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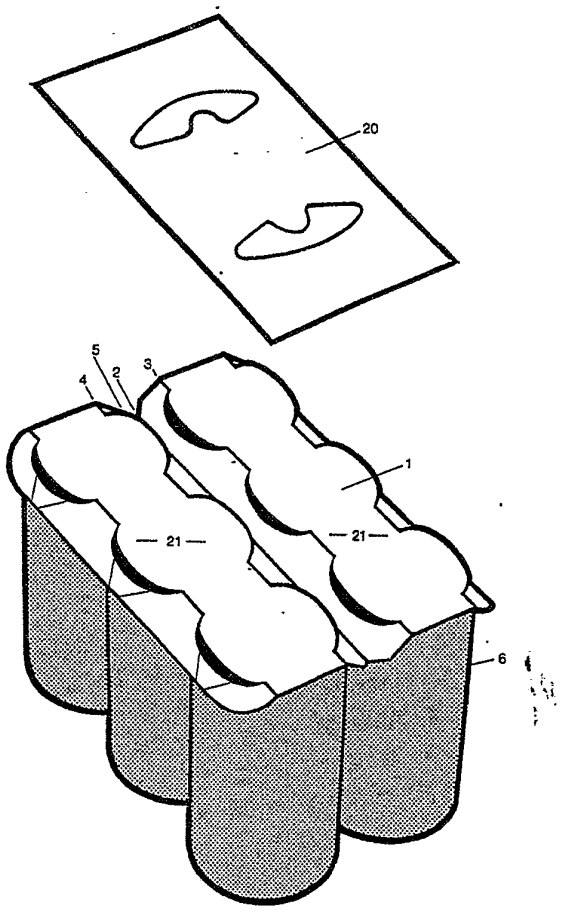
(54) Title: TOP-GRIPPING DOUBLEROW ARTICLE CARRIER

(57) Abstract

A holding device comprising a sheet member (1) shaped and configured to form a channel (5) therein, means (7a, 7b) to receive the rim (11) of a plurality of articles each having a rim, and a separate bridge part (20) able to be connected to said sheet member (1) so as to span said channel (5) to maintain said channel (5) in said sheet (1) and thereby maintain said articles in engagement with said sheet (1) in use.



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Top-Gripping doublerow article carrier.

This invention relates to a holding device and has been devised particularly though not necessarily solely for use in holding beverage cans which are necked at one end.

It is often convenient to assemble a group of articles such as beverage cans into batch or group for ready transportation or storage. One method of achieving this is to put the articles into a box or tray or provide a full wrap about the articles. Such methods are wasteful of packaging material.

Attempts to reduce the amount of required packaging material have been made. For example, USA Patent Specification Nos. 3414313 and 3075799 to Schwartz and Weiss respectively each show constructions which engage the top of a can. However each construction requires a substantial width of space to fold the holder onto the cans. Also, the particular constructional method used means that the technique cannot be extended to multiple rows of cans.

USA Patent Specification No. 3245711 to Dantoin shows a construction which can receive multiple rows of cans but requires complex folding of the holding material to achieve its result.

USA Patent Specification No. 3653503 to Federal Paper Board Company describes a construction wherein the tops of cans are held by a sheet material pushed downwardly between two rows of cans and at the edges of the sheet. The package is held in this position by a cover formed by end panels which are folded over the top of the cans and parts of the holding device engaged to the cans. The construction is however

disadvantageous in that substantially space is required each side and above the assembly line to accommodate the movements required of the end panels.

Furthermore, the large area of packaging material introduces complexities into handling.

Plastics packaging is available in the form of interconnected rings of plastics material having some stretch. Whilst such packaging has found wide acceptance it too is disadvantageous in view of the long period required for discarded packaging to degrade plus the possibility of wild life being often fatally trapped or choked by the rings of material.

It is therefore an object of the present invention to provide a holding device and/or a method of holding articles which will obviate or minimise the foregoing disadvantages in a simple yet effective manner of which will at least provide the public with a useful choice.

Accordingly in one aspect the invention consists in a holding device comprising a sheet member shaped and configured to form a channel therein, means to receive the rim of a plurality of articles each having a rim, and a separate bridge part able to be connected to said sheet member so as to span said channel to maintain said channel in said sheet and thereby maintain said articles in engagement with said sheet in use.

In a further aspect the invention consists in a holding device comprising a sheet member shaped and configured to form a channel therein, means to receive the rim of a plurality of

articles each having a rim, and a separate bridge part spanning said channel and connected to said sheet member each side of said channel to maintain said channel in said sheet and thereby maintain said articles in engagement with said sheet in use.

In a still further aspect the invention consists in a method of holding articles comprising the steps of providing a sheet member forming a channel in said sheet member and engaging said sheet member with the rim of a plurality of articles, each having a rim and engaging a bridge part across said channel to maintain said channel in said sheet and thereby maintain said articles in engagement with said sheet.

This invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, and any or all combinations of any two or more of said parts, elements or features, and where specific integers are mentioned herein which have known equivalents in the art to which this invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth.

The invention consists in the foregoing and also envisages constructions of which the following gives examples.

One preferred form of the invention will now be described with reference to the accompanying drawings in which,

Figure 1 is a plan view of one form of sheet member able to be used in a holding device according to the invention,

Figure 2 is a plan view of an alternative sheet member,

Figure 3 is a plan view of one form of bridge member able to be used in conjunction with the sheet member of Figure 1 or Figure 2 to form a holding device according to one preferred form of the invention,

Figure 4 is a plan view of an alternative bridge member for use with larger numbers of articles to be held,

Figure 5 is a perspective view of a holding device according to the invention, in use and showing an alternative bridge member,

Figure 6 is an exploded perspective view of a holding device according to the invention,

Figure 7 is a perspective view of the holding device of Figure 6 in assembled form,

Figure 8 is an end view of the constructions of Figure 5,

Figure 9 is a perspective view of a holding device according to the invention in a further alternative form,

Figure 10 is a perspective view of a holding device according to the invention in a still further alternative form in which a larger number of articles are held by the holding device,

Figure 11 is a perspective view of an alternative form of the invention shown in Figure 10,

Figure 12 is an end view of the construction of Figure 10, and

Figure 13 is a plan view of a sheet forming part of an alternative construction to that shown in Figures 10 to 12.

Referring to the drawings, a holding device is provided

which comprises a sheet member 1 formed of a sheet material such as, for example, paper board or cardboard and the sheet member 1 is shaped and configured so that a channel can be formed therein and so that the sheet member can engage the rim of a plurality of rimmed articles, such as cans. The cans may be beverage cans in which the operable end is necked but the invention may be used with other rimmed cans or rimmed articles. This may be achieved by providing the sheet 1 with at least three substantially parallel fold lines 2, 3 and 4.

If the fold lines 3 and 4 are folded so that the fold line 2 is out of the plane of the sheet member 1 a channel 5 will be formed as can be clearly seen in Figures 6 and 8.

The sheet member 1 described herein is designed to be engageable with a necked article, for example, a beverage can 6 of the type which is provided with a neck at the top end terminating in a rim. The rim is able to be engaged with pairs of substantially arcuate slots such as 7a and 7b, that is to say slots which are substantially arcuate though as can be seen from Figures 1 and 2 the preferred slot is not arcuate being somewhat flattened. The precise shape of the slots 7a and 7b will depend on the radius of the can top and size of the can rim. Thus, the best shape of slots 7a and 7b can be determined empirically for any particular article to be held.

The slots 7a and 7b are provided in pairs and in Figure 1 and 2 two rows of three pairs of slots are provided so that the holding device including the sheet 1 will hold six beverage cans. It will be immediately apparent that other numbers could be provided for example, two rows of four cans

to form eight cans or three rows of four cans to form twelve cans by way of example. Where twelve cans in three rows of four are to be provided then two substantially parallel channels 5 would be provided. A twelve can construction will be described further herein.

The outer side edges 8 of the sheet member 1 are also separated from the remainder of the material by fold lines 9 and 10 so that the outer parts 8 can be folded to at least some extent downwardly to engage the can rims 11. Fold lines 9 and 10 are substantially parallel to fold lines 2, 3 and 4.

The sheet material 1 is desirably modified about the slot 7A and 7B so as to increase the engagement between the sheet material 1 and the can rims 11. In Figure 1 this is achieved by providing sunburst type slots 13 and in Figure 2 this is achieved for example by providing outwardly converging crease lines as at 14.

Where the article to be held is a typical soft drink or beer can the crease lines in a pair may be about 1.2 cm apart at the edge 15 of the sheet 1 and about 1.7 cm apart at the slot 7a where the shortest distance from the edge 15 to slot 7a is about 1 cm. Again, radius and rim size may affect these dimensions and the best angles and length can be empirically determined for any selected can. The crease lines 14 are shown extending substantially from edge 15 to slot 7a but can and rim size again may require that the crease lines 14 are shorter than this.

A bridge piece 20 is provided to span the channel 5 as can be seen, for example, in Figure 7. Thus in use the cans 6

are held in the desired arrangement and the sheet member 1 placed thereover so that the rims 11 catch in the arcuate slots 7a and 7b. This can be arranged to be done mechanically by providing suitable pressure members in the desired positions. As the channel 5 is formed the two rows of cans 6 are moved relatively inwardly.

The bridge piece 20 is then placed across the channel 5 being, for example, glued or adhered into position. The bridge piece 20 is glued or adhered to the arms 21 each side of the channel 5.

The bridge member 20 preferably includes a handle and for example in Figure 3 a pair of cut outs 22 may be provided with a tongue 23 extending into the cut out 22. The dimensions of the tongue 23 are such that the tongue 23 may be pressed into the channel 5 in the erected holding device, preferably being a close fit. A crease or fold line 24 may be provided to facilitate movement of tongue 23 into the channel 5 in use.

In the embodiment of Figures 5 and 8 the bridge piece 20 has down turned side edges 30 separated from the body of bridge piece 20 by fold lines 31. The down turned side edges 30 give some protection to the exposed can chimes 11 and can be adhered to the edge of down turned parts 8 of the sheet 1 if desired or necessary.

In Figure 9 the bridge piece 20 has an upwardly extending portion 40 with cut out 41 therein so as to provide a more conventional handle. The double thickness upwardly extending portion 40 may have the two sheets adhered one to the other

and crease lines 42 may be formed between the portion 40 and the remainder of the handle.

In the embodiment of Figure 10 twelve cans 6 are held by a pair of sheet members 1a or 1b. They are spanned by the bridge piece 20 shown in Figure 4. The tongues 23 are pushed in use into a third channel 50 formed by adjacent side edges 8 of the two sheet members 1a or 1b. The bridge piece 20 is adhered to each of the four areas 21 in the preferred construction.

The construction of Figure 11 is as for Figure 10 save that the bridge part 20 has side edges 60 similar to those described for Figure 5.

Figure 13 shows an alternative sheet 1 for holding twelve cans. The sheet 1 has fold lines 2, 3 and 4 represented so that in the erected construction two channels 5 are formed. These may be mounted by adhering a bridge part 20 as shown, for example, in Figure 4 to the construction. The bridge part 20 is adhered preferably to the edge of the three areas 21 and is therefore oriented in a direction at right angles to the direction of orientation of the bridge part 20 shown in Figures 10 to 12.

In use the holding device is applied to necked beverage cans in particular in the manner described. The cans may then be carried as desired and simply removed by a levering or twisting type action between the beverage can or other article and the holding device. The material from which the sheet material is made must be of sufficient stiffness to retain the

cans in position but of sufficient flexibility so that the cans can be removed therefrom when desired.

Thus it can be seen that at least in the preferred form of the invention a holding device is provided and/or a method of holding articles is provided which has the advantage that the holding device can be made of cardboard or paperboard which has environmental advantages and which uses substantially less material than full wrap around or other single piece constructions. That is to say the volume of packaging material used is able to be minimised. One large area of board is more difficult to handle than the two smaller areas of the invention. This is particularly so when the packaging is operating at commercial speeds.

The two piece construction of the invention has other advantages. For example, the manufacturer can cross grain the two pieces of board which has its maximum tear strength across the grain. Thus, the sheet member can have its grain running one way and the bridge have its grain running the other. Thus, lighter weight board can be used than in a one piece construction whilst retaining adequate strength. Also, the two piece construction gives flexibility in printing as combinations can be made. A user could, by way of example, print the sheet member on a "house" basis and the bridge on a "brand" basis allowing the thus more generic sheet member to be associated with a selected bridge of those available.

The construction is such that the loading operation of articles into holding devices can be effected in a way that is economical of machine space, particularly where multiple lines

are operating and also economical in board usage. The construction is also advantageous in allowing the use of paper board or cardboard which being more biodegradable than plastics is less likely to cause environmental damage than packaging formed from many of the available plastics materials.

WHAT WE CLAIM IS:

1. A holding device comprising a sheet member shaped and configured to form a channel therein, means to receive the rim of a plurality of articles each having a rim, and a separate bridge part able to be connected to said sheet member so as to span said channel to maintain said channel in said sheet and thereby maintain said articles in engagement with said sheet in use.

2. A holding device as claimed in claim 1 wherein said sheet member has at least three substantially parallel fold lines therein so as to enable a channel to be formed in said sheet member.

3. A holding device as claimed in claim 2 wherein said means to receive comprise a plurality of pairs of slots in said sheet, one slot in each pair being provided adjacent said channel and the other slot in said pair being positioned adjacent the edge of said sheet outwardly of said channel.

4. A holding device as claimed in claim 3 wherein said slots are substantially in the shape of a flattened arc.

5. A holding device as claimed in either one of claims 3 or 4 wherein said sheet is modified adjacent said slots to assist retention of said articles in engagement with said sheet.

6. A holding device as claimed in claim 5 wherein said modification of said sheet comprises a plurality of slits or slots in said sheet extending outwardly of said slots.

7. A holding device as claimed in claim 5 wherein said modification of said sheet comprises a pair of crease lines positioned between said slot and the adjacent edge of said sheet.

8. A holding device as claimed in claim 7 wherein the distance apart of said pair of crease lines reduces away from said slot.

9. A holding device as claimed in any one of claims 6 to 8 wherein each said crease line extends from said slot to the adjacent edge of said sheet.

10. A holding device as claimed in claim 1 wherein a pair of sheet members are provided and said bridge part is of a size such that said bridge part may span and connect both said sheet members.

11. A holding device comprising a sheet member shaped and configured to form a channel therein, means to receive the rim of a plurality of articles each having a rim, and a separate bridge part spanning said channel and connected to said sheet member on each side of said channel to maintain said channel in said sheet and

thereby maintain said articles in engagement with said sheet in use.

12. A holding device as claimed in claim 11 wherein said sheet member has at least three substantially parallel fold lines therein so as to enable a channel to be formed in said sheet member.

13. A holding device as claimed in claim 12 wherein said means to receive comprise a plurality of pairs of slots in said sheet, one slot in each pair being provided adjacent said channel and the other slot in said pair being positioned adjacent the edge of said sheet outwardly of said channel.

14. A holding device as claimed in claim 13 wherein said slots are substantially in the shape of a flattened arc.

15. A holding device as claimed in either one of claims 13 or 14 wherein said sheet is modified adjacent said slots to assist retention of said articles in engagement with said sheet.

16. A holding device as claimed in claim 15 wherein said modification of said sheet comprises a plurality of slits or slots in said sheet extending outwardly of said slots.

17. A holding device as claimed in claim 15 wherein said modification of said sheet comprises a pair of crease lines positioned between said slot and the adjacent edge of said sheet.

18. A holding device as claimed in claim 17 wherein the distance apart of said pair of crease lines reduces away from said slot.

19. A holding device as claimed in any one of claims 16 to 18 wherein each said crease line extends from said slot to the adjacent edge of said sheet.

20. A holding device as claimed in claim 11 wherein a pair of sheet members are provided and said bridge part spans and connect both said sheet members.

21. A holding device substantially as herein described with reference to the accompanying drawings.

22. A method of holding articles comprising the steps of providing a sheet member forming a channel in said sheet member and engaging said sheet member with the rim of a plurality of articles, each having a rim and engaging a bridge part across said channel to maintain said channel in said sheet and thereby maintain said articles in engagement with said sheet.

23. A method of holding articles as claimed in claim 22 wherein said sheet member has at least three substantially parallel fold lines and said sheet is folded at said fold lines to form a channel between two rows of said articles.

24. A method of holding articles as claimed in claim 23 wherein said sheet member has a plurality of pairs of slots therein, one slot in each pair being positioned adjacent said channel and the other said slot in a said pair being positioned adjacent the edge of said sheet, rims of said articles being forced into said slots by pressure between said sheet material and said articles.

25. A method of holding articles substantially as herein described with reference to the accompanying drawings.

FIG 1

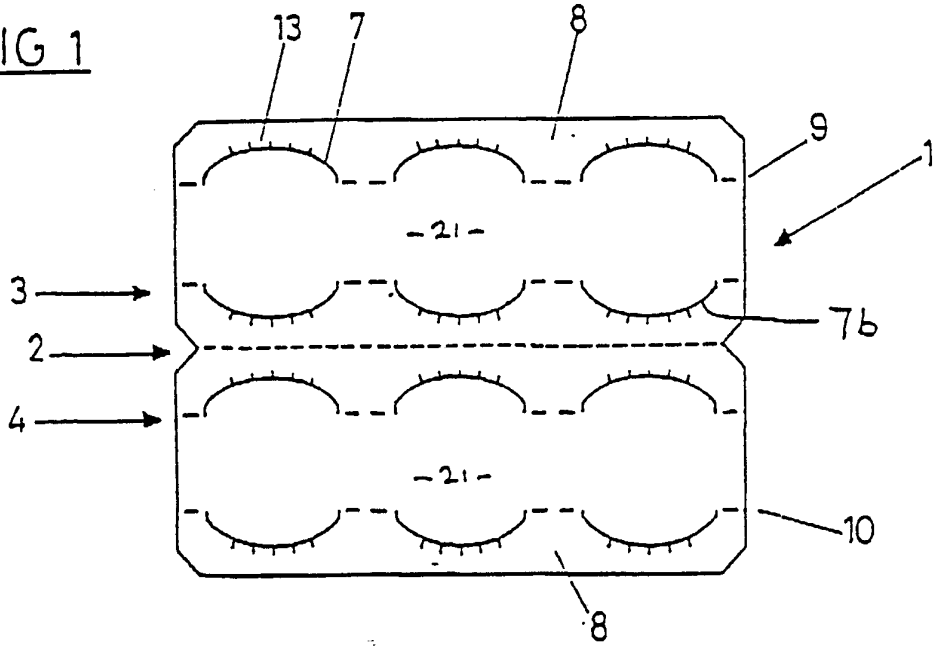

FIG 2

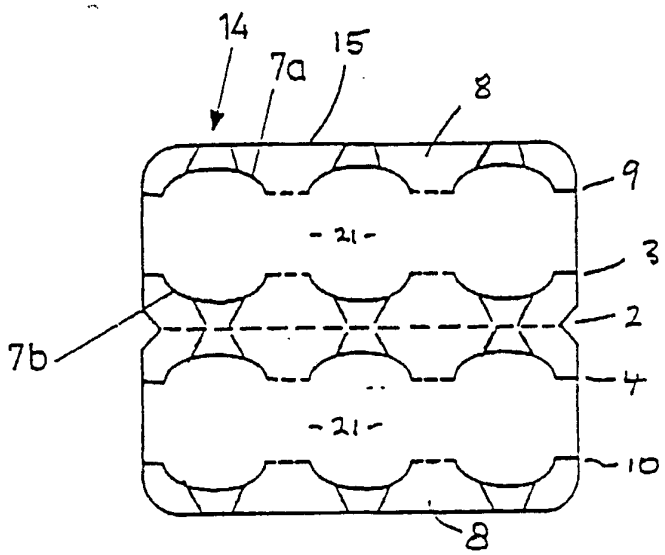

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FIG 4

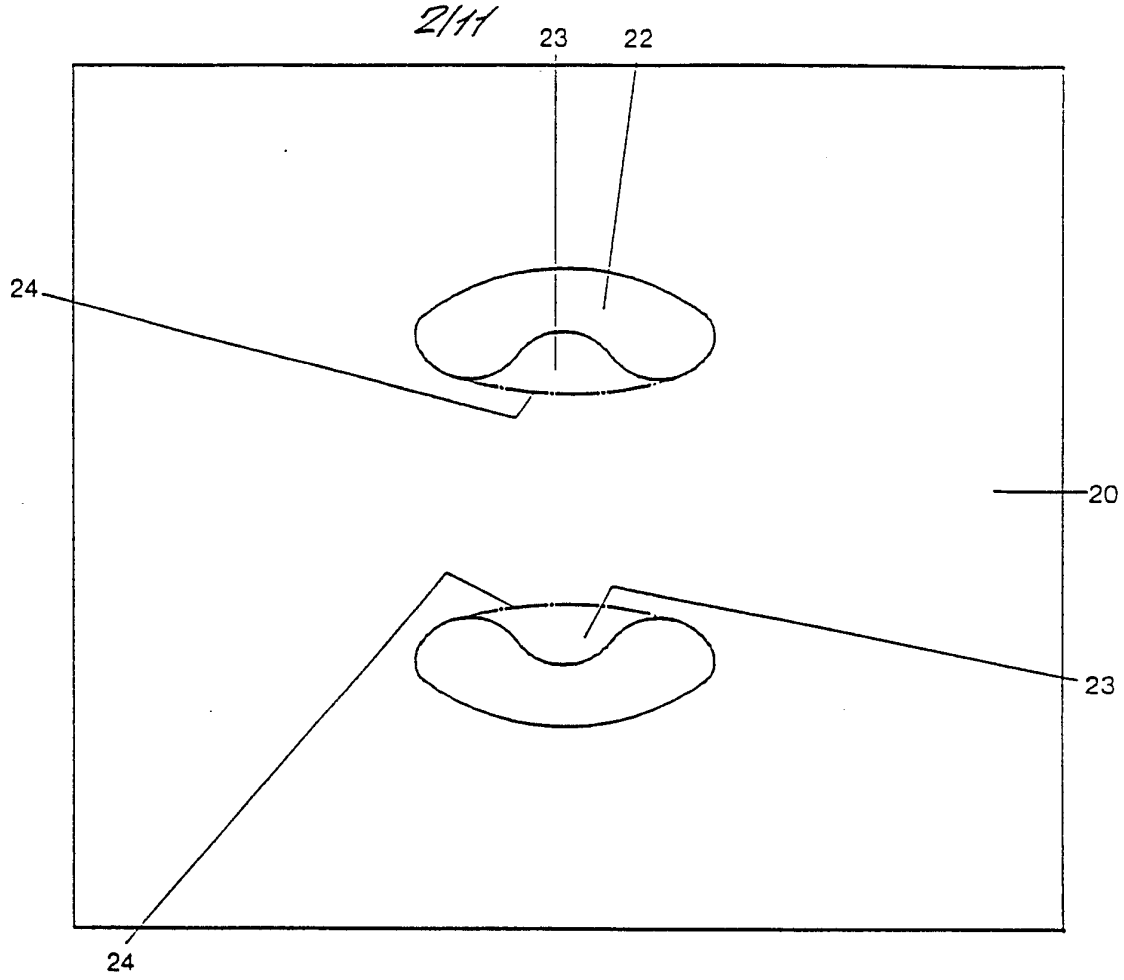


FIG 3

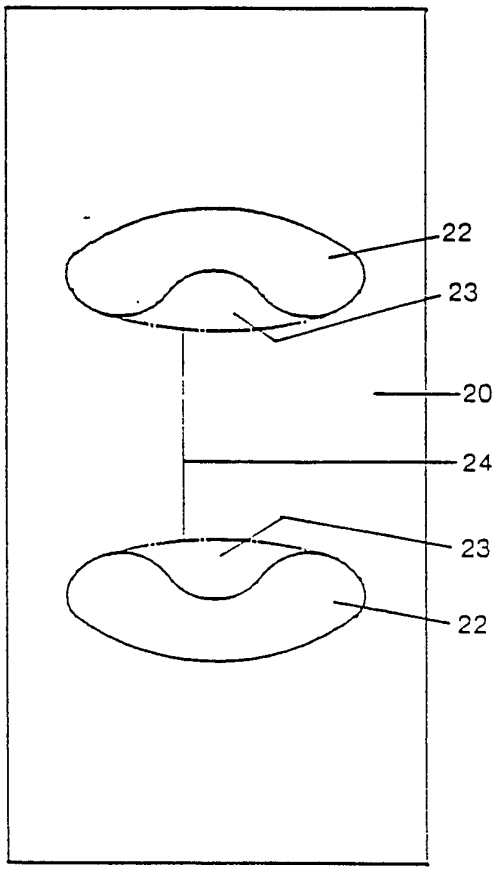
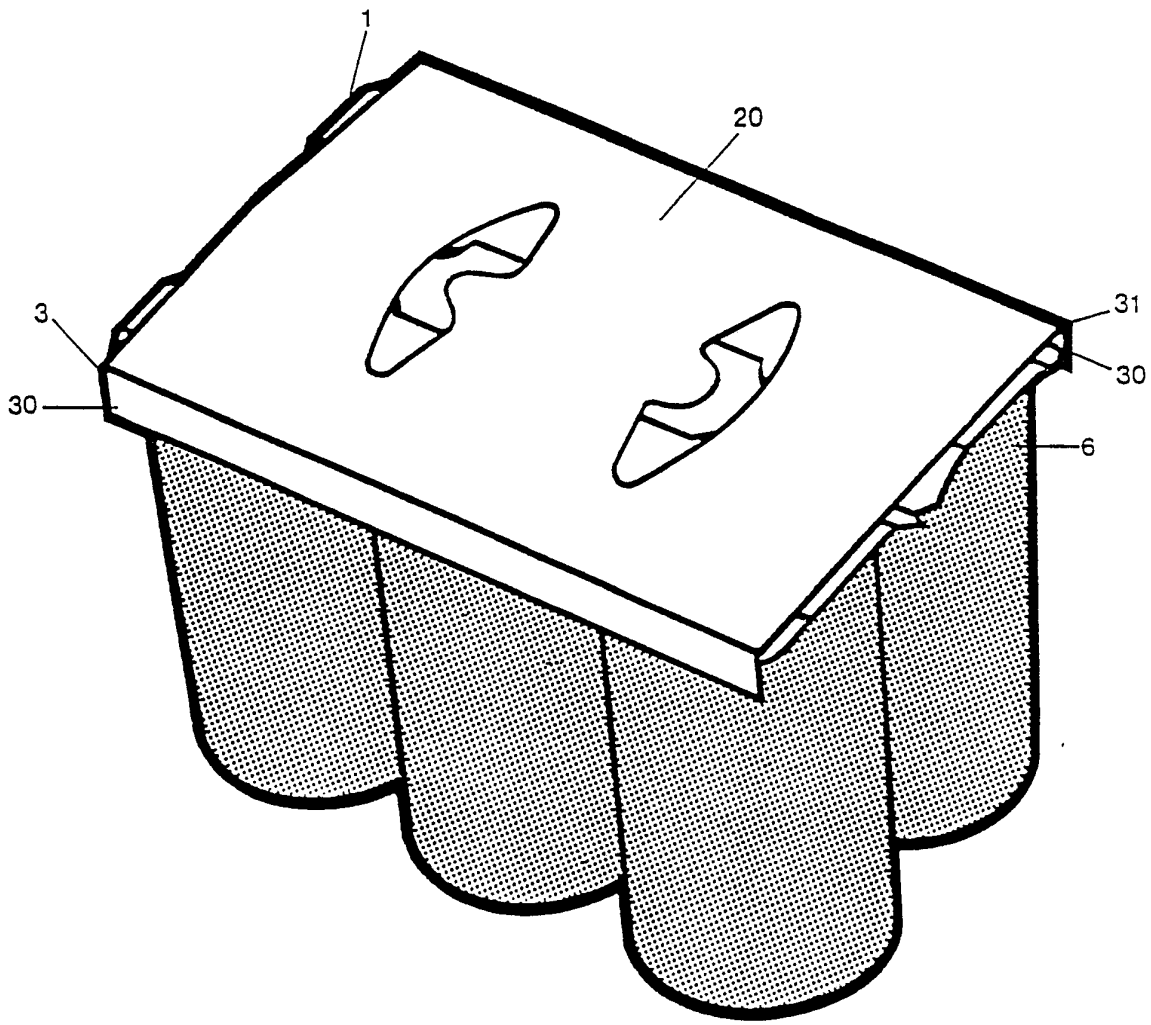


FIG 5



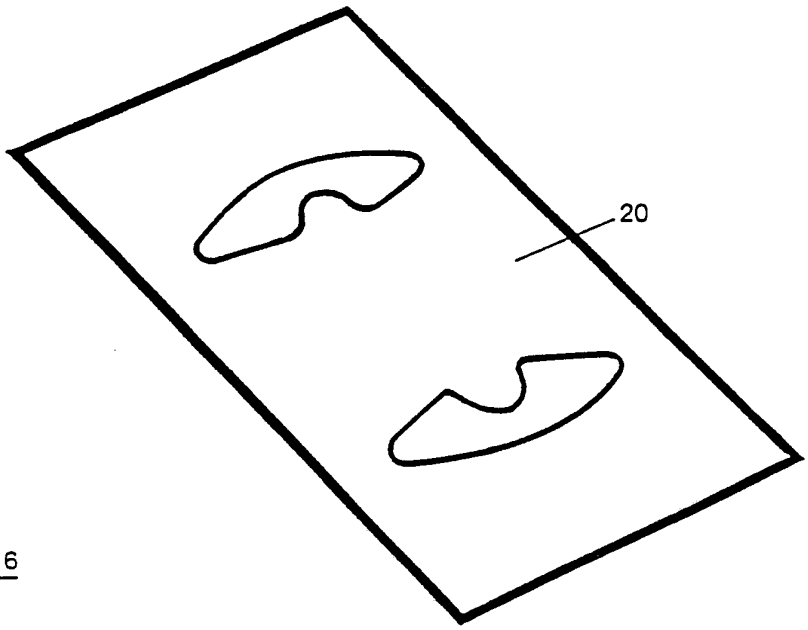


FIG 6

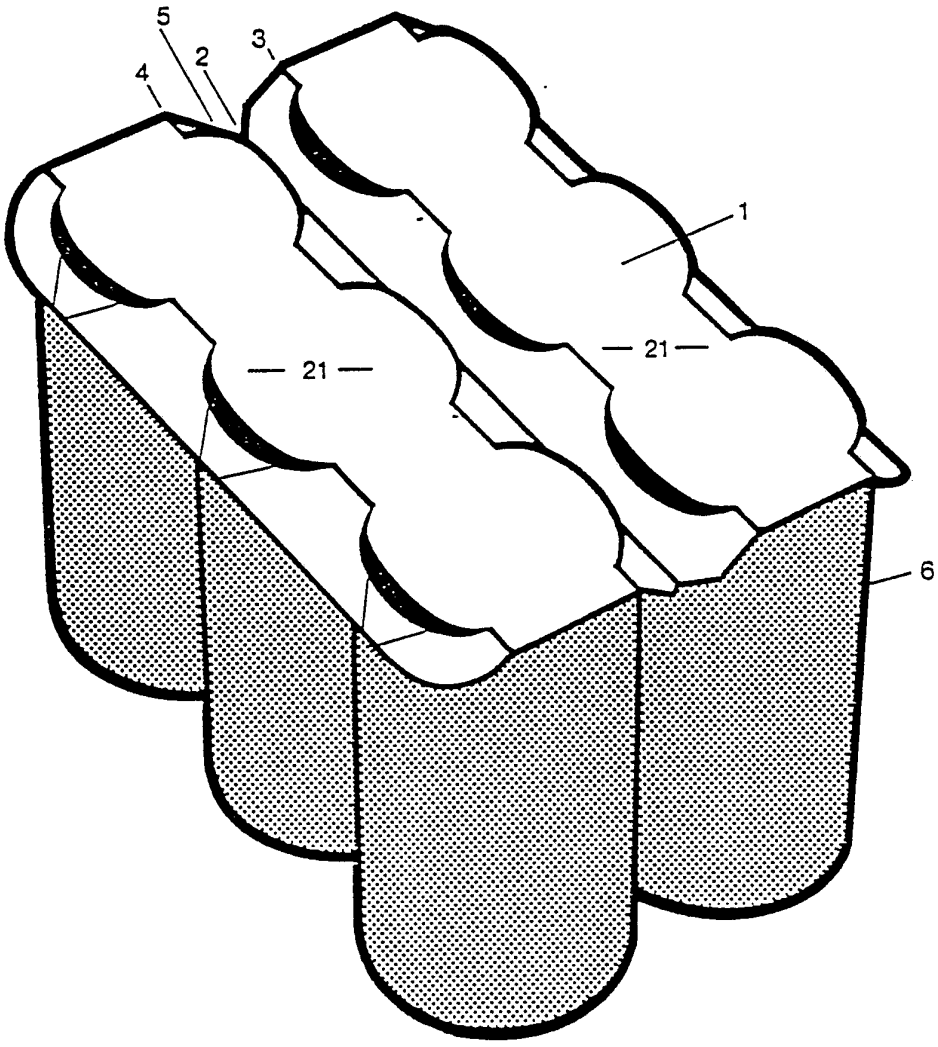


FIG 7

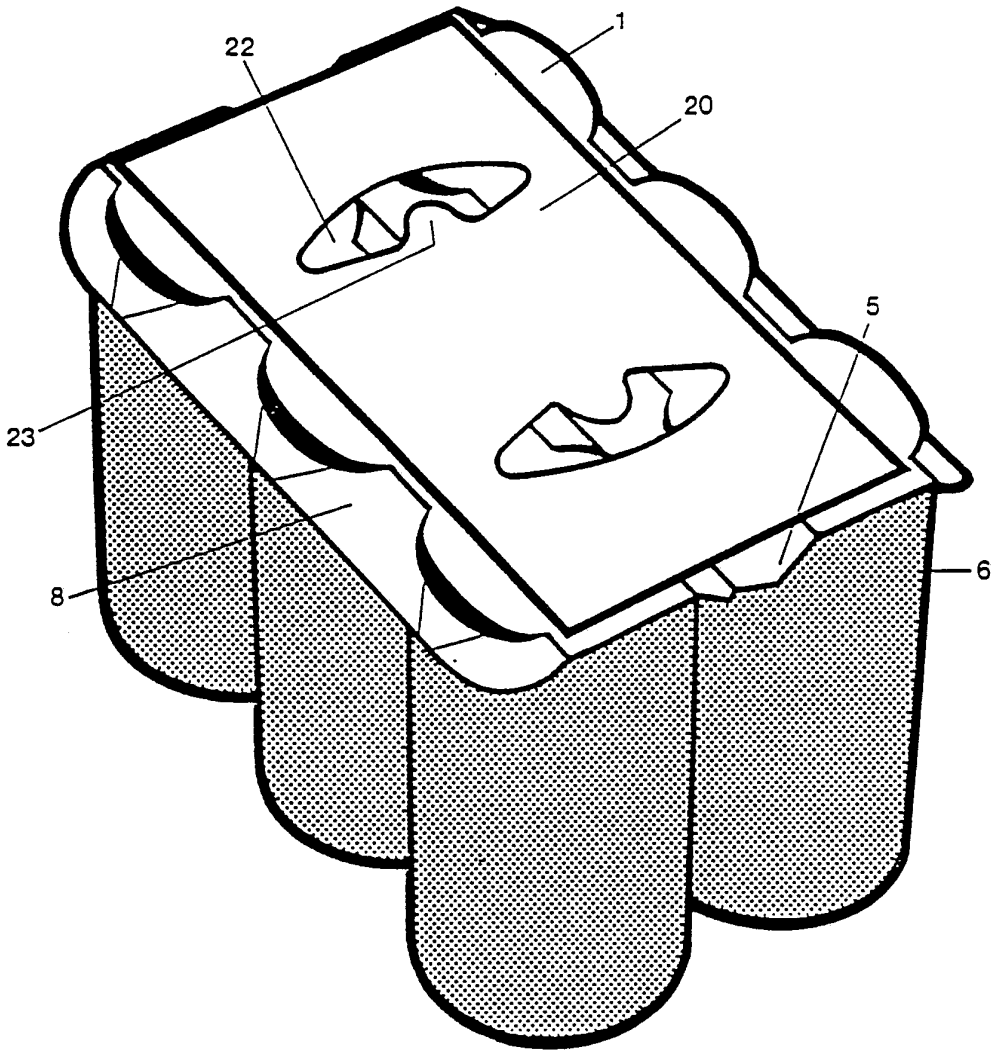


FIG 8

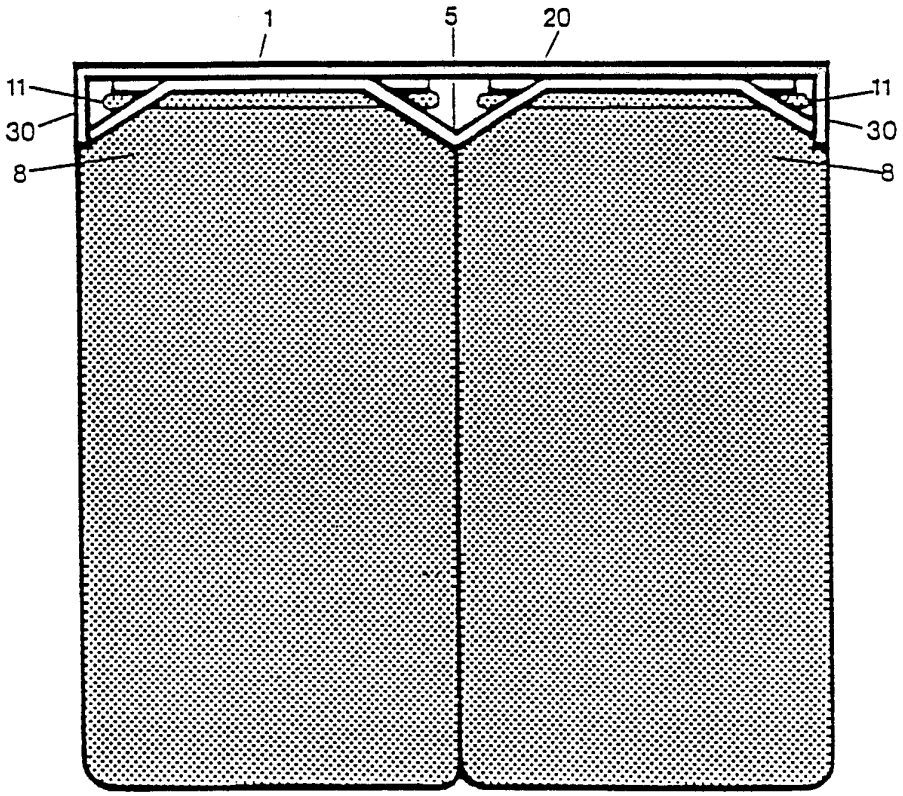


FIG 9

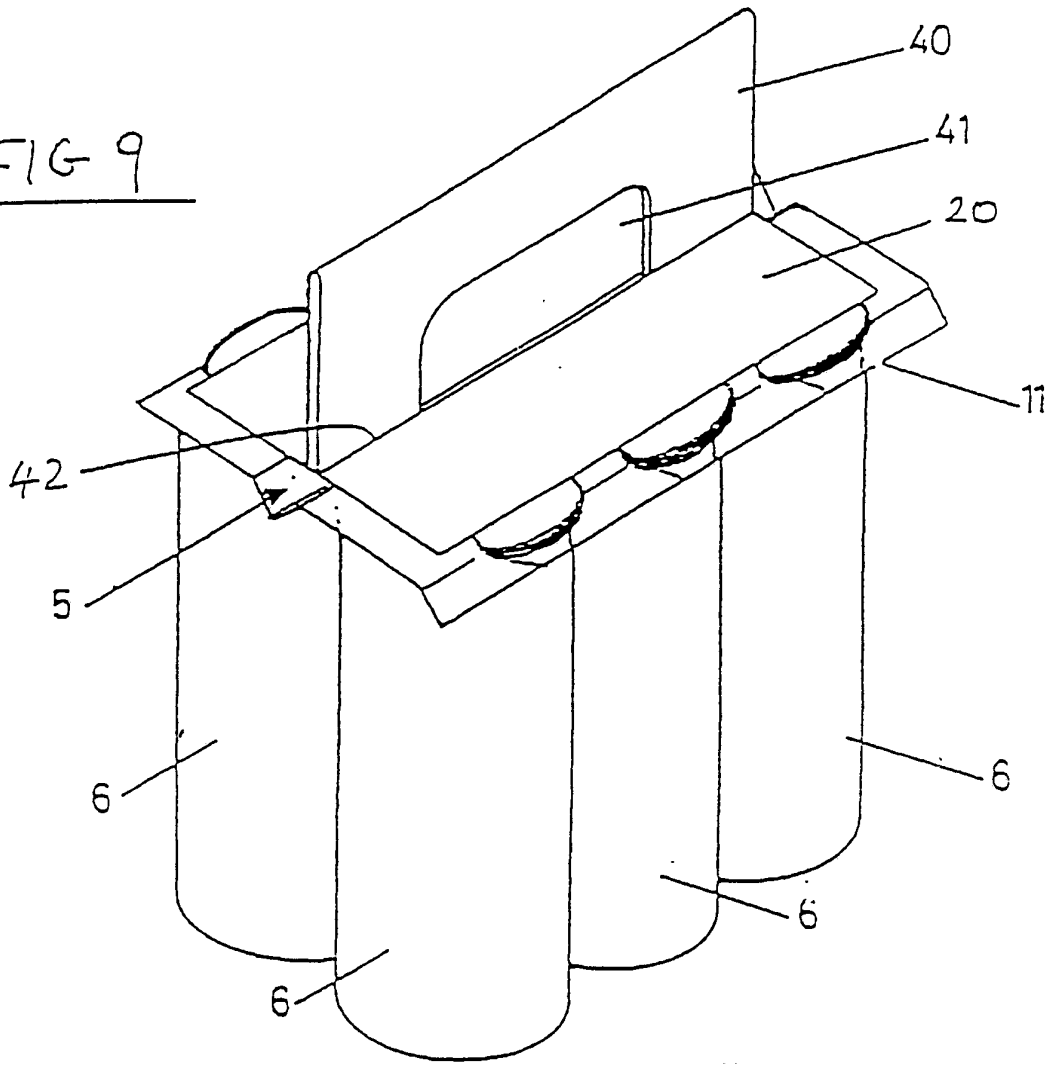


FIG 10

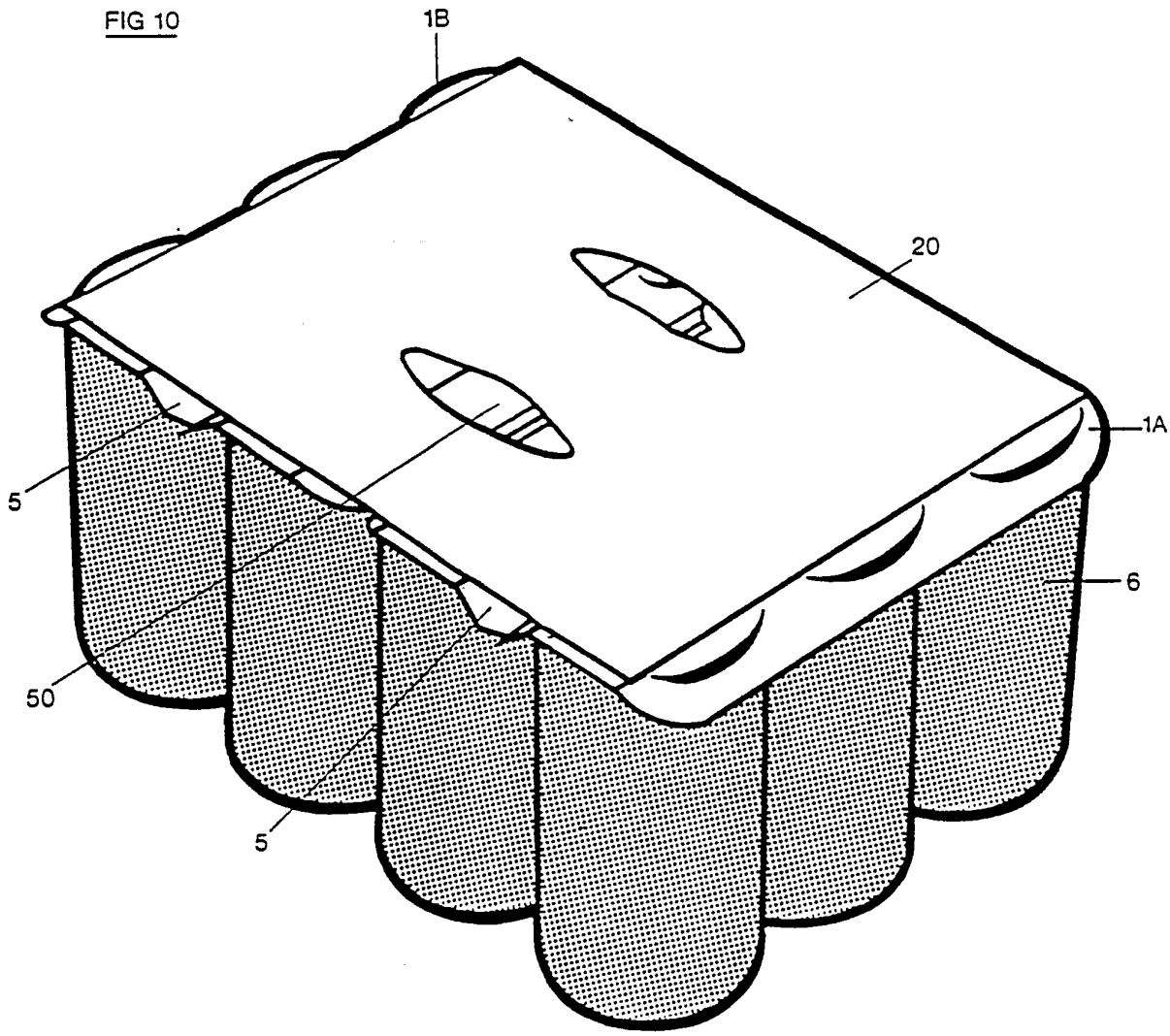
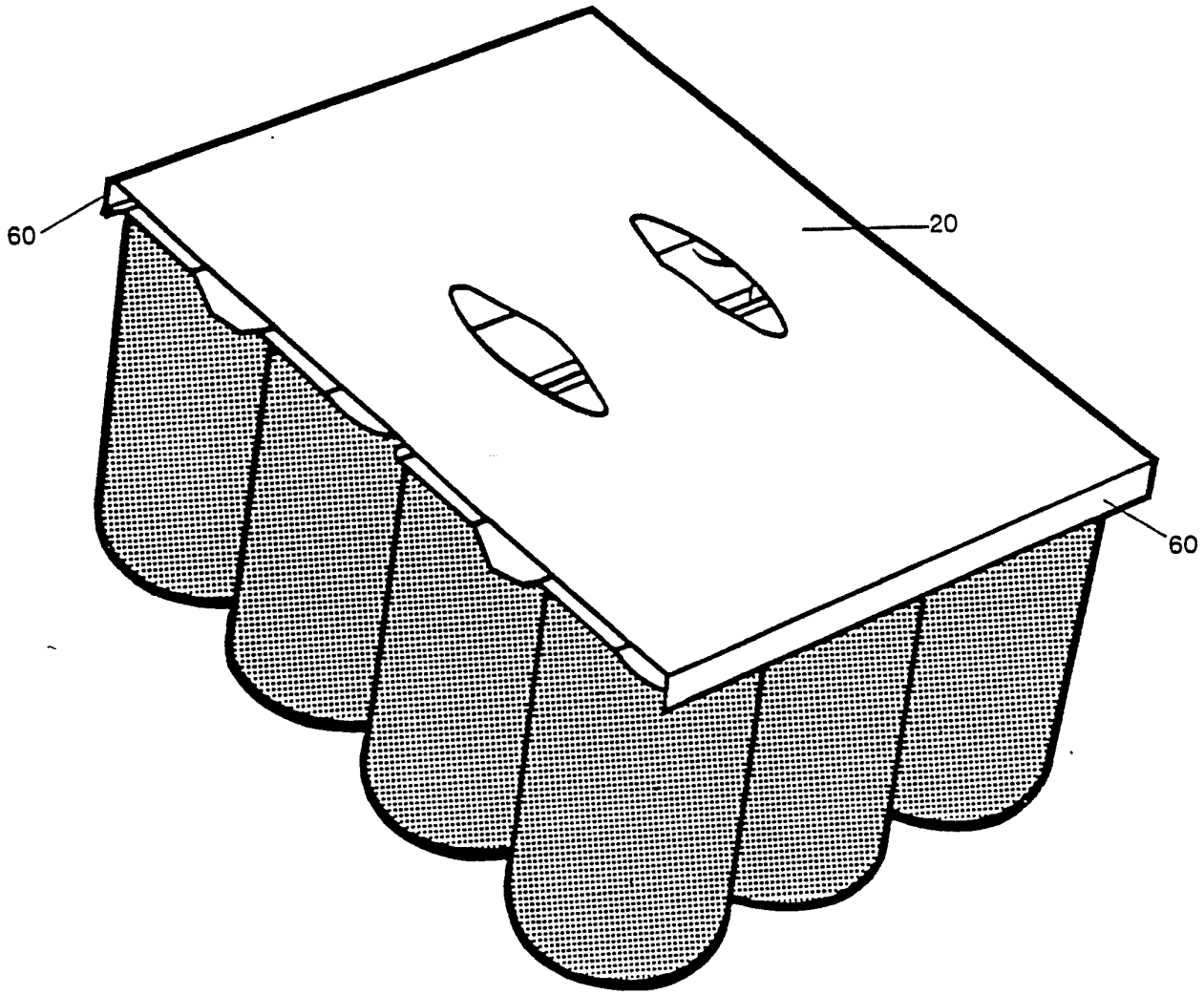


FIG 11



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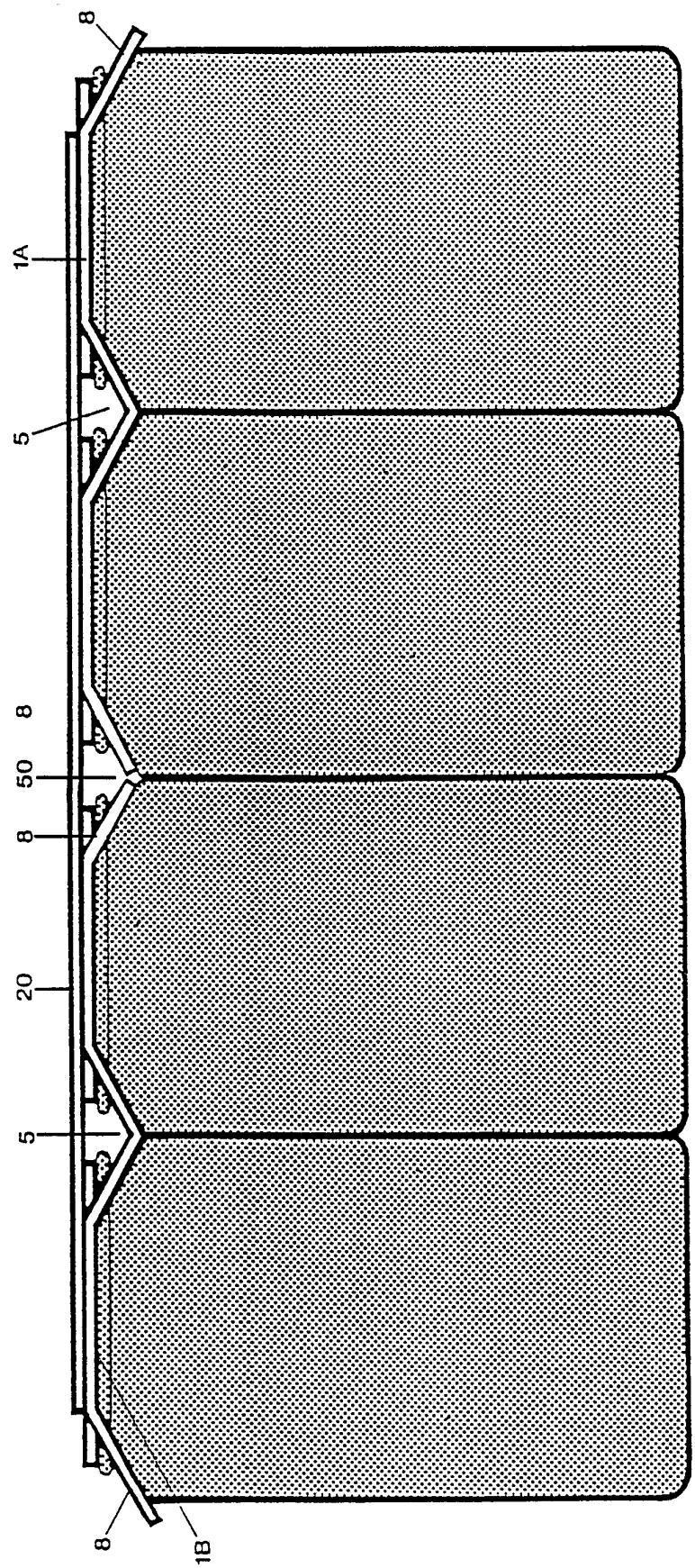

FIG 12

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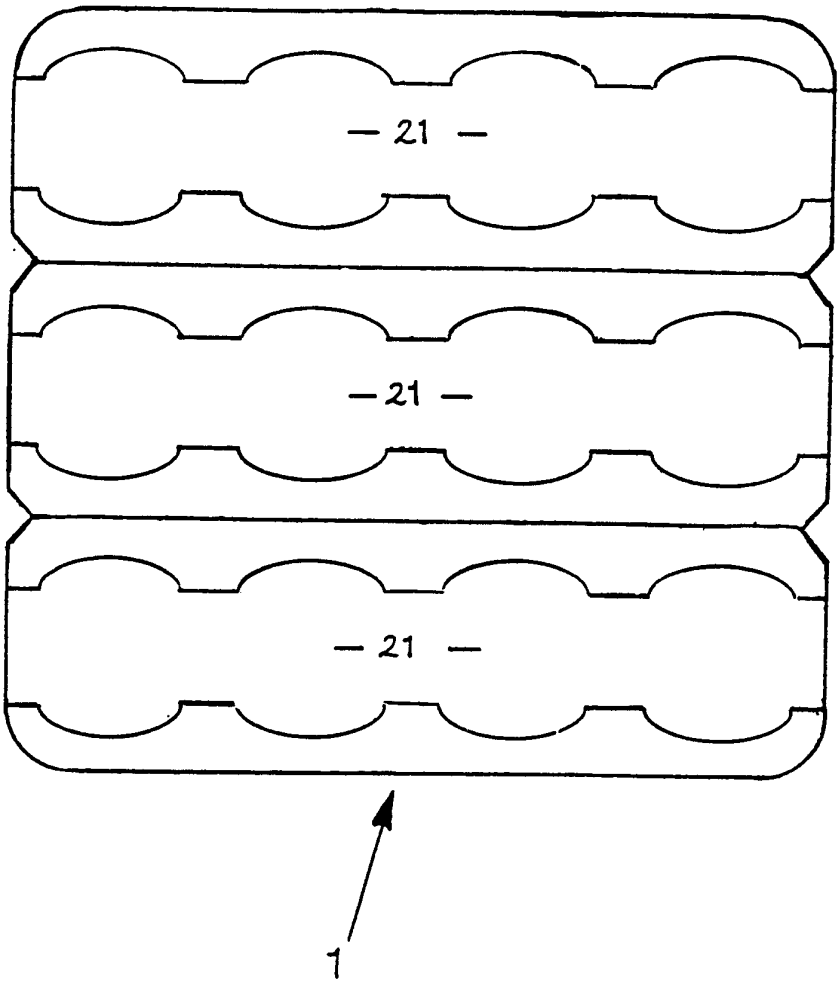
FIG. 13



INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 92/01062

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl.5 B 65 D 71/00

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
Int.Cl.5	B 65 D

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched[8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category °	Citation of Document,[11] with indication, where appropriate, of the relevant passages[12]	Relevant to Claim No.[13]
X	FR,A,2072659 (PACKALINE) 24 September 1971, see page 1, lines 23-36; page 3, lines 32-34; figures 3,4	1,11,22
Y		2-6,12-16,23,24
Y	DE,A,2012449 (E. JUNG) 24 September 1970, see figure 1	2-6,12-16,23,24
A	FR,A,1552401 (ILLINOIS TOOL WORKS INC.) 3 January 1969, see figures	1

° Special categories of cited documents :[10]

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"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
29-09-1992	23. 10. 92
International Searching Authority	Signature of Authorized Officer
EUROPEAN PATENT OFFICE	Milena Mazuera Vargas

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO. GB 9201062 SA 60672

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 12/10/92 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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