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(54) Collapsible container assemblies.

(57) An assembly adapted to contain liquids comprises a flexible bag 1 which is contained in a support of cardboard or the like. The support includes panels 4 connected to a base portion 7 at fold-lines so that when the bag is empty and the device is not in use support can be folded about the fold-lines to assume a flat condition. When the device is in use the device is folded about the fold-lines so that the panels 14 converge from the base 7.

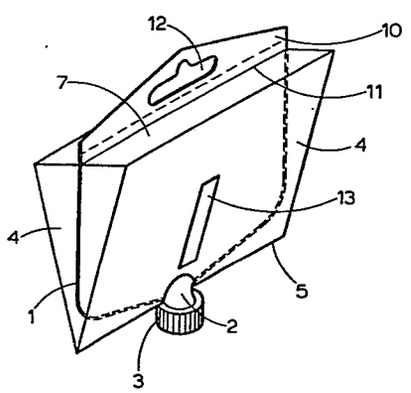

Fig. 4

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Title: Collapsible Container Assemblies

This invention relates to collapsible container assemblies for liquids.

It is well known in hospitals and clinics and similar places to contain liquid for various purposes in flexible bags made of plastics material such as polyethylene or PVC. Such bags are normally made from two sheets or plastics material which are welded together at their perimeter edges to define a closed bag. Obviously, such bags have no rigidity and they therefore need to be supported during a charging operation. This is often inconvenient. Sometimes the bags are used to supply liquid to a patient and in that event they are usually suspended from a fixture and connected to a patient by tubing. Sometimes such bags are used to receive liquids drained from a patient or as urine collection bags.

An object of the present invention is to provide a convenient way of supporting such a flexible bag while it is being charged with liquid.

In accordance with the present invention there is provided an assembly adapted to contain liquids, the said assembly containing a flexible bag in which liquid can be contained, the said bag being flat when empty but being capable of expansion when it is charged with liquid and having a neck through which liquid can be supplied to or withdrawn from the bag; a support of cardboard or like material, the said support having an aperture through which the said neck is accessible and including two opposed side panels arranged one on each side of the flexible bag; a base portion having at two opposite edges fold-lines at each of which an edge of one of the side panels is connected to the base portion, the base portion having an intermediate fold-line running parallel to the other two fold-lines whereby the panels and the base portion can assume a flat

condition when the bag is empty and the assembly is not in use but which, when the assembly is in use, the panels and the base portion can assume a condition in which the base panels are flat and the side panels converge from the fold-lines at the opposite edges of the base portion.

In one embodiment of the present invention, there is provided an assembly adapted to contain liquids, the said assembly comprising a flexible bag in which liquid can be contained, the said bag being flat when empty but being capable of expansion when it is charged with a liquid and having a neck; through which liquid can be supplied to, or withdrawn from the bag; a support of cardboard or like material, the said support including two opposed side panels connected together at a common first fold-line and arranged one on each side of the flexible bag with the neck of the bag engaged in an aperture which interrupts the said first fold-line, a base portion connected to the edges of the side panels remote from the first fold-line at second and third fold-lines whereby the panels can assume a flat condition when the bag is empty and the assembly is not in use but which, when the assembly is in use, can assume a condition in which the base panels are flat and the side panels diverge from the first fold-line towards the base, and a suspension flap connected to the base at a fourth fold-line, the suspension flap being adapted to support the assembly from a fixture when the bag is in an inverted position and also being capable of lying flat against the base. Such a bag may be used to supply liquids to a patient.

In another embodiment of the invention intended for use as a urine collection bag there is provided an assembly comprising a flexible bag in which liquid can be contained, the said bag being flat when empty but being capable of expansion when it is charged with liquid and having an inlet neck through which liquid can be supplied to the

bag and an outlet through which liquid can be withdrawn from the bag; a support of cardboard or like material, the said support having apertures through which the inlet neck and the outlet are accessible and including two opposed side panels arranged one on each side of the flexible bag; a base portion having at two opposite edges fold-lines at each of which an edge of one of the side panels is connected to the base portion, the base portion also having an intermediate fold-line running parallel to the other two fold-lines; flap portions extending from the edges of the side panels remote from the base portion and connected thereto at further fold-lines, the said flap panels being secured together in face contact to provide a handle, the arrangement being such that the support can be folded about the fold-lines to assume a flat condition when the bag is empty and not in use, and when the assembly is in use, can assume a condition in which the side panels converge from the base portion towards the handle.

The invention will now be described with reference to the accompanying diagrammatic drawings in which:

Figure 1 illustrates a blank from which a support device for a collapsible bottle can be formed,

Figure 2 illustrates a flexible bag contained within a support device,

Figure 3 illustrates the same assembly in a position in which the bag is charged with liquid,

Figure 4 illustrates the assembly in another position of use,

Figure 5 illustrates the assembly when the flexible bag is empty,

Figure 6 illustrates an alternative blank intended to form part of a urine collection assembly,

Figure 7 illustrates an assembly in a flat condition and,

Figure 8 illustrates the same assembly in use.

In one embodiment of the invention, a flexible bag 1 (Figures 2 to 5) is made of plastics material such as polyethylene or PVC and has a rigid neck 2 on which a stopper 3 can be screwed. When the bag is empty the opposed side walls of the bag lie flat against one another but the bag can expand when the bag is charged with liquid.

The bag 1 is partly enclosed in a support assembly which can be formed from the blank illustrated in Figure 1. This support assembly is made of cardboard or like material.

The blank is of generally rectangular shape and comprises two main panels 4 which form the side walls of the assembly when the device is in use. The two panels are connected together at a common first fold-line 5 which is interrupted by an aperture 6 in which the neck 2 of the flexible bag may be received as shown in Figures 2 to 5. At the ends of the panels 4 remote from the first fold-line 5 are two base panels 7 which are connected to the panels 4 at second and third fold-lines 8 and 9. Connected to each of the base panels 7 is a support flap 10. The support flaps 10 are secured together in face to face contact by an adhesive and are connected to the base flaps at a fourth fold-line 11. As illustrated in Figure 2, the bottom of the bag 1 is retained between the flaps 10 on securing these flaps together. The flaps 10 have a cut-out portion 12 by which the support flaps and the whole assembly can be suspended from a fixed assembly.

When it is desired to charge the flexible bag 1 with a liquid, the assembly is arranged in the position illustrated in Figures 1 and 2. The base panels are arranged so that they lie in the same plane and the support flap 10 lies against the underside of the base. The assembly is then self-standing, the bag 1 being suspended at the neck by a support structure of roughly triangular cross-section. The cap 3 can then be removed and the

container charged with liquid. If it is desired to empty the container as, for example, as part of a drip feed or the nasal feeding of a patient, the device can be turned upside down and the support flap 10 arranged in a vertical position as shown in Figure 4. The assembly can then be suspended from a fixture such as a hook or bracket. As the bag empties the assembly collapses to assume the condition illustrated in Figure 5.

Preferably at least one of the side panels 4 has a cut-out portion 13 which enables a portion of the side of the bag to be observed. Thus, the registering portion of the bag can have printed on it graduations indicating the quantity of liquid remaining in the bag and this cut-out portion 13 enables the quantity to be read off at any time.

Figures 6, 7 and 8 illustrate an assembly intended for use as a urgine collection bag. The assembly includes a blank of cardboard or the like illustrated in Figure 6 in a flat condition which can be folded to enclose a flexible bag 14 of plastics material. The support includes two panels 15 and 16 arranged to lie on opposite sides of the bag 14. These side panels extend from fold-lines 17 and 18 at opposite edges of a base portion 19. The base portion 19 has an intermediate fold-line 20 running parallel with the fold-lines 17 and 18. Extending from the edges of the panels 15 and 16 remote from the base portion 19 are two flaps 20 connected to the panels 15 and 16 at additional fold-lines 21. These flap portions 20 are brought together in face contact and secured to each other by rivets or studs 22 as indicated in Figures 7 and 8 to form a handle which in Figures 7 and 8 is indicated 23. The bag 14 has an inlet neck 24 accessible through an aperture 25 in the wall 15. An inlet tube 26 is engaged in the neck 25 and is supported in an aperture 27 in a flap 28 of the handle 23. The bag also has an outlet

tube 29 extending through an aperture 30 in the panel 15. This tube can be reinserted into the assembly through a second aperture 31 and when the tube is so reinserted the contents of the bag cannot discharge. The panel 15 also includes an aperture 32 through which the contents of the bag 14 are visible. The handle 23 can also be provided with eyelets 33 to enable it to be supported from a hanger if desired.

When the support assembly is not in use it can be folded about the fold-lines to assume a flat condition indicated in Figure 7. When the device is to be used, the support is folded about its fold-lines so that the panels 15 and 16 diverge from the base portion 19 towards the hanger 23. In this condition the assembly is free-standing.

CLAIMS:

1. An assembly adapted to contain liquids, the said assembly containing a flexible bag in which liquid can be contained, the said bag being flat when empty but being capable of expansion when it is charged with liquid and having a neck through which liquid can be supplied to or withdrawn from the bag; a support of cardboard or like material, the said support having an aperture through which the said neck is accessible and including two opposed side panels arranged one on each side of the flexible bag; a base portion having at two opposite edges fold-lines at each of which an edge of one of the side panels is connected to the base portion, the base portion having an intermediate fold-line running parallel to the other two fold-lines whereby the panels and the base portion can assume a flat condition when the bag is empty and the assembly is not in use but which, when the assembly is in use, the panels and the base portion can assume a condition in which the base panels are flat and the side panels converge from the fold-lines at the opposite edges of the base portion.

2. An assembly adapted to contain liquids, the said assembly comprising a flexible bag in which liquid can be contained, the said bag being flat when empty but being capable of expansion when it is charged with a liquid and having a neck; through which liquid can be supplied to, or withdrawn from the bag; a support of cardboard or like material, the said support including two opposed side panels connected together at a common first fold-line and arranged one on each side of the flexible bag with the neck of the bag engaged in an aperture which interrupts the said first fold-line, a base portion connection to the edges

of the side panels remote from the first fold-line at second and third fold-lines whereby the panels can assume a flat condition when the bag is empty and the assembly is not in use but which, when the assembly is in use, can assume a condition in which the base panels are flat and the side panels diverge from the first fold-line towards the base, and a suspension flap connected to the base at a fourth fold-line, the suspension flap being adapted to support the assembly from a fixture when the bag is in an inverted position and also being capable of lying flat against the base.

3. An assembly adapted to contain liquids, the said assembly comprising a flexible bag in which liquid can be contained, the said bag being flat when empty but being capable of expansion when it is charged with liquid and having an inlet neck through which liquid can be supplied to the bag and an outlet through which liquid can be withdrawn from the bag; a support of cardboard or like material, the said support having apertures through which the inlet neck and the outlet are accessible and including two opposed side panels arranged one on each side of the flexible bag; a base portion having at two opposite edges fold-lines at each of which an edge of one of the side panels is connected to the base portion, the base portion also having an intermediate fold-line running parallel to the other two fold-lines; flap portion extending from the edges of the side panels remote from the base portion and connected thereto at further fold-lines, the said flap panels being secured together in face contact to provide a handle, the arrangement being such that the support can be folded about the fold-lines to assume a flat condition when the bag is empty and not in use, and, when the assembly is in use, can assume a condition in which the side panels converge from the base portion towards the handle.

4. An assembly as claimed in claim 3, wherein the handle has a flap with an aperture through which an inlet tube is passed to the inlet neck of the bag.

5. An assembly as claimed in claim 2, wherein the neck is provided with a removable cap or stopper.

6. An assembly as claimed in any one of the preceding claims, wherein one of the side panels has an aperture through which the contents of the bag are visible.

7. An assembly adapted to contain liquids substantially as herein described with reference to any of the Figures of the accompanying drawings.

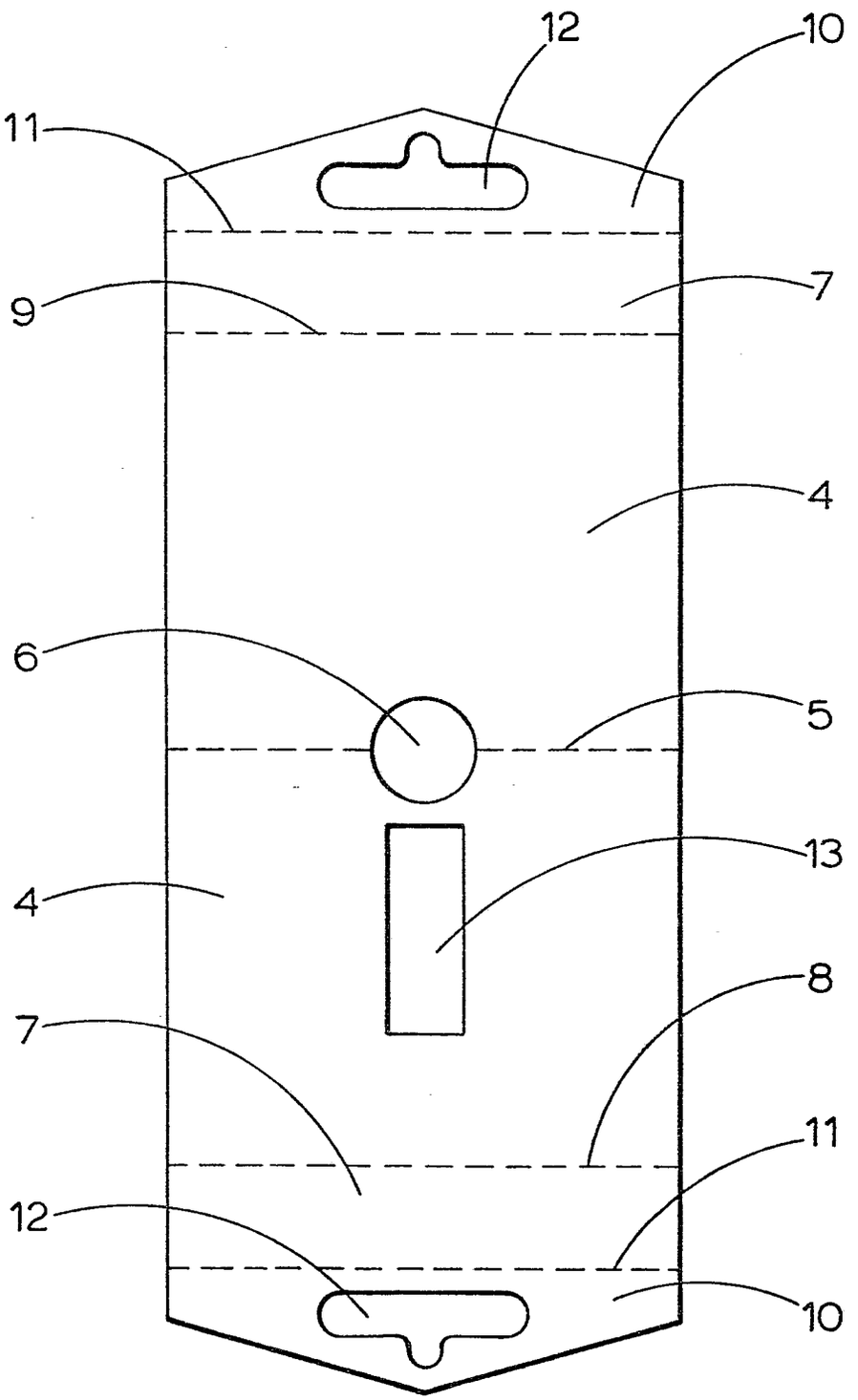

Fig.1

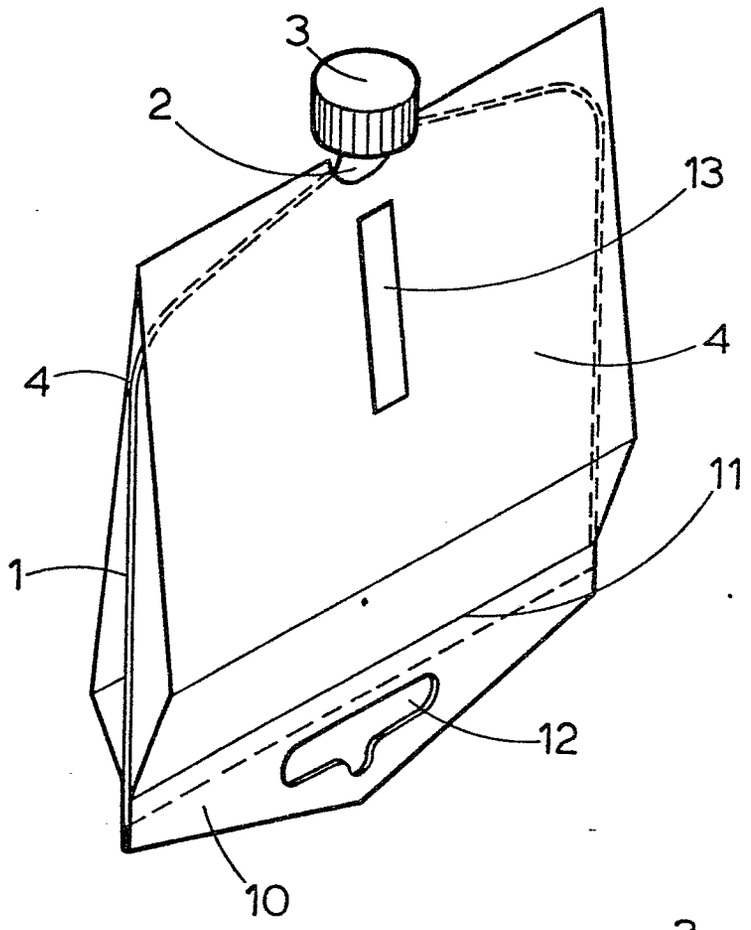

Fig. 2

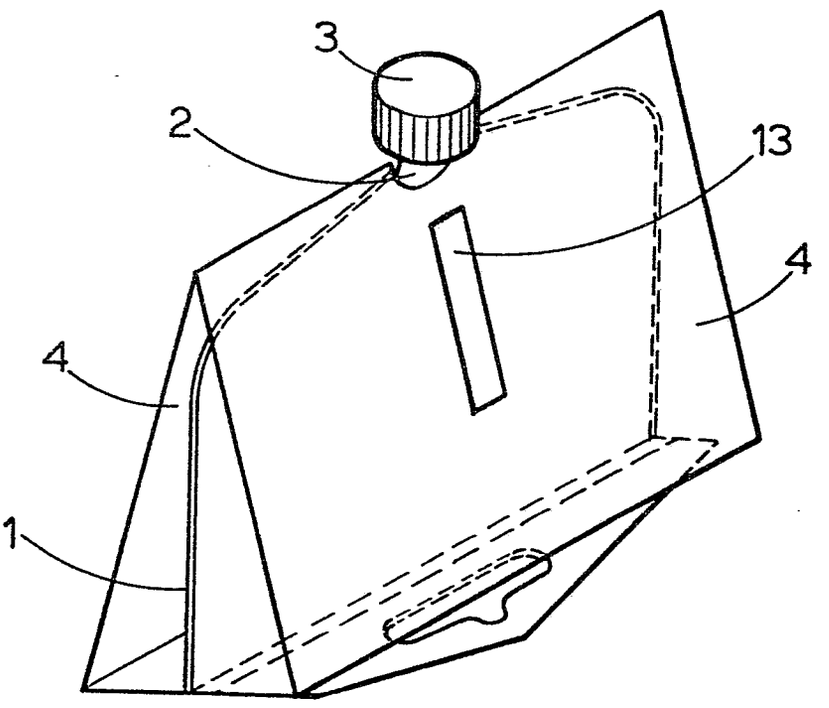

Fig. 3

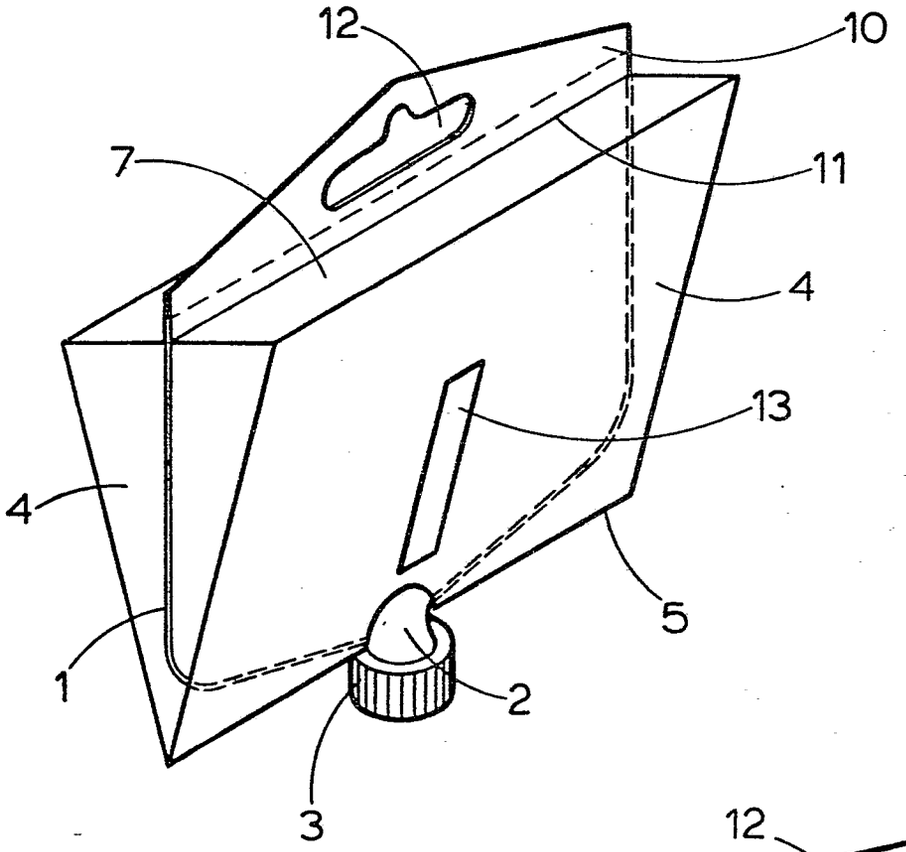

Fig. 4

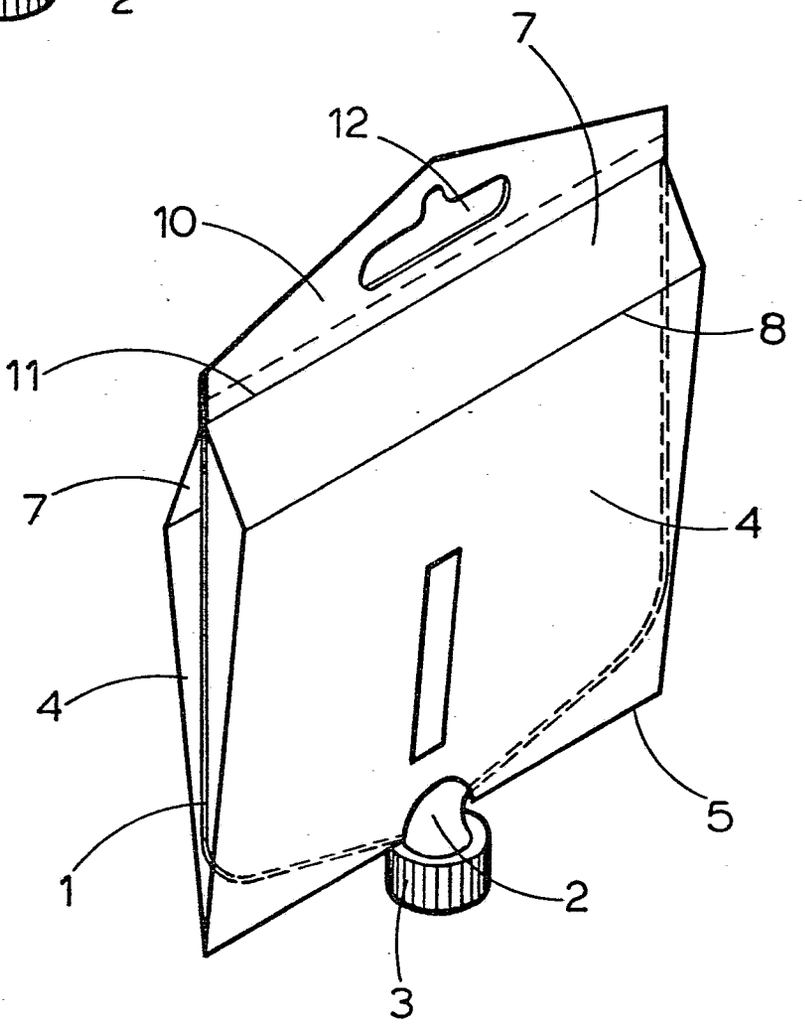

Fig. 5

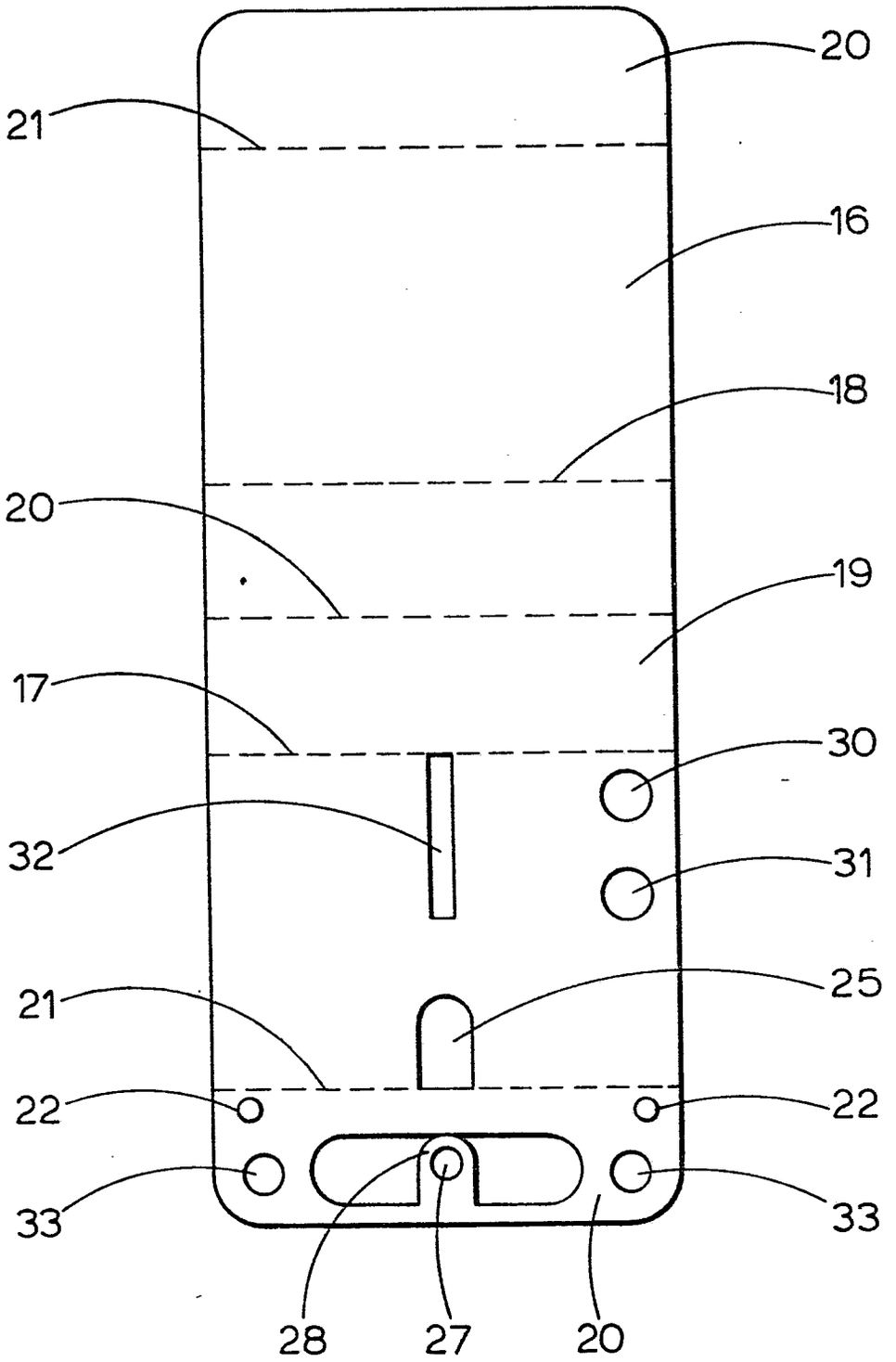

Fig. 6

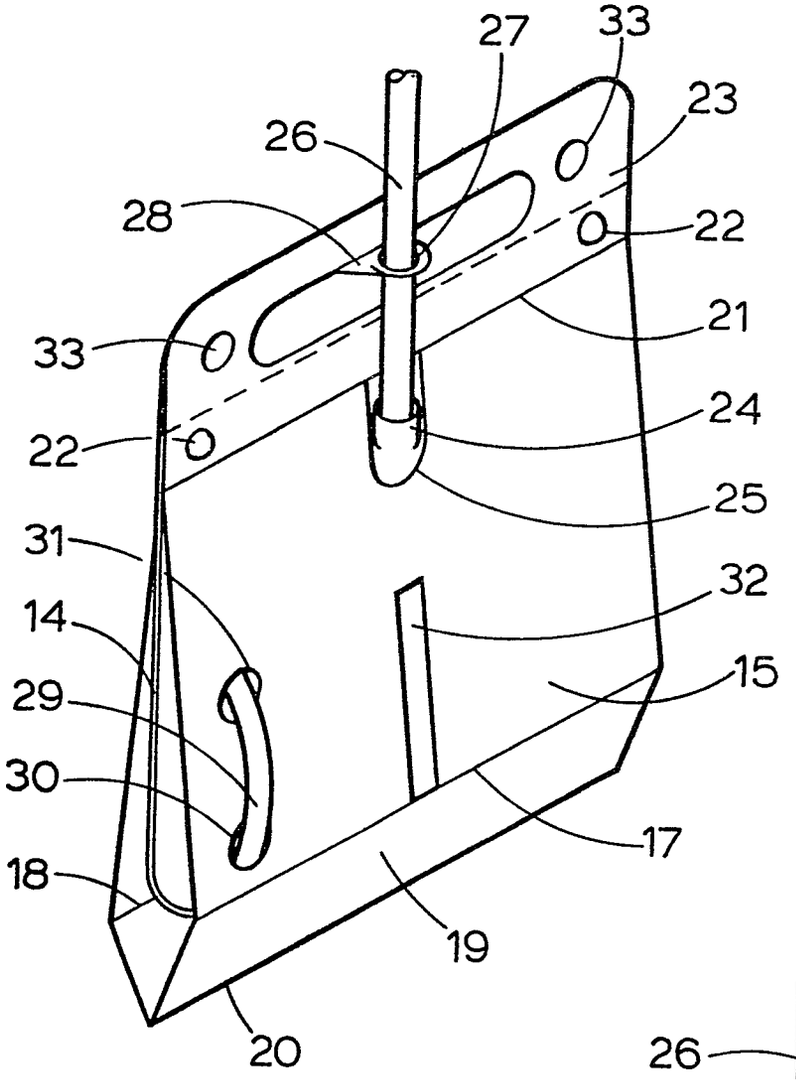
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Fig. 7

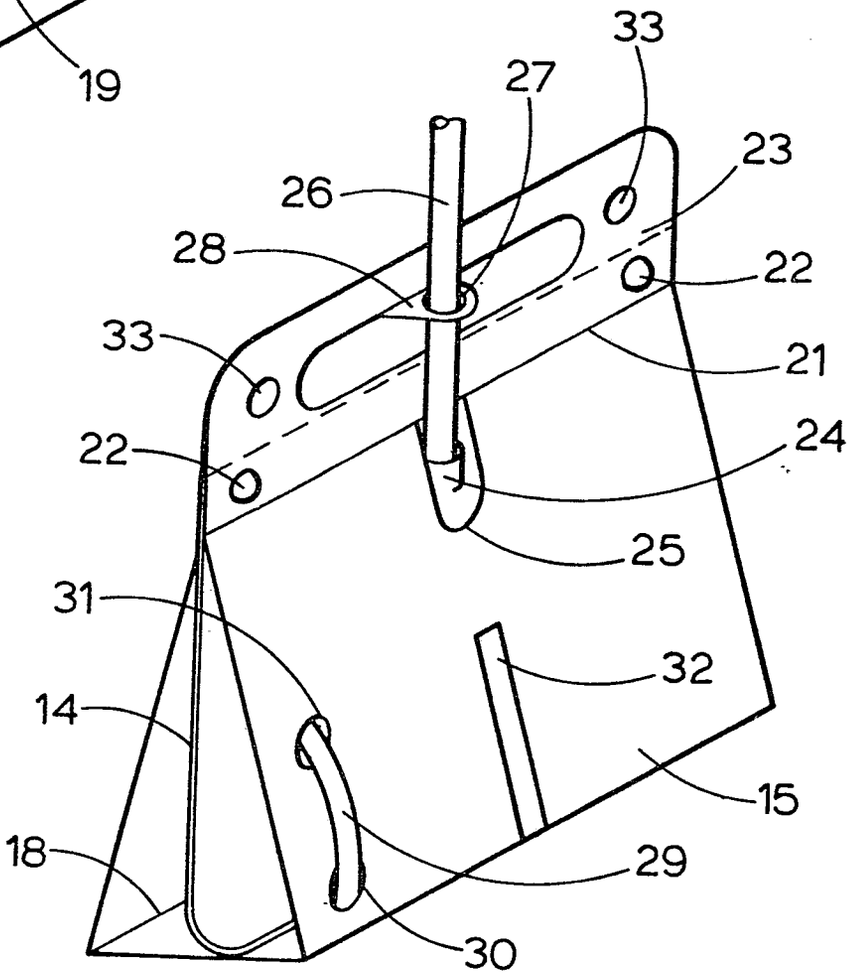
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Fig. 8

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EUROPEAN SEARCH REPORT

Application number
EP 81304508.5

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
	GB - A - 1 279 344 (WEISBERG) * Fig. 1-12 * -- US - A - 3 272 423 (BJARND) * Fig. 1-9 * ----	

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

B 65 D 33/02

TECHNICAL FIELDS SEARCHED (Int. Cl.³)

B 65 D 30/00
B 65 D 33/00
B 65 D 77/00
A 61 M 1/00
A 61 M 5/00
A 61 G 9/00

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
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E: conflicting application
D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	21-12-1981	JANC