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(54) **Paperboard sleeve**

(57) There is provided a paperboard sleeve having a top, oppositely disposed side panels and a pair of base panels which interlock using suitable formations 24 to form an open ended sleeve. The sleeve provides a number of apertures 38 for receiving the heels of bottles retained by the sleeve. The end-most apertures 38 are

each formed by a flap which is folded out to form the aperture. The flap has a first part 41 which remains attached to a central side panel 20 and a second part 42 which lies in the open end of the sleeve. An end panel 27 is then folded up about its hinge line 26 with the base and is glued to the two second parts 42, one at either side of the sleeve.

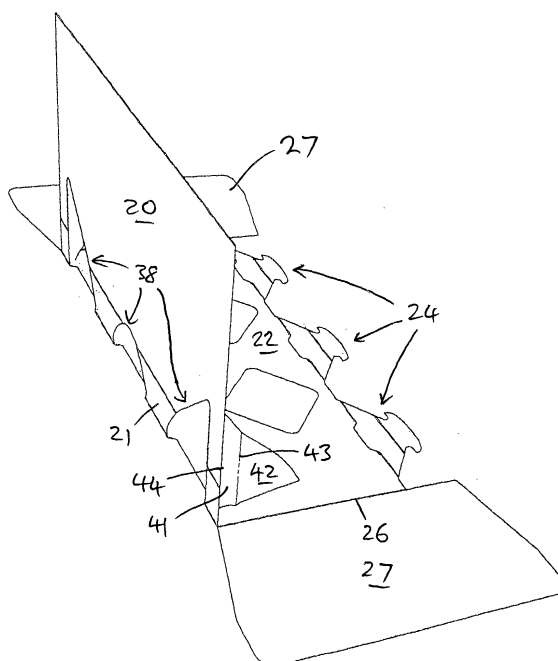


FIGURE 2

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Description

[0001] The present invention relates to paperboard sleeves for retaining a plurality of articles. Usually, but not exclusively, such articles are arranged and retained in rectangular arrays such as 3 x 2, 4 x 2, 3 x 1 etc.

[0002] According to the present invention there is provided a paperboard sleeve for retaining a plurality of articles each having a lower heel portion, said sleeve comprising a top panel, a pair of side panels hingedly connected to oppositely disposed side edges of the top panel and a base which interconnects the two side panels, apertures being provided at the junctions of the base and the side panels, each aperture receiving the heel portion of one of the articles, the sleeve providing at each lengthwise end a hingedly connected end panel which is adhesively secured to at least one flap which is constituted by a portion of paperboard which is cut and folded from an adjacent heel receiving aperture.

[0003] Preferably each end panel is adhesively secured to two of said flaps formed from respective apertures at the junctions of both side panels and the base.

[0004] In preferred arrangements each end panel is hingedly secured to the base and also the base is formed by first and second base panels hingedly connected to respective bottom edges of the side panels. Usually the first and second base panels are secured together by means of interlocking formations provided therein.

[0005] With some arrangements the lower part of each side panel is angled inwardly towards the base.

[0006] Conveniently, each flap is hingedly connected to its associated side panel by a first fold and comprises first and second parts separated by a second fold spaced from the first fold. With preferred embodiments the first and second folds are substantially perpendicular to the base, the distance between the first and second folds being substantially equal to the distance between the first fold and an adjacent end edge of the side panel.

[0007] Generally, the end panels extend only partly towards the top panel. In some arrangements a top end panel is folded downwardly from each end to the top panel, each top end panel being interconnected to the adjacent side panels by gusset panels which are folded inwardly.

[0008] Embodiments of the present invention will now be described in more detail. The description makes reference to the following drawings in which:

Figure 1 shows a paperboard blank for producing a sleeve according to the present invention,

Figure 2 shows in perspective part of the blank of figure 1 in a partially folded condition,

Figure 3 shows in perspective in simplified form part of the figure 1 blank with two articles removed for clarity purposes, prior to securing of an end panel, and

Figure 4 shows in perspective an end view of the fully assembled sleeve.

[0009] The figures show a paperboard blank 10 for producing a sleeve 11 around a plurality of articles 12. In this particular arrangement the articles 12 are bottles, each of which has a heel portion 13 at its lower end, and the bottles are to be retained in a 3 x 2 rectangular array. Other arrays such as 4 x 2, 5 x 2, 3 x 1 etc can, of course, be accommodated with corresponding modifications to the form of the blank.

[0010] The blank 10 provides a generally rectangular top panel 14 which is hingedly connected at its opposite side edges 15 to first and second side panels 16, 17. In this arrangement each side panel 16, 17 comprises an upper side panel 18 which tapers outwardly from the top panel 14 to follow the general shape of the necks 19 of the bottles 12, a central side panel 20 to follow the main body of the bottles 12 and a lower side panel 21 which tapers inwardly. The lower side panel 21 of the first side panel 16 is hingedly connected to a first base panel 22 and the lower side panel 21 of the second side panel 17 is hingedly connected to a second base panel 23.

[0011] The first base panel 22 is provided with formations 24 which interlock with corresponding formations 25 provided on the second base panel 23 to retain the assembled blank 10 in the form of a sleeve 11 around the article 12. These formations 24, 25, being well known in the industry, will not be described in any more detail and are not shown in figure 3 for the purposes of simplicity and clarity. Other forms of interlocking formations are also known and could be used. Alternatively, the base panels could be secured together adhesively.

[0012] At the opposite end edges 26, partial end panels 27 are hingedly connected to the first base panel 22. In use these are to be folded into a generally upright position and can serve as a cover to hide the bar codes on the individual bottles 12 and/or can be provided for aesthetic purposes or for the display of information, advertising or other graphic material.

[0013] At each end of the top panel 14, a partial end panel 28 is connected by a fold 29. Each partial end panel 28 is connected to each of the two adjacent upper side panels 18 by a pair of gusset panels 30, 31, folds 32, 33 and a central reverse fold 34. Again, this type of partial end panel arrangement is well known in the industry and will not be described in detail. However, when the side panels 16, 17 and the partial end panels 28 are folded down relative to the top panel 14, the gusset panels 30, 31 tuck inwardly of the sleeve 11 with the gusset panels 30 lying generally against the inside surface of the upper side panels 18.

[0014] Also, in the top panel 14 are optional lines of weakening 35 which define push through flaps 36 for ease of carrying and openable access flaps 37 for eventual removal of the bottles.

[0015] At the junction of the side panels 16, 17 and the base panels 22, 23 are heel retaining apertures 38.

The central apertures are standard cut-outs but the end apertures on each side are more complicated. Each of the end apertures 38 retains a flap 39 by means of a first vertical fold 40. Each flap 39 comprises a first part 41 adjacent the fold 40 and a second part 42 attached to the first part 41 by means of a second vertical fold 43 which is spaced from the first fold 40. Ideally, and as shown in the illustrated embodiment, the distance between the first and second folds 40, 43 is substantially the same as the distance between the first fold 40 and the end edge 44 of the sleeve. In use the flap 39 is folded back about the first fold 40 so that the first part 41 of the flap lies generally against the inside of the side panel and the second part 42 is folded about the second fold 43 so as to lie generally in the end plane of the sleeve 11. A portion of paperboard is removed entirely from each area 45 and this assists in allowing the flap to be folded.

[0016] This enables the partial end panels 27 to be adhesively secured to the respective second parts 42 of the flaps 39. Clearly when the sleeve 11 is assembled each partial end panel 27 is, therefore, secured to a pair of flaps 39 on respective sides of the sleeve 11. The folding back of the flaps 39 results in apertures for receiving and retaining the heel portions 13 of the end bottles 12 and the flaps 39 utilise portions of paperboard which would usually be discarded.

[0017] Assembly of the sleeve 11 from the blank 10 is generally a standard procedure in that the top panel 14 is placed on top of a 3 x 2 array of bottles and the side panels 16, 17 are folded down whilst the partial top end panel 28 is folded down and the gusset panels 30, 31 are tucked in. The flaps 39 are then pushed out and folded into position as the side panels 16, 17 engage the bottles and the base panels 22, 23 are folded under the bottles 12, the heels 13 of which engage in the respective apertures 39. The sleeve is tightened around the bottles 12 and the interlocking base formations 24, 25 are activated to secure the sleeve 11 around the bottles 12. The partial end panels 27 are then folded up from the base and adhesively secured to the second parts 42 of the flaps 39.

[0018] It will be appreciated that the precise shape and form of the flaps 39 can be altered and the folds 40, 43 need not be vertical or parallel to each other, as long as they provide a part which can be adhered to the partial end flaps 27.

Claims

1. A paperboard sleeve for retaining a plurality of articles each having a lower heel portion, said sleeve comprising a top panel, a pair of side panels hingedly connected to oppositely disposed side edges of the top panel and a base which interconnects the two side panels, apertures being provided at the junctions of the base and the side panels, each ap-

erture receiving the heel portion of one of the articles, the sleeve providing at each lengthwise end a hingedly connected end panel which is adhesively secured to at least one flap which is constituted by a portion of paperboard which is cut and folded from an adjacent heel receiving aperture.

2. A paperboard sleeve as claimed in claim 1 wherein each end panel is adhesively secured to two of said flaps formed from respective apertures at the junctions of both side panels and the base.
3. A paperboard sleeve as claimed in claim 1 or 2 wherein each end panel is hingedly secured to the base.
4. A paperboard sleeve as claimed in any one of claims 1 to 3 wherein the base is formed by first and second base panels hingedly connected to respective bottom edges of the side panels.
5. A paperboard sleeve as claimed in claim 4 wherein the first and second base panels are secured together by means of interlocking formations provided therein.
6. A paperboard sleeve as claimed in any one of claims 1 to 5 wherein the lower part of each side panel is angled inwardly towards the base.
7. A paperboard sleeve as claimed in any one of claims 1 to 6 wherein each flap is hingedly connected to its associated side panel by a first fold and comprises first and second parts separated by a second fold spaced from the first fold.
8. A paperboard sleeve as claimed in claim 7 wherein the first and second folds are substantially perpendicular to the base, the distance between the first and second folds being substantially equal to the distance between the first fold and an adjacent end edge of the side panel.
9. A paperboard sleeve as claimed in any one of claims 1 to 8 wherein the end panels extend only partly towards the top panel.
10. A paperboard sleeve as claimed in claim 9 wherein a top end panel is folded downwardly from each end to the top panel, each top end panel being interconnected to the adjacent side panels by gusset panels which are folded inwardly.

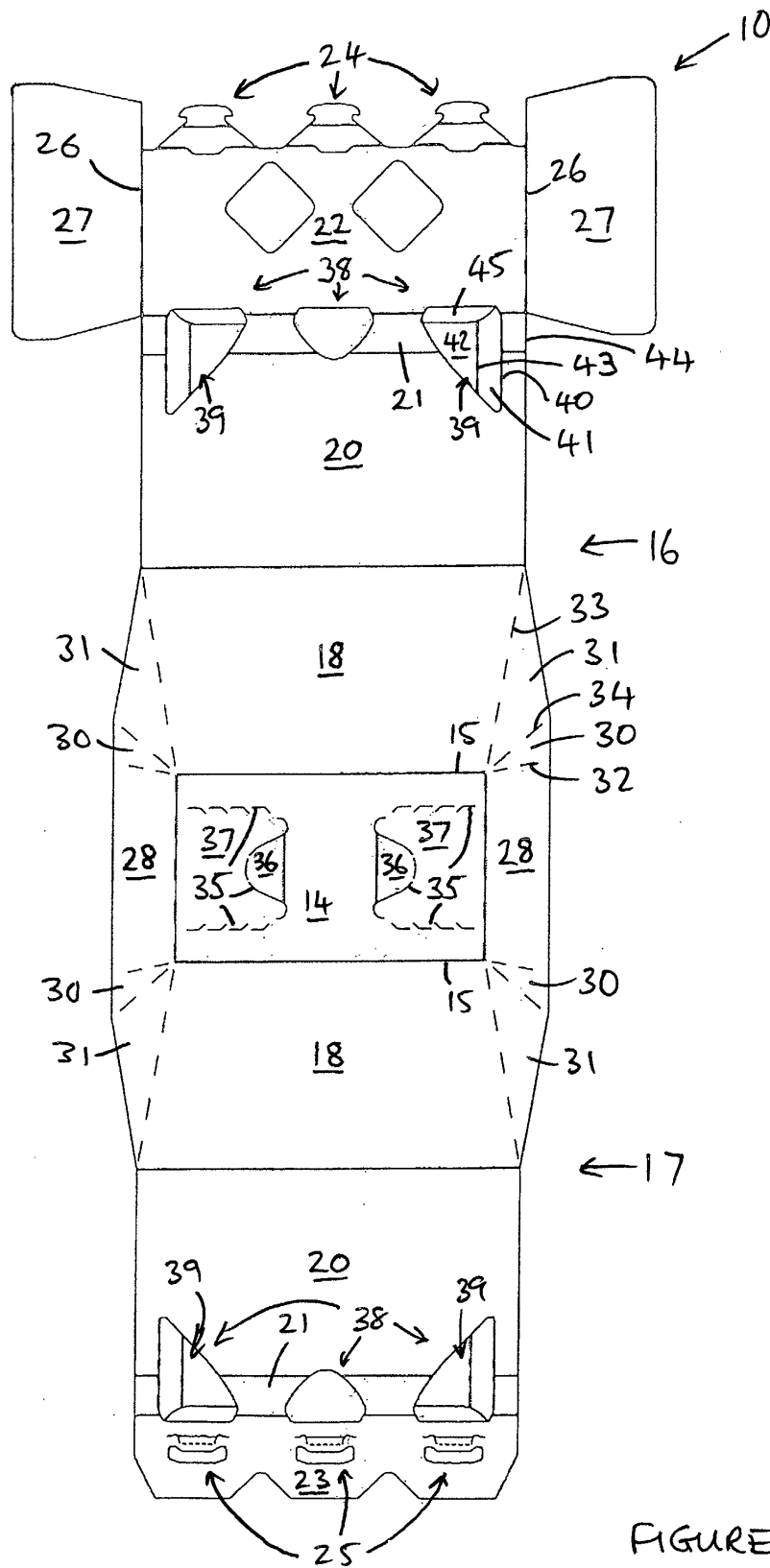


FIGURE 1

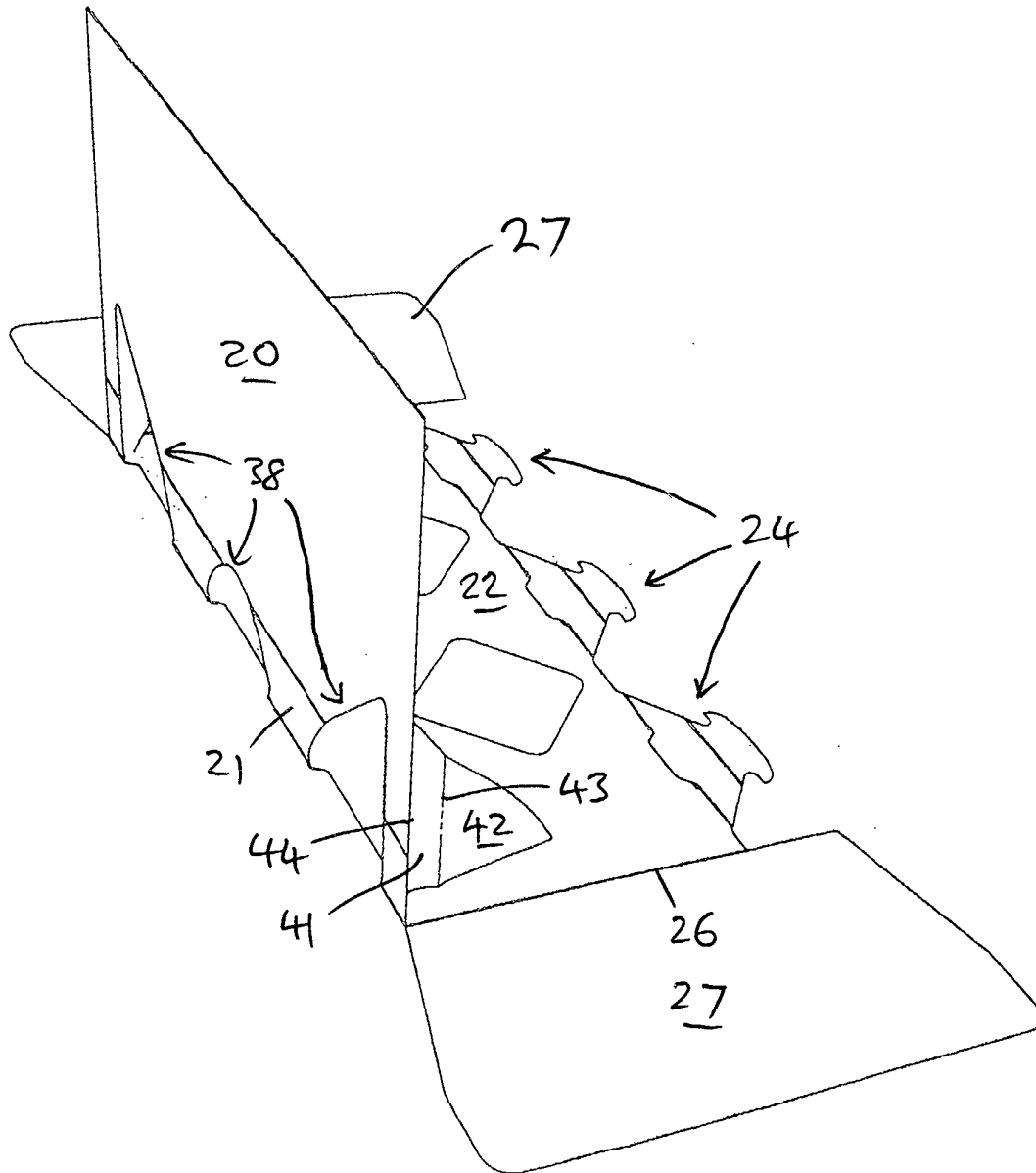


FIGURE 2

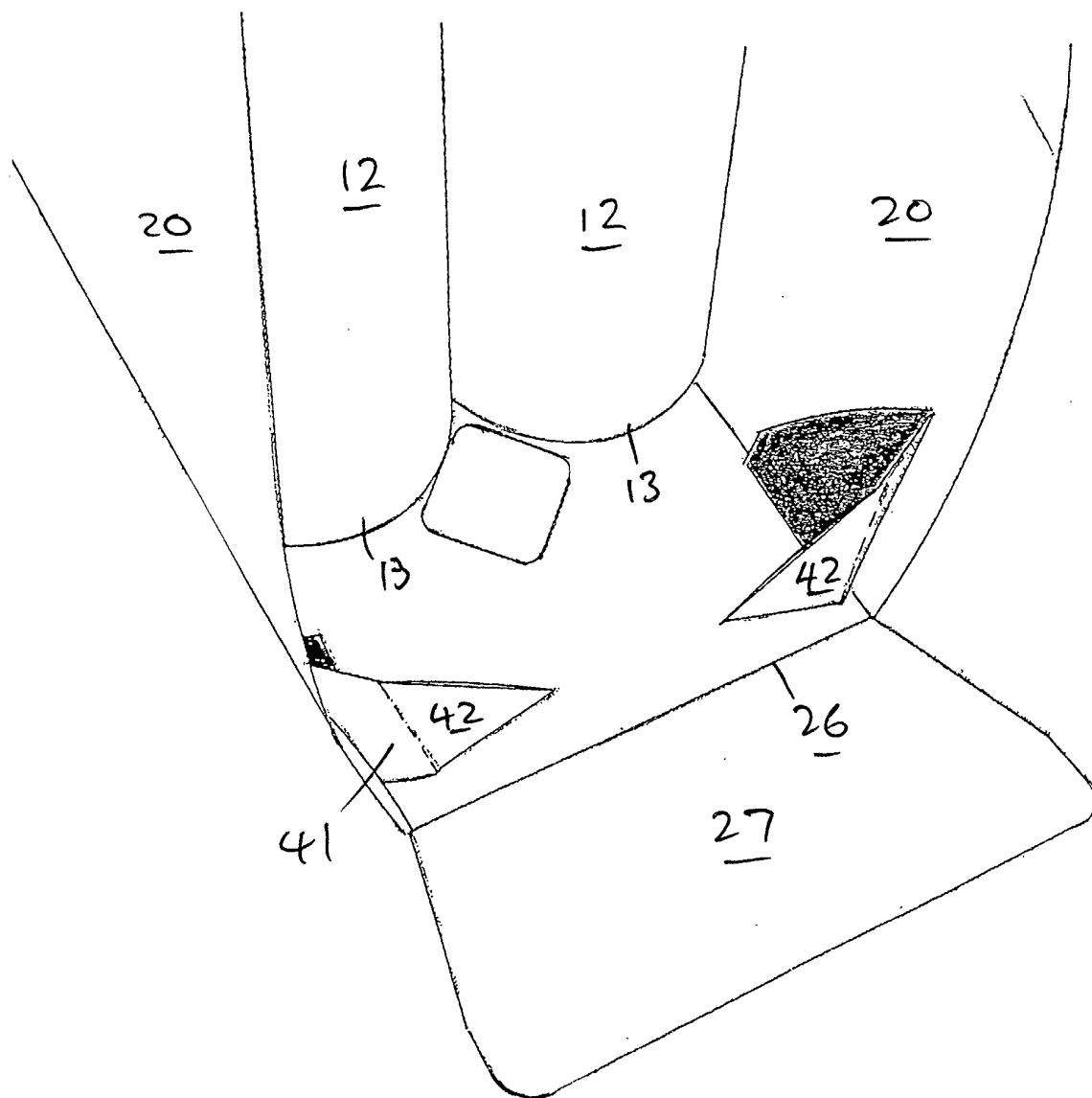


FIGURE 3

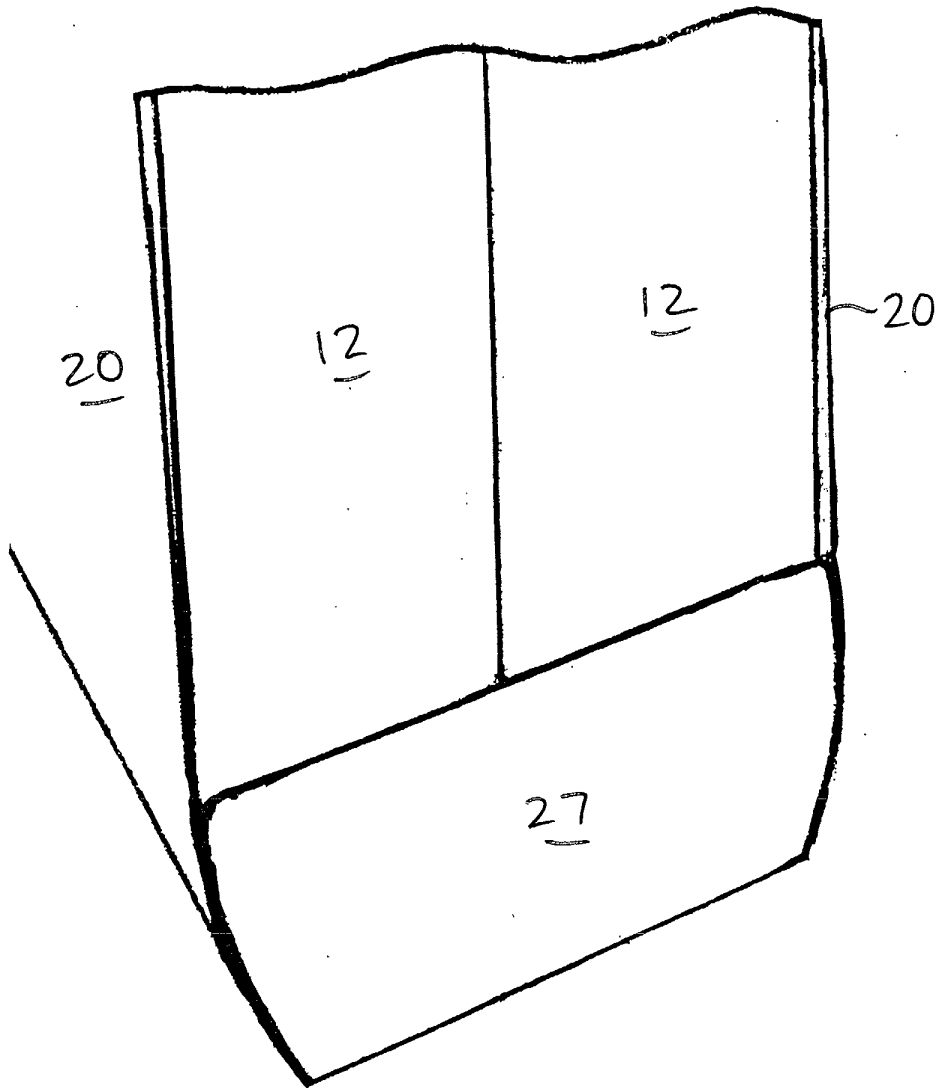


FIGURE 4