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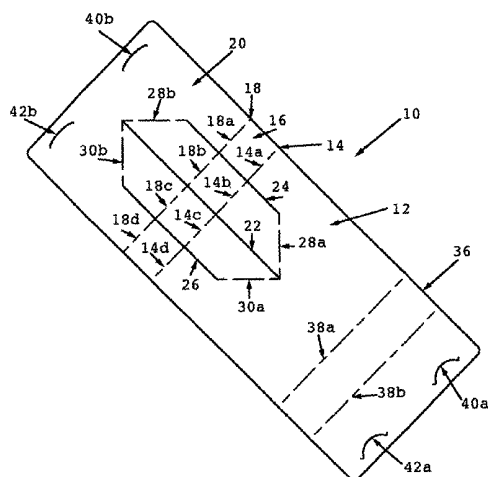
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(54) Title: BINDER, CARRIER PACK AND CORRESPONDING BLANK



(57) Abstract: A binder (10) comprises: a first panel (12) divided by a first fold line (14) from a second panel (16) which is divided by a second fold line (18) from a third panel (20), the first and second fold lines (14, 18) being intersected by three slits (22, 24, 26), the central slit (22) being longer than the first and second outer slits (24, 26), and each end of the central slit (22) being joined to an adjacent end of each of the first and second outer slits (24, 26) by a respective crease line (28a, 30a, 28b, 30b); whereby, when the third panel (20) is folded about outer parts of the first and second fold lines (14, 18) to be spaced from yet overlies the first panel (12), the material between the central slit (22) and the first outer slit (24) is folded about its associated crease lines and the inner parts of the first and second fold lines to form a first strap (32), and the material between the central slit (22) and the second outer slit (26) is folded about its associated crease lines and the inner parts of the first and second fold lines to form a second strap (34).



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BINDER, CARRIER PACK AND CORRESPONDING BLANK

The present invention relates to binders which are especially but not exclusively suitable for use in the storage of monthly journals or other periodicals.

Typically, periodicals are stored in binders which are of a sleeve-like appearance as a result of being open at one end, and partially open at one side. The binders may be designed to hold, for example, six or twelve periodicals standing side-by-side. However, the binders are clearly not restricted to use in the storage of periodicals, and are instead often used in the storage of other generally flat items, such as long playing records or loose printed sheets of music.

Typically, the binders are made of cardboard, or moulded of plastics materials, and in any event are supplied in an assembled condition which is ready-to-use.

This takes up considerable space during transit.

An object of the present invention, therefore, is to provide binders which can be shipped by a manufacturer, posted by a distributor or sold by a retailer in a generally planar form for subsequent assembly by an end user.

According to the present invention, a binder comprises:

a first panel divided by a first fold line from a second panel which is divided by a second fold line from a third panel, the first and second fold lines being intersected by three slits, the central slit being longer than the first and second outer slits and each end of the central slit being joined to an adjacent end of each of the first and second outer slits by a respective crease line;

whereby, when the third panel is folded about outer parts of the first and second fold lines to be spaced from yet overlies the first panel, the material between the central slit and the first outer slit is folded about its associated crease lines and the inner parts of the first and second fold lines to form a first strap, and the material between the central slit and the second outer slit is folded about its associated crease lines and the inner parts of the first and second fold lines to form a second strap.

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It will be appreciated that the binder can be readily assembled by the end user merely by following simple instructions.

It will also be appreciated that, after assembly, the first and third panels can be regarded as the front and rear of the binder, the outer parts of the second panel can

be regarded as the base of the binder, and the inner parts of the second panel constituting the central parts of the first and second straps can be regarded as the sides of the binder.

5

Before discussing various modifications, such as extending the first panel to allow the binder to be closed at the top or extending/reducing the second panel to allow the binder to be of greater/smaller storage capacity, it will be convenient to discuss preferred materials as well as preferred methods of forming the slits, fold lines and crease lines in the preferred materials.

The binder is preferably formed in one piece of sheet or sheet-like material which is flexible yet durable.

The material is preferably a plastics material such as one of the olefins, e.g. polypropylene or polyethylene, or alternatively acetate or polyvinyl chloride. However, the material could be of any suitable composition, such as paper, cardboard, metal or fabric, or a laminate in which, for example, a plastics material is covered by a metallic foil. Moreover, the material is preferably translucent but could alternatively be either clear or opaque.

25

The material is preferably extruded or rolled to be initially of substantially uniform thickness throughout. Then, conventional die cutting technology may enable the

slits to be produced by cutting rules, and may enable the fold lines and the crease lines to be produced by creasing rules. In practice, the cutting rules are considerably sharper than the creasing rules. Alternatively, a separate
5 operation to form the slits, fold lines and crease lines may be avoided if the material is moulded to be of non-uniform thickness using conventional casting, pressing or injection moulding techniques.

10 Preferably, the binder is supplied to the end user in a condition which is ready-to-be-assembled i.e. with the slits, fold lines and crease lines having all been fully pre-formed.

15 Nevertheless, there may be circumstances in which it is desirable for the binder to be supplied to the end user in a condition which is not ready-to-be-assembled i.e. with the slits, fold lines and crease lines not having all been fully pre-formed.

20 For example, to help maintain structural integrity during transit to the end user, one or more of the slits may have been just partly pre-formed as a result of being spanned by one or more webs or other frangible connections
25 which need to be broken by the end user.

Additionally, or alternatively, to help prevent crumpling during transit to the end user, one or more of

the fold lines and the crease lines may have been insufficiently pre-formed or, as an extreme, may merely have had their intended locations indicated to the end user, for example by one or more printed lines or other
5 guide marks.

The difference between the slits, the fold lines and the crease lines may need to be explained to the end user - it is possible, for example, that the slits are formed from
10 perforated lines with relatively small webs which are readily broken, whereas the fold lines and the crease lines are formed from perforated lines with relatively large webs which are not readily broken.

15 There may well be little if any practical difference between the constructions of the fold lines and the crease lines - in each case, there is a line of intended deformation which may be either present in the material before the binder is assembled by the end user, or present
20 in the material only after the binder is assembled by the end user..

As previously indicated, various modifications are possible.

25

In one modification, which is useful when there is a risk of the binder's contents falling out, the first panel is extended to form a flap to be folded over and secured to

the third panel, thereby allowing the binder to be closed at the top.

Another modification allows the binder to maintain its assembled condition and not collapse, even when the binder has not been completely filled, the assembled condition being maintained by securing each of the first and second straps to the first and third panels.

In general, parts of the binder which are to be secured to one another are preferably secured to one another by adhesive or tab/slot connections or other fixings which come with the binder so that additional fixings are not required by the end user.

If the binder is to be used with particularly thin contents, the first and second fold lines are preferably coincident with one another, or are at least extremely close to one another, across the entire width of the binder so that the second panel effectively disappears.

However, if the binder is to be used with contents which in combination are generally triangular in side elevation, the first and second fold lines are preferably coincident with one another, or are at least extremely close to one another, only at their outer parts so that the outer parts of the second panel effectively disappear, or

alternatively only at their inner parts so that the inner parts of the second panel effectively disappear.

In other modifications, the binder is provided with a handle or an inner sleeve either or each of which can be separate from the binder but is preferably an integral part of the binder.

There is no need for the binder to be symmetrical and thus, rather than being parallel or substantially parallel to the central slit, the first and second outer slits can be curved or angular.

It should be appreciated that the assembled binder is not restricted to being of rectangular outline, when viewed in any orthogonal direction, but could at least reflect the outline of the intended contents.

Moreover, it should be appreciated that the assembled binder is not restricted to storing contents which are arranged in a single stack, but could store contents arranged in two or more stacks merely by duplicating the above-defined construction of the slits, fold lines and crease lines.

25

If there is such duplication, it would be possible for contents of the correct width to extend between a first strap associated with a first set of three slits and a

second strap associated with a second set of three slits. The second strap associated with the first set of three slits, and the first strap associated with the second set of three slits, would thus be redundant and if desired
5 could be omitted. The resulting construction would be such that, in effect, a single central slit had been split into two separate central slits.

Splitting the central slit into two is within the
10 present invention just as joining the or parts of the first and second fold lines into one is within the present invention.

In a particularly preferred modification, the storage
15 capacity of the binder can be adjusted in a series of set increments. To this end, a series of the first and/or second fold lines is provided to allow the distance between the first and the third panels to be adjusted. At the same time, to allow the central parts of the first and second
20 straps to continue to act as the sides of the assembled binder, all of the three slits are capable of being lengthened. The lengthening is readily achieved by pre-forming each of the three slits with a plurality of slit extensions which are brought into operation by selective
25 breaking of frangible connecting webs.

In general, the lengths of the slits can be adjusted so that the final positions of the central parts of the

straps can fall inside or outside the side edges of the first and third panels.

The various modifications are not necessarily
5 independent of one another but could be combined with one another.

Consequently , if the modification providing the top flap is combined with the modification providing the
10 adjustable storage capacity, it is preferred that the top flap be formed with a pair of catches, each of which could be a double catch, for allowing the top flap to be releasably secured to selected slits in two series of slits formed in the third panel.

15

In yet another modification, the first and second outer slits can be regarded as having migrated outwards to be coincident with the side edges of the binder, structural integrity being achieved by either inserting an integral
20 inner sleeve into the open sleeve formed from the first, second and third panels or, alternatively, wrapping an integral outer sleeve around the open sleeve formed from the first, second and third panels.

25 There are a number of advantages which are common to all of the binders according to the present invention and which are in addition to those previously indicated.

For example, the use of rectangular blanks with slits and creases gives rise to very little wasted material, the use of material with major faces of different colour (e.g. co-extrusion) gives rise to colour contrast in the assembled binder because of the way in which the straps are folded, and the use of a simple principle of construction allows many different types of contents to be packaged such as wall tiles, CD jewel cases, or credit cards and not just periodicals, photographs or loose sheets of paper.

10

Several binders, in accordance with the present invention, will now be described in greater detail, by way of example only, with reference to the accompanying drawings, in which:-

15 Figure 1 is a plan view of a blank for a binder;

Figures 2 to 4 are perspective views showing sequential stages in the assembly of the binder from the blank of Figure 1;

20 Figure 5 is a plan view of a blank for forming a binder in which the outer parts of the first and second fold lines are coincident;

Figure 6 is a plan view of a blank for forming a binder in which the inner parts of the first and second fold lines are coincident;

25 Figure 7 is a plan view of a blank for forming a binder in which the first and second fold lines are coincident across their entire widths;

Figures 8 and 9 are perspective views showing sequential stages in the assembly of the binder from the blank of Figure 7;

Figure 10 is plan view of a blank for forming a binder
5 in which none of the slits is straight;

Figure 11 is a plan view of a blank for forming a binder in which the first and second outer slits are curved;

Figure 12 is a plan view of a blank for forming a
10 binder incorporating a handle;

Figure 13 is a perspective view of the binder assembled from the blank of Figure 12;

Figure 14 is a plan view of a blank for a binder incorporating an integral sleeve;

15 Figure 15 is a perspective view of the binder part assembled from the blank of Figure 14;

Figure 16 is a plan view of two blanks for forming a binder with a separate spline;

20 Figures 17 and 18 are perspective views showing sequential stages in the assembly of the binder and the separate spine from the blanks of Figure 16;

Figure 19 is a plan view of a blank for a binder in which fasteners secure the first and second straps to the first and third panels;

25 Figure 20 is a perspective view of the binder part assembled from the blank of Figure 19;

Figure 21 is a plan view of a binder in which different fasteners secure the first and second straps to the first and third panels;

Figure 22 is a perspective view of the binder part
5 assembled from the blank of Figure 21;

Figure 23 is a plan view of blank for a binder in which the central slit is split into two;

Figure 24 is a perspective view of the binder part assembled from the blank of Figure 23;

10 Figure 25 is a plan view of a blank for a binder having an adjustable storage capacity;

Figures 26 to 29 are perspective views showing stages in the assembly of binders having different storage capacities from the blank of Figure 25;

15 Figure 30 is a plan view of a blank for a binder having a different strap structure;

Figures 31 and 32 are perspective views showing the manner of assembly of the binder from the blank of Figure 30;

20 Figures 33 to 35 are schematic views illustrating how a binder can be folded to be of equivalent size (in elevation) to an article to be stored by the binder;

Figure 36 is a plan view of a blank for a binder, primarily for use with wine bottles;

25 Figure 37 is a perspective view showing the blank of Figure 36 when partly erected;

Figures 38 and 39 are perspective views showing sequential stages in the assembly of the binder from the blank of Figure 36 with wine bottles;

Figure 40 is a plan view of a blank for a binder,
5 primarily for use with wine bottles, in which the fastening flap is duplicated;

Figure 41 is a plan view of a blank for a binder, primarily for use with beverage cans;

Figure 42 is a perspective view showing the blank of
10 Figure 41 when partly erected;

Figures 43, 44 and 45 are perspective views showing sequential stages in the assembly of the binder from the blank of Figure 41 with beverage cans;

Figure 46 is a plan view of a blank for a binder,
15 primarily for use with cosmetic bottles;

Figure 47 is a perspective view showing the blank of Figure 46 when partly erected;

Figures 48 and 49 are perspective views showing sequential stages in the assembly of the binder from the
20 blank of Figure 46 with cosmetic bottles;

Figure 50 is a plan view of a blank for a binder, primarily for use with a single wine bottle;

Figure 51 is a perspective view showing the blank of Figure 50 when fully erected with a single wine bottle;

25 Figure 52 is a plan view of a blank for a binder, primarily for use with a plant pot;

Figure 53 is a perspective showing the blank of Figure 52 when fully erected with a plant pot;

Figure 54 is a plan view of a blank for a binder, primarily for use with tubes of suncream;

Figure 55 is a perspective view showing the blank of Figure 54 when partly erected with tubes of suncream;

5 Figure 56 is a plan view of a blank for a binder, primarily for use with a spherical object;

Figure 57 is a side view showing the blank of Figure 56 when fully erected with a spherical object;

Figure 58 is a plan view of a blank for a binder, 10 primarily for use with objects of different sizes;

Figure 59 is a plan view of a blank for a binder, primarily for use with disposable coffee cups;

Figure 60 is a perspective view showing the blank of Figure 59 when fully erected around a pair of disposable 15 coffee cups;

Figure 61 is a plan view of a blank for a binder which effectively duplicates the blank of Figure 59;

Figure 62 is a plan view of a blank for a binder, primarily for use with coffee mugs;

20 Figure 63 is a perspective view showing the blank of Figure 62 when partly erected; and

Figure 64 is a perspective view showing the blank of Figure 62 when fully erected with a pair of coffee mugs.

25 As previously discussed, binders of the present invention are preferably formed of plastics materials (although materials other than plastics materials would be possible) in which structural elements such as slits, fold

lines and crease lines are preferably formed by conventional die cutting technology (although again other methods of forming such structural elements would be possible).

5

Thus, each of the binders illustrated in the accompanying drawings could be formed from a sheet of polypropylene of, for example, 0.5mm thickness, with all of the slits having been fully pre-formed by cutting rules and
10 with all of the fold lines and the crease lines having been fully pre-formed by creasing rules, whereby each of the binders is capable of being supplied to an end user in a ready-to-be-assembled condition.

15 The dimensions and indeed the proportions will clearly depend upon the particular circumstances i.e. the particular articles to be stored in the binders.

Figure 1 shows a blank for a binder 10, according to
20 the present invention, which is particularly suitable for storing a stack of five so-called floppy disks (not shown).

The binder 10 comprises a first panel 12 divided by a first fold line 14 from a second panel 16 which is divided
25 by a second fold line 18 from a third panel 20. It will be seen that the first fold line 14 is parallel or substantially parallel to the second fold line 18. It will also be seen that the first fold line 14 and the second

fold line 18 are intersected by a slit 22 which is located centrally between a pair of outer slits 24 and 26.

The central slit 22 is longer than the first outer
5 slit 24 and the second outer slit 26.

The first fold line 14 includes, in order, an outer part 14a, an inner part 14b between the first outer slit 24 and the central slit 22, another inner part 14c between the
10 central slit 22 and the second outer slit 26, and another outer part 14d.

Similarly, the second fold line 18 includes, in order, an outer part 18a, an inner part 18b between the first
15 outer slit 24 and the central slit 22, another inner part 18c between the central slit 22 and the second outer slit 26, and another outer part 18d.

One end of the central slit 22 is joined to an
20 adjacent end of the first outer slit 24 by a crease line 28a and is joined to an adjacent end of the second outer slit 26 by a crease line 30a. The other end of the central slit 22 is joined to an adjacent end of the first outer slit 24 by a crease line 28b and is joined to an adjacent
25 end of the second outer slit 26 by a crease line 30b.

Figures 2 to 4 show sequential stages in the assembly of the binder 10 from the blank of Figure 1.

Initially, as shown in Figure 2, the third panel 20 is folded about the outer parts 14a, 14d and 18a, 18d of the first and second fold lines 14, 18 to be spaced from yet overlies the first panel 12. The material between the central slit 22 and the first outer slit 24 is folded about its associated crease lines 28a, 28b and the inner parts 14b, 18b of the first and second fold lines 14, 18 to form a first strap 32. The material between the central slit 22 and the second outer slit 26 is folded about its associated crease lines 30a, 30b and the inner parts 14c, 18c of the first and second fold lines 14, 18 to form a second strap 34.

All of the above-described folding operations preferably occur simultaneously.

With continued folding, the position of Figure 3 is reached in which the second panel 16 lies perpendicularly to both the first panel 12 and the third panel 20. The first panel 12 abuts the first strap 32 between the crease line 28a and the inner part 14b of the first fold line 14 and abuts the second strap 34 between the crease line 30a and the inner part 14c of the first fold line 14. At the same time, the third panel 20 abuts the first strap 32 between the crease line 28b and the inner part 18b of the second fold line 18 and abuts the second strap 34 between the crease line 30b and the inner part 18c of the second fold line 18.

The central part of the first strap 32 is constituted by an inner part of the second panel 16 bounded by some of the central slit 22, the inner part 14b of the first fold line 14, some of the first outer slit 24, and the inner
5 part 18b of the second fold line 18.

The central part of the second strap 34 is constituted by another inner part of the second panel 16 here bounded by some of the central slit 22, the inner part 14c of the
10 first fold line 14, some of the second outer slit 26, and the inner part 18c of the second fold line 18.

It will thus be appreciated that the first and third panels 12, 20 can be regarded as the front and rear of the
15 binder 10, the outer parts of the second panel 16 can be regarded as the base of the binder 10, and the inner parts of the second panel 16 can be regarded as the sides of the binder 10.

20 To close the top of the binder 10, as shown in Figure 4, the first panel 12 is shown as having been extended to form a flap 36. A pair of fold lines 38a, 38b in the flap 36 are separated by a distance corresponding to the separation between the first and second fold lines 14, 18.
25 A pair of curved slits 40a, 42a in the flap 36 are releasably joinable to a complementary pair of curved slits 40b, 42b in the third panel 20. Such slit/slit connections

are well known per se and need not be discussed in any more detail.

Figure 5 shows a blank for a binder 50 in which the
5 outer parts 14a, 14d of the first fold line 14 are
respectively coincident with the outer parts 18a, 18d of
the second fold line 18. When the binder 50 is assembled,
by following the above-described folding operations, it is
found that the first and second straps 32, 34 are the same
10 as those for the binder 10. However, the outer parts of
the second panel 16 effectively disappear so that the base
is of minimal thickness. This is particularly convenient
for the storage of articles which, in combination, are
generally triangular in side elevation with a base of
15 reduced thickness.

Figure 6 shows a blank for a binder 60 in which the
inner parts 14b, 14c of the first fold line 14 are
respectively coincident with the inner parts 18b, 18c of
20 the second fold line 18. When the binder 60 is assembled,
by following the above-described folding operations, it is
found that the central parts of the first and second straps
32, 34 effectively disappear. In other words, the inner
parts of the second panel 16 are of minimal thickness
25 whereas the outer parts of the second panel 16 are the same
as those for the binder 10. This is again particularly
convenient for the storage of articles which, in
combination, are generally triangular in side elevation but

here of reducing thickness with increasing distance from the base.

Figure 7 shows a blank for a binder 70 in which the first and second fold lines 14, 18 are coincident with one another along their entire lengths so that all of the second panel effectively disappears.

It will be appreciated, from the discussion of Figures 5 and 6, that the base and the sides of the binder 70 are all of minimal thickness for use in storing thin articles, such as merely a few photographs. To prevent the thin articles from falling out, the first panel 12 is divided from a flap 72 by a single fold line 74 so that, as shown in Figures 8 and 9, the flap 72 can be brought into abutment with the third panel 20. As an alternative to the slit/slit connections of the binder 10, the binder 70 is formed with a pair of tab/slot double catches 76. Each of the double catches 76 includes a pair of tabs 78a which are presented by the flap 72 and are releasably connectable to respective ones of a pair of slots 78b formed in the third panel 20.

Figure 10 shows a blank for a non-rectangular binder 80 in which the central slit 22, the first outer slit 24 and the second outer slit 26 are all angular rather than straight.

Figure 11 shows a blank for a non-rectangular binder 90 in which the first and second outer slits 24, 26 are curved and a curved flap 92 is provided with a pair of fold lines 94a, 94b but there is only a single central slit/slit connection 96a, 96b.

Figures 12 and 13 show a binder 100 respectively before and after its assembly from a blank in which each of the first and third panels 12, 20 is formed with an oval aperture 102a, 102b which together can be regarded as a handle 102 formed integrally with the binder 100.

Figures 14 and 15 show a binder 110 respectively before and after its assembly from a blank in which each of the first and third panels 12, 20 has been extended.

The first panel 12 is extended to form a flap 112 - the flap 112 comprises a pair of fold lines 114a, 114b as well as a pair of edge slits 116a, 116b helping to define a central tab 118 which is capable of being releasably connected to a curved slit 120 formed in third panel 20.

The third panel 20 is extended to form an inner sleeve 122 - the inner sleeve 122 comprises a first sleeve panel 124 divided by a first sleeve fold line 126 from a second sleeve panel 128 which is divided by a second sleeve fold line 130 from a third sleeve panel 132. The separation between the first and second sleeve fold lines 126, 130 is slightly

less than the separation between the first and second fold lines 14, 18. This allows the inner sleeve 122 to be folded such that the first sleeve panel 124 lies against the inside of the third panel 20, the second sleeve panel 5 128 lies against the inside of the second panel 16 and the third sleeve panel 132 lies against the inside of the first panel 12.

Preferably, the inner sleeve 122 is formed integrally 10 with the remainder of the binder 110, to which it is connected by a fold line 134, rather than being formed separately from the remainder of the binder 110.

Figures 16 to 18 show a binder 140 respectively 15 before, during and after its assembly from two blanks, with one of the blanks being similar to Figure 1, and with the other of the blanks being utilised to form a separate inner spline 142 as shown best in Figure 17.

20 The spline 142, which is again preferably formed of a plastics material such as polypropylene, has three panels 144, 146, 148 which are traversed by two long fold lines 150, 152 and are divided by two short fold lines 154, 156. The sides of all of the panels 144, 146, 148 are mitred 25 near the ends of the fold lines 154, 156 to allow the spline 142 to have right angled corners. The sides of the outer panels 144, 148 are also notched to present opposed pairs of edge tabs 158a which are capable of being

releasably connected to respective ones of opposed pairs of edge tabs 158b presented by the first and third panels 12, 20.

5 Clearly, the central panel 146 of the spline 142 can fill in the gap in the base of the binder 140, and the outer panels 144, 148 of the spline 142 can fill in the gaps in the sides of the binder 140.

10 Figures 19 and 20 show a binder 160 which is similar to the binder 10 of Figures 1 to 4 but here with each of the first and second straps 32, 34 being positively connected to each of the first and third panels 12, 20. This allows the assembled condition of the binder 160 to be
15 maintained, and not collapse, even when the binder 160 has not been completely filled. The positive connections are achieved by cross-slitting the central slit 22 to form four edge tabs 162a, 162b, 162c, 162d which can be secured to respective slits 164a, 164b, 164c, 164d.

20

 Figures 21 and 22 show a binder 170 which is similar to the binder 160 of Figures 19 and 20, in that each of the first and second straps 32, 34 is again positively connected to each of the first and third panels 12, 20, but
25 here by the provision of four tabs 172a, 172b, 172c, 172d which can be releasably secured to respective slits 174a, 174b, 174c, 174d. It will be seen that the slits 174a, 174b are formed along the inner parts of the first fold

line 14, and that the slits 174c, 174d are formed along the inner parts of the second fold line 18. It will also be seen that the top of the binder 170 is closable. This is achieved by extending the first panel 12 beyond a fold line 5 176a to form a panel 176b having edge tabs 176c, 176d, and by extending the third panel 20 beyond a fold line 178a to form a panel 178b having a pair of connecting slits 178c, 178d. When the edge tabs 176c, 176d are secured to the slits 178c, 178d, respectively, the panel 176b overlies the 10 panel 178b to form a lid.

Figures 23 and 24 show a binder 180 which is similar to the binder 110 of Figures 14 and 15, in that there is an integral inner sleeve 122, but differs from the binder 110 15 of Figures 14 and 15 by effectively splitting the central slit 22 into two central slits 22a, 22b.

As a result, when the third panel 20 is folded about the outer parts of the first and second fold lines 14, 18, 20 the material between the central slit 22a and the first outer slit 24 is folded about its associated crease lines 28a, 28b and the associated inner parts of the first and second fold lines 14, 18 to form a first strap 32. The material between the central slit 22b and the second outer 25 slit 26 is folded about its associated crease lines 30a, 30b and the associated inner parts of the first and second fold lines 14, 18 to form a second strap 34. This leaves a central part 16a of the second panel 16 in alignment with

25

the rest of the base, formed as before by the outer parts of the second panel 16, and thereby provides additional support for wide contents.

5 The binder 180 is closable by a curved flap 92a having a slit 96a, as in the binder 90 of Figure 11, the slit 96a being releasably connectable to a slit 96b formed in the third panel 20.

10 Figures 25 to 29 show a binder 190 which is similar to the binder 70 of Figures 7 to 9 in that a pair of double catches 76 provide assured closing.

 However, the first fold line 14 is here split into a series of first fold lines 14a, 14b, 14c, 14d of which the first fold line 14a is coincident with the second fold line 18. This allows the separation between the first and third panels 12, 20 in the assembled binder 190 to be adjusted depending upon which of the first fold lines 14a, 14b, 14c, 14d is utilised. As it is the separation between the first and third panels 12, 20 which determines the storage capacity, splitting the first fold line 14 into a series of first fold lines 14a, 14b, 14c, 14d enables the storage capacity to be adjusted in a series of set increments.

25

To allow the central parts of the first and second straps 32, 34 to continue to act as the sides of the assembled binder 190, all of the three slits 22, 24, 26 are

capable of being lengthened by selective breaking of frangible connecting webs 192. There is a corresponding series of crease lines 194a, 194b, 194c, 194d between one end of the central slit 22 and the adjacent end of the first outer slit 24 as well as a corresponding series of crease lines 196a, 196b, 196c, 196d between said one end of the central slit 22 and the adjacent end of the second outer slit 26. To allow for concertina-like closing, there can be a large range of fold lines 74a to 74g separating the first panel 12 from pairs of tabs 78a in flap 72 but there need only be a smaller range of slots 78b in third panel 20.

From the structure of the blank shown in Figure 25, it will be appreciated that Figures 26 and 27 show a binder 190 utilising the fourth fold line 14d and the crease lines 194d, 196d to give a maximum storage capacity, with Figures 28 and 29 showing a binder 190 utilising the first fold line 14a and the crease lines 194a, 196a to give a minimum storage capacity.

Figures 30 to 32 show a binder 200 which can be regarded as being based on the binder 110 of Figures 14 and 15 but with a sleeve 202 being integral with the first panel 12 and with the outer slits 24, 26 having migrated outwards to be coincident with the side edges of the binder 200. In this situation, the second panel 16 between the first and second fold lines 14, 18 is just split into two.

One half of the second panel 16 acts as the central part of the strap 32 and the other half of the second panel 16 acts as the central part of the strap 34. The sleeve 202 is then wrapped around the open sleeve formed from the first, second and third panels 12, 16, 20 in order to maintain the assembled condition of the binder 200. In another arrangement, not illustrated, the sleeve 202 could be inserted into the open sleeve to maintain the assembled condition of the binder 200.

10

Figures 33 to 35 illustrate how any of the binders can be simply folded around appropriate fold lines to give an overall elevation corresponding to that of an article to be stored thereby allowing easy packaging of the binder with the article to be stored.

15

The binders of the present invention are preferably formed of plastics materials (although materials other than plastics materials would be possible) in which structural elements such as slits, fold lines and crease lines are preferably formed by conventional die cutting technology (although again other methods of forming such structural elements would be possible).

20

Thus, each of the binders illustrated in the accompanying drawings could be formed from a sheet of polypropylene of, for example, 0.5mm thickness, with all of the slits having been fully pre-formed by cutting rules and

25

with all of the fold lines and the crease lines having been fully pre-formed by creasing rules, whereby each of the binders is capable of being supplied from a manufacturer in a ready-to-be assembled condition.

5

The dimensions and indeed the proportions will clearly depend upon the particular circumstances i.e. the particular articles to be stored in the binders.

10 Figure 36 shows a blank for a binder 210, according to the present invention, which is particularly suitable for use with wine bottles.

15 The basic structure of the binder 210 is as previously disclosed - thus, a first panel 12 is divided by a first fold line 14 from a second panel 16 which is divided by a second fold line 18 from a third panel 20.

20 It will be seen that the first fold line 14 is parallel or substantially parallel to the second fold line 18. It will also be seen that the first fold line 14 and the second fold line 18 are intersected by a slit 22 which is located centrally between a pair of outer slits 24 and 26.

25

The central slit 22 is longer than the first outer slit 24 and the second outer slit 26.

During assembly, as disclosed in detail hereinbefore, the material between the central slit 22 and the first outer slit 24 is folded about associated crease lines and inner parts of the first and second fold lines to form a first strap 32.

Similarly, the material between the central slit 22 and the second outer slit 26 is folded about associated crease lines and inner parts of the first and second fold lines to form a second strap 34.

The binder 210 differs from those previously disclosed by the provision of a fastening flap 212 and a pair of carrying handles 214.

The fastening flap 212 is provided with a securing tab 216 which, during assembly, is locatable with a securing slit 218.

Each of the carrying handles 214 includes an opening 220 and a finger flap 222 which is manipulatable about a creased hinge 224 to allow more comfortable carrying.

As will be expected, the blank is first partly erected to form the first strap 32 and the second strap 34 as shown in Figure 37, wine bottles 226 are then stood on the outer parts of the second panel 16 constituting the base as shown

in Figure 38, and finally the fastening flap 212 is secured in position as shown in Figure 39.

Figure 40 shows a blank for a binder 230, according to
5 the present invention, which is extremely similar to the binder 210 except that there are two of the fastening flaps 212 and thus two of the securing tabs 216 as well as two of the securing slits 218.

10 Figure 41 shows a blank for a binder 240, according to the present invention, which is particularly suitable for use with beverage cans.

The first panel 12 is extended past a fold line 242 to
15 an end face 244 including a fold line 246 interrupted by a pair of crescent-shaped cut-outs 248 as well as a fold line 250 interrupted by a pair of arc-shaped slits 252.

The third panel 20 is extended past a fold line 254 to
20 an end face 256 including a fold line 258 interrupted by a pair of crescent-shaped cut-outs 260 as well as another fold line 262 interrupted by another pair of crescent-shaped cut-outs 264.

25 The end face 256 is itself hinged to an end flap 266.

The first fold line is formed from two parallel folds 14a, 14b and the second fold line is formed from two

parallel folds 18a, 18b so that the bottom edges of the binder 240 are effectively bevelled.

During assembly, the blank is first partly erected to
5 form the first strap 32 and the second strap 34 as shown in Figure 42, before a pair of beverage cans 268 are stood on the outer parts of the second panel 16 constituting the base as shown in Figure 43.

10 During continued assembly, the end face 256 is folded over the beverage cans 268 as shown in Figure 44, and then the end face 244 is folded over the end face 256 allowing the arc-shaped slits 252 to engage with upper rimmed edges of the beverage cans 268 as shown in Figure 45.

15

Figure 46 shows a blank for a binder 270, according to the present invention, which is particularly suitable for use with cosmetic bottles.

20 The first panel 12 extends beyond a fold line 272 to a twist flap 274 including an arcuate slit 276, and the third panel 20 extends in a similar manner beyond a fold line 278 to a twist flap 280 including an arcuate slit 282.

25 The intended manner of use with a pair of cosmetic bottles 286 will be apparent from Figures 47, 48 and 49.

In general, any embodiment of the present invention is likely to use much less material than blanks used for conventional box-type constructions.

5 Figure 50 shows a blank for a binder 300, according to the present invention, which is particularly suitable for use with a single wine bottle. The basic structure of the binder 300 is as previously disclosed and will therefore not be described in detail. The main difference from the
10 previous disclosure is that the binder 300 is formed of card rather than a plastics material.

Because card does not flex in the same way as a plastics material, the first strap 32 is provided with a
15 series of extra creases 302 and the second strap 34 is provided with a series of extra creases 304. This allows the lower end of the bottle body to be firmly held, as indicated in Figure 51, with the upper end of the bottle
body extending through an oval aperture 306.

20

Figure 52 shows a blank for a binder 310, according to the present invention, which is particularly suitable for use in carrying and displaying a plant pot. It will be seen that, in effect, the first strap 32 and part of the
25 second panel 16 have been omitted, with the second strap 34 having been shaped to provide support for the front of the plant pot. Support for the rear of the plant pot is provided by the flaps 312, 314 which are held together in

a partially overlapped condition by conventional pairs of securing slits 316a and securing tabs 316b. A further pair of tabs 318 are operable to clamp a rim at the upper end of the plant pot as shown in Figure 53.

5

Figure 54 shows a blank for a binder 320, according to the present invention, which is particularly suitable for use with tubes, such as tubes of suncream.

10 The manner in which the cap or dispensing end of each of the tubes is held in place will be readily apparent. However, instead of any of the previously disclosed fastening arrangements, the flap 36 is provided with a pair of substantially circular tabs 322, each of which is hinged
15 to the flap 36 about a fold line 324. When erected, as shown in Figure 55, opposed parts of each of the tabs 322 are tucked beneath corresponding opposed parts of the second panel 16 to assume the positions shown by the faint lines 326 in Figure 54. The tabs 322 can be of the same
20 dimensions as the caps or dispensing ends of the tubes.

A further feature is that the fold line between the first panel 12 and the flap 36 can be provided with a conventional hanging cutout 328 (not shown in Figure 55).

25

Figure 56 shows a blank for a binder 330, according to the present invention, which is particularly suitable for use with a spherical object, such as a ball.

Adequate support for the spherical object, such as the ball, is provided by the outer slits 24 and 26 having complex curved shapes.

5 Figure 58 shows a blank 340, according to the present invention, which is particularly suitable use with objects of different sizes, as a result of which the first fold line 14 and the second fold line 18 are arranged to diverge from one another.

10

The locking arrangement corresponds to that of Figures 54 and 55 in which a pair of substantially circular tabs 342, which are now of different diameter, tuck beneath adjacent opposed parts of the second panel 16 when fully
15 erected, as indicated by the broken lines 344.

A pair of crescent shaped openings 346, offset from one another on opposed sides of the fold line between the first panel 12 and the flap 36, define a central region 348
20 for abutting an end of an object to be packaged, such as a bottle.

Figure 59 shows a blank 350, according to the present invention, which is particularly suitable for use with
25 disposable coffee cups.

The blank 350 is preferably made of card rather than a plastics material. Each of the first straps 32 and each

of the second straps 34 is thus formed with an extra crease 352 as discussed with reference to Figures 50 and 51. The fully erected condition with the disposable coffee cups is shown in Figure 60. A similar blank 354 for use with six
5 disposable coffee cups, and having non-linear central slits, 22 is shown in Figure 61.

Finally, Figure 62 shows a blank 360, according to the present invention, which is particularly suitable for use
10 in the packaging of coffee mugs, or other articles with projections such as handles.

The blank 360 includes many features which are either identical to or closely derived from previously disclosed
15 features. In particular, locking tabs 362 are here oval rather than substantially circular but operate in exactly the same manner as previously disclosed. Again, a conventional hanging cutout 364 is provided for ease of display.

CLAIMS

1. A binder comprising:

5 a first panel divided by a first fold line from a second panel which is divided by a second fold line from a third panel, the first and second fold lines being intersected by three slits, the central slit being longer than the first and second outer slits and each end of the
10 central slit being joined to an adjacent end of each of the first and second outer slits by a respective crease line;

whereby, when the third panel is folded about outer parts of the first and second fold lines to be spaced from yet overlie the first panel, the material between the
15 central slit and the first outer slit is folded about its associated crease lines and the inner parts of the first and second fold lines to form a first strap, and the material between the central slit and the second outer slit is folded about its associated crease lines and the inner
20 parts of the first and second fold lines to form a second strap.

2. A binder according to claim 1, in which the first and second fold lines are parallel or substantially parallel to
25 one another.

3. A binder according to claim 1, in which the first and second fold lines are divergent.

4. A binder according to any preceding claim, in which the material of the binder is a sheet-like material.
5. A binder according to claim 4, in which the sheet-like material is a plastics material.
6. A binder according to claim 4, in which the sheet-like material is card or cardboard.
7. A binder according to any preceding claim, in which the first panel is extended to form a flap to be folded over and secured to the third panel.
8. A binder according to any preceding claim, in which the first and second fold lines are coincident with one another, or are at least extremely close to one another, across all or part of the width of the binder so that the second panel effectively disappears or partly disappears.
9. A binder according to any preceding claim, in which there is a handle to facilitate carrying.
10. A binder according to any preceding claim, in which the central slit is split into two so that the first strap is separated from the second strap by a portion of the second panel.

11. A binder according to any preceding claim, in which the first and second straps have extra creases to facilitate folding.
- 5 12. A binder according to any preceding claim, in which a series of the first and/or second fold lines is provided to allow the distance between the first and the third panels to be adjusted.
- 10 13. A binder according to claim 12, in which all of the central and outer slits are capable of being lengthened.
14. A binder according to any preceding claim, in which all of the central and outer slits are parallel or
- 15 substantially parallel.
15. A binder according to any preceding claim, in which the outer slits are effectively coincident with the outer edges of the binder.
- 20 16. A binder according to any preceding claim, in which parts of the binder which are to be secured to one another are secured by tab/slit connections.
- 25 17. A binder according to any preceding claim, in which locking tabs are provided which, when the binder is erected, have opposed parts which are tucked inside corresponding opposed parts of the second panel.

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Fig 1

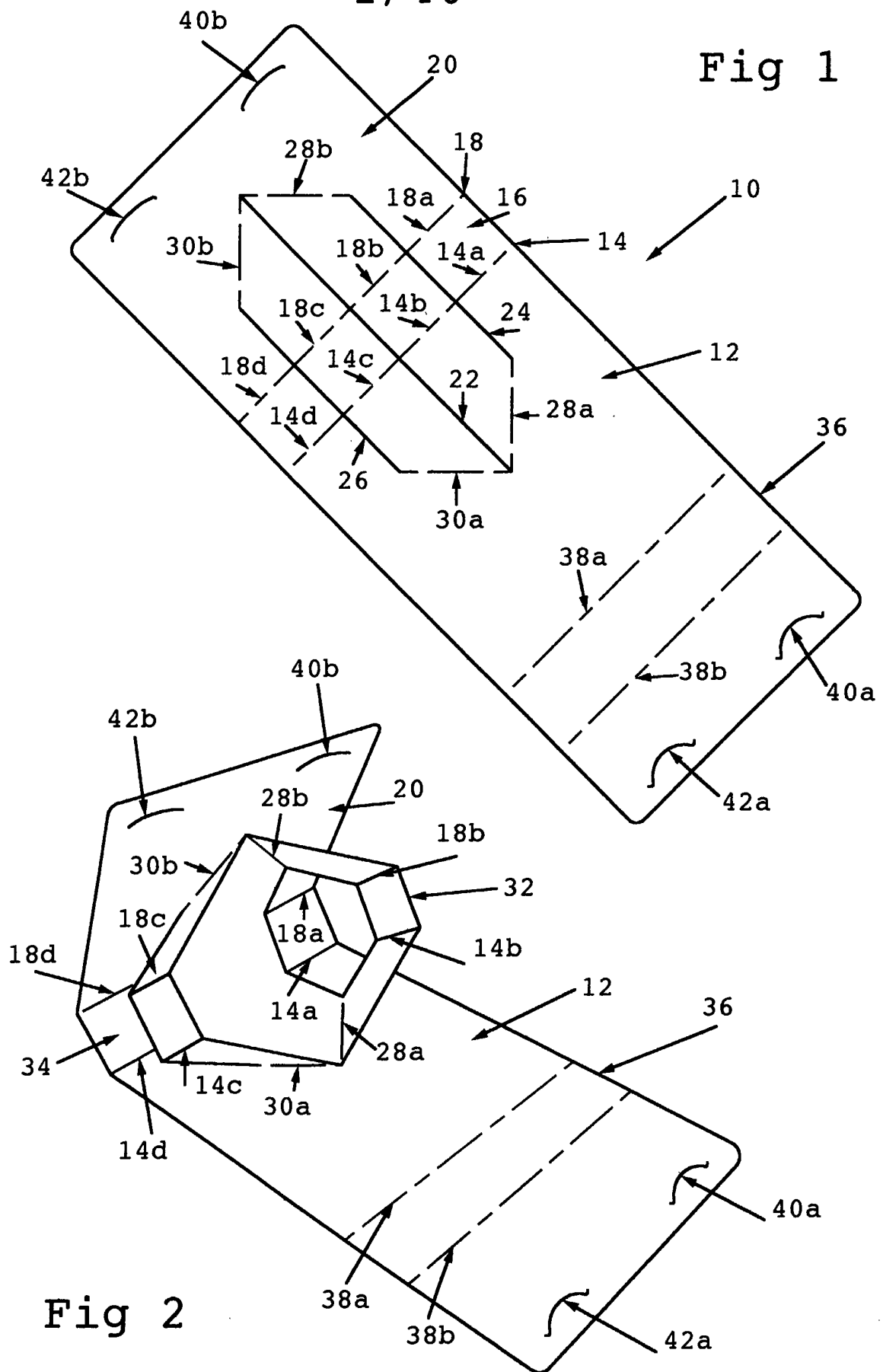
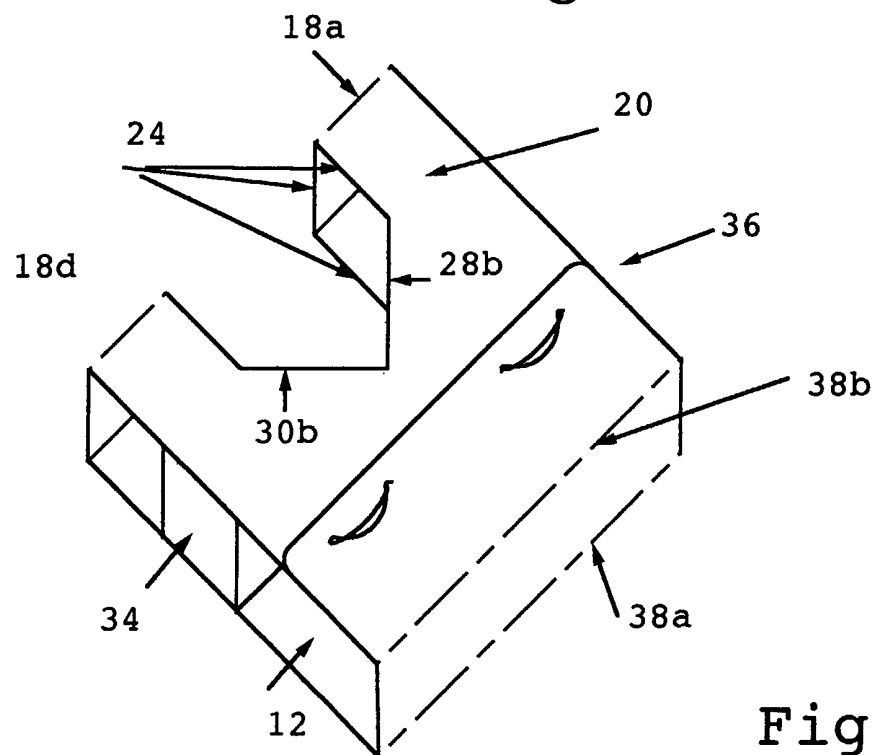
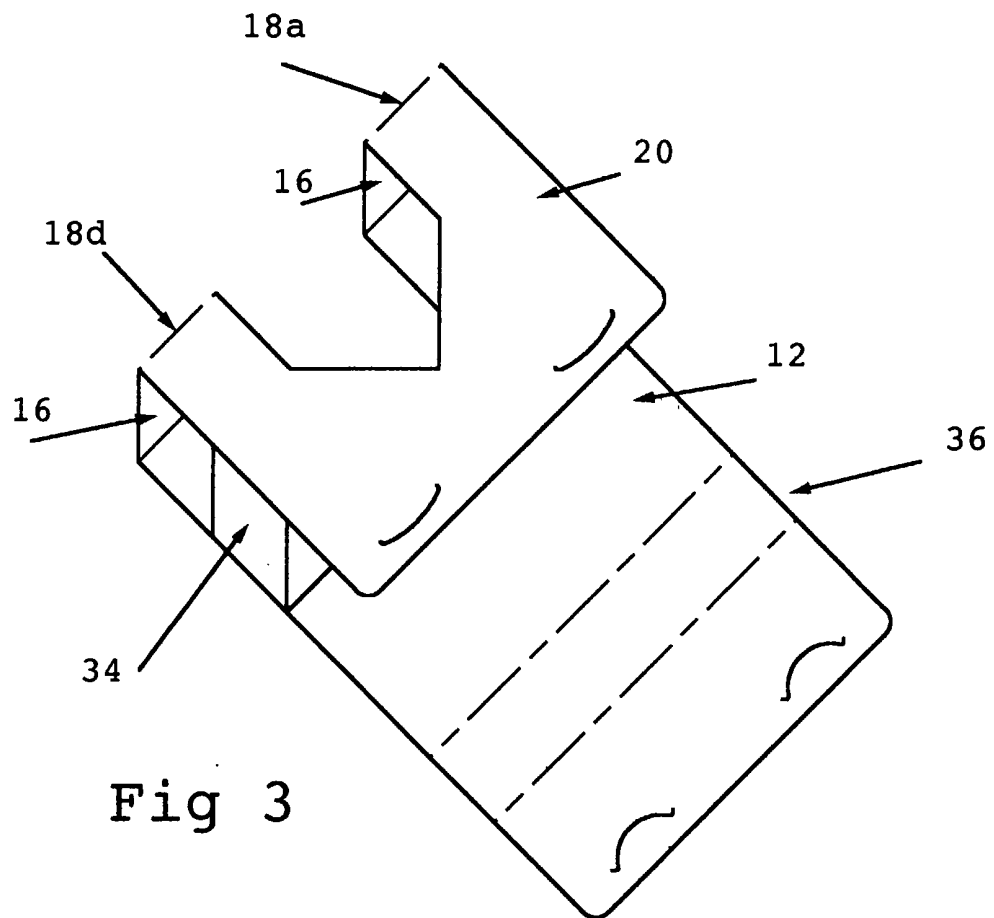


Fig 2

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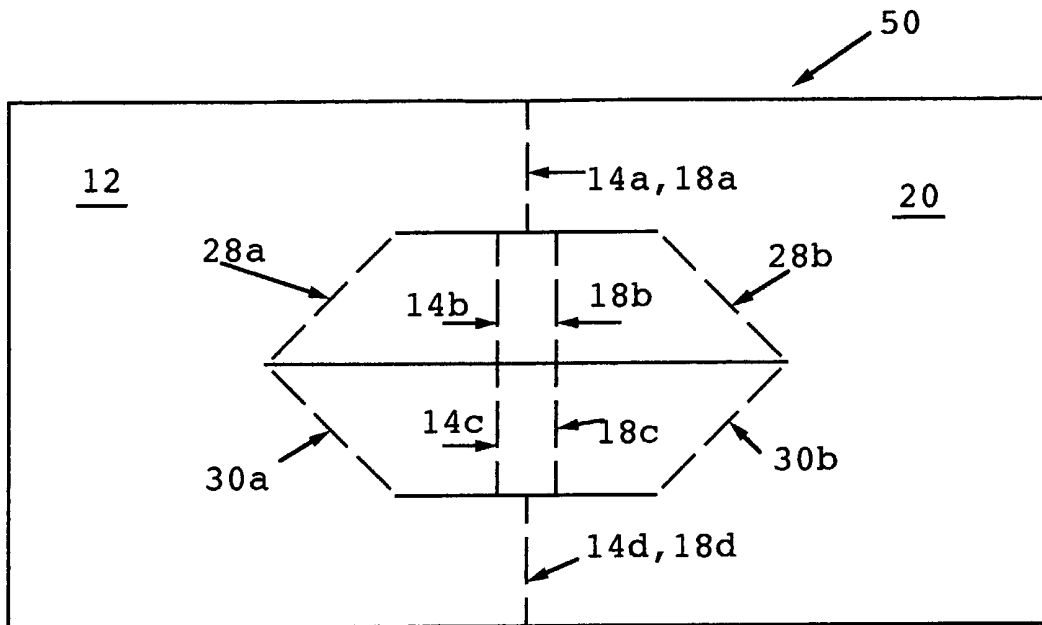


Fig 5

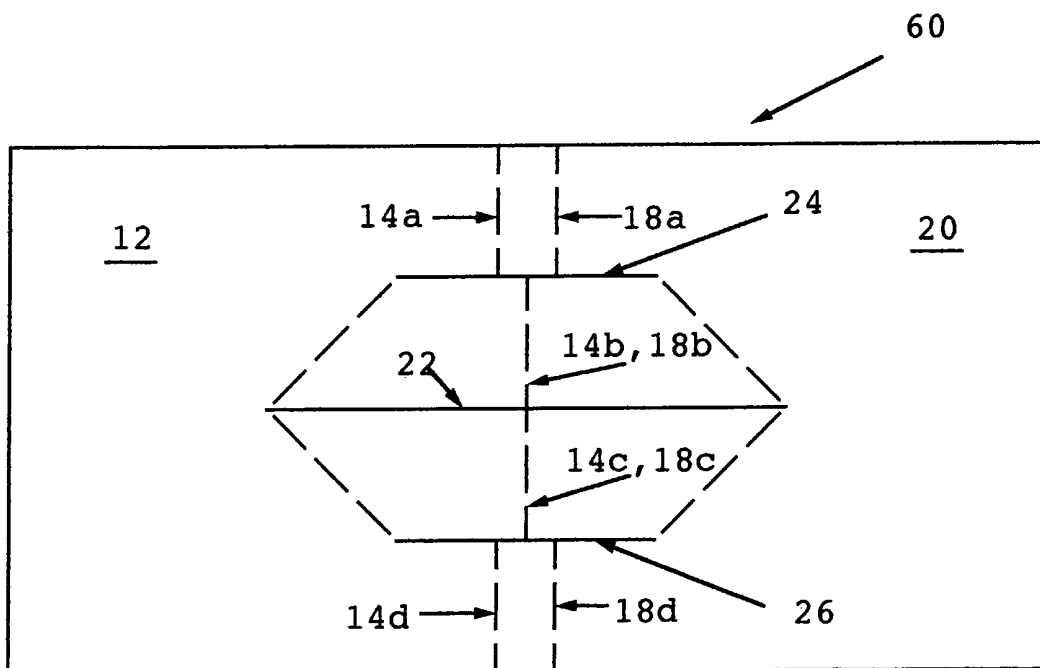


Fig 6

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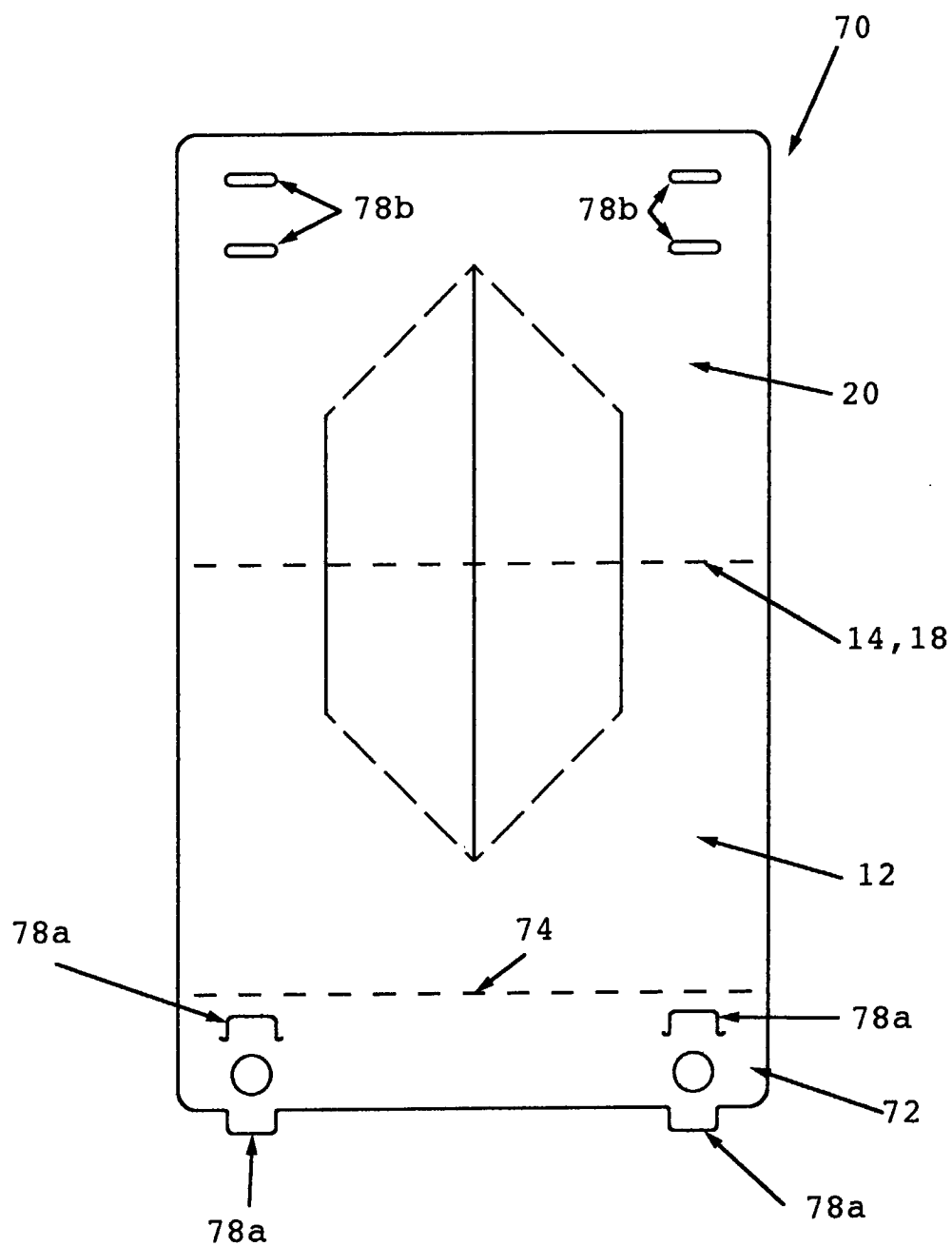
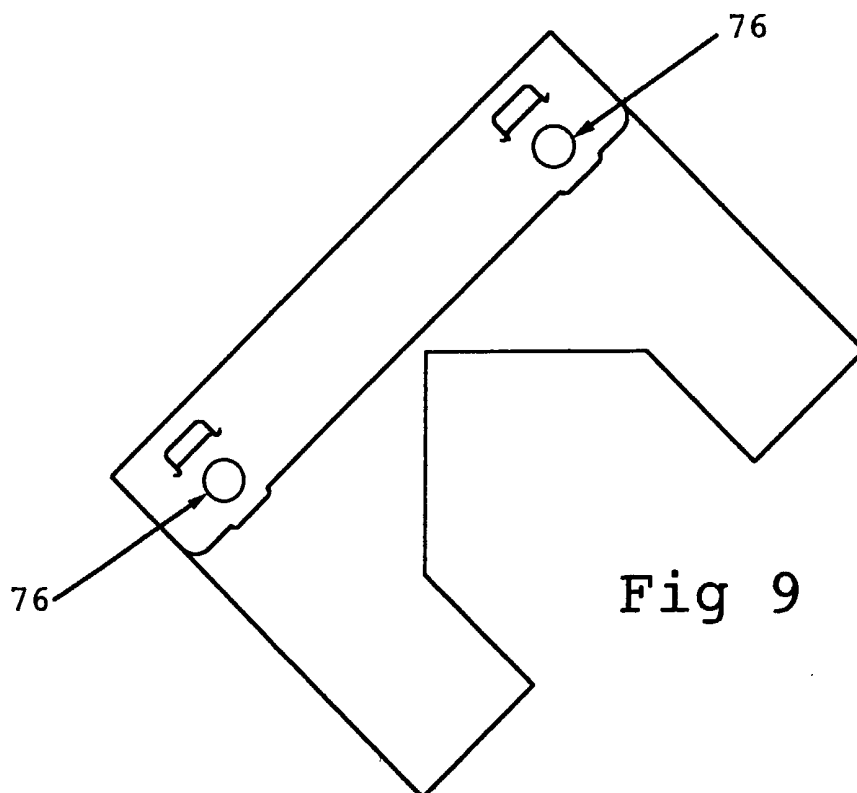
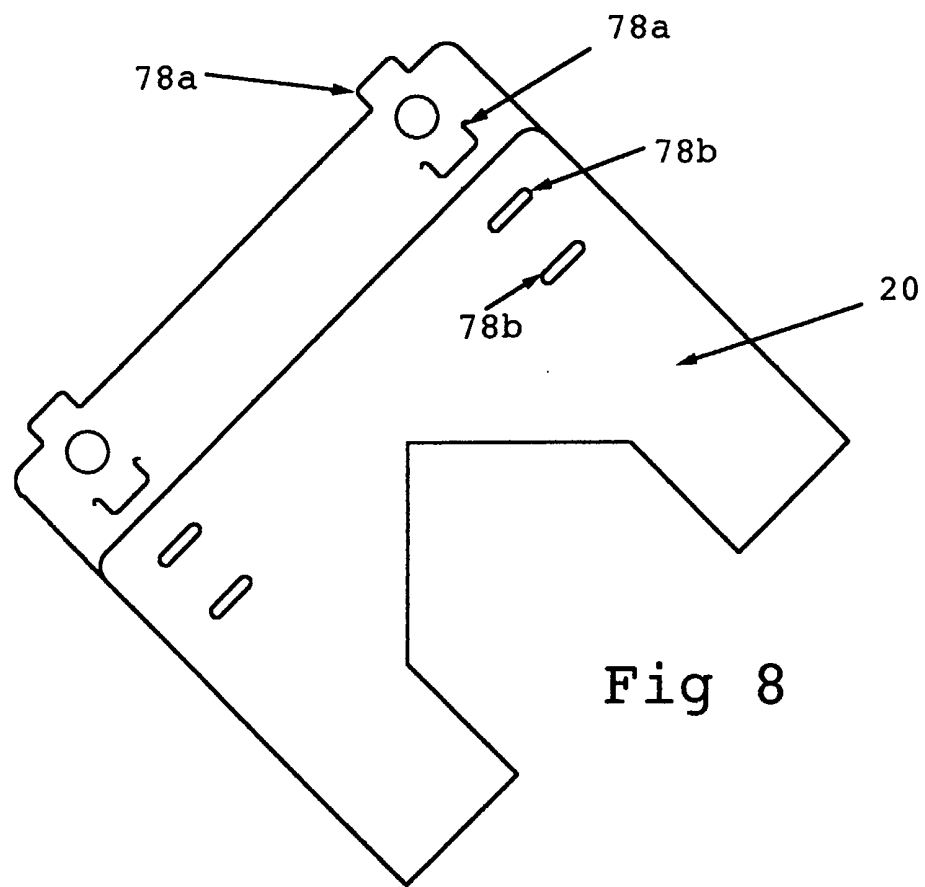


Fig 7

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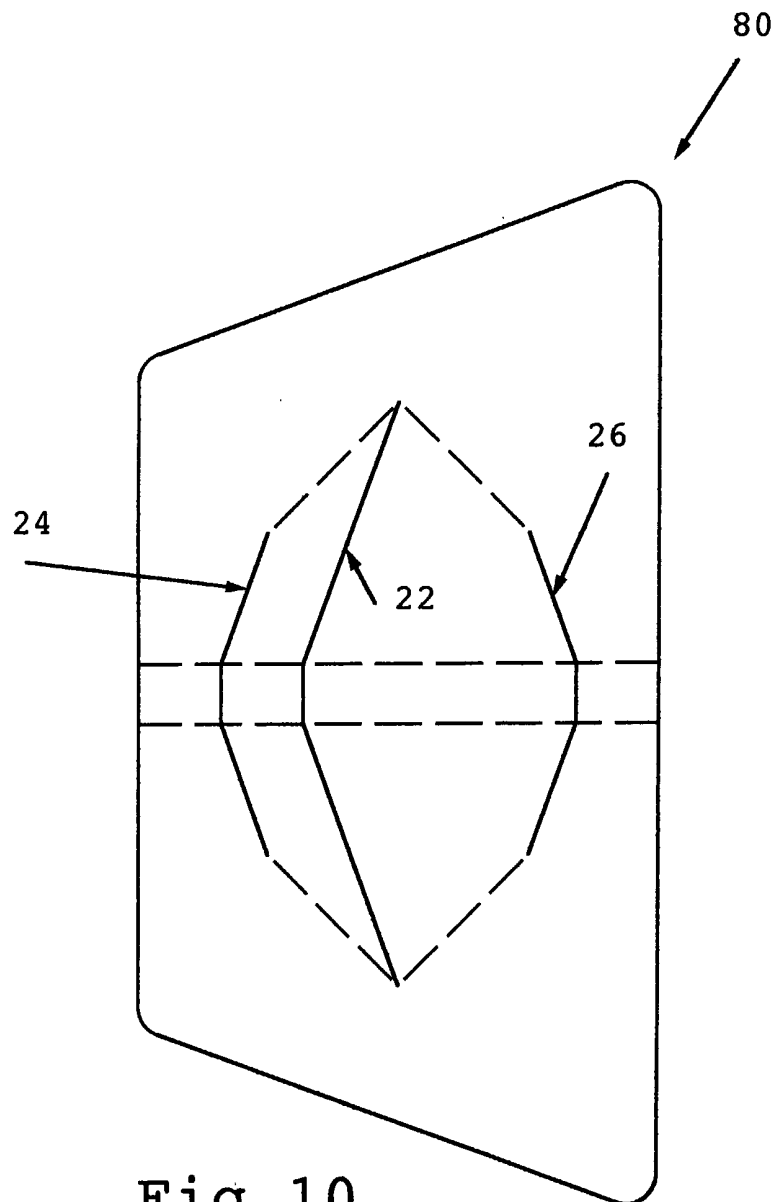


Fig 10

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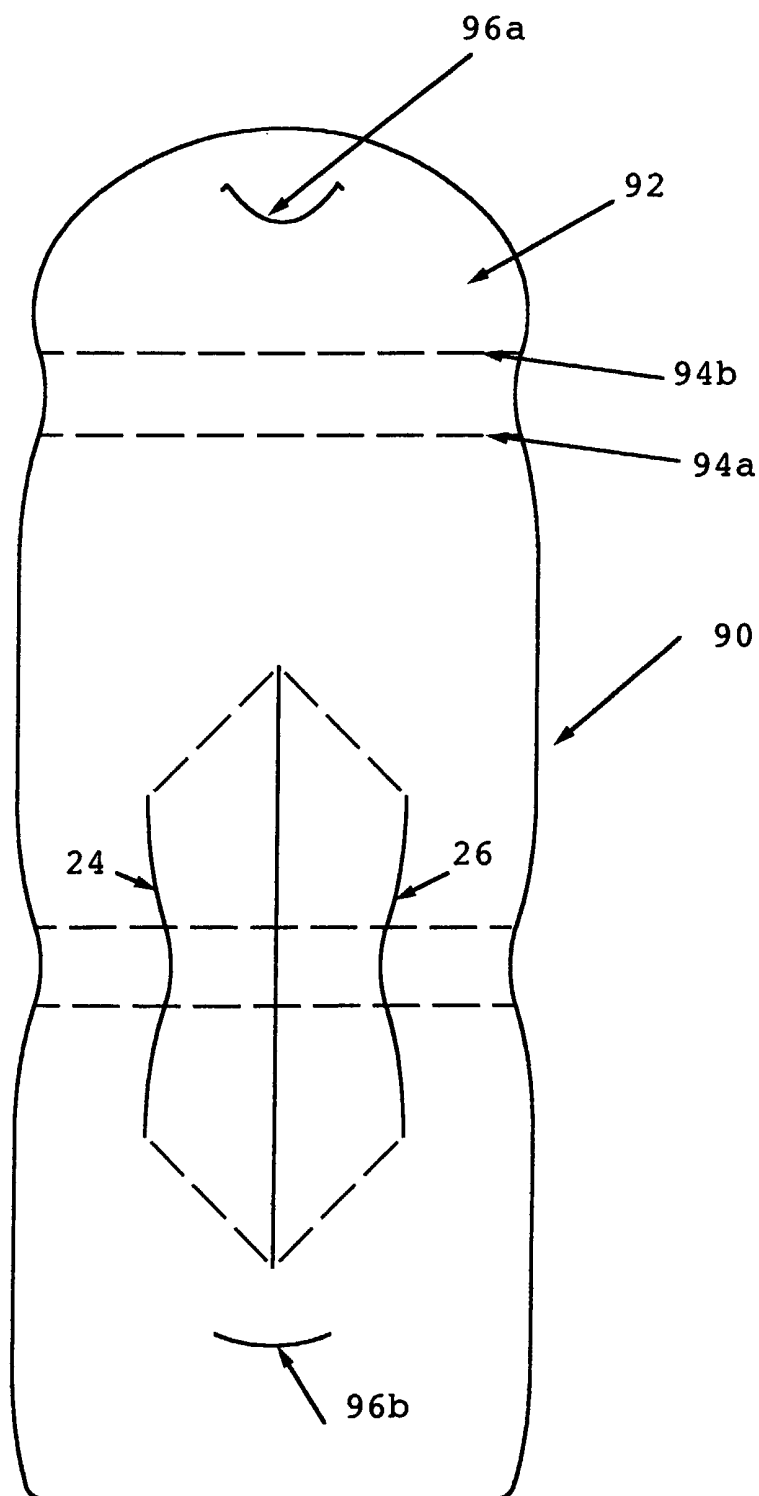


Fig 11

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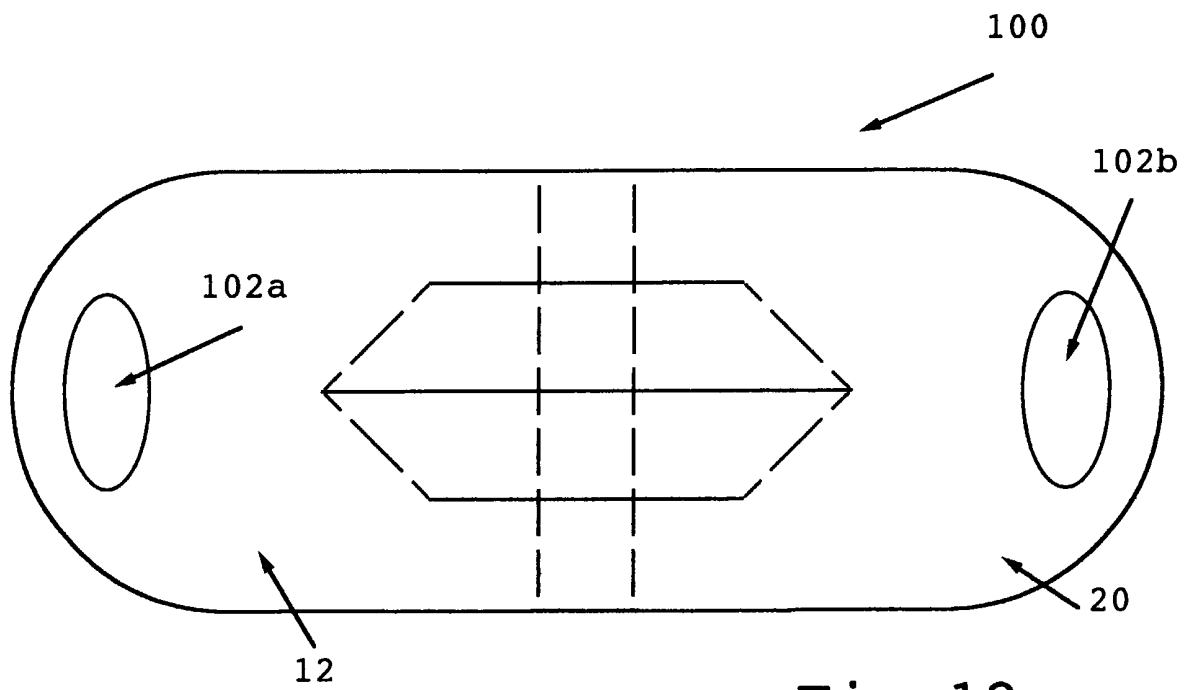


Fig 12

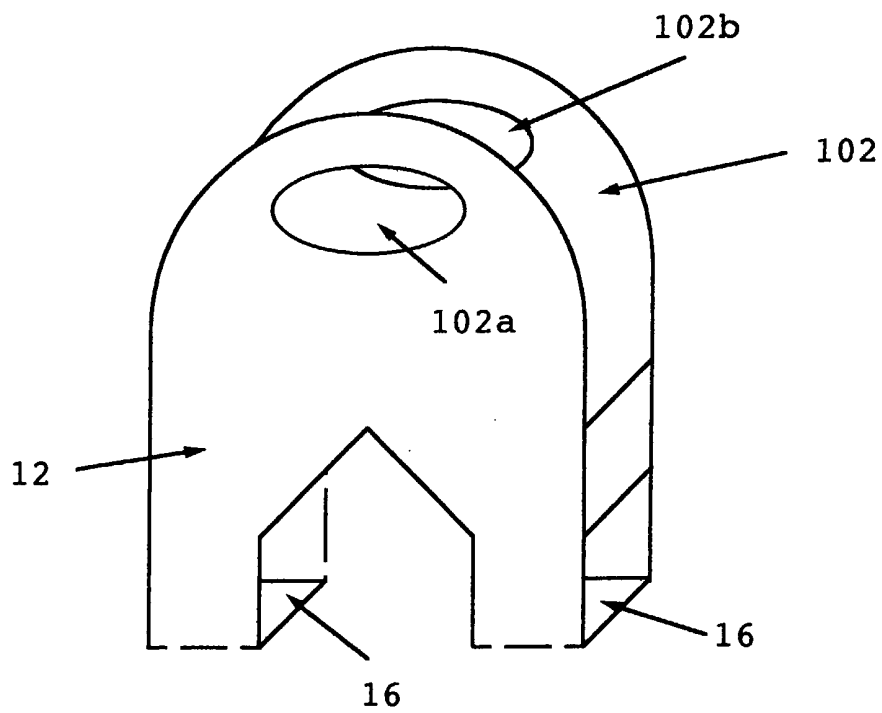


Fig 13

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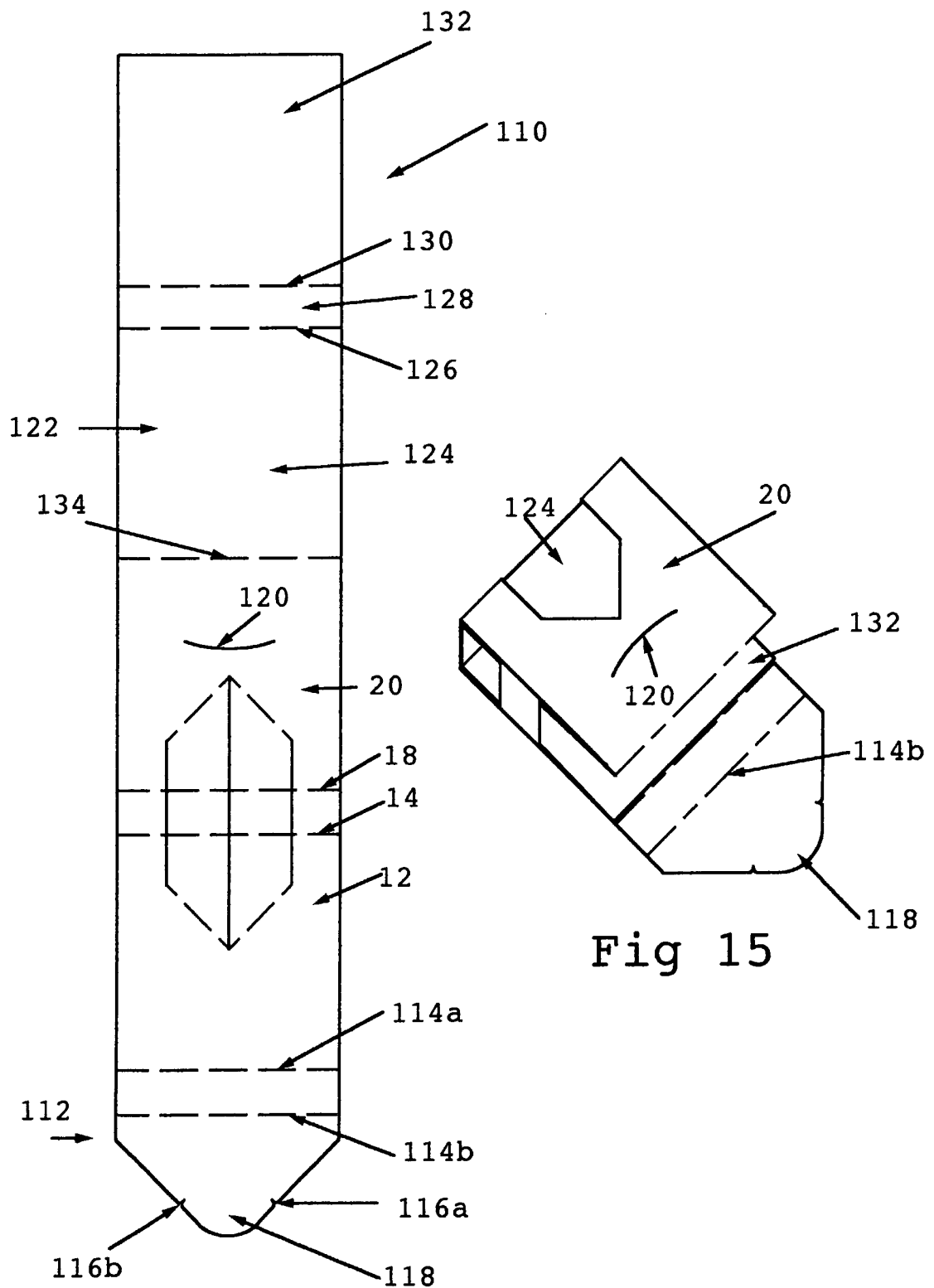
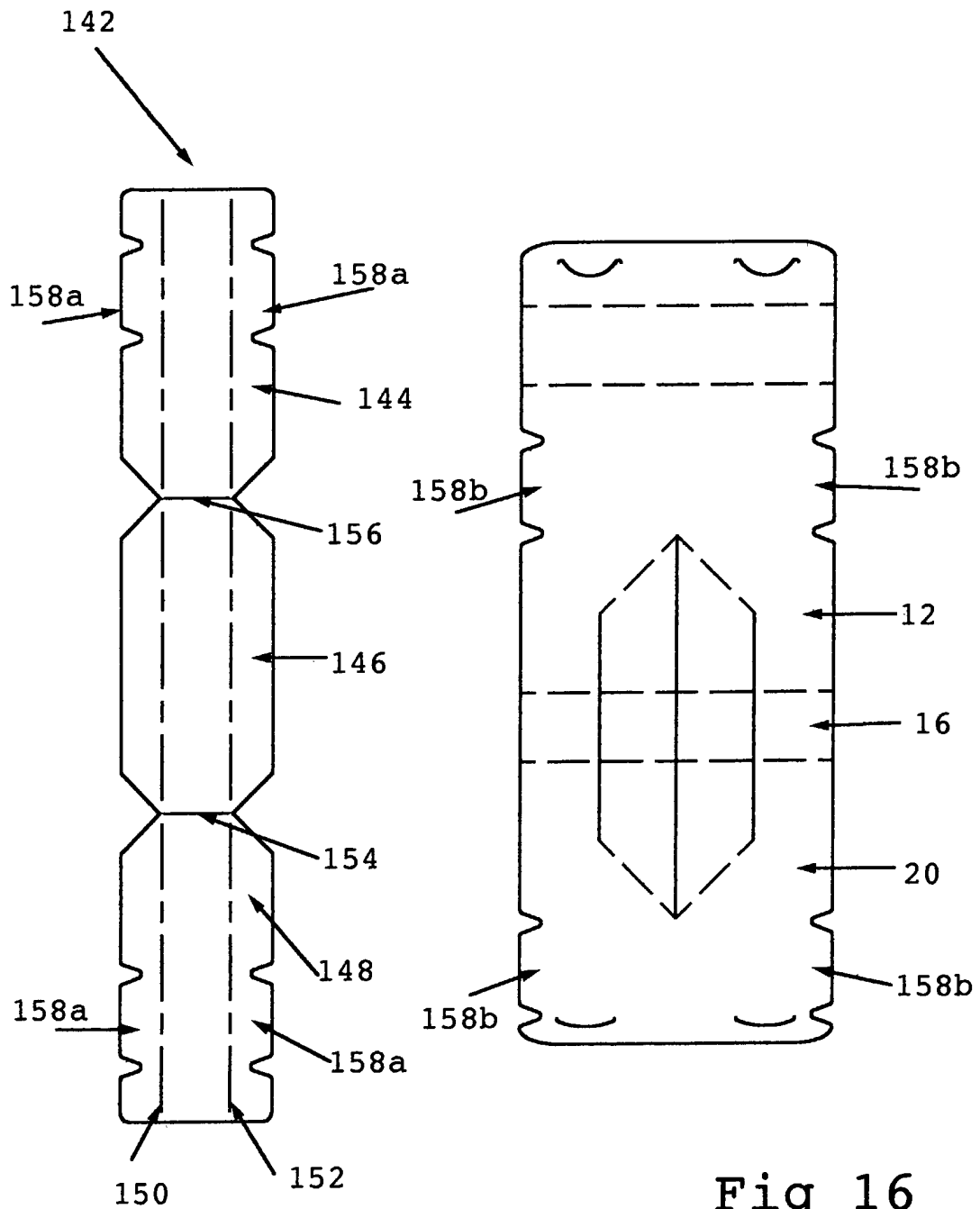


Fig 14

Fig 15

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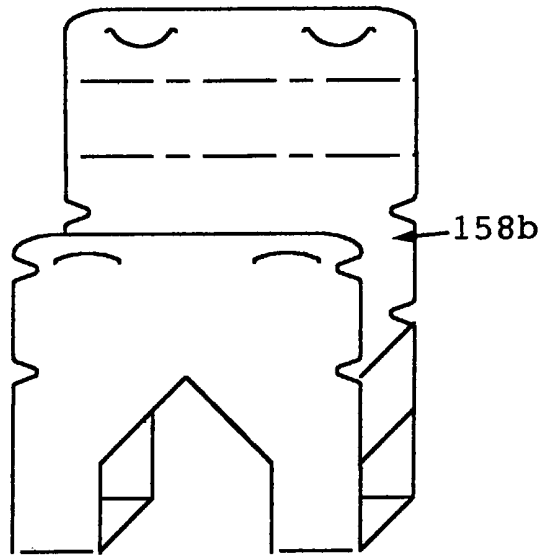
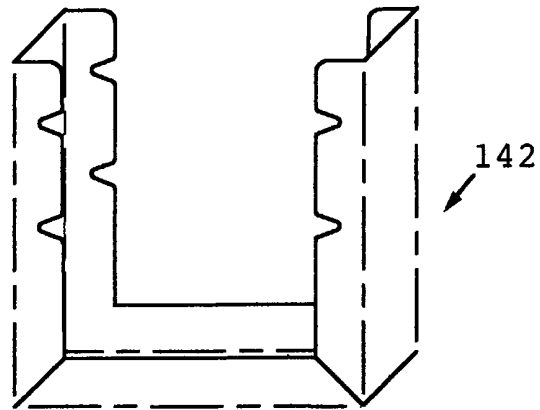


Fig 17

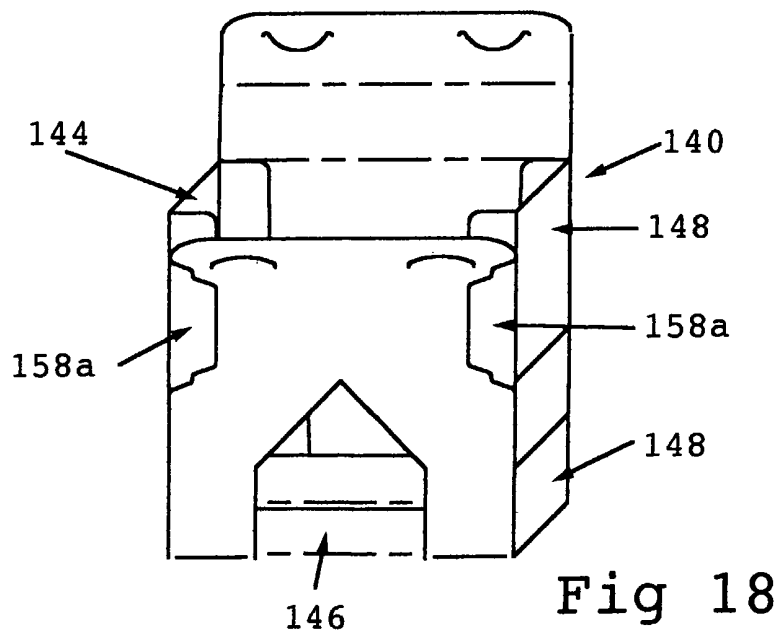


Fig 18

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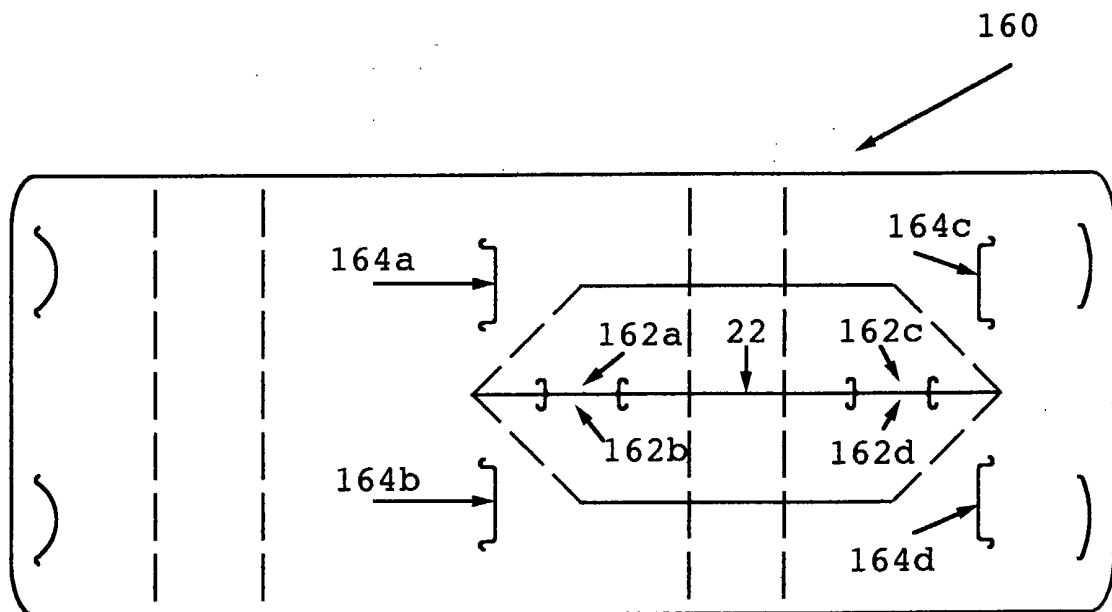


Fig 19

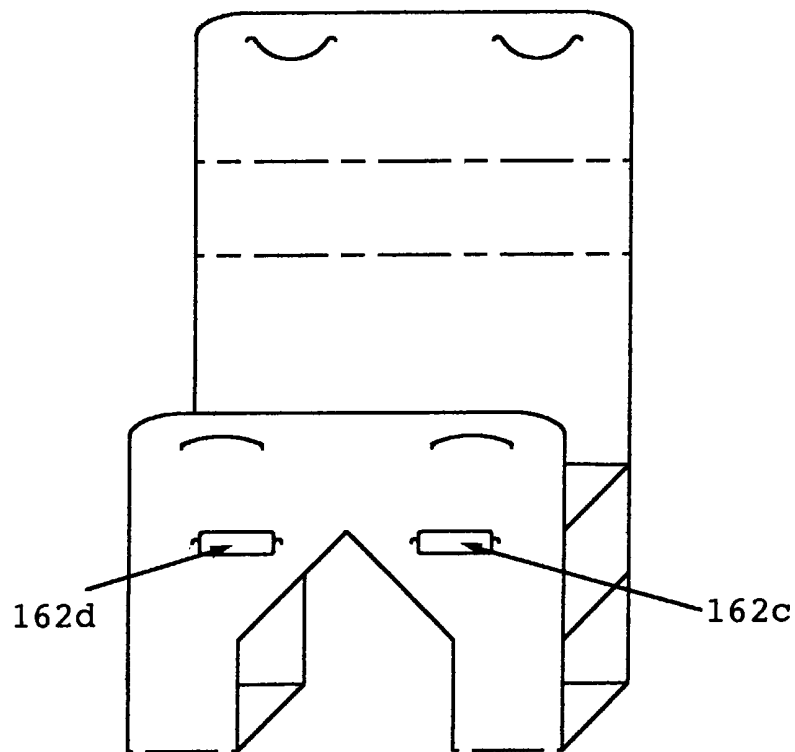


Fig 20

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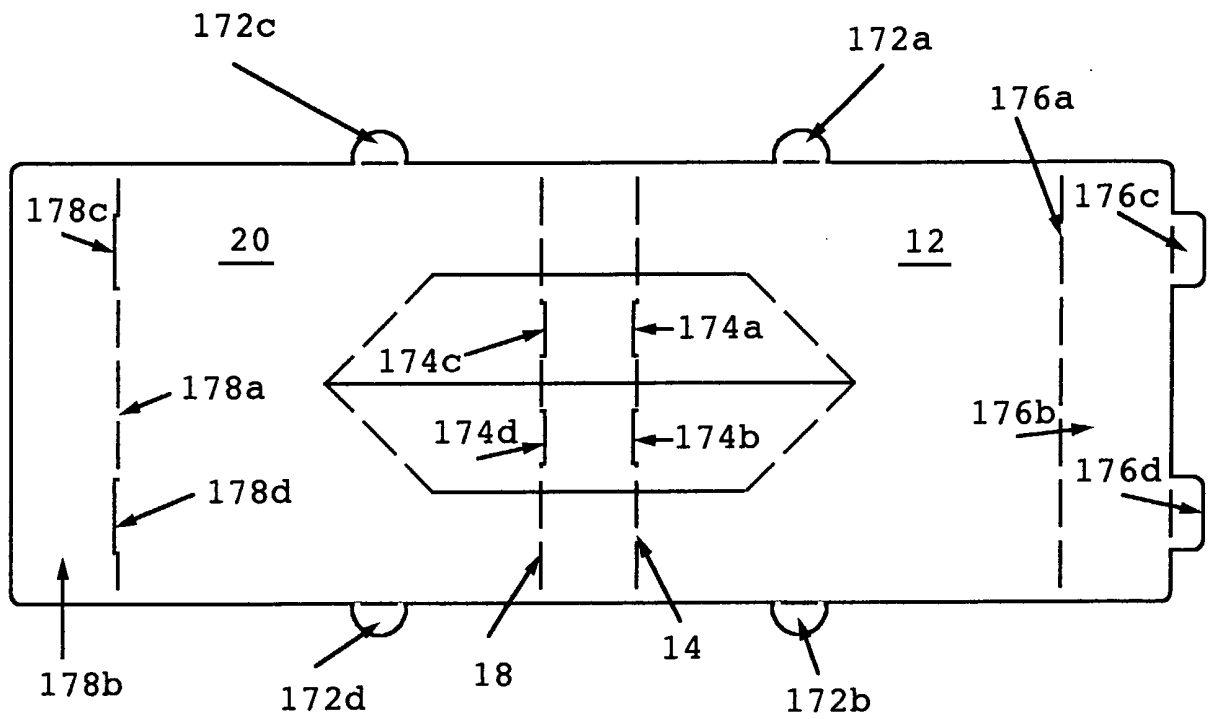


Fig 21

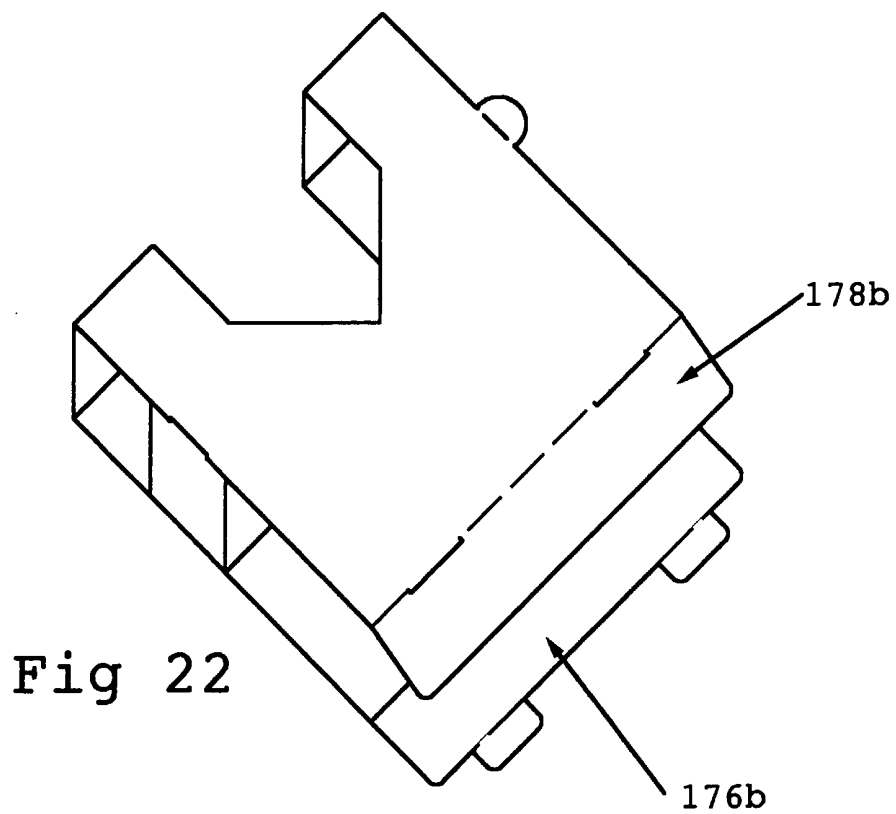


Fig 22

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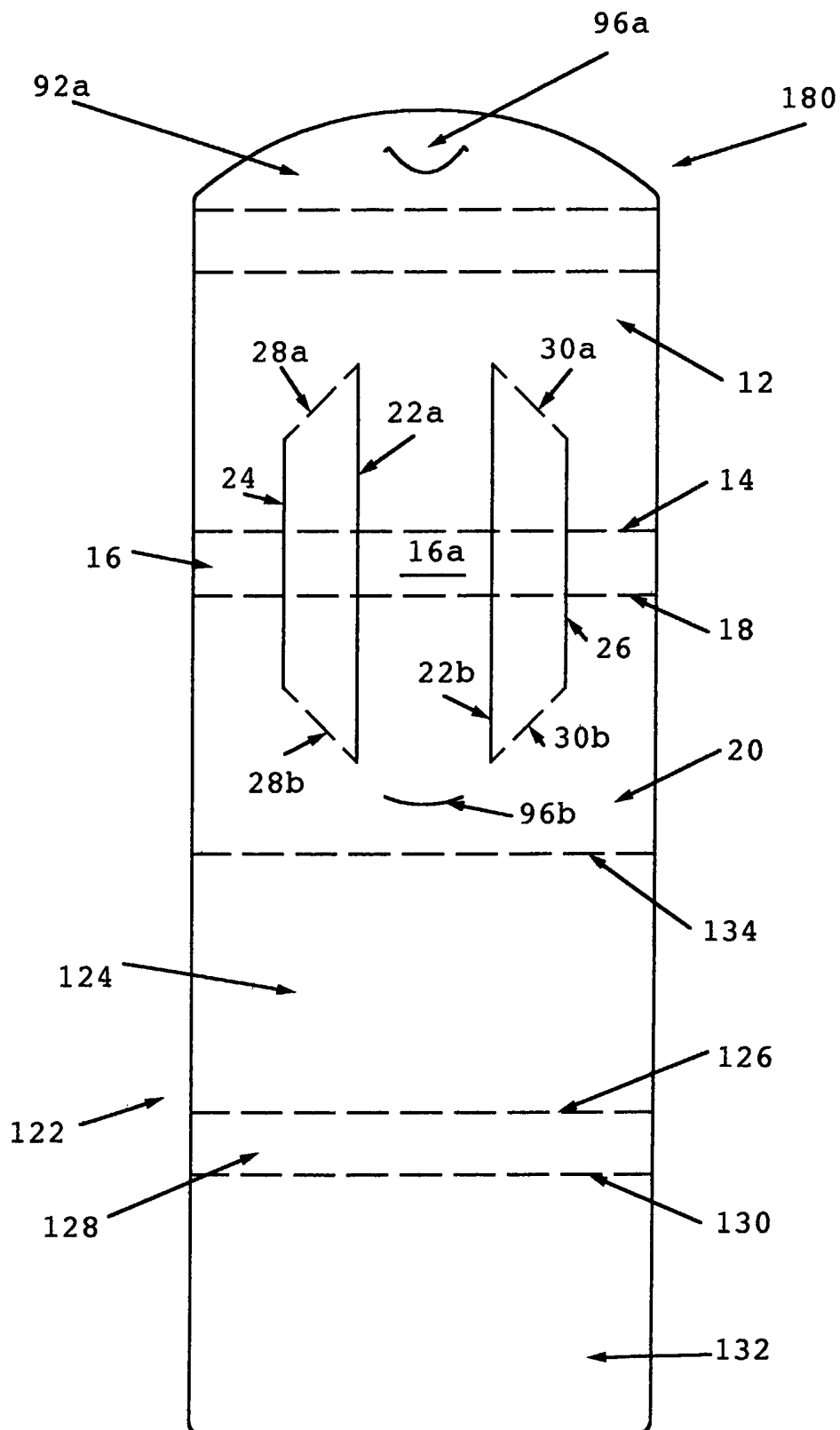
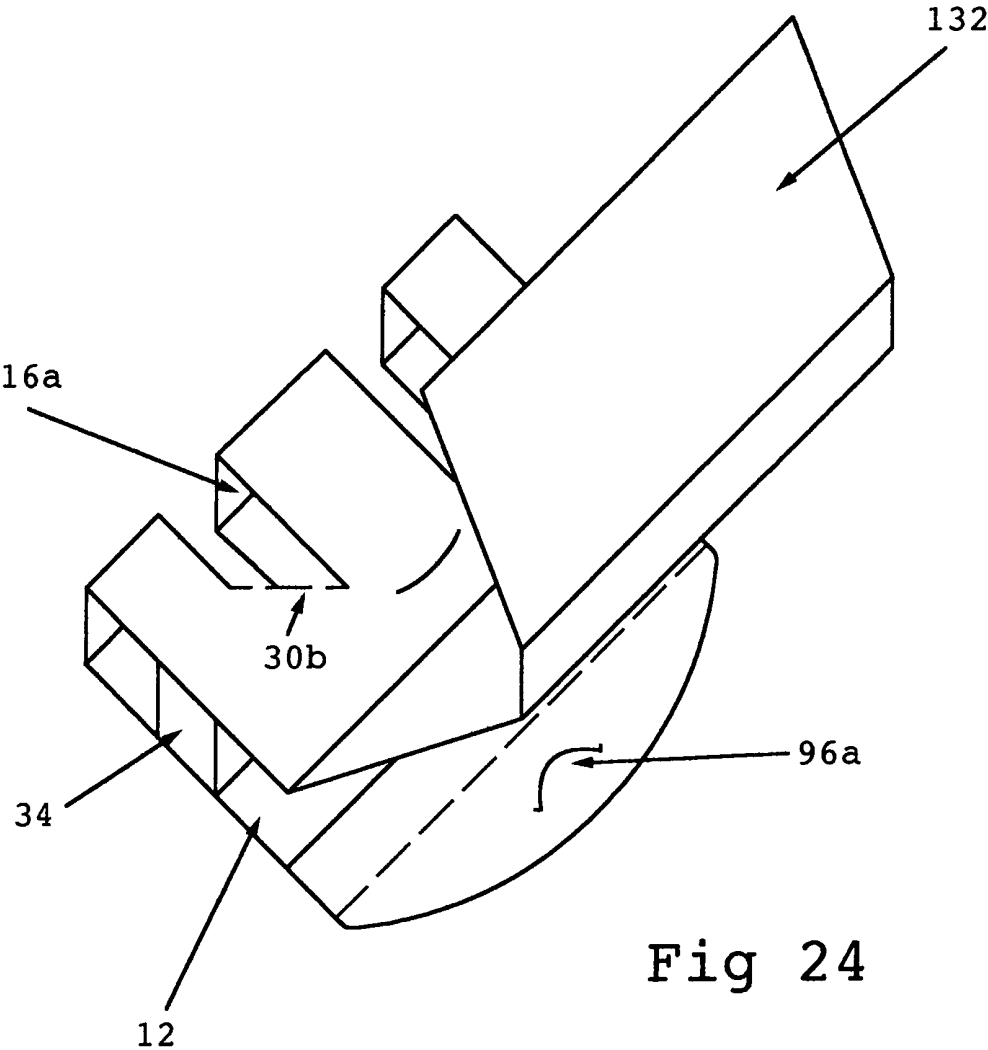
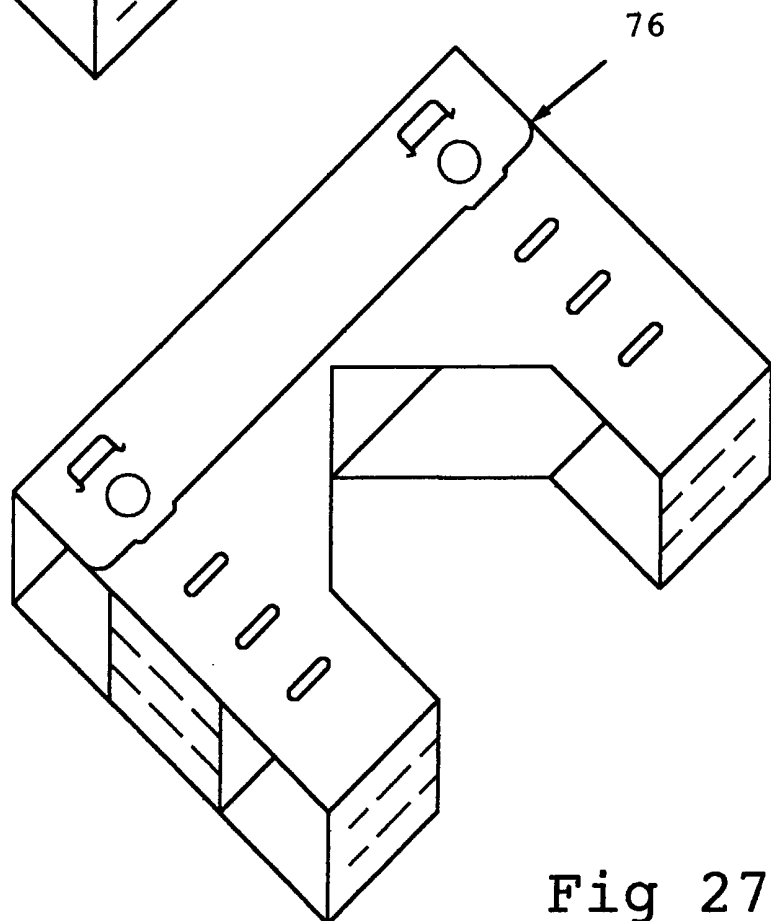
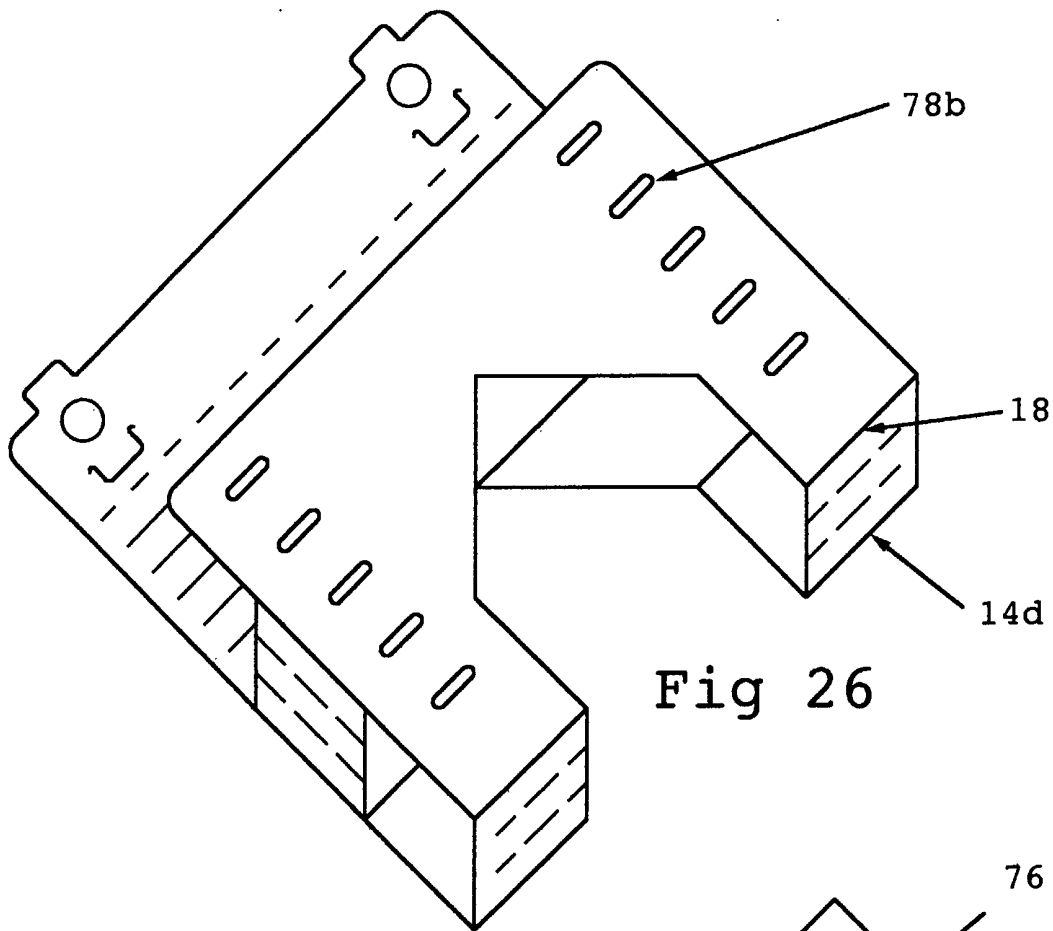


Fig 23



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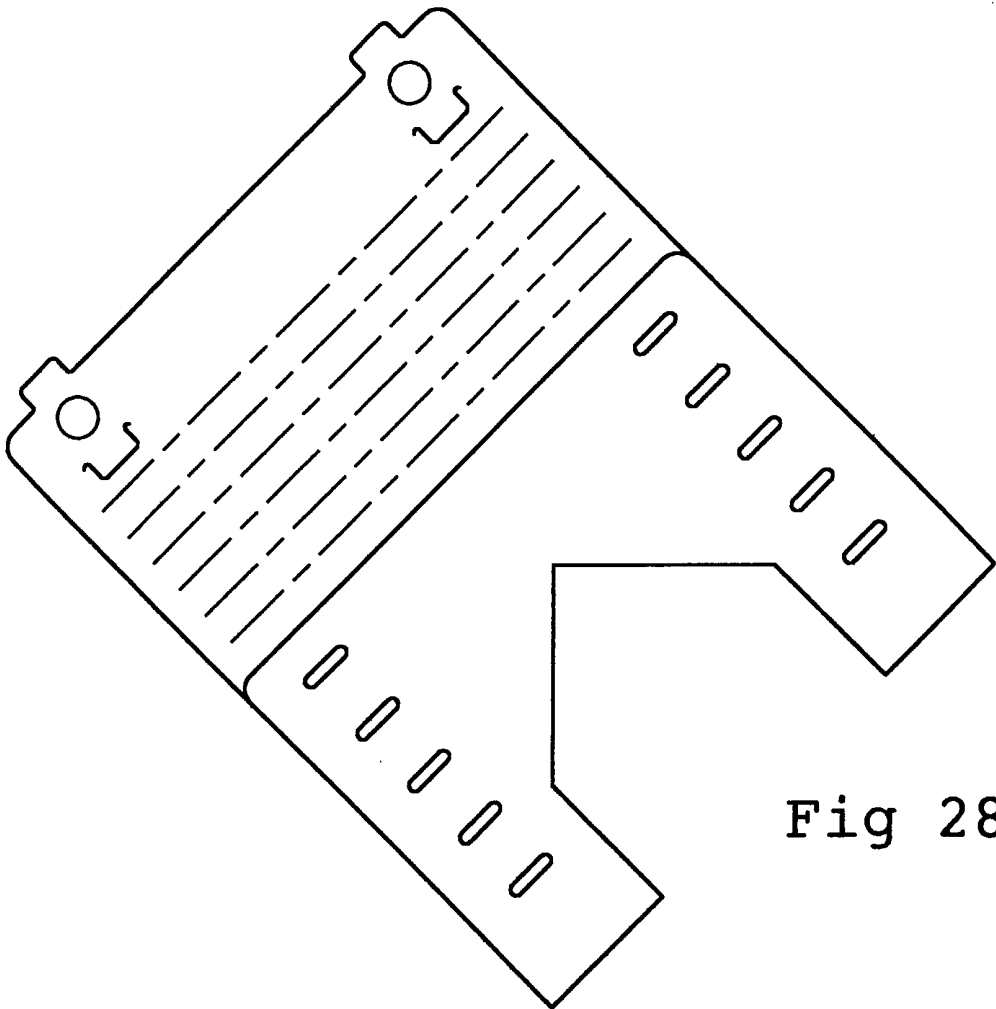


Fig 28

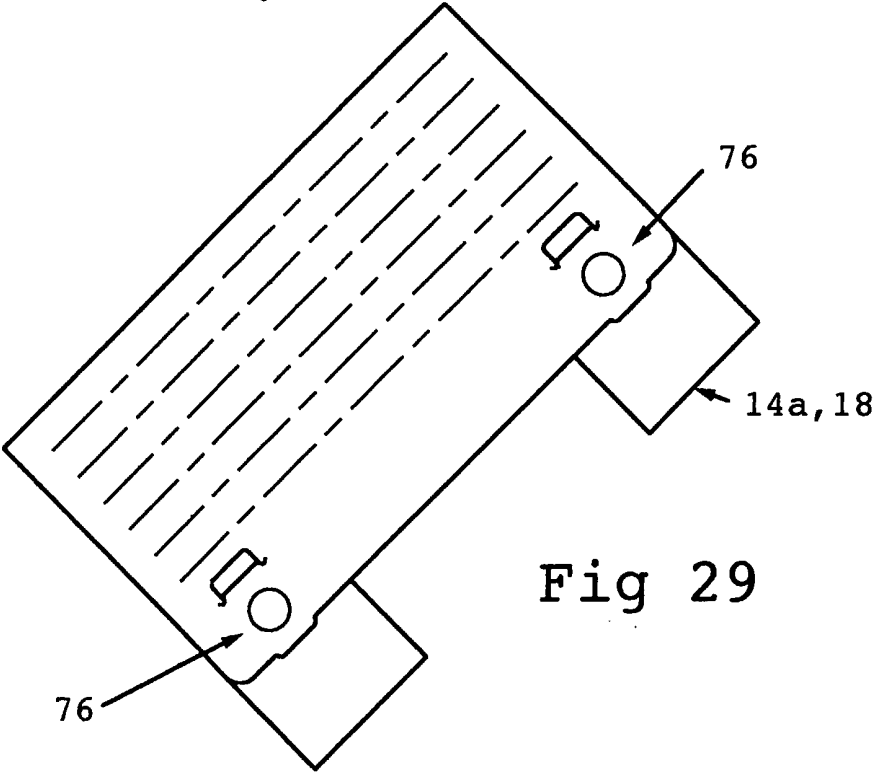


Fig 29

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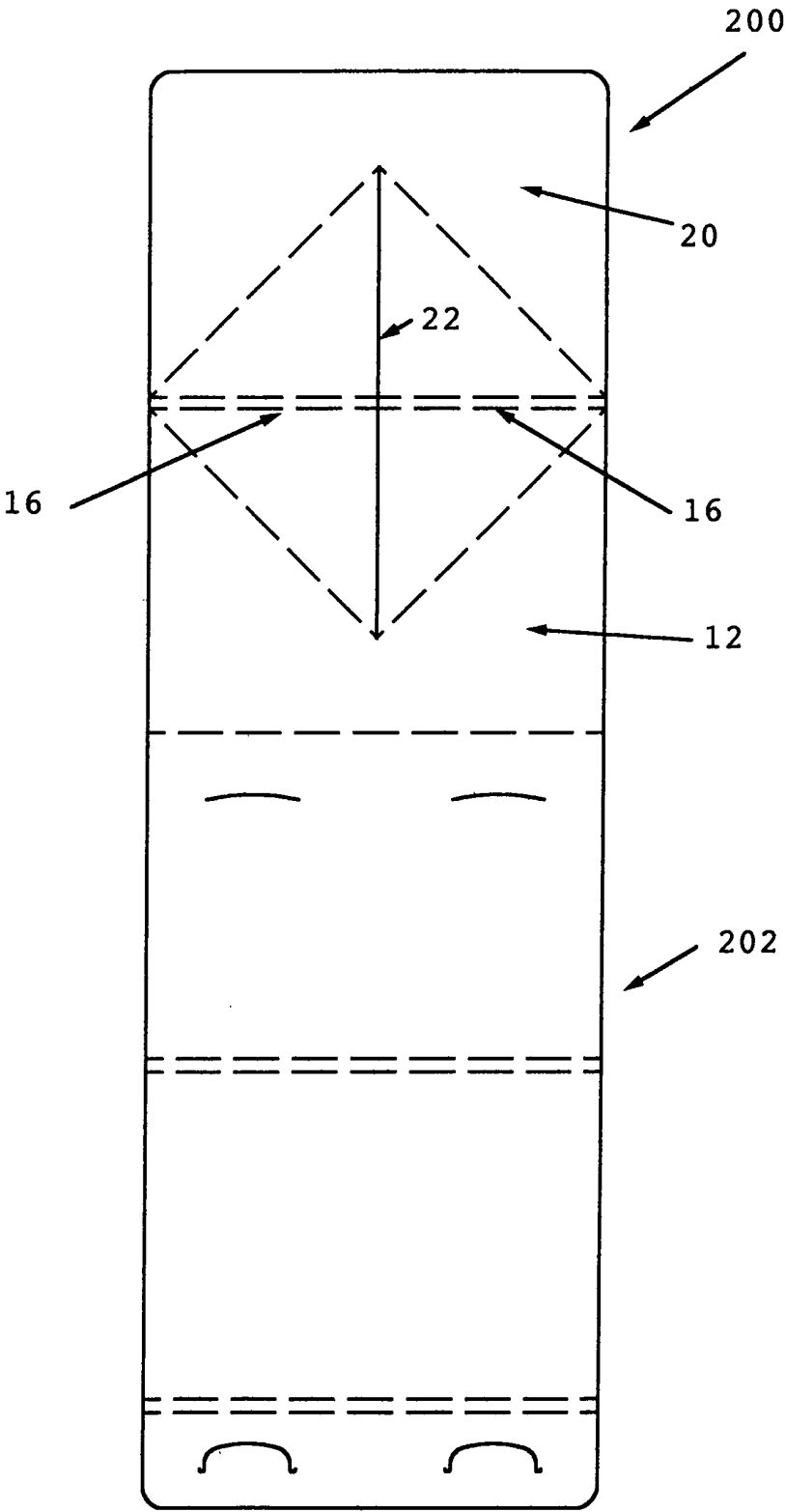


Fig 30

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Fig 31

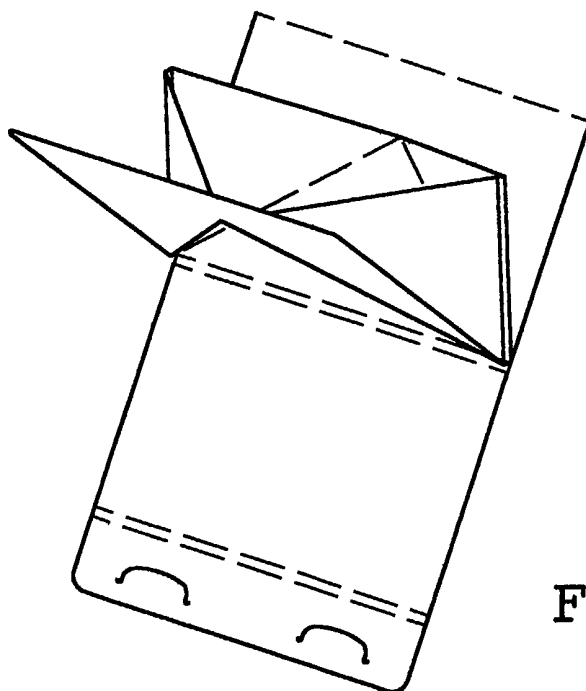
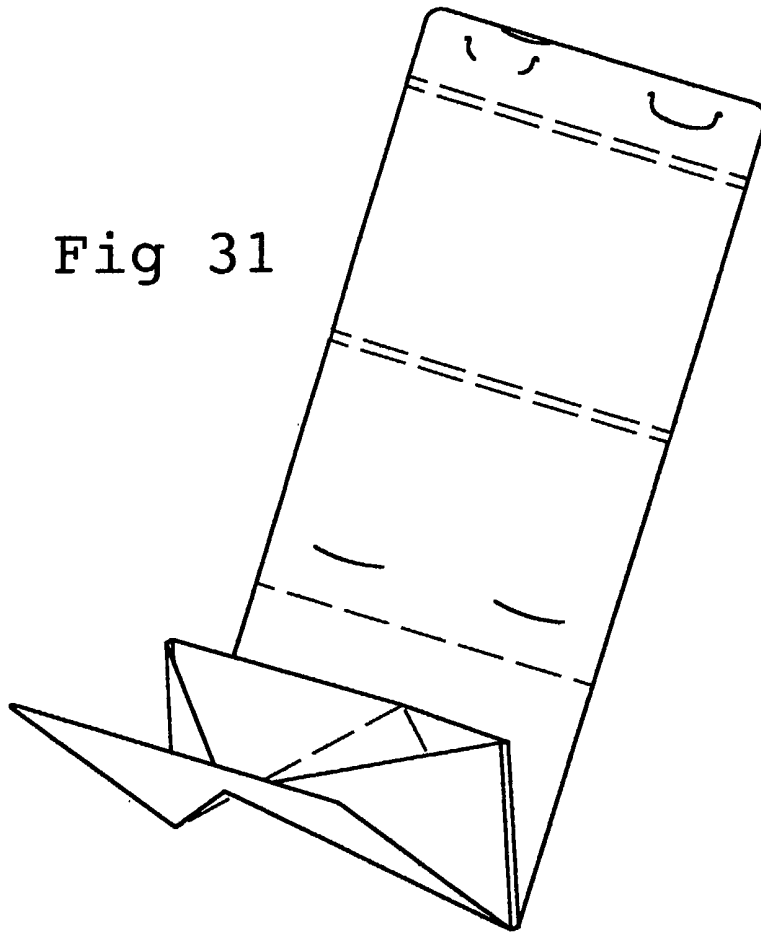


Fig 32

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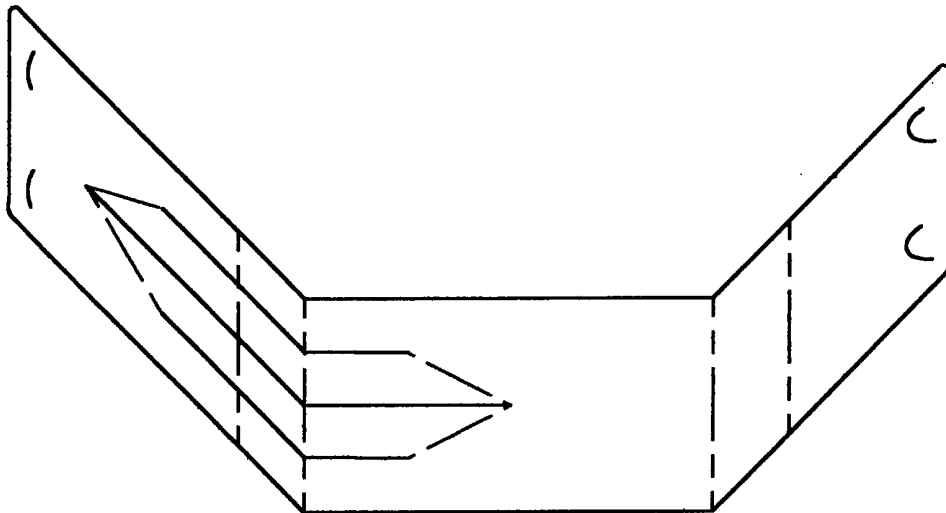


Fig 33

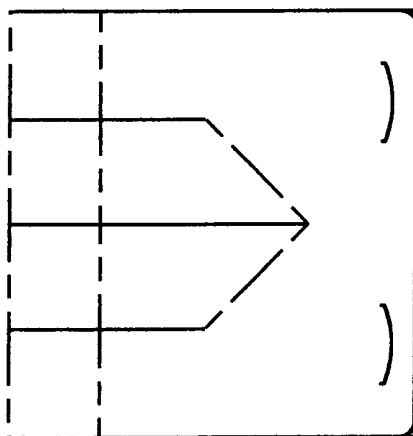


Fig 34

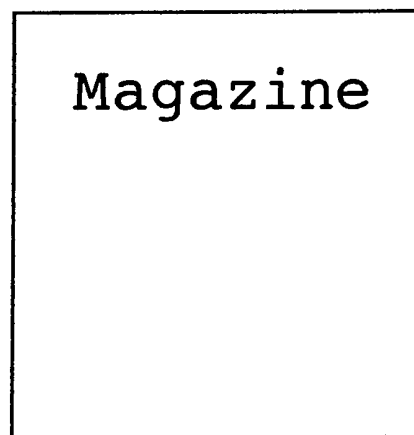
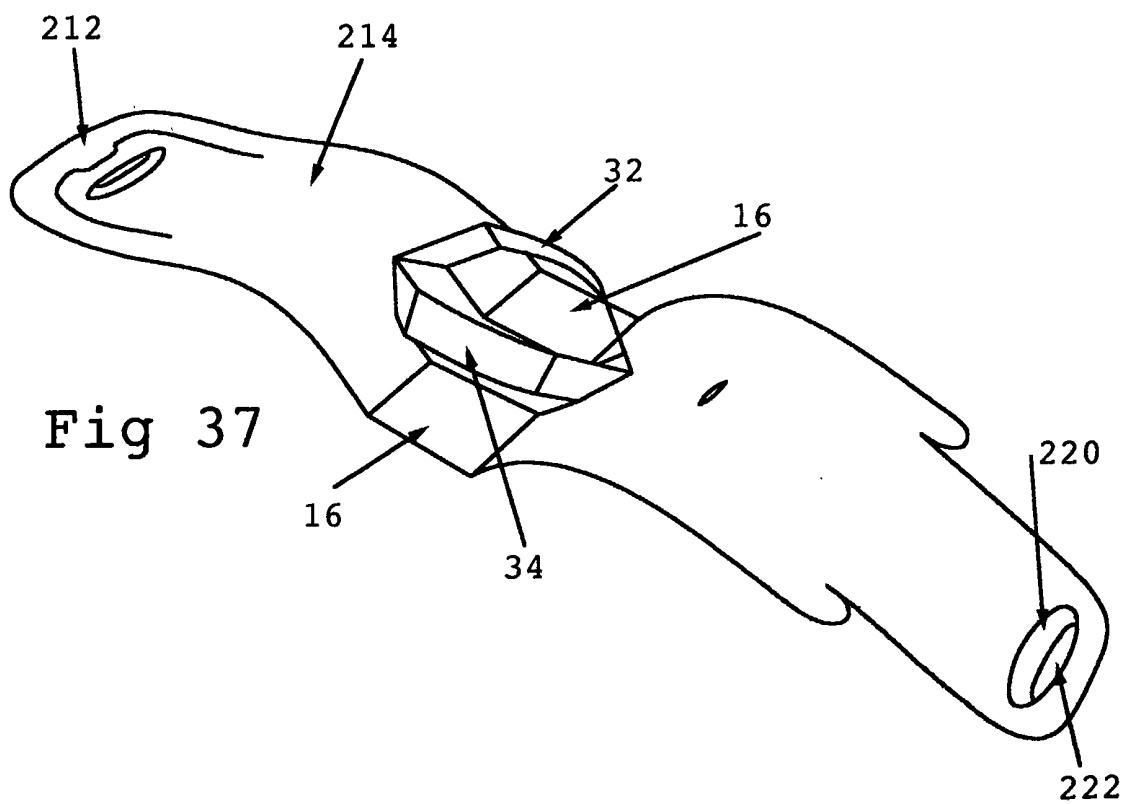
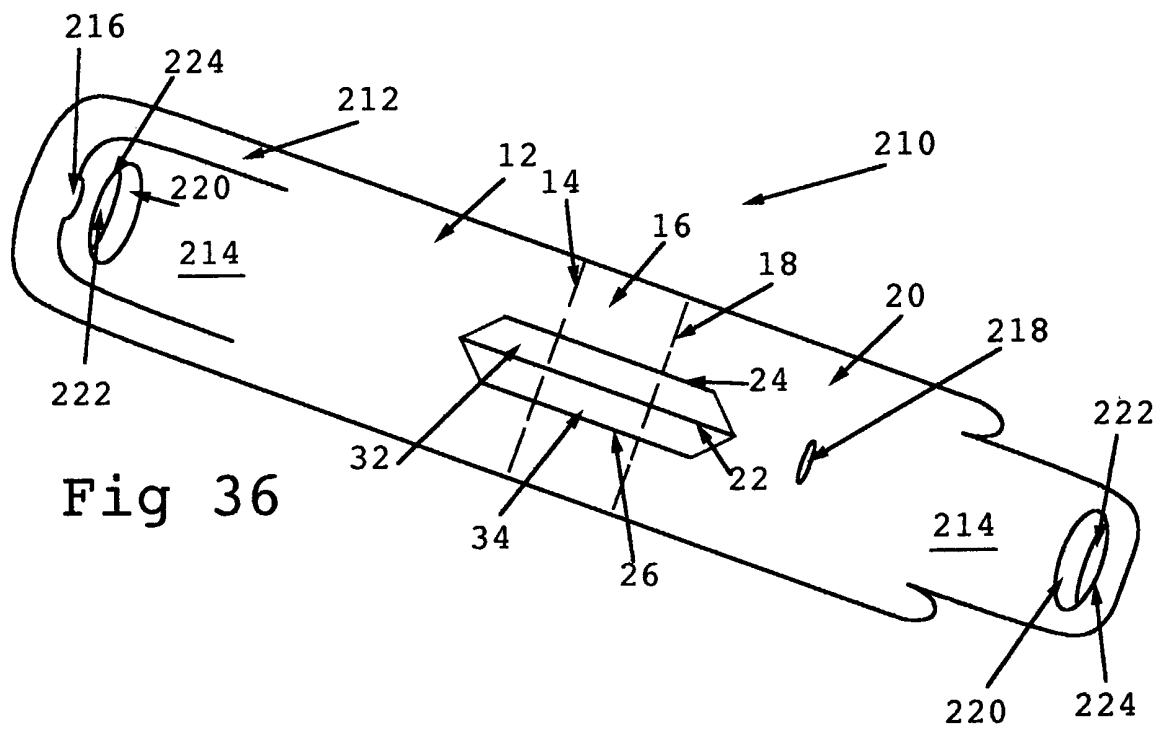
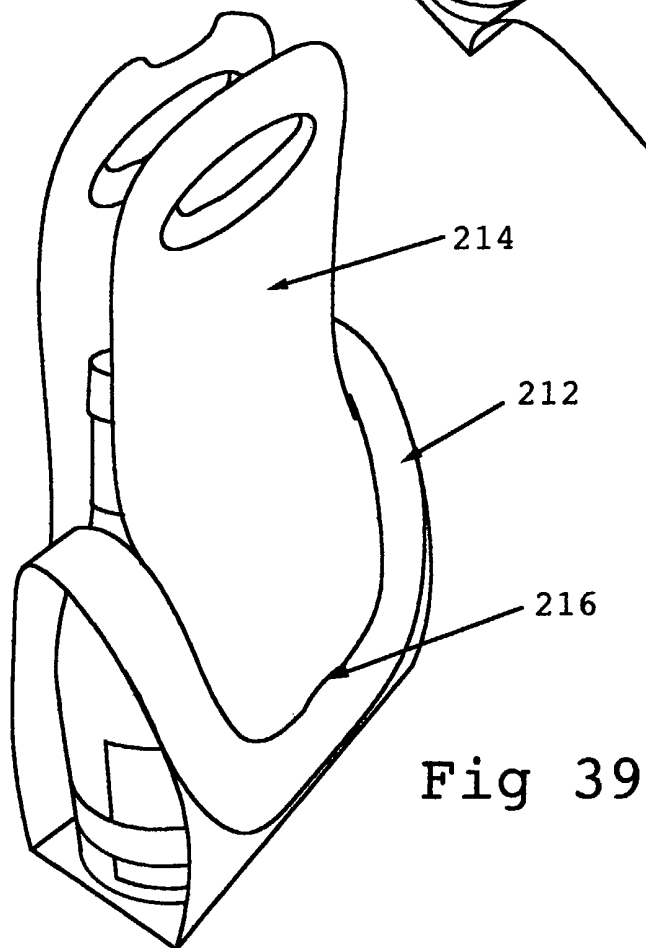
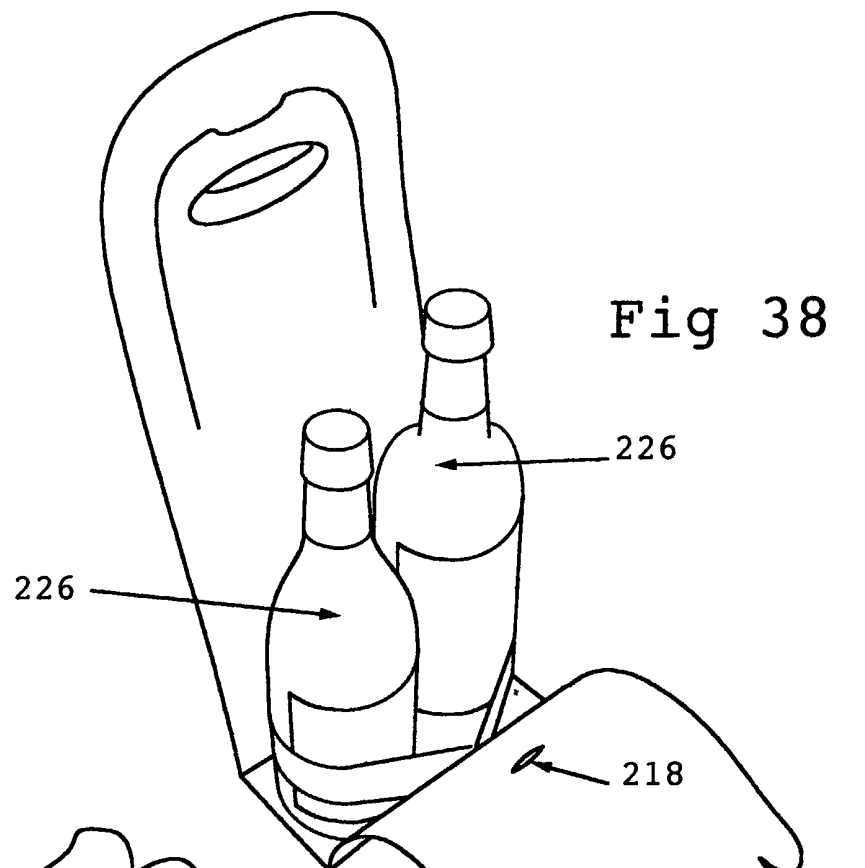


Fig 35

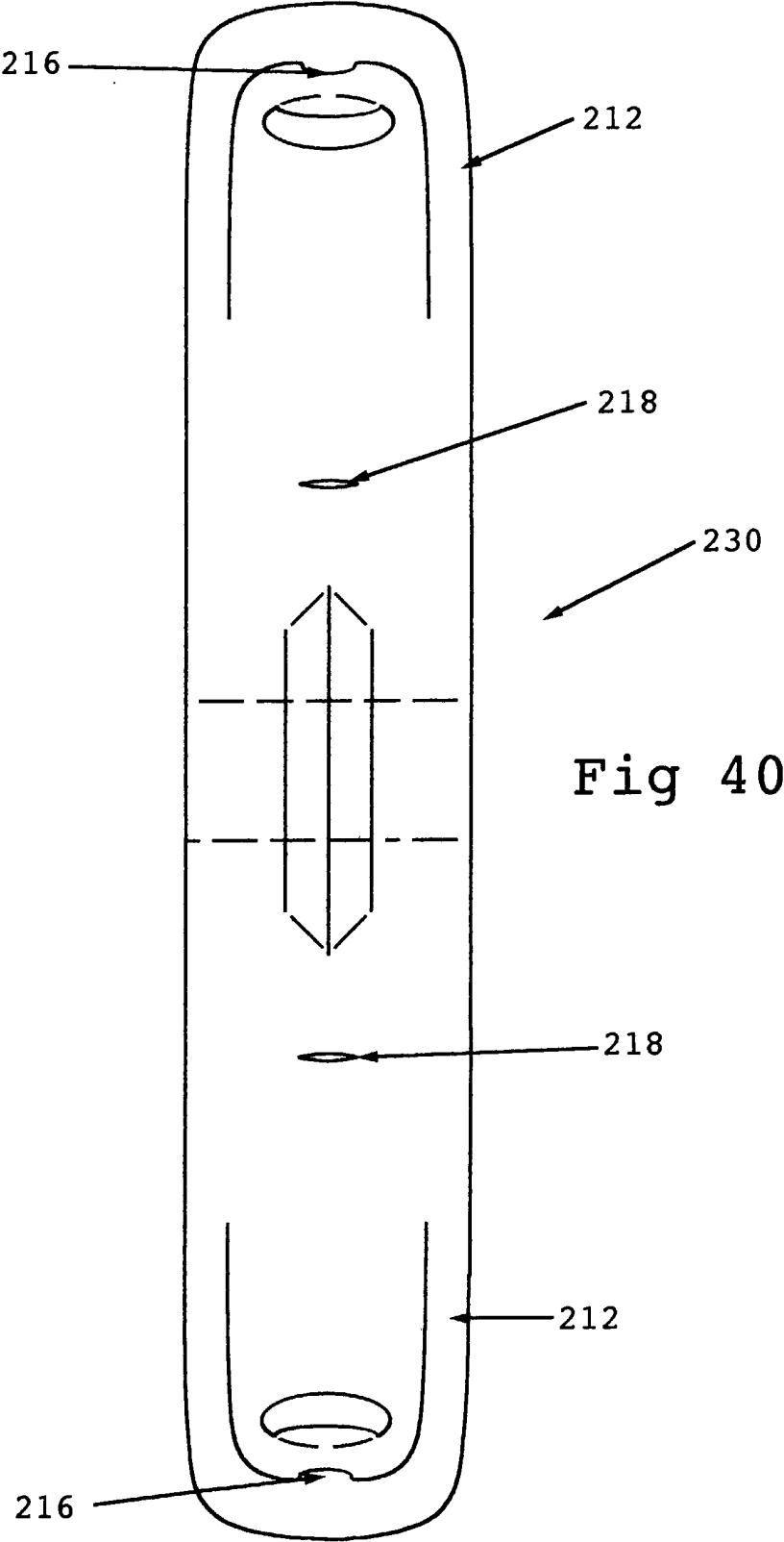
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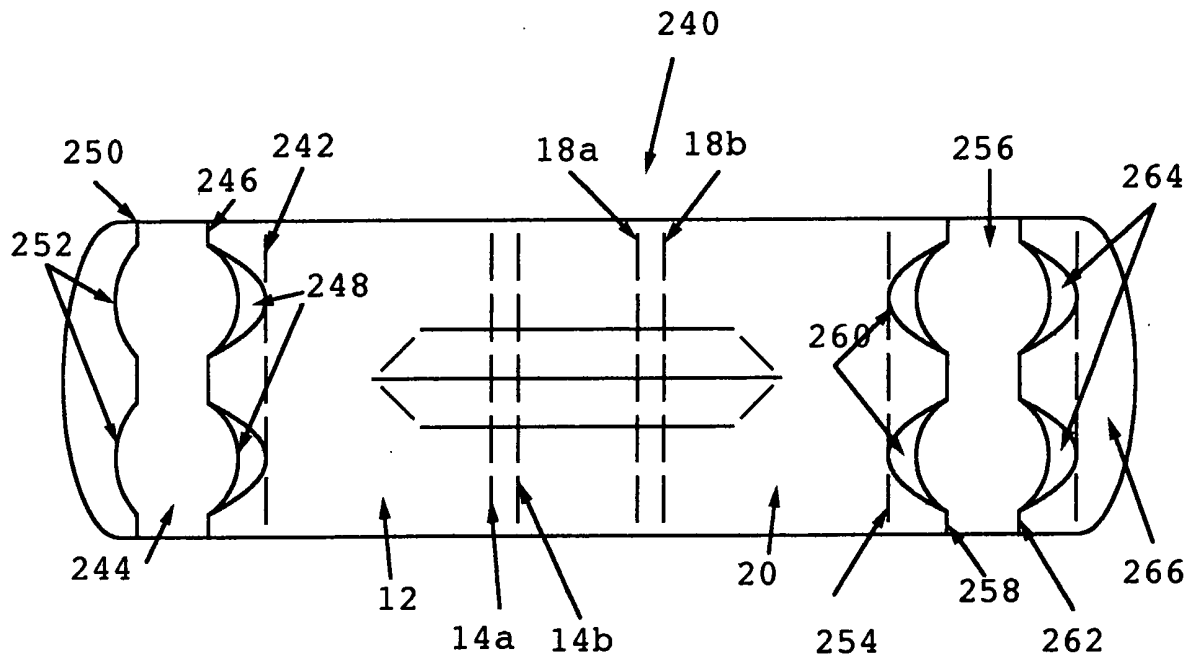


Fig 41

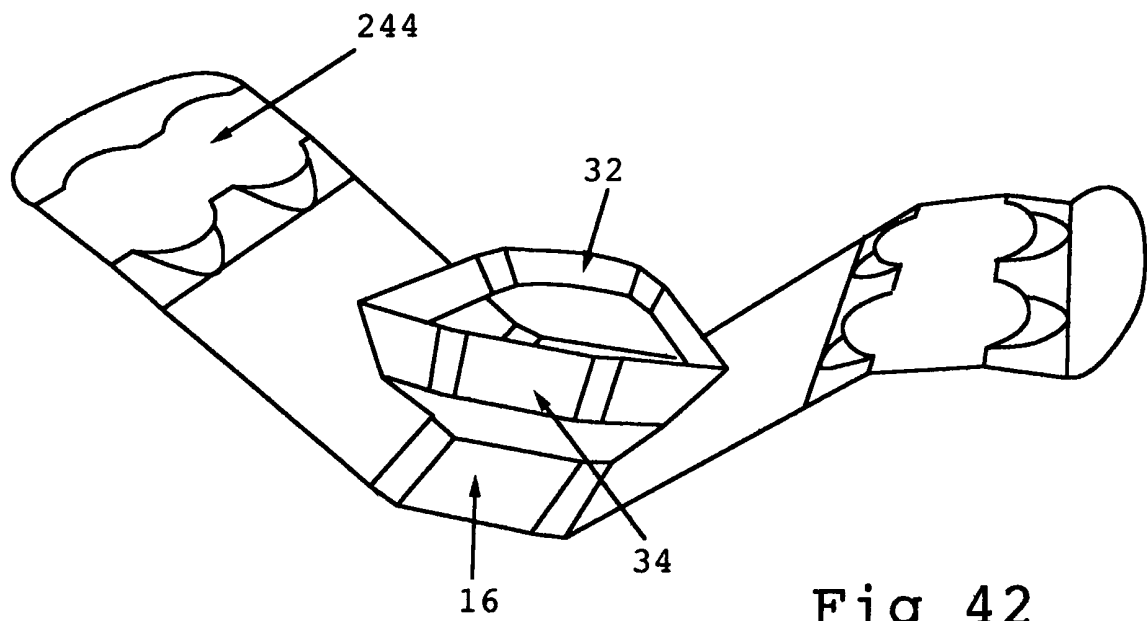
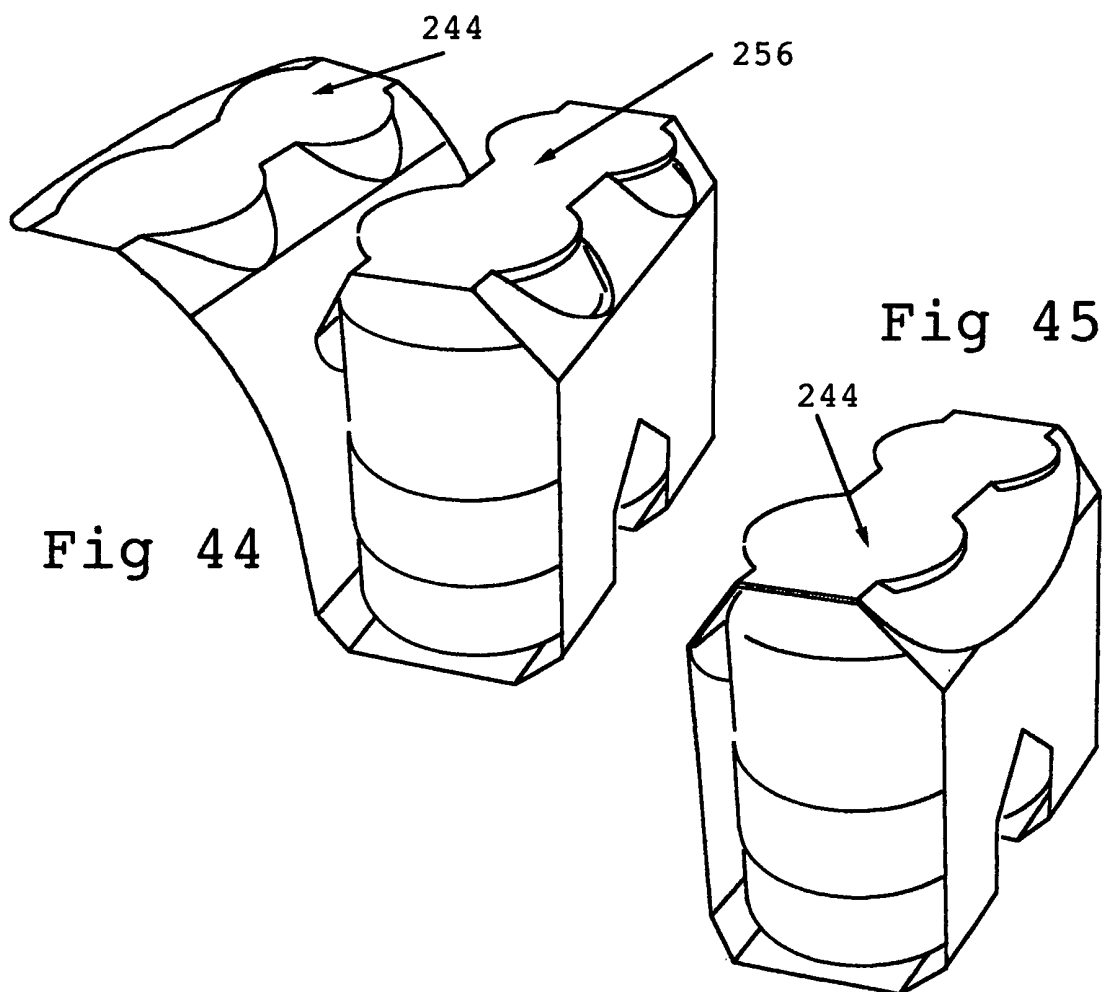
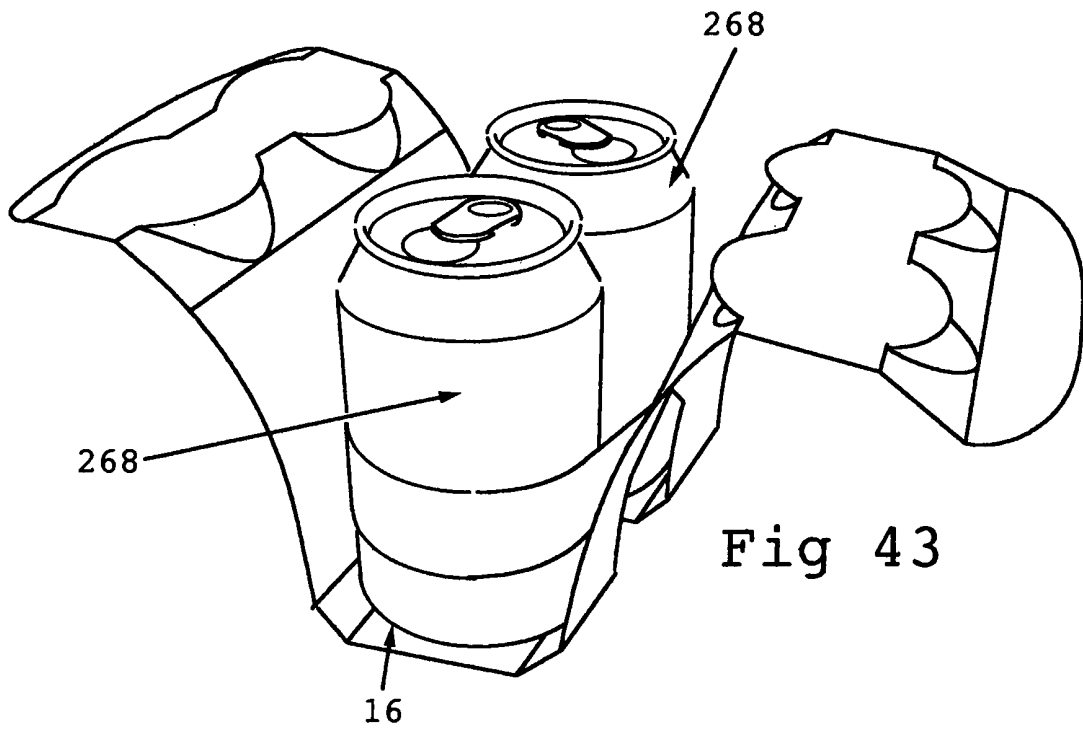


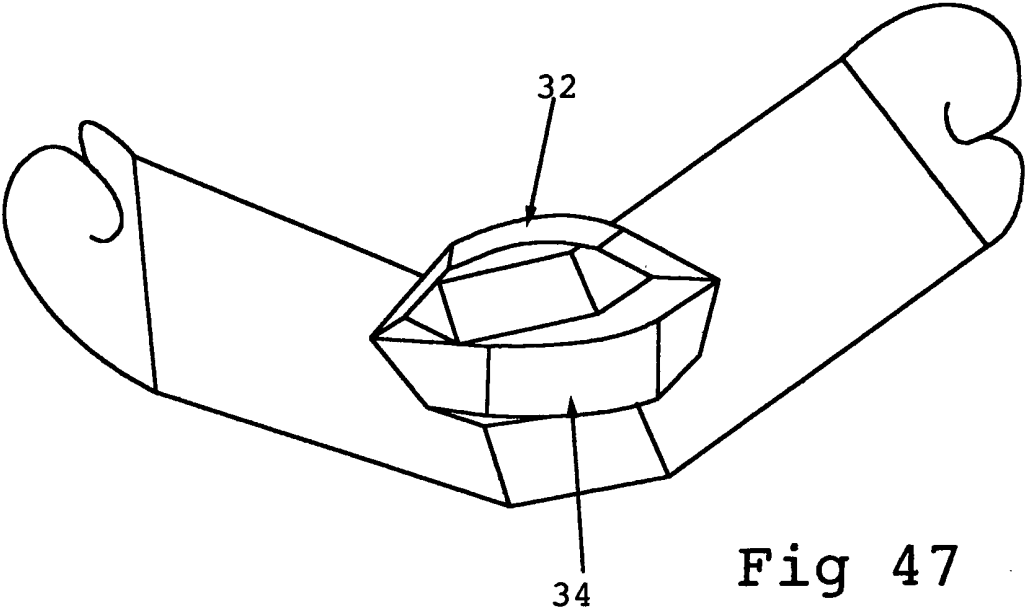
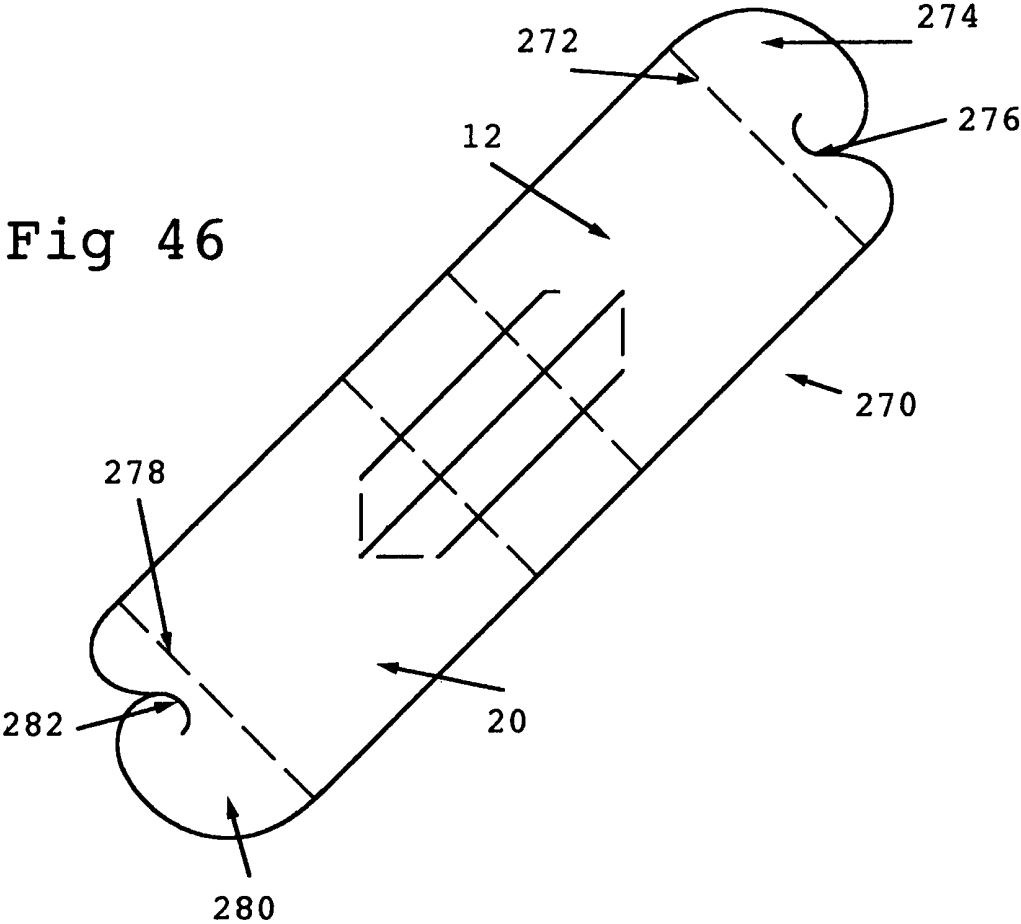
Fig 42

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Fig 46



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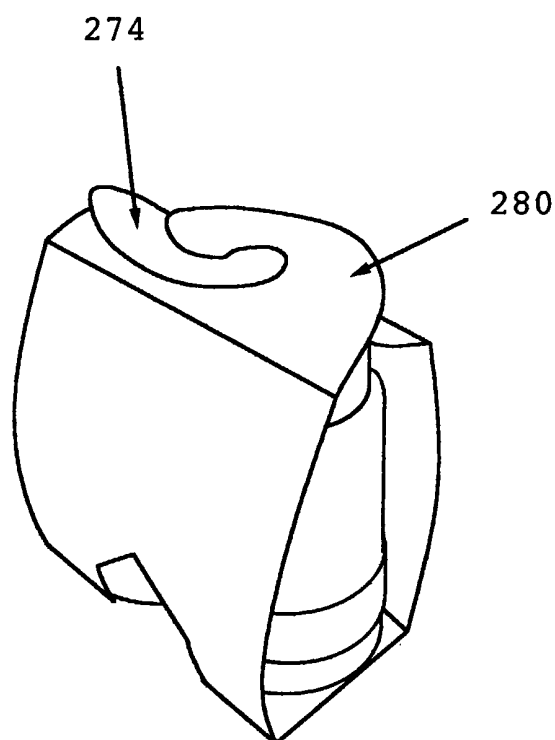
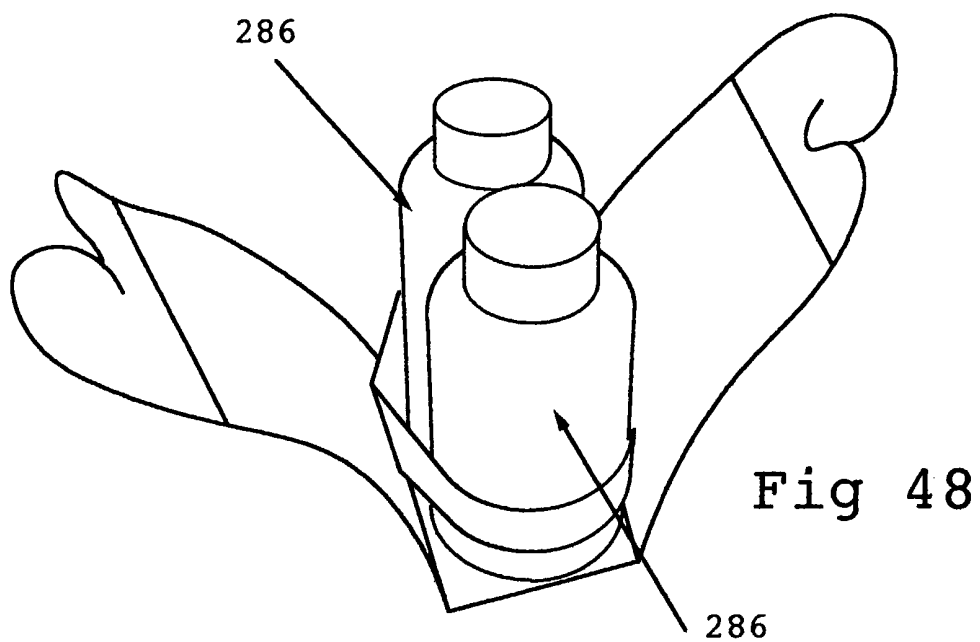


Fig 49

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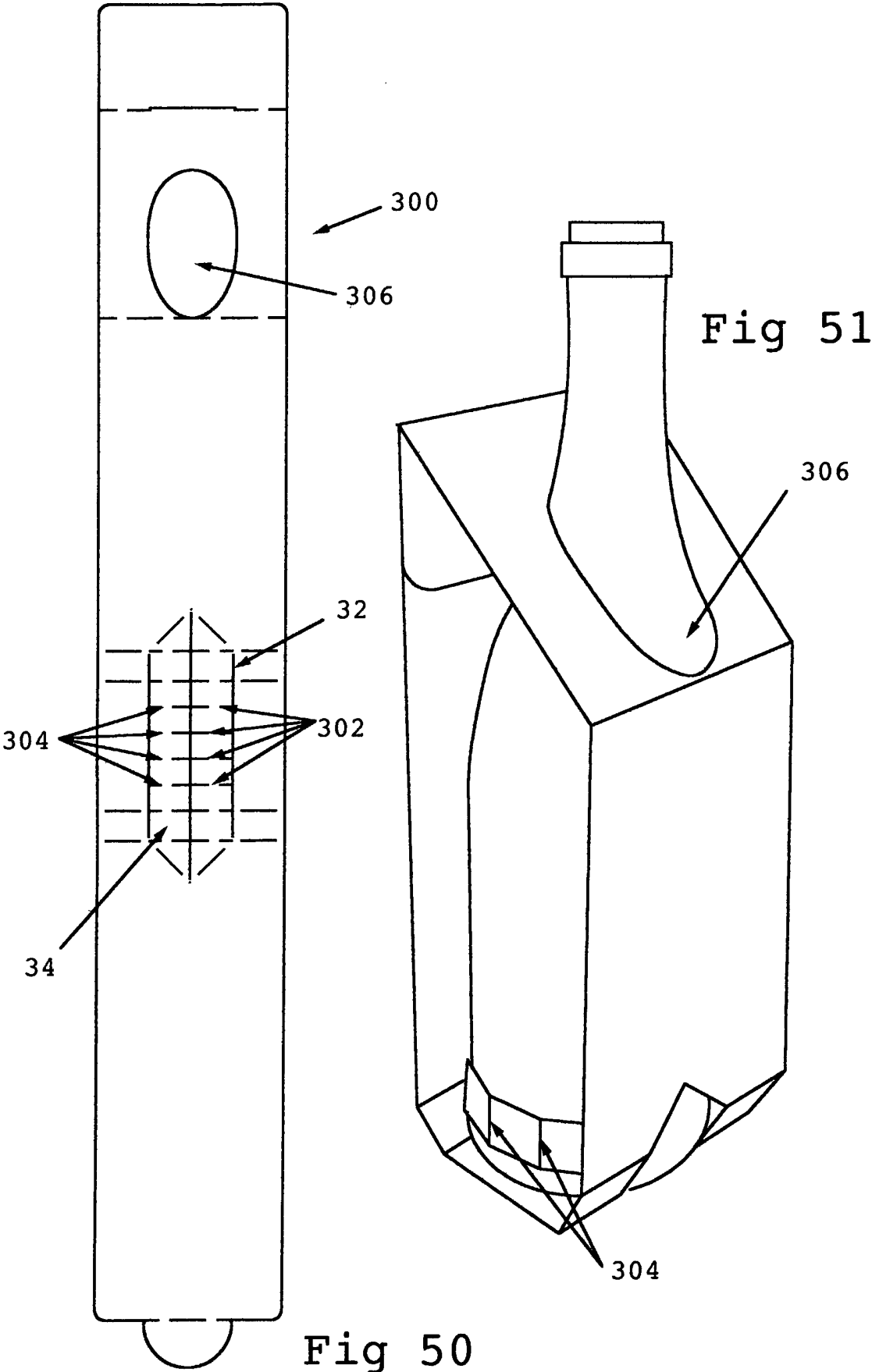
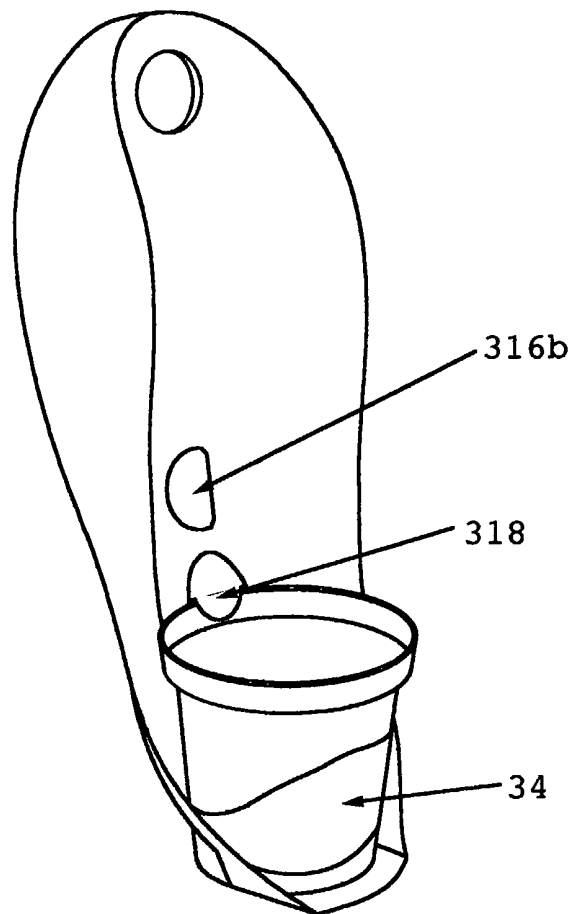
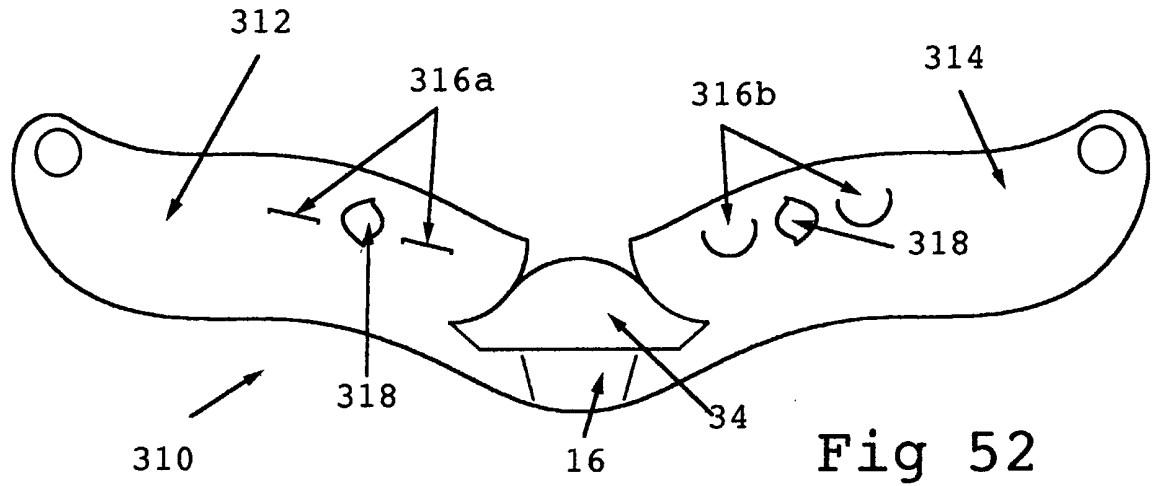


Fig 50

Fig 51

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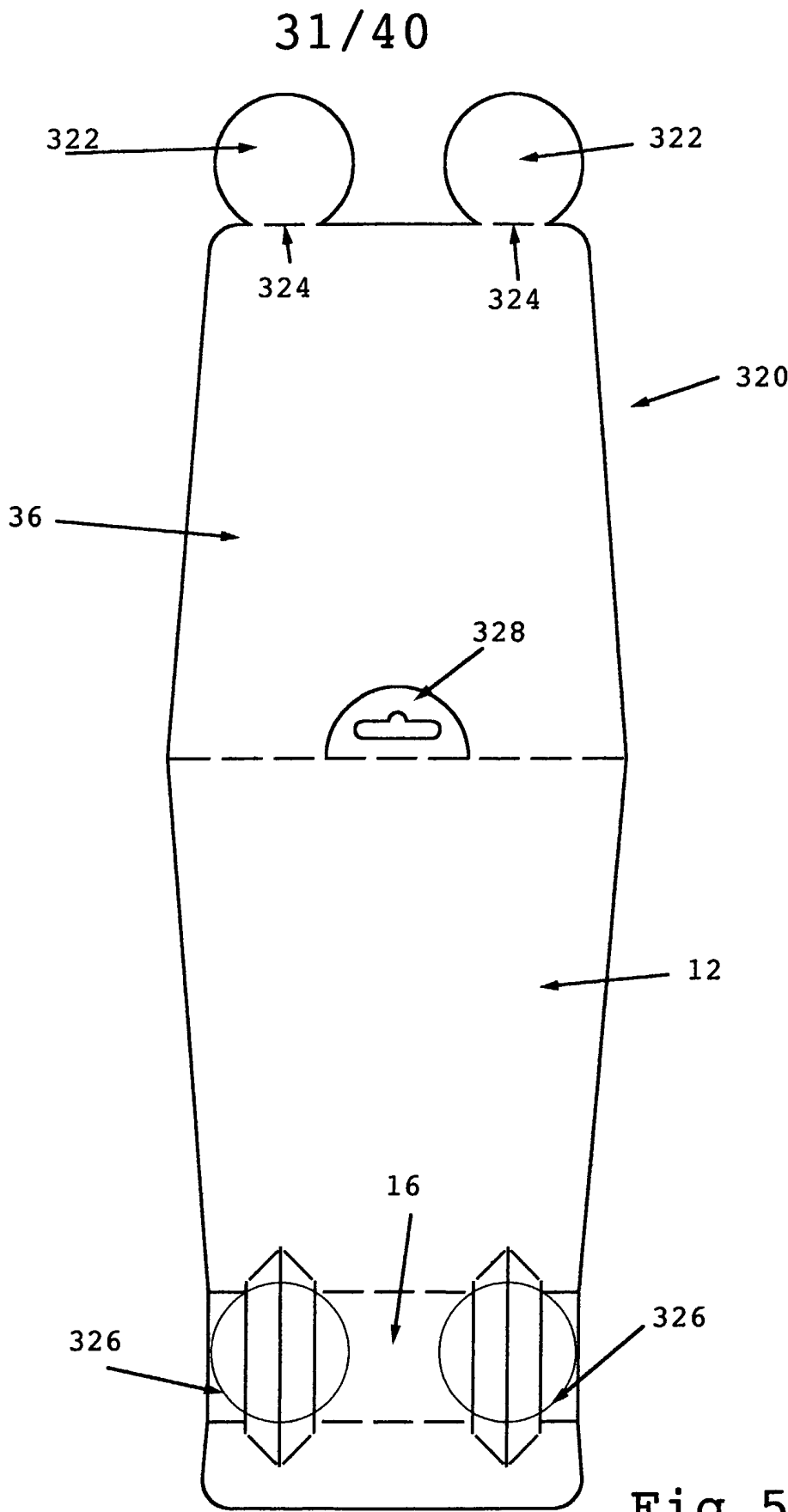


Fig 54

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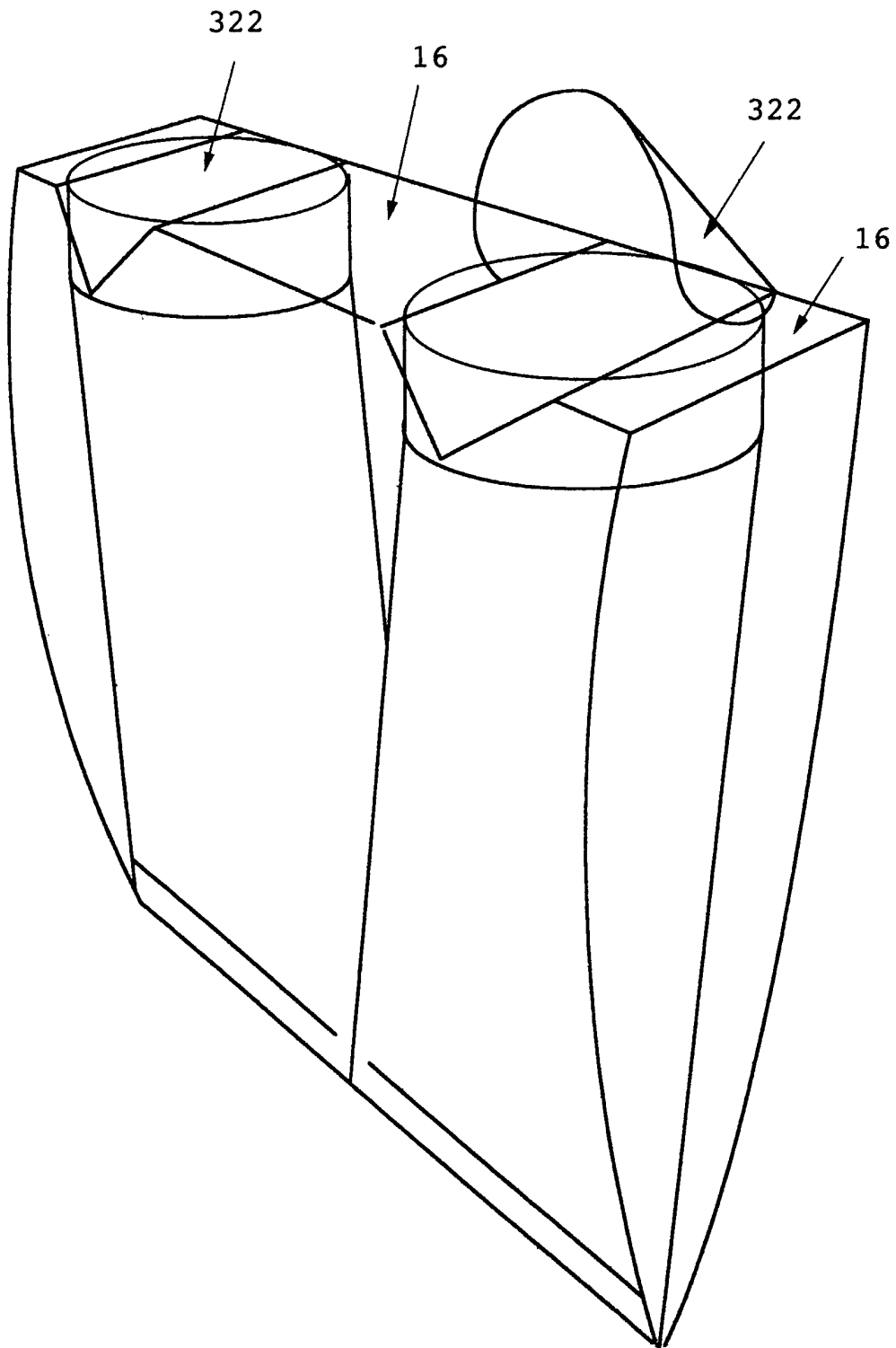


Fig 55

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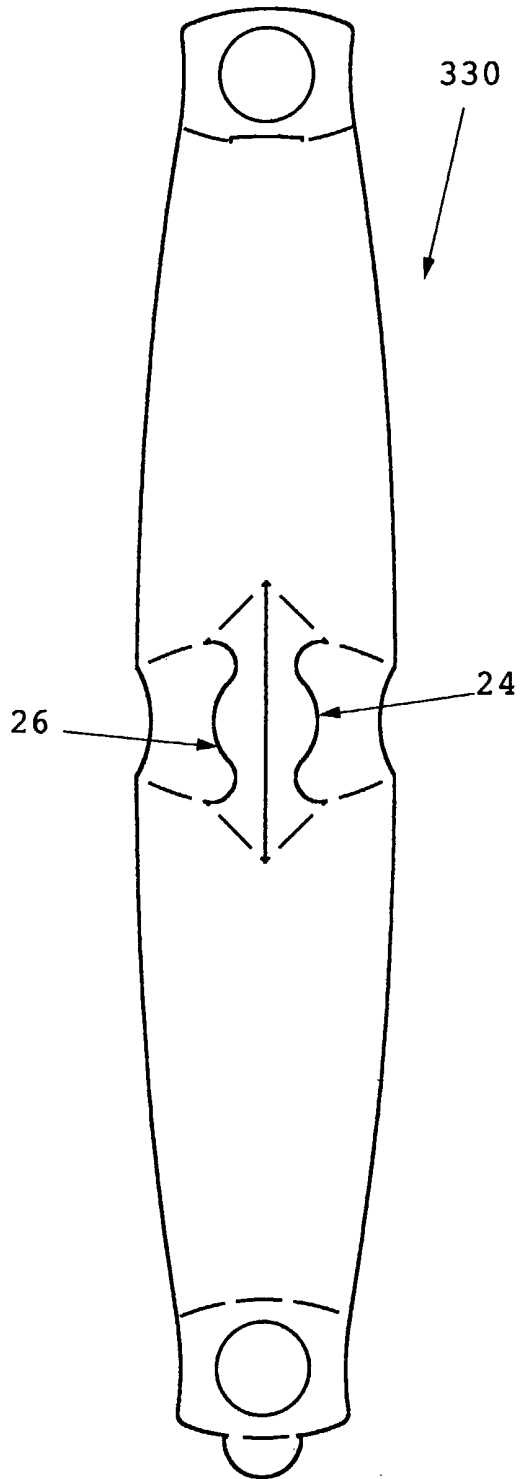


Fig 56

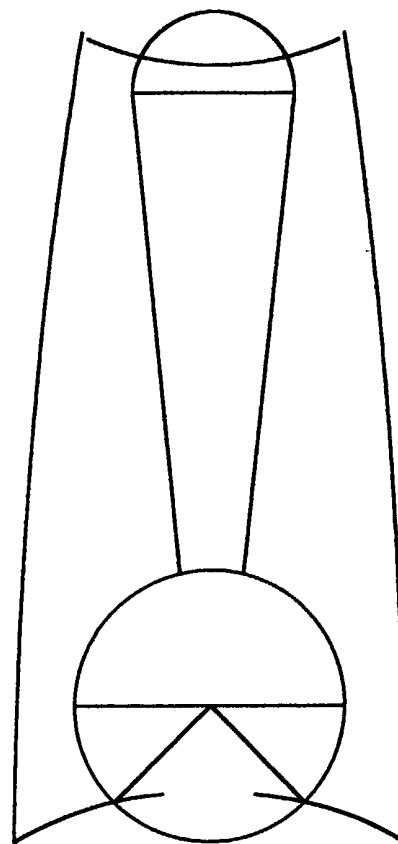


Fig 57

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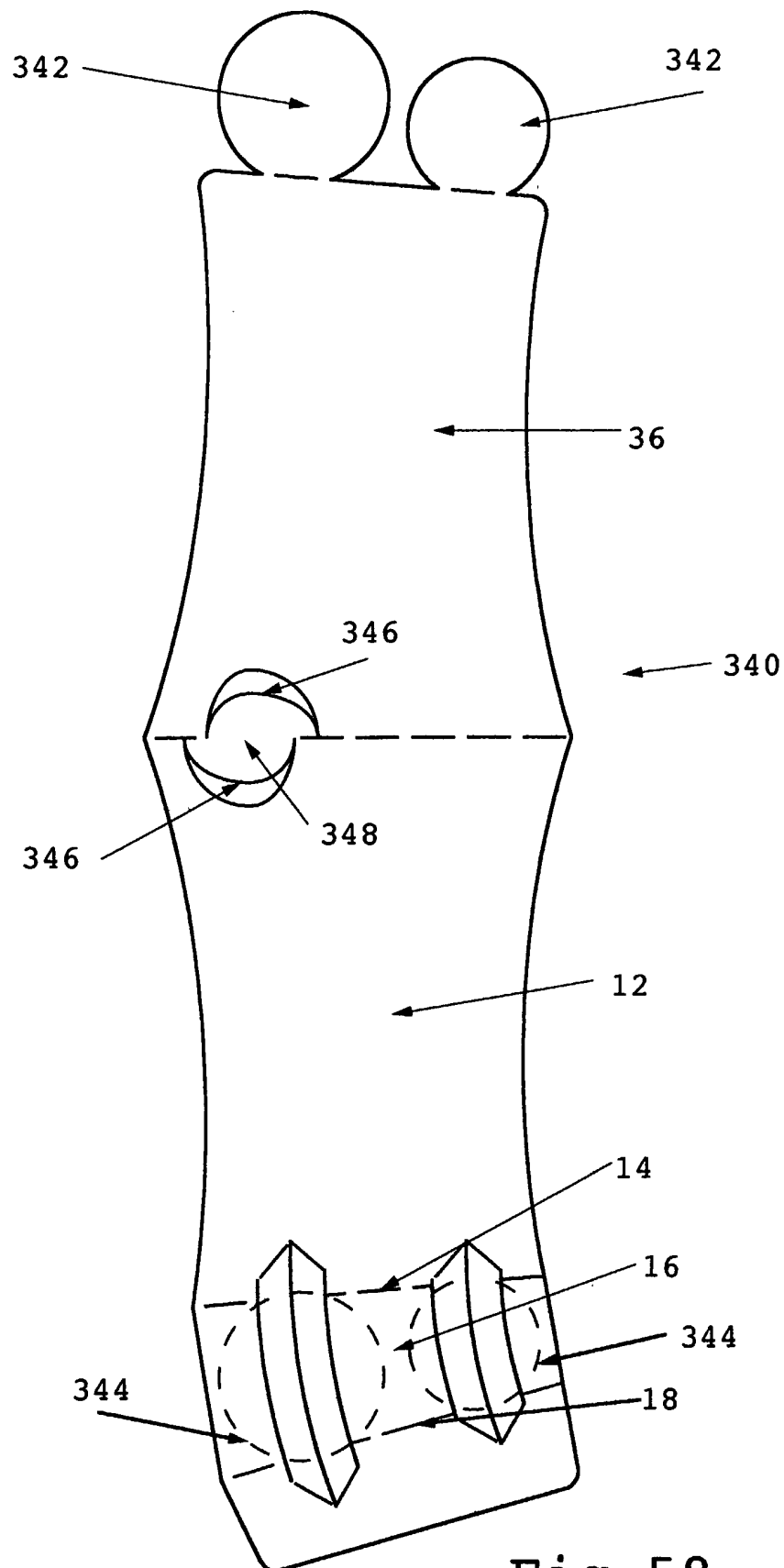


Fig 58

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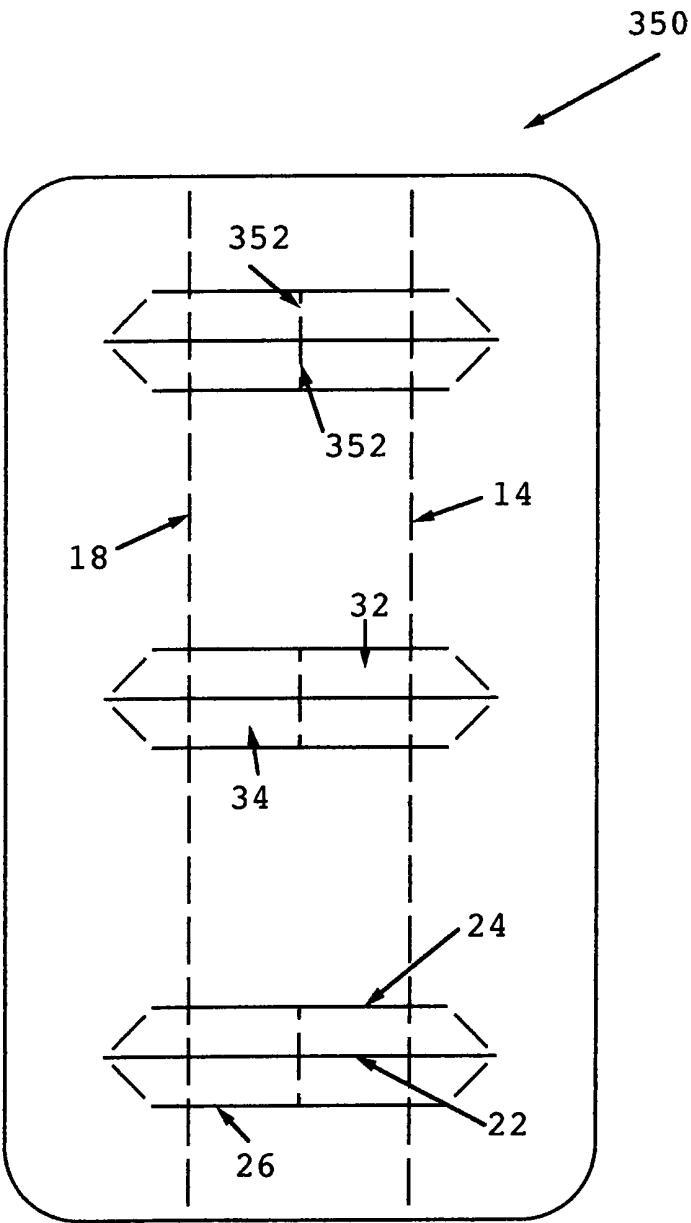
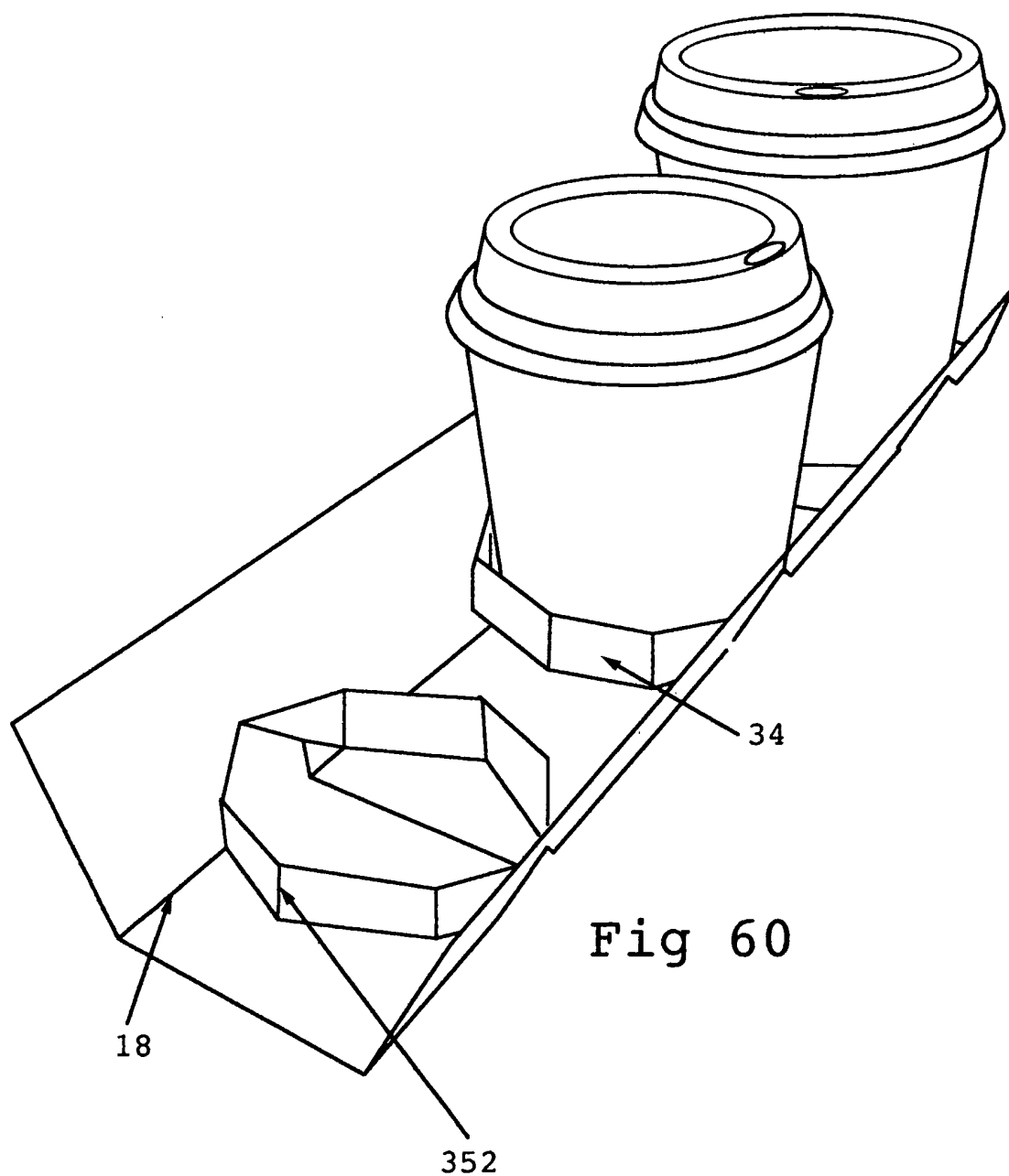


Fig 59

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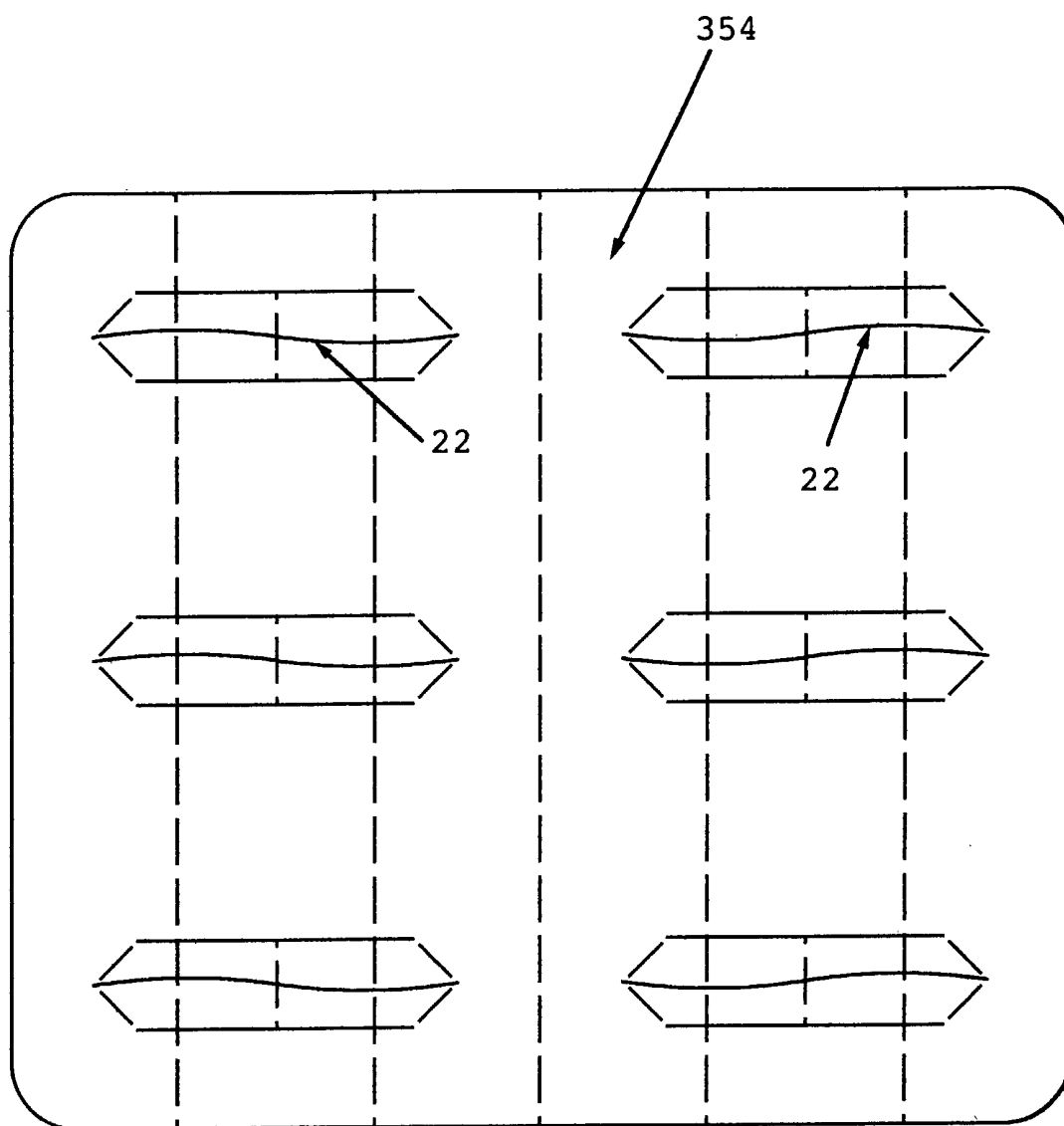


Fig 61

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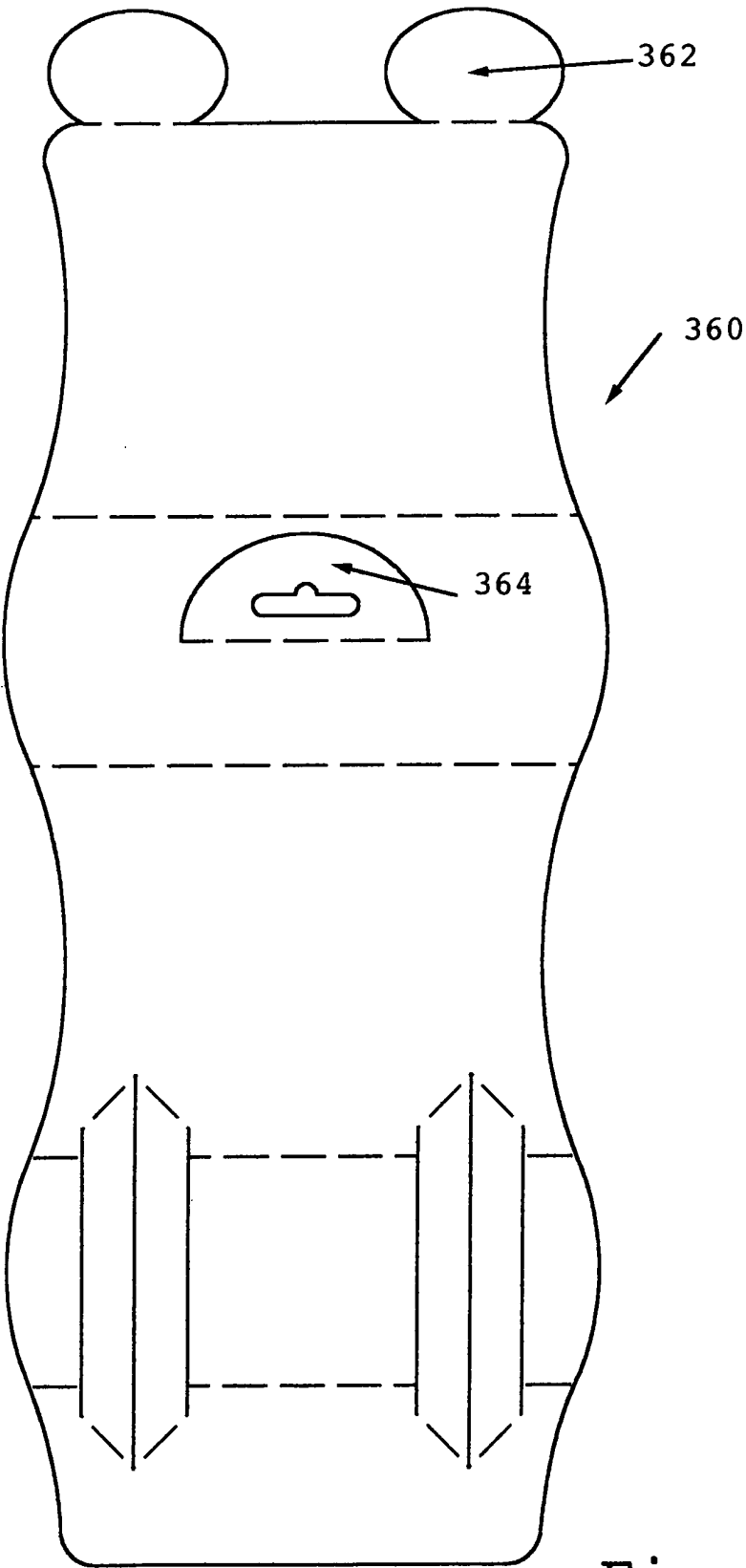


Fig 62

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Fig 63

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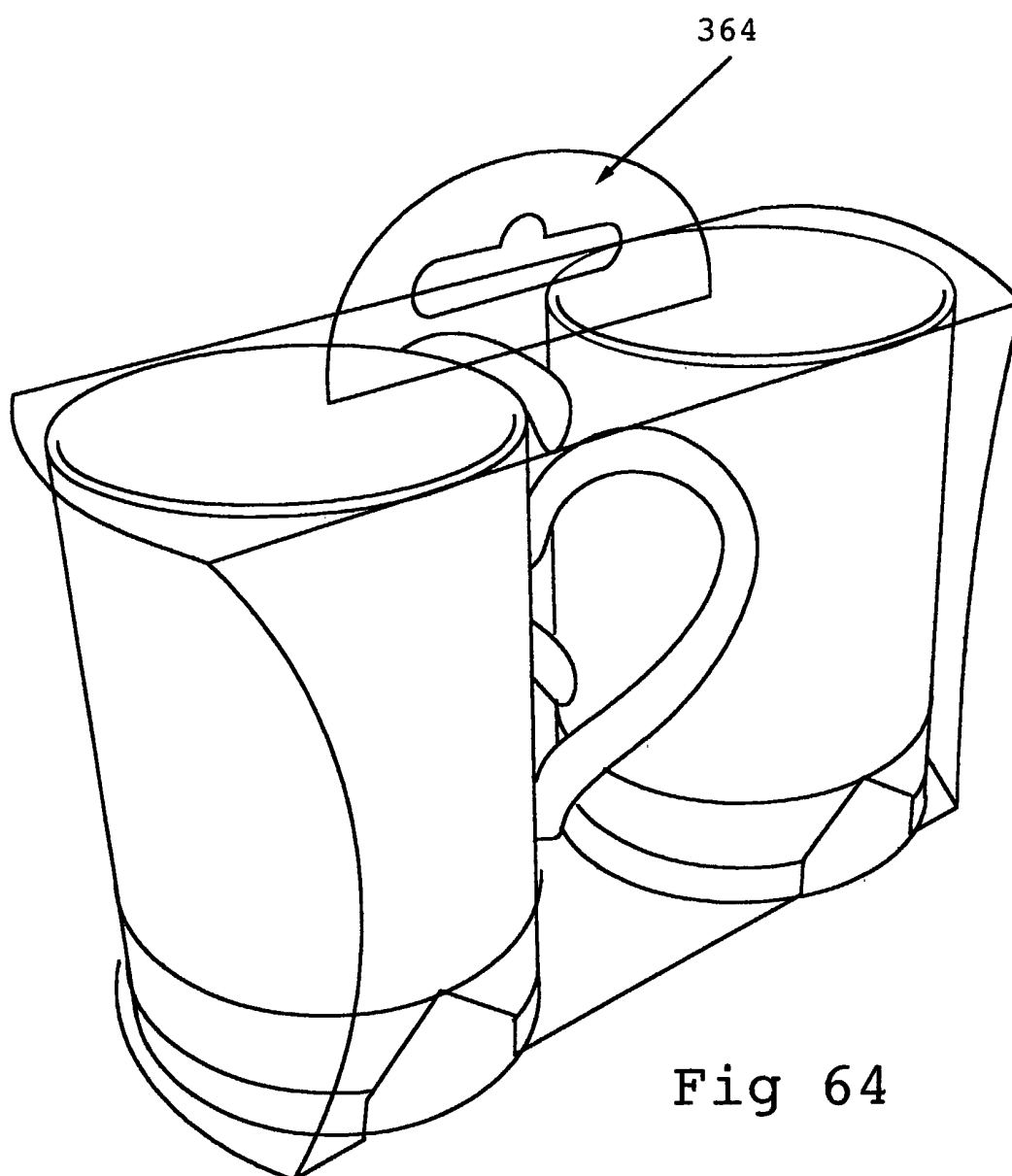


Fig 64

INTERNATIONAL SEARCH REPORT

In International Application No.

PCT/GB 00/04367

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65D5/08 B65D71/00 B65D5/00 B65D5/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 013 623 A (BENTELER WERKE AG) 15 August 1979 (1979-08-15) page 1, line 129 -page 2, line 117; claim 12; figures 1-7	1,2, 4-10,14, 16
X	GB 742 098 A (PRIDEAUX GEORGE E. ET AL.) 21 December 1954 (1954-12-21) page 6, line 88 -page 7, line 96; figures 5-14	1,2,4,6, 7,9-11, 14,16
X	DE 84 02 103 U (STABERNACK GMBH GUSTAV) 15 March 1984 (1984-03-15) page 4, line 16-23; figure 1	1,2,4,7, 10,14,15

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

6 February 2001

Date of mailing of the international search report

14/02/2001

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Balz, O

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/04367

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2013623 A	15-08-1979	DE 2804997 A	09-08-1979
		ES 247534 Y	01-10-1980
		FR 2416179 A	31-08-1979
		IT 1114072 B	27-01-1986
		NL 7900335 A	08-08-1979
		SE 7900956 A	07-08-1979

GB 742098 A		NONE	

DE 8402103 U	15-03-1984	NL 8500205 A	16-08-1985
