

Referring firstly to Figure 1, the container illustrated is generally designated 10 and is fabricated using five components. These are a blank 12 of paper board or corrugated board (see Figure 2), two end pieces 14 (see Figures 4 and 5) and two rectangular inserts 16 (one of which is shown in Figure 3). The inserts 16 can be of wood, pressed board such as chip board, chemically treated or coated corrugated board, synthetic plastics material etc. and must be capable of withstanding loading in the direction of the arrows X in Figure 3 without fracturing or collapsing.

The blank 12 of Figure 2 is cut from a rectangular piece of cardboard the borders of which are designated 18, 20, 22 and 24.

The blank 12 is cut and creased to form a base panel 26 which is bounded by crease lines 28 and 30. Outer end wall panels 32 are joined to the base panel 26 along the crease lines 28. Side wall panels 34 are joined to the panel 26 along the crease lines 30 and lid flaps 36 are joined to the panels 34 along crease lines 38.

Ventilation holes 40 are punched in the panel 26 as well as four rectangular apertures 42 which lie adjacent the crease lines 28. The panels 32 are punched with apertures designated 44.

End wall flaps 46 are joined to the side wall panels 34 along crease lines 48. Holes 50 are punched in the flaps 46 and there are rectangular cut-outs 52 in those edges of the flaps 46 which are adjacent the panels 32. Lid closing tabs 54 are provided at each end of each lid flap 36 and are joined thereto along crease lines 56.

The outline of the blank 12 in relation to the rectangular piece of cardboard is such that waste areas which are designated 58 are left at each corner of the rectangular piece of cardboard. The left hand waste areas 58 are used to form two connectors of rectangular shape which have been designated 60 and 62. The connector 60 has two pairs of parallel slots 64 running in the longitudinal direction thereof, and the connector 62 has two parallel transverse slots 66. Two further connectors can be cut from the waste material 58 at the right hand end of the blank if desired.

The connectors 60 and 62 are preferably trimmed to rectangular shape and the slots 64, 66 are cut therein

simultaneously with the step of cutting the blank 12 from the rectangular piece of cardboard.

Turning now to Figures 4 and 5, the end piece 14 is, in vertical section, of inverted U-shape and comprises a front wall 68, a rear wall 70 and a top wall 72 which joins the front and rear walls 68 and 70. At each end of the wall 68 there are downwardly depending ears 74. The front wall 68 merges with a pair of end walls 76. It will be noted that the rear wall 70 is not joined to the end walls 76.

Locking protrusions 78 and gripping projections 80 are provided on the inner faces of the walls 68 and 70.

The top wall 72 has slots 82 therein. Tongues 84 protrude upwardly from the top wall 72.

The container 10 is erected by folding the blank 12 so that the wall panels 34 stand up with respect to the base panel 26, and then the flaps 46 are folded inwardly (see the right hand flap in Figure 3). Once both flaps are so folded, the insert 16 is placed against their outer faces and the flap 32 is stood up so as to sandwich the insert 16 between the flaps 46 and 32.

The end piece 14 is then pressed down onto the composite end wall thus formed, the locking protrusions 78 entering the now aligned apertures 44 and 50. To close the container, the lid flaps 36 are folded to the position illustrated in Figure 3 and the tabs 54 folded downwardly and pushed through the slots 82.

Before describing the arrangements of Figures 6, 7 and 8 it will be noted that connectors having a wide variety of forms can be produced. Two possible forms (designated 60 and 62) have been shown in Figure 2. A further form, designated 86, is shown in Figures 3 and 9c. In addition one of the connectors 60 is also shown in Figure 3. The connector 86 has two slots 88 which are aligned with one another. The connector 90 in Figure 9a is similar to the connector 60 but additionally has a central hole designated 92. The squarish connector 94 of Figure 9c has two parallel slots 96.

Containers 10 are intended to be transported on a pallet and are placed side-by-side. When two containers 10 are placed side-by-side as shown in Figure 6, the tongues 84 lie close enough together to be linked by a connector of the form shown at 86 in Figure 3 (see also Figure 9b). This is achieved by pressing the connector 86 down so that the tongues 84 enter the slots 88. Once the two adjacent tongues 84 have been inter-connected in this way, the containers 10 are restrained against lateral movement with respect to one another.

When four containers 10 are placed side-by-side, as shown in Figure 7, a connector 60 can be used to inter-connect the four adjacent tongues 84.

In Figure 8 the central groups of four tongues connected by connectors 60 and the end pairs of tongues by connectors 94.

When a layer of containers as shown in Figure 8 is connected in this manner, lateral movement of the containers with respect to one another is inhibited.

When the next layer of containers is placed on the layer illustrated, the tongues 84 protrude upwardly through the apertures 42 in the base panel 26 thereby interlocking the two layers of containers in the palletised load.

Any containers which have upwardly projecting tongues can be inter-connected in the manner described above by connectors formed from what would otherwise be waste material.

CLAIMS:

1. A method of producing connectors for interlocking containers placed side-by-side, each container having upstanding tongues and each connector having slots in it for receiving the tongues, the method comprising cutting, from a rectangular sheet of material, a blank which can be erected to form a container, the shape of the blank being such that pieces of said sheet are not incorporated into the blank, these pieces each having at least two slots cut therein thereby converting said pieces into connectors.

2. A method as claimed in claim 1, wherein said slots are cut in said pieces simultaneously with the step of cutting said blank from said sheet.

3. A method as claimed in claim 1 or 2, wherein said pieces are trimmed to rectangular form simultaneously with the step of cutting said blank from said sheet.

4. A method as claimed in claim 1, 2 or 3, wherein said pieces are corner pieces of the rectangular sheet.

5. A method of producing connectors for interlocking containers placed side-by-side, substantially as hereinbefore described with reference to the accompanying drawings.

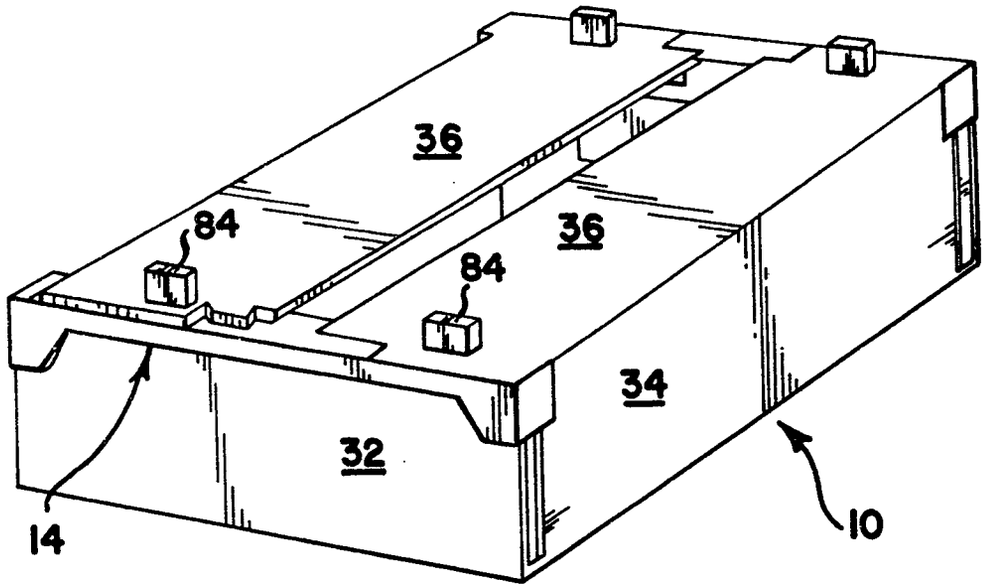
36
84
36
84
34
32
14
10

FIG. 1

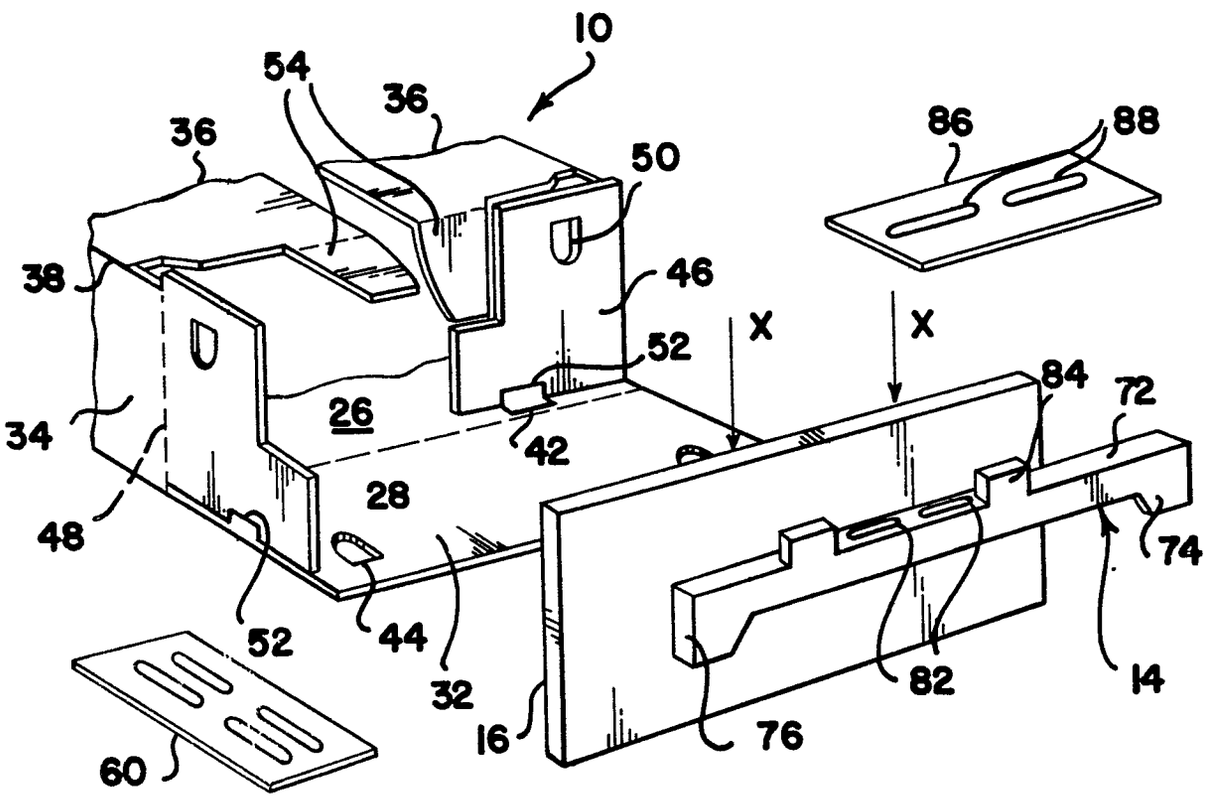
10
54
36
36
50
86
88
38
46
X
X
52
84
72
34
26
42
28
48
74
52
44
32
82
14
16
76
60

FIG. 3

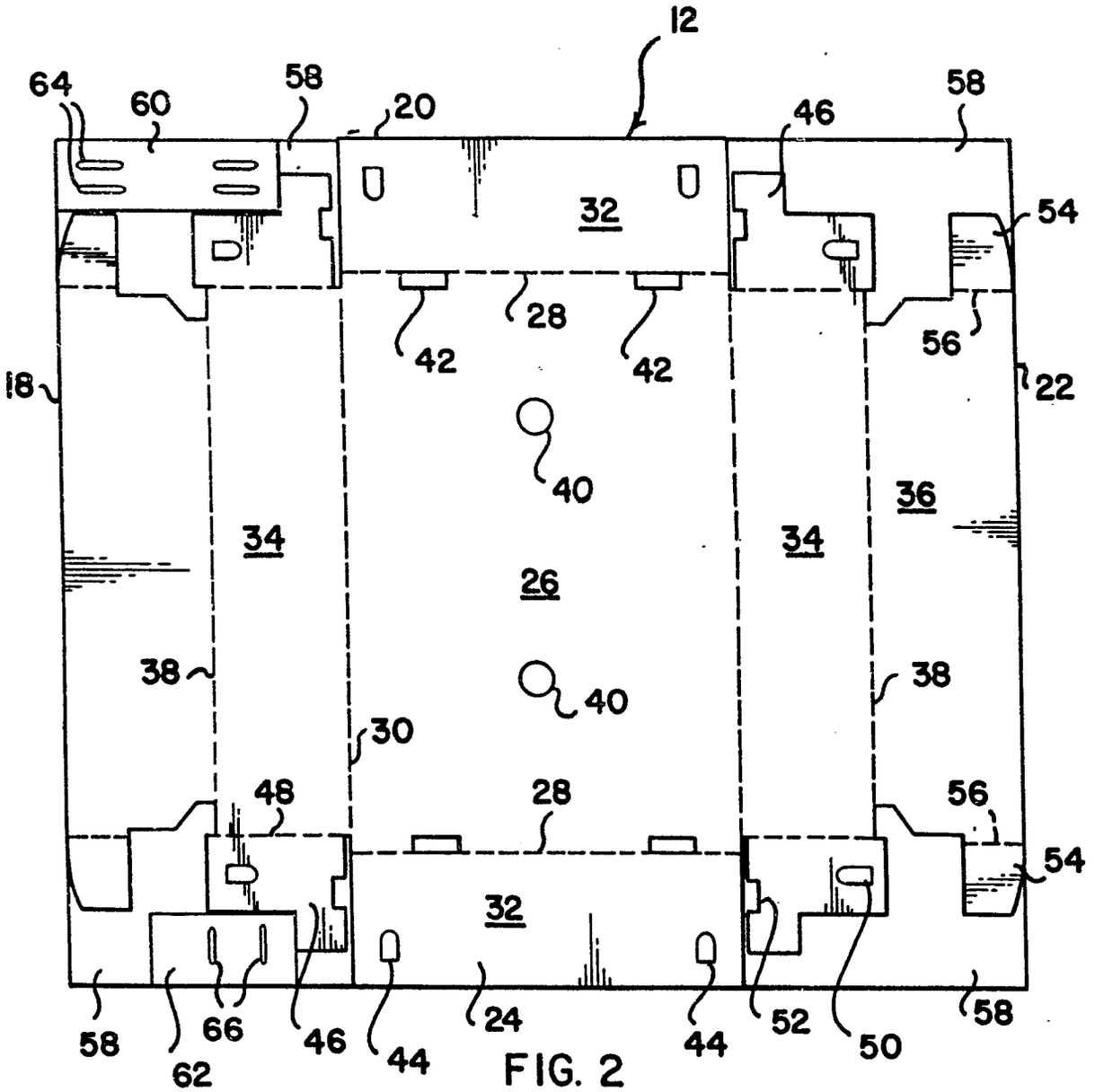
12
64
60
58
20
46
58
32
54
28
42
42
56
18
22
40
36
34
34
26
38
40
38
30
48
28
56
54
32
58
66
46
44
24
44
52
50
58
62

FIG. 2

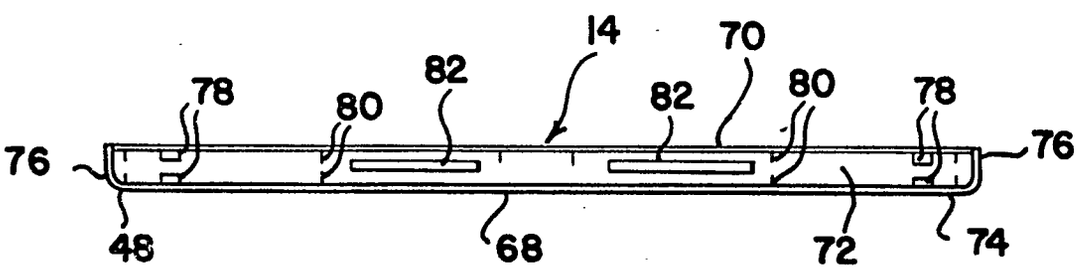
14
70
82
78
80
82
80
78
76
76
48
68
72
74

FIG. 4

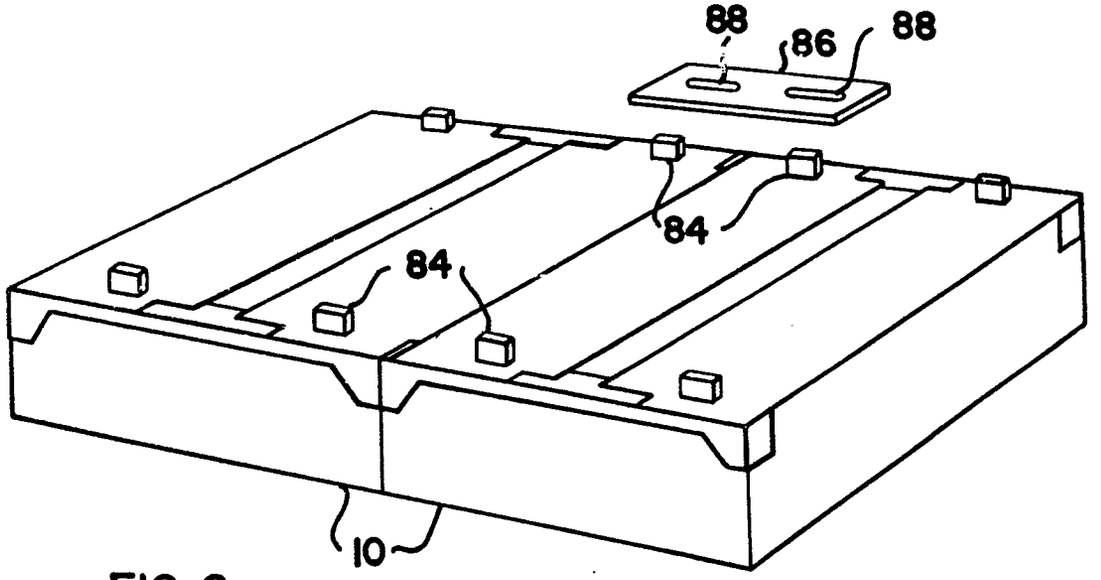

FIG. 6

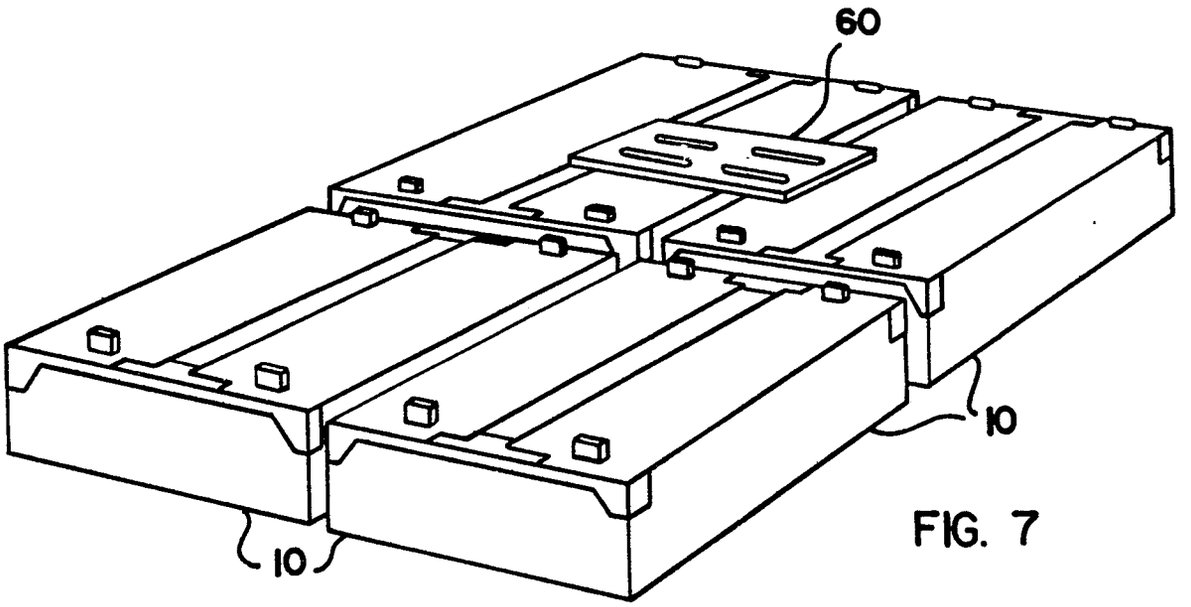

FIG. 7

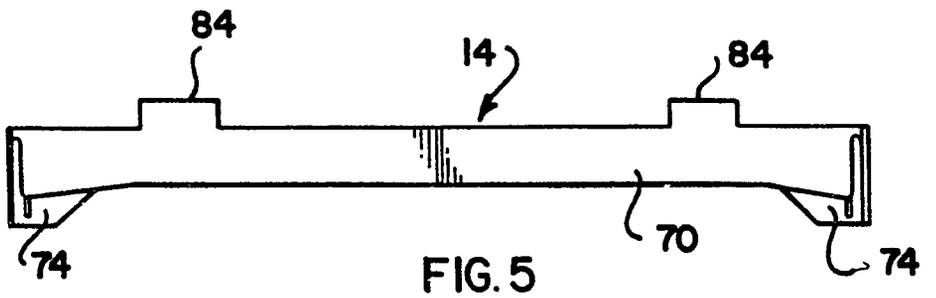

FIG. 5

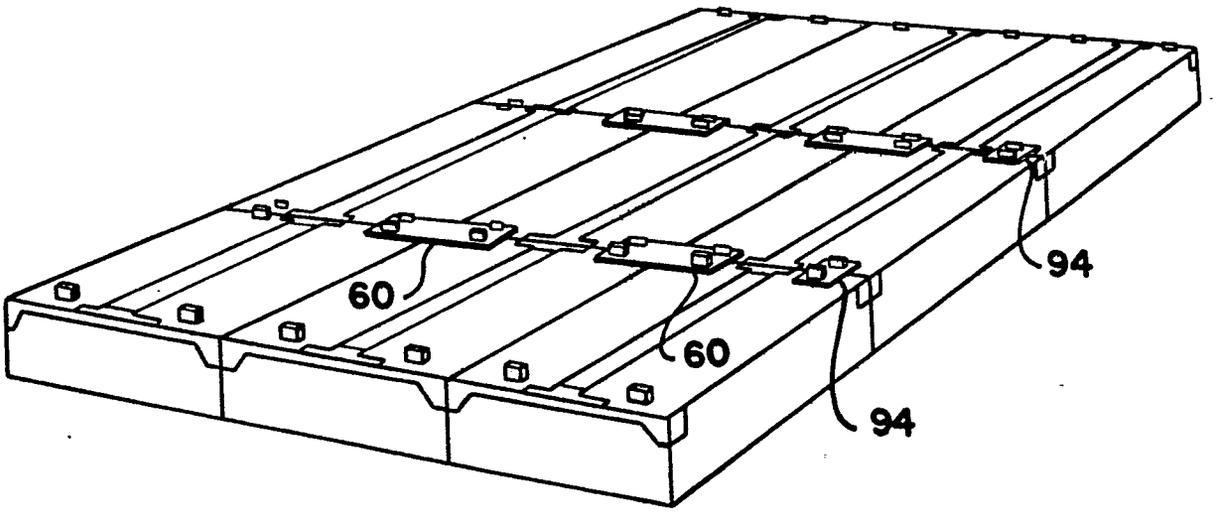

FIG. 8

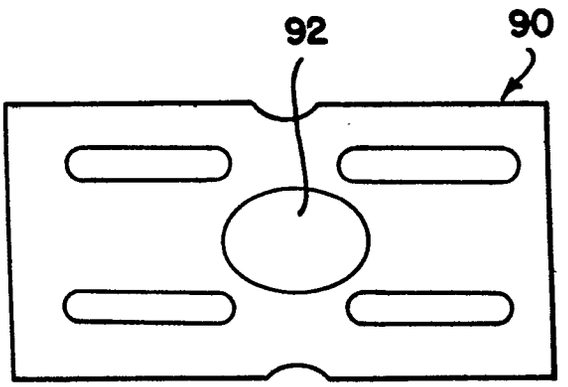

FIG. 9a

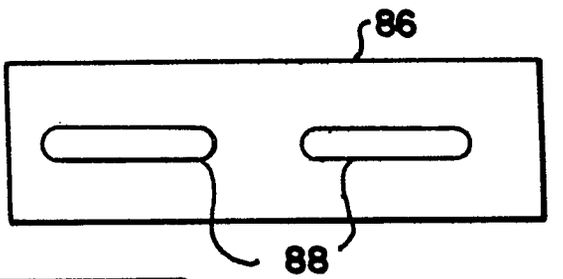

FIG.9b

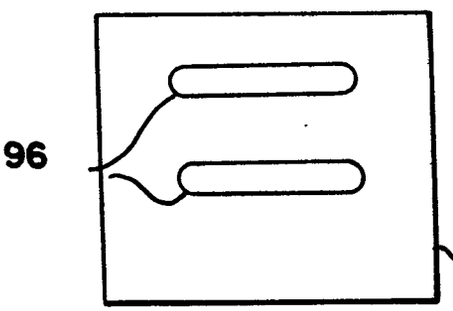

FIG. 9c