

(19)



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11)

**EP 0 780 319 A1**

(12)

## EUROPEAN PATENT APPLICATION

(43) Date of publication:  
**25.06.1997 Bulletin 1997/26**

(51) Int Cl.<sup>6</sup>: **B65D 71/00**

(21) Application number: **96309179.8**

(22) Date of filing: **17.12.1996**

(84) Designated Contracting States:  
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU NL  
PT SE**

(72) Inventor: **Negelen, Emanuel**  
**54338 Schweich (DE)**

(30) Priority: **20.12.1995 GB 9526014**

(74) Representative: **Marles, Alan David**  
**Stevens, Hewlett & Perkins**  
**1 St Augustine's Place**  
**Bristol BS1 4UD (GB)**

(71) Applicant: **RIVERWOOD INTERNATIONAL  
CORPORATION**  
**Atlanta, Georgia 30339 (US)**

### (54) Paperboard sleeve

(57) There is provided a paperboard retaining device for a plurality of articles arranged in rows, each article tapering inwardly towards its heel. The device comprises a top panel (14), oppositely disposed side panels (20, 21) hingedly connected to the top panel (14) and

base panel means (29,30) hingedly connected to the side panels (20,21). The base panel means have a pair of spaced, upstanding keel panels (33) for disposition in the space between the articles of a pair of adjacent rows and at least one spacer tab (35) for keeping the pair of keel panels (33) spaced apart.

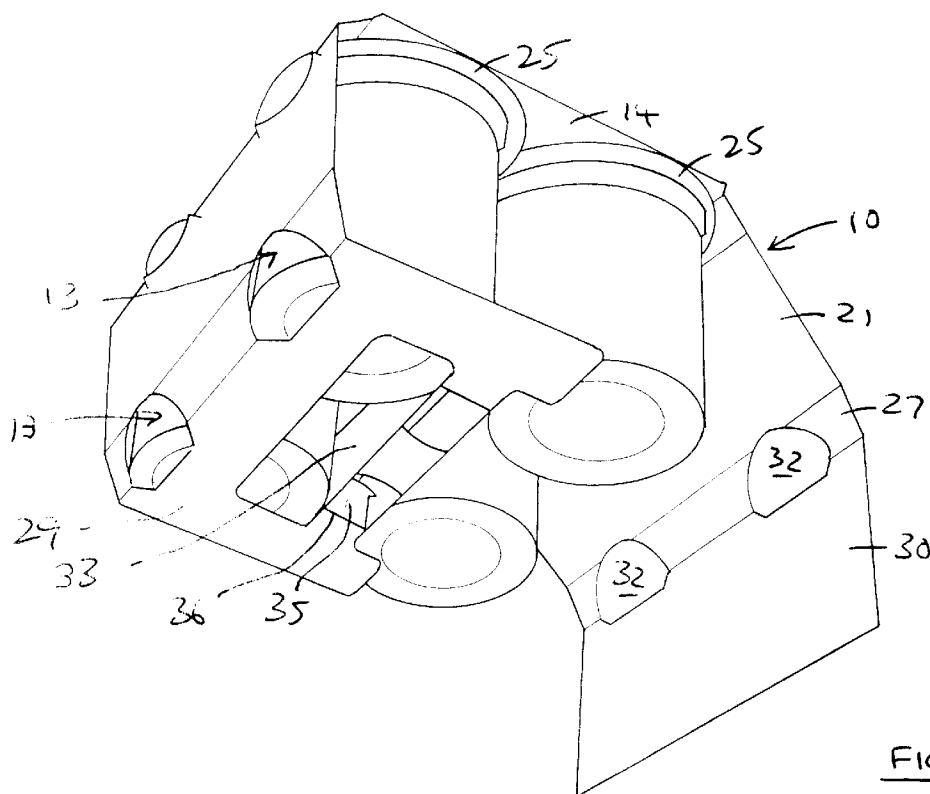


FIGURE 4

EP 0 780 319 A1

## Description

This invention relates to paperboard devices for retaining a plurality of articles which taper inwardly towards their bases. An example of such an article is a pot of the type often used for dairy products such as yogurt, cream etc. When a sleeve is used to form a multipack of such articles, the heels of the articles require positive separation to retain pack integrity.

According to the present invention there is provided a paperboard retaining device for a plurality of articles arranged in rows, each article tapering inwardly towards its heel, said device comprising a top panel, oppositely disposed side panels hingedly connected to the top panel and base panel means hingedly connected to the side panels, said base panel means having a pair of spaced, upstanding keel panels for disposition in the space between the articles of a pair of adjacent rows and at least one spacer tab for keeping the pair of keel panels spaced apart.

Preferably the two keel panels are cut out of the base panel means and remain hingedly connected thereto along a pair of substantially parallel respective fold lines. In some arrangements the or each spacer tab is cut from the space between said keel panel fold lines and remains hingedly connected to the base panel means by virtue of a tab fold which is substantially perpendicular to the keel panel fold lines.

In a preferred embodiment the or each tab is provided with formations for cooperating with corresponding formations on the keel panels. Conveniently the tab formations comprise lateral projections and the corresponding formations comprise holes for receiving the formations. It is also preferred two spacer tabs are provided between each pair of keel panels.

A preferred feature is that the keel panels are of generally oblong shape with the hinge lines being located on a long side of the oblong.

Ideally the base panel means comprises two panels which are secured together and the two base panels are secured using adhesive or by interlocking formations. In some arrangements the keel panels and the spacer tabs are all formed in one of the base panels.

Preferably the device is adapted to retain the tops and/or the bases of the articles by way of cuts and/or formations. In most arrangements the device is adapted to receive only two rows of articles and has a single pair of keel panels but a sleeve for retaining more rows of articles could also utilise the invention.

One embodiment of the present invention will now be described in more detail. The description makes reference to the accompanying drawings in which:

Figure 1 shows a blank for forming a device according to the present invention,

Figure 2 is a perspective view from below of the blank of figure 1 part assembled around a plurality of articles,

Figure 3 is a perspective view from below of the blank further assembled,

Figure 4 is a perspective view from below of the blank still further assembled,

Figure 5 is a cut away perspective view from above of the figure 4 arrangement, and

Figure 6 is a perspective view from below of the assembled device.

In the figures there is shown a paperboard blank 10 for forming a device in the form of a sleeve 11 retaining a multipack of articles 12 which taper inwardly towards their heel areas 13. In the embodiment shown there are two rows of two articles 12 which are in the form of pots for containing dairy products such as yogurt, cream. Other products can be contained in the pots 12 and other arrays besides 2 x 2 could be accommodated.

The blank 10 comprises a top panel 14 incorporating a finger pick-up opening having a cover flap 15 hingedly connected along crease 16. Hingedly connected to the top panel 14 along folds 17 are oppositely disposed upper sub-panels 18, 19 which in turn are hingedly connected to side panels 20, 21 along folds 22. Co-operating angled cuts 23 and arcuate cuts 24 constitute formations for locating and retaining top flanges 25 provided on the pots 12.

Lower sub-panels 26, 27 are hingedly connected to the respective side panels 20, 21 along folds 28 and first and second base panels 29, 30 are in turn hingedly connected to the lower sub-panels 26, 27 along folds 31. Apertures 32 are provided at the junction of the upper sub-panels, side panels and base panels for receiving the heel portions 13 of the pots 12 when the sleeve 11 is assembled around the pots 12.

Cut into the first base panel 29 are a pair of generally rectangular keel panels 33 which remain hingedly connected to the first base panel 29 along generally parallel folds 34. Between the folds, tab portions 35 are cut into the first base panel 29 and remain hingedly connected to the first base panel by virtue of folds 36 which are substantially perpendicular to the folds 34. The tab portions 35 have lateral projections 37 which, in the assembled sleeve 11 engage in holes 38 formed in the keel panels 33, as will be explained later.

Assembly of the sleeve 11 will now be described with particular reference to figures 2 to 6.

Firstly the four pots 12 are arranged in a 2 X 2 array with the top flanges 25 in contact with each other or at least in very close proximity. This leaves a space between the heel portions 13 of the pots 12 in adjacent rows.

The top panel 14 of the blank 10 is placed over the pots 12 and the remaining panels are folded down such that the top flanges 25 are engaged and retained in the openings formed by the angled cuts 23 and arcuate cuts 24. (See figure 2).

The keel panels 33 are then folded upwardly about the parallel folds 34 so as to be generally perpendicular

to the first base panel 29. The first base panel 29 is then folded under the pots 12. This results in the outside parts of the heel portions 13 of the pots 12 in one row engaging in the apertures 32 on one side of the blank 10. Also, the two keel panels 33 project upwardly in the space between the inside parts of the heel portions 13 of the pots 12 of the adjacent rows. The keel panels preferably engage the heel portions 13. This stage of assembly is shown in figure 3.

The tab portions 35 are then pushed up between the keel panels 33 about folds 36 such that the lateral projections 37 are forced to locate and be retained in the holes 38 of the keel panels 33. This is clearly illustrated in figures 4 and 5.

The final stage of assembly involves the folding under of the second base panel 30 and adhesive connection to the underside of the first base panel 29, as it shown in figure 6. It, may, however, be desirable to have the two base panels interlocking rather than secured with adhesive.

In the assembled sleeve 11, the heel portion of each pot 12 is located in its associated aperture 32 and is prevented from inward movement towards the other row of pots 12 by virtue of the adjacent keel panel 33 which is braced against inward movement by the two tab portions 35. This results in a secure multipack with minimised movement of the pots.

It will be appreciated that the precise shape and size of the keel panels 33 and tab portions 35 are a matter of design choice. Indeed more or less the tab portions could be provided especially if more pots were provided in each row. Also the apertures 32 are an optional feature as are the top flange retaining formations. The provision of these features or other such retaining features, it has been found, increase the integrity of the resulting multipack.

It is also possible to envisage three or more rows of pots 12 with a pair of keel panels and tab portions being provided between each pair of adjacent rows.

Although reference has been made to tapering articles, it will be appreciated that other articles which are narrower at the heel could benefit from the sleeve of the present invention. For example, straight sided pots having a wider top flange.

## Claims

1. A paperboard retaining device for a plurality of articles arranged in rows, each article tapering inwardly towards its heel, said device comprising a top panel, oppositely disposed side panels hingedly connected to the top panel and base panel means hingedly connected to the side panels, said base panel means having a pair of spaced, upstanding keel panels for disposition in the space between the articles of a pair of adjacent rows and at least one spacer tab for keeping the pair of keel panels

spaced apart.

2. A device as claimed in claim 1 wherein, the two keel panels are cut out of the base panel means and remain hingedly connected thereto along a pair of substantially parallel respective fold lines.
3. A device as claimed in claim 1 or 2 wherein, the or each spacer tab is cut from the space between said keel panel fold lines and remains hingedly connected to the base panel means by virtue of a tab fold which is substantially perpendicular to the keel panel fold lines.
4. A device as claimed in any one of claims 1 to 3 wherein, the or each tab is provided with formations for cooperating with corresponding formations on the keel panels.
5. A device as claimed in claim 4 wherein the tab formations comprise lateral projections and the corresponding formations comprise holes for receiving the formations.
6. A device as claimed in any one of claims 1 to 5 wherein two spacer tabs are provided between each pair of keel panels.
7. A device as claimed in any one of claims 1 to 6 wherein the keel panels are of generally oblong shape with the hinge lines being located on a long side of the oblong.
8. A device as claimed in any one of claims 1 to 7 wherein base panel means comprises two panels which are secured together.
9. A device as claimed in claim 8 wherein the two base panels are secured using adhesive or by interlocking formations.
10. A device as claimed in claim 8 or 9 wherein the keel panels and the spacer tabs are all formed in one of the base panels.
11. A device as claimed in any one of claims 1 to 10 wherein the device is adapted to retain the tops and/or the bases of the articles by way of cuts and/or formations.
12. A device as claimed in any one of claims 1 to 11 wherein the device is adapted to receive only two rows of articles and has a single pair of keel panels.

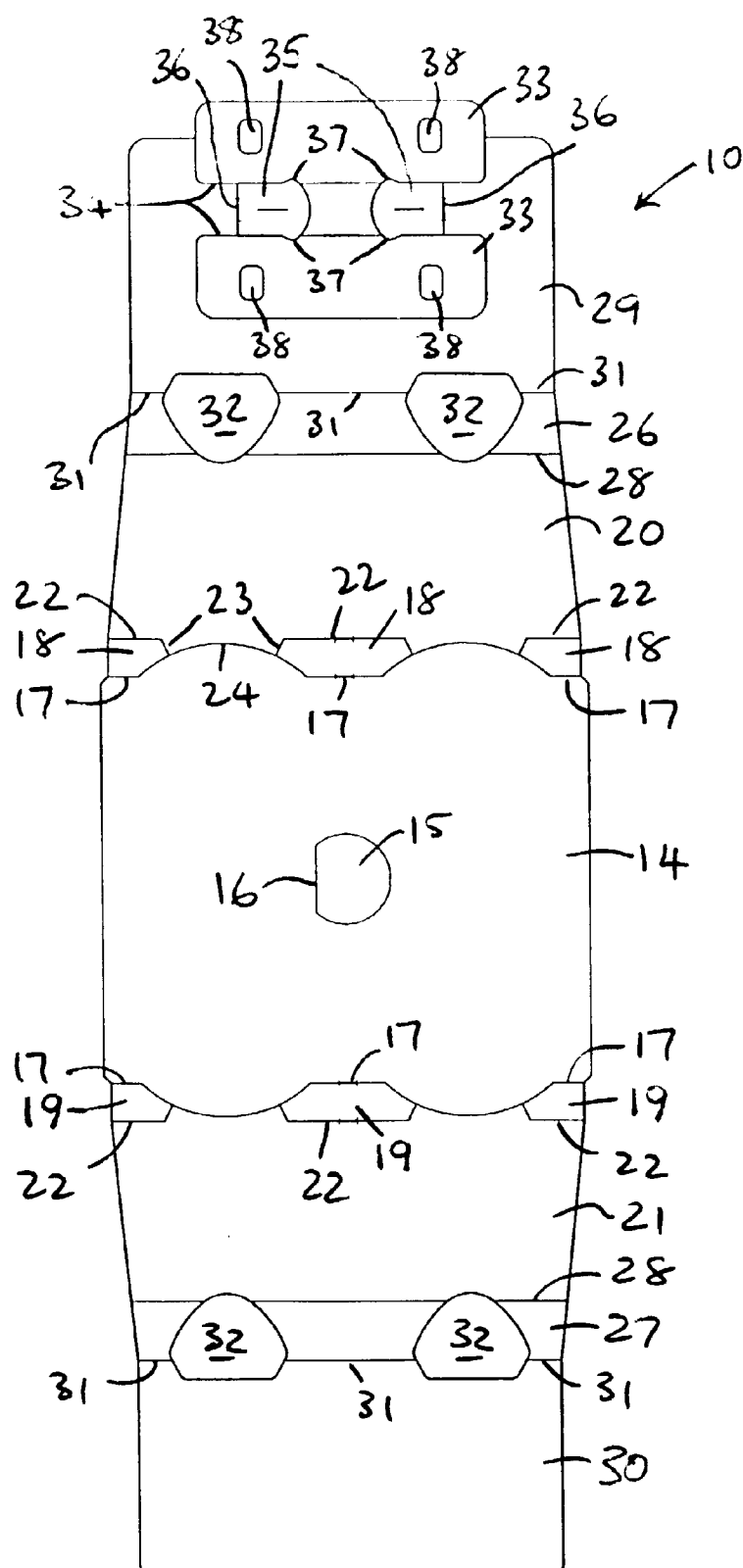


FIGURE 1

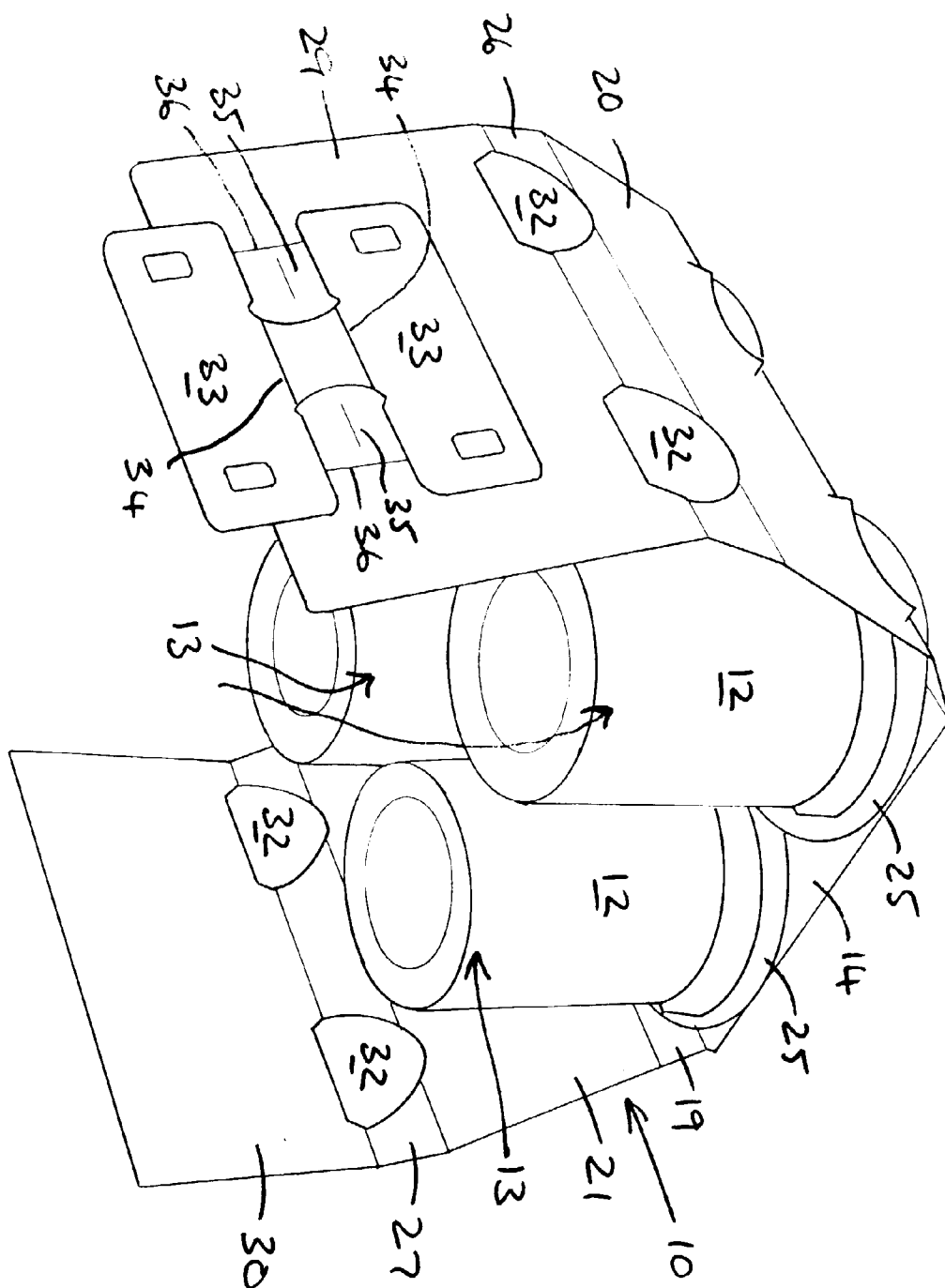


FIGURE 2

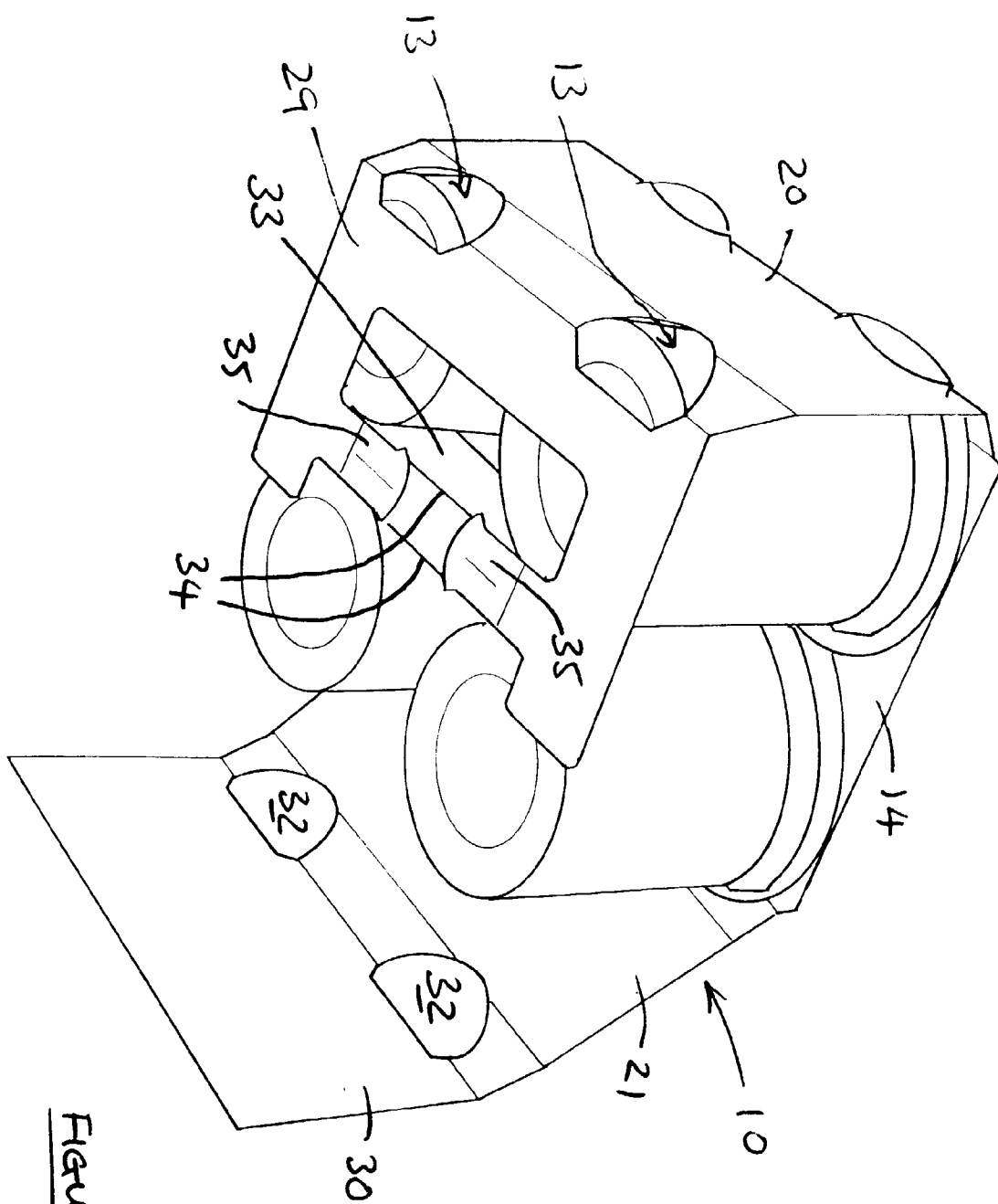


FIGURE 3

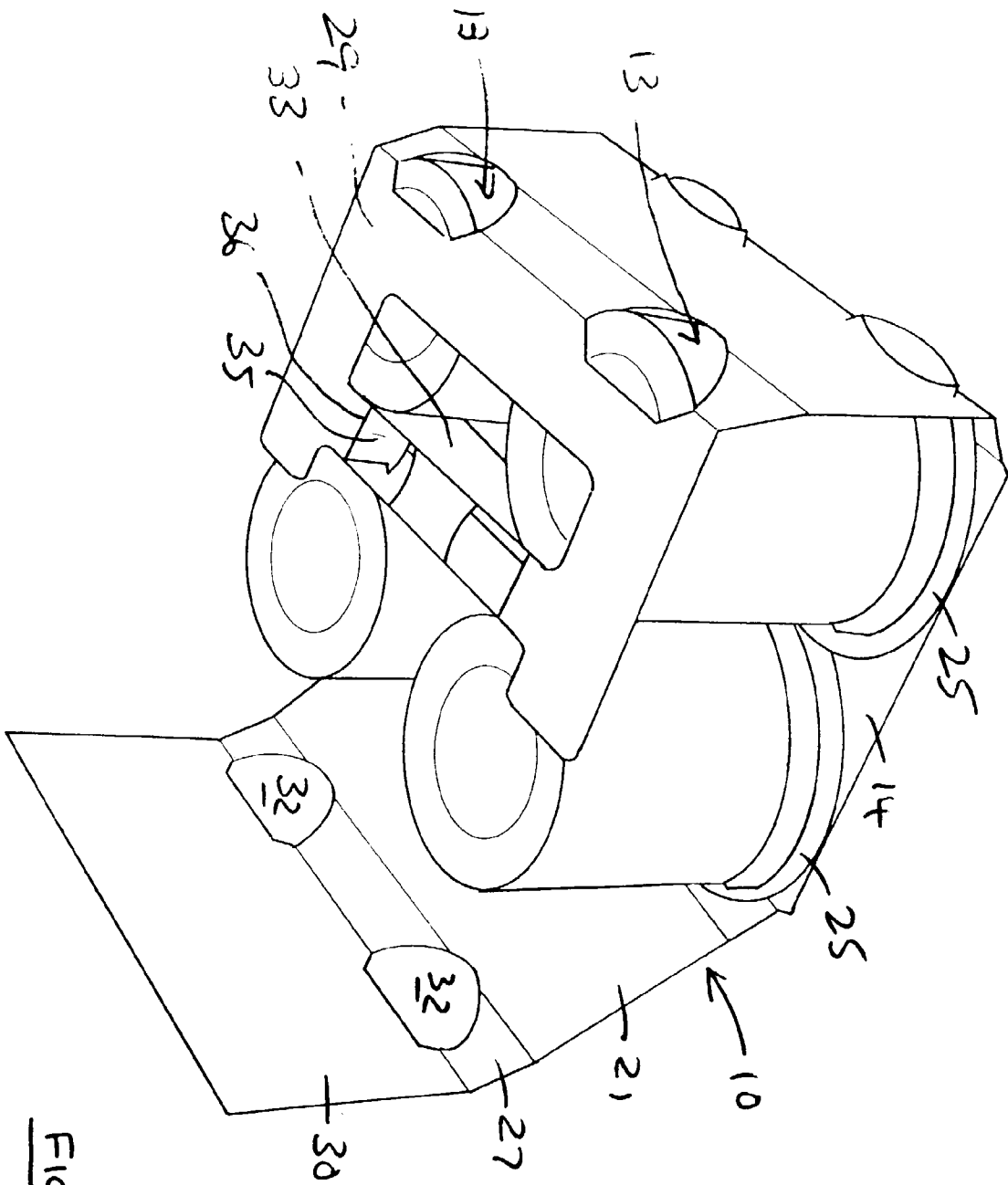


Figure 4

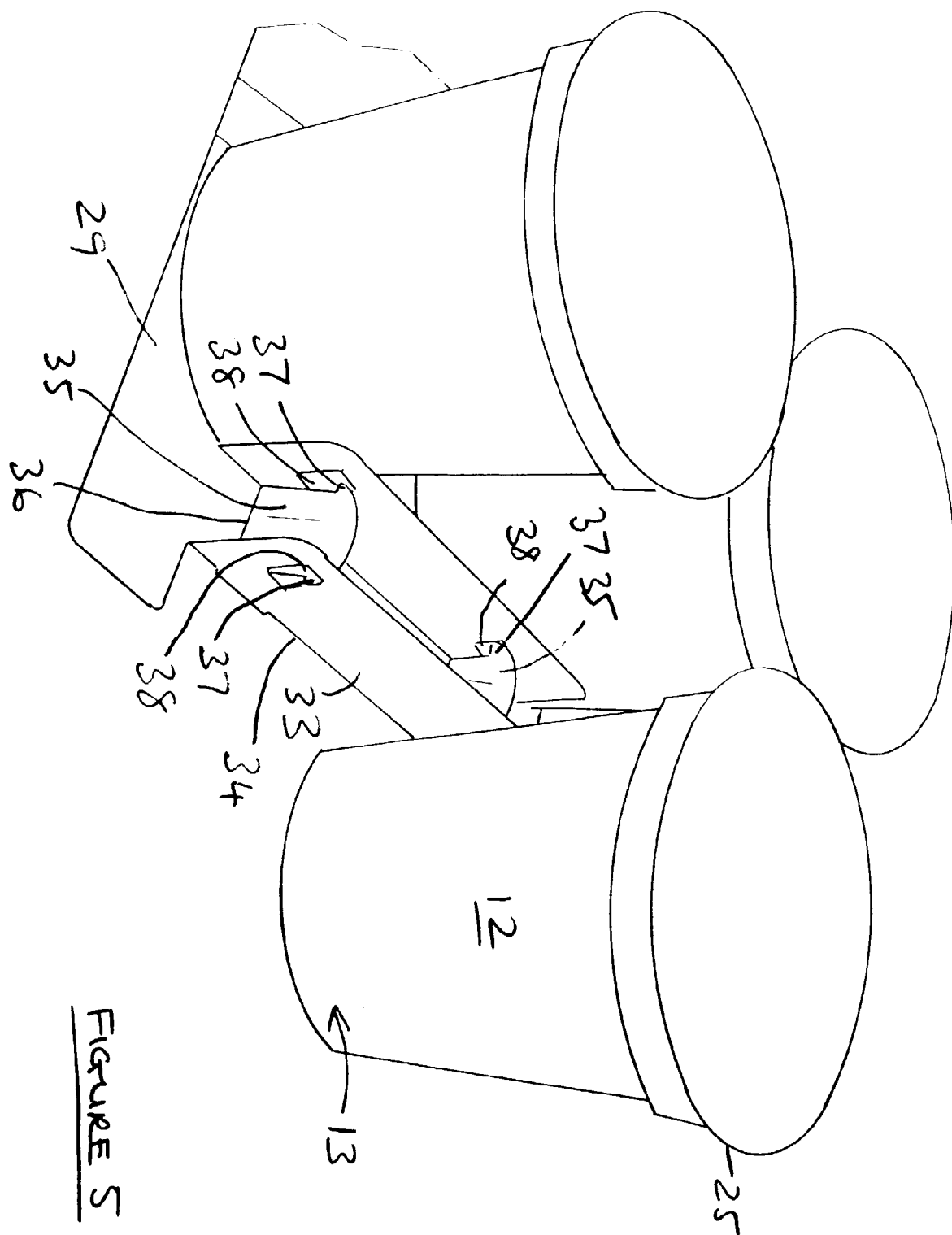


FIGURE 5



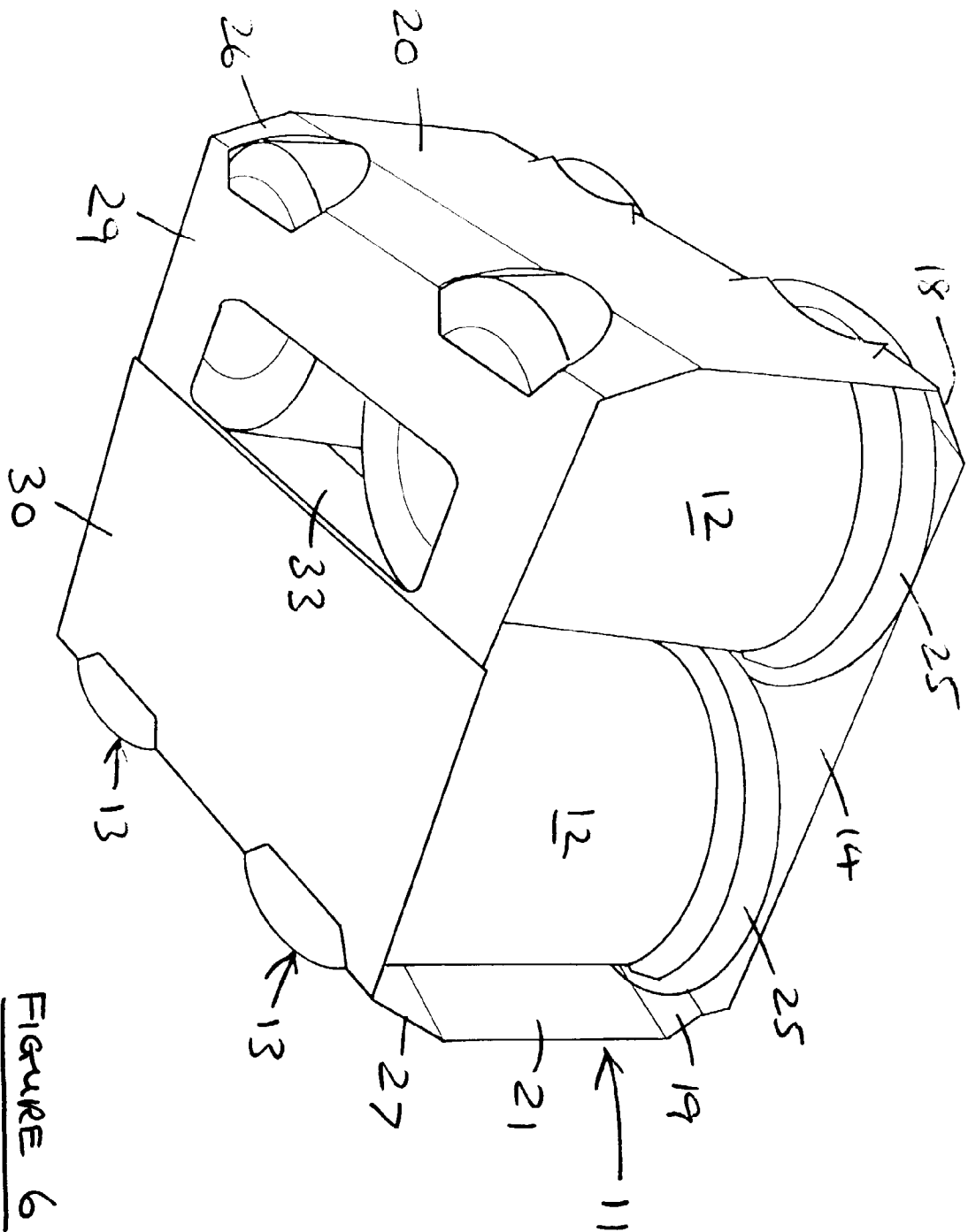


Figure 6



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 96 30 9179

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                          |                                                   |                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Citation of document with indication, where appropriate, of relevant passages                                            | Relevant to claim                                 | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | EP 0 381 967 A (UNILEVER)<br>* the whole document *<br>---                                                               | 1-4,7-9,<br>11,12                                 | B65D71/00                                    |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | EP 0 332 153 A (UNILEVER)<br>* the whole document *<br>---                                                               | 1-4,7-9                                           |                                              |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | FR 1 466 565 A (VERRERIE CRISTALLERIE D'ARQUES)<br>* page 3, column 1, line 18 - column 2, line 7; figures 6-11 *<br>--- | 1-4,7-9                                           |                                              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | GB 825 578 A (MINNESOTA MINING AND MANUFACTURING CY)<br>* the whole document *<br>---                                    | 1-3,6,7,<br>10                                    |                                              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | EP 0 541 334 A (MEAD CORP.)<br>---                                                                                       |                                                   |                                              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | FR 2 688 763 A (LES ARTS GRAPHIQUES DU MANS)<br>---                                                                      |                                                   |                                              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | FR 2 647 421 A (MEAD CORP.)<br>---                                                                                       |                                                   |                                              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DE 39 28 076 A (UNILEVER)<br>-----                                                                                       |                                                   | B65D                                         |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                          |                                                   |                                              |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                          | Date of completion of the search<br>21 March 1997 | Examiner<br>Martens, L                       |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                                                                                          |                                                   |                                              |

EPO FORM 1503 03.82 (P04 CO1)