

12 **EUROPEAN PATENT APPLICATION**

21 Application number: **89311056.9**

51 Int. Cl.⁵ **B65D 88/16**

22 Date of filing: **26.10.89**

30 Priority: **29.10.88 GB 8825375**

43 Date of publication of application:
09.05.90 Bulletin 90/19

34 Designated Contracting States:
CH DE FR GB LI NL

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54 **Improvements in or relating to containers.**

57 The removable sheet (19) covering the discharge area (16) in the base (12) of a container (10) for material is temporarily attached to the base by adhesive strips (20) at the periphery of the member, the adhesive being of a removable type.

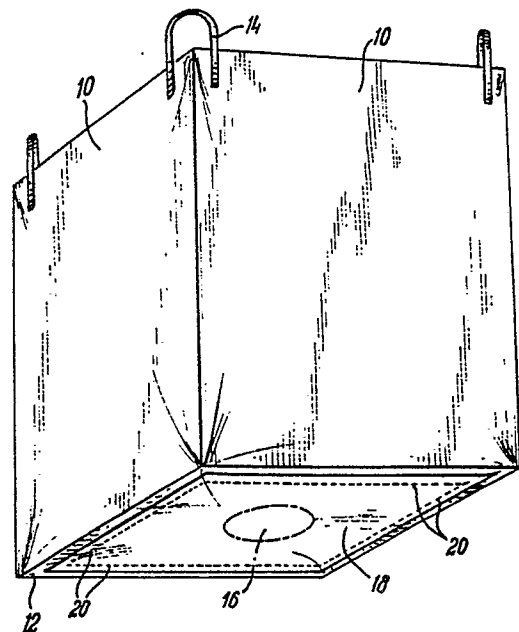


FIG. 1

EP 0 367 501 A1

Improvements in or relating to Containers

The present invention concerns improvements in or relating to containers, especially but not exclusively containers in the form of bags adapted for the transportation and storage of materials in bulk, for example, bags capable of containing loads of one tonne.

Often bags of this nature contain foodstuffs or other materials which can readily be contaminated. The bags may be designed for single use or multiple use and are normally fabricated in the form of a general rectangular prism having a substantially flat base, from natural or synthetic fabric, typically woven polypropylene.

The bags are often designed so that they can be discharged automatically and to this end have an aperture in their base through which the contents of the bag can be ejected. The contents are sometimes contained within the bag by a rupturable plastics material membrane extending across the base of the bag, which membrane can be provided by the base of an internal plastics material lining member.

It is to be realised that as the bags are stored and transported on their bases and due to ground contact the bases are most susceptible to contamination by dirt, bacteria, insects or vermin. The most vulnerable part of the bag is the aperture and the part of the base surrounding it and proposals have been made to reduce this vulnerability by placing a flap over the aperture. To a certain extent prior flaps have increased the integrity of the bag but none have given it total integrity while at the same time having no detrimental effect on the bag's efficiency or increase in its cost.

It is an object of the present invention to obviate or mitigate these disadvantages.

According to the present invention there is provided a container for fluent materials including a base member in which is provided a discharge aperture and, a sheet member for attachment to the exterior of the base over said aperture said sheet being affixed to the base by a removable adhesive whereby prior to discharging the bag's contents it can be stripped from the base of the container.

Preferably the container is fabricated from woven polypropylene in the form of a rectangular prism.

Preferably the sheet is formed from woven polypropylene and has the same configuration but lesser dimensions than the container base.

Preferably adhesive is provided around the entire periphery of the sheet and is of a type which permanently adheres to the sheet but temporarily adheres to the base whereby on removal of the

sheet the adhesive is removed also.

In certain instances the sheet may be manufactured from rigid material to give the container a rigid temporary base. The temporary base may include means for facilitating mechanical handling.

An embodiment of the present invention will be described by way of example only with reference to the accompanying drawings in which:-

Fig. 1 shows a perspective view from one side and below of a large storage bag; and

Fig. 2 shows a similar view of a modified bag.

Fig. 3 shows a similar view of a further modified bag.

The bag of the present invention comprises four upstanding sides 10 with a rectangular top (not shown) and a rectangular base 12 fixed thereto by any suitable means, for example, stitching.

Lifting handles 14 are provided at the top of the bag but as they do not form part of the present invention they will not be described in any detail. Conveniently the bag is manufactured from panels of woven polypropylene stitched together but any alternative material and construction technique may be employed. The base of the bag has a discharge aperture 16 which, conveniently, is circular. To maintain the bag contents within the bag there is provided a base membrane (not shown) which may either be a separable membrane positioned on the inside of the base of the bag or alternatively the base of a plastics material lining the entire bag.

To protect the portion of the base membrane exposed at the aperture 16 there is provided a removable flap 18, conveniently of woven polypropylene, which has a shape conforming to the shape of the base but is of lesser dimensions. A strip of adhesive 20 is provided along the entire length of each edge of the removable sheet 18, the adhesive being applied by any suitable mechanical or manual means and being a cold or hot melt adhesive whose properties are such that its attachment to sheet 18 is greater than its attachment to the base 12 of the container to which the removable sheet is attached.

It will be realised, therefore, that the removable sheet, as well as adding strength to the base of the container, especially across the aperture 16, provides an impermeable barrier, to dirt, bacteria, insects, vermin etc over the base area it covers and also protects the regions of the base of the bag surrounding the aperture from abrasion damage.

To empty a bag all that is required is to tear off the removable sheet 18 and puncture the membrane spanning the aperture 16 when the bag is suitably suspended above a receiving member. As

a result of the protective nature of the removable sheet the membrane and the area surrounding it will be completely uncontaminated.

Fig. 2 shows a modified bag in which the sheet 18 is similar to the sheet illustrated in Fig. 1 but has adhesive 20 on only three of its edges the remaining edge being attached permanently to the base by, for example, stitching 22. The stitching may be that employed to attach the base 18 to the side panel.

Various other modifications can be made without departing from the scope of the invention, for example, the container need not be a bag but could be a rigid container. It could have any suitable shape and any number of apertures in the base. Alternatively there may be no aperture in the base where it is intended that the base is ruptured to permit discharge. This modification is illustrated in Fig. 3. The protective sheet may not be manufactured from woven polypropylene but could be a flexible plastics sheet or, as illustrated in Fig. 3, a rigid sheet 24. If the latter, the rigid sheet 24 may incorporate mechanical handling means, for example, channels 26 for the tines forklift trucks. A rigid covering sheet could be manufactured from wood or more suitably from rigid plastics material.

The covering sheet need not conform to the shape of the base but could have any suitable shape, provided that at least the aperture in the base or the discharge area in a non-apertured base is protected. Obviously it is important that the adhesive strip is continuous and that any suitable adhesive may be employed. The adhesive may be applied in the form of a double sided tape that is with the adhesive on one side adhering to the sheet and that on the other side adhering less strongly to the base. A single sided adhesive tape could be used. In this case the tape would be applied such that its inner portion adhered to the sheet at its periphery while its remaining outer portion adhered to the bag.

To assist in the removal of the sheet where the adhesive strip extends to its outer edges, projecting tabs or strips with no adhesives may be provided at the periphery of the sheet to provide a hand hold for an operative removing the sheet.

The sheet may have dimensions greater than the base so that it extends over the lower regions of the sides and is fixed by adhesive to the sides rather than the base.

In a further modification the aperture in the base of the bag may have an externally projecting discharge tube connected to it. The discharge tube is normally sealed off by tying it around with tapes and, of course, in the transport and storage condition the tube would also be protected by the adhesive sheet.

In a still further modification the bag can be

utilised in an alternative orientation, for example, with the base displaced by 90° so that side discharge is then achieved.

Claims

1. A container for materials including a base member adapted to allow material to be discharged therethrough and a sheet member for attachment to the exterior of the container to cover at least part of the base characterised in that said sheet (18) is affixed to the container by a removable adhesive (20) whereby prior to discharging the container's contents it can be stripped from the base (12) of the container.

2. A container as claimed in Claim 1, characterised in that a discharge aperture (16) is provided in the base.

3. A container as claimed in Claim 1 or Claim 2, characterised in that the sheet (18) is affixed to the base (12).

4. A container as claimed in any of Claims 1 to 3, characterised in that the sheet (18) is permanently fixed to the base (12) by a portion of its periphery.

5. A container as claimed in Claim 4, characterised in that the permanent fixing of the portion of the periphery of the sheet (18) to the base (12) comprises stitching (22).

6. A container as claimed in any one of the preceding Claims characterised in that it is fabricated from woven polypropylene in the form of a rectangular prism.

7. A container as claimed in any one of Claims 1 to 6, characterised in that the sheet (18) is formed from woven polypropylene and has the same configuration but lesser dimensions than the container base (12).

8. A container as claimed in any one of Claims 1 to 3, 6 or 7, characterised in that adhesive (20) is provided around the entire periphery of the sheet (18) and is of a type which permanently adheres to the sheet (18) but temporarily adheres to the base (12) whereby on removal of the sheet the adhesive is removed also.

9. A container as claimed in any one of Claims 1 to 7, characterised in that the edge or edges of the sheet (18) not permanently fixed to the base (12) are provided with a strip of adhesive (20).

10. A container as claimed in any one of the preceding claims, characterised in that the adhesive (20) takes the form of a tape coated on each side with adhesive and sandwiched between the sheet (18) and base (12) at or near the edges of the sheet or a tape coated with adhesive on one side applied in overlapping relationship at the periphery of the sheet (18) and adhering to the sheet

and base (12) surrounding the sheet.

11. A container as claimed in any one of Claims 1 to 5 or Claims 7 to 10, when not dependent upon Claim 6 characterised in that the sheet (18) is manufactured from rigid material to give the container a rigid temporary base which may include means for facilitating mechanical handling.

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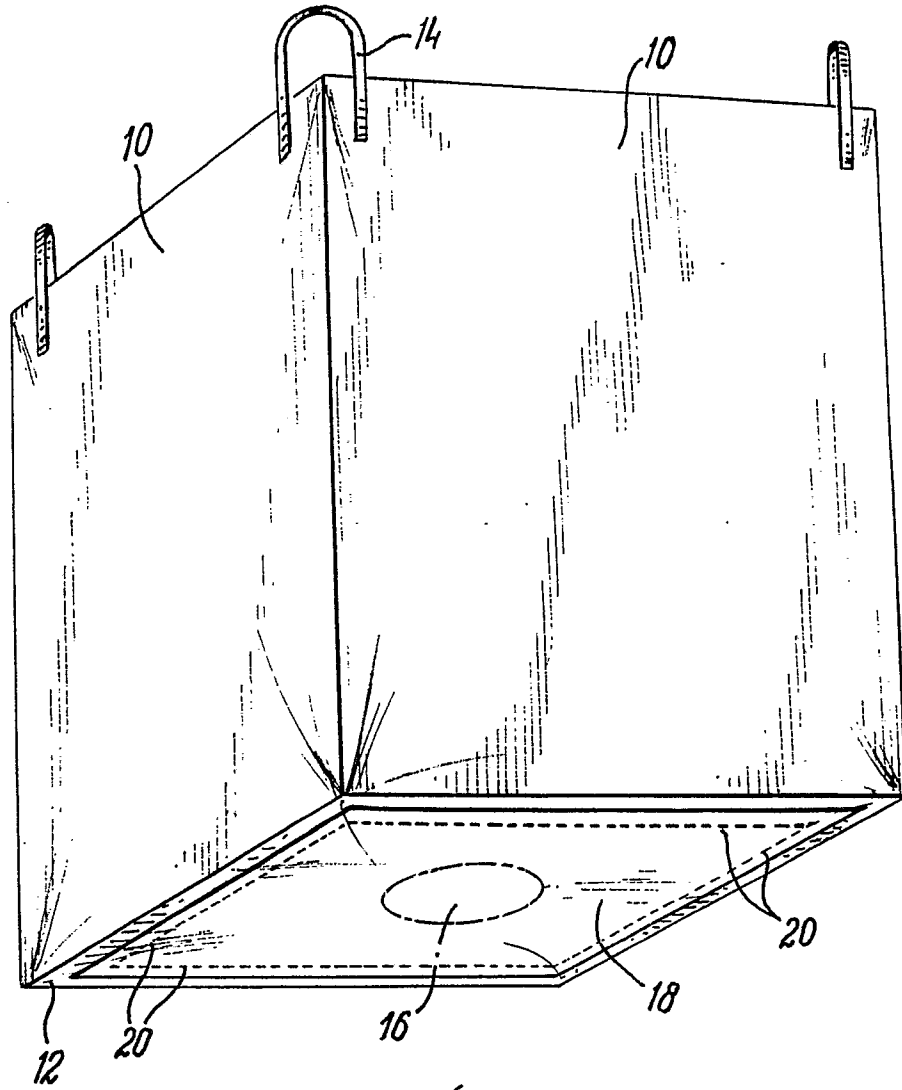


FIG. 1

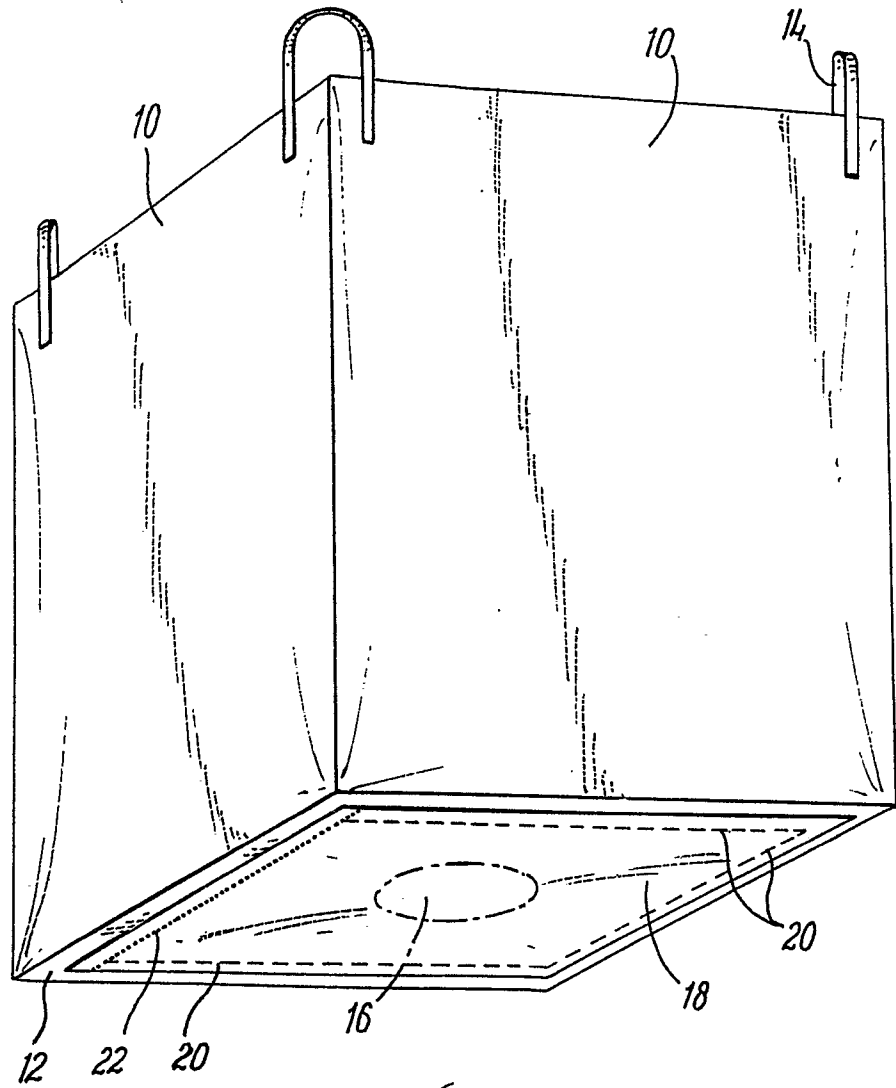


FIG. 2

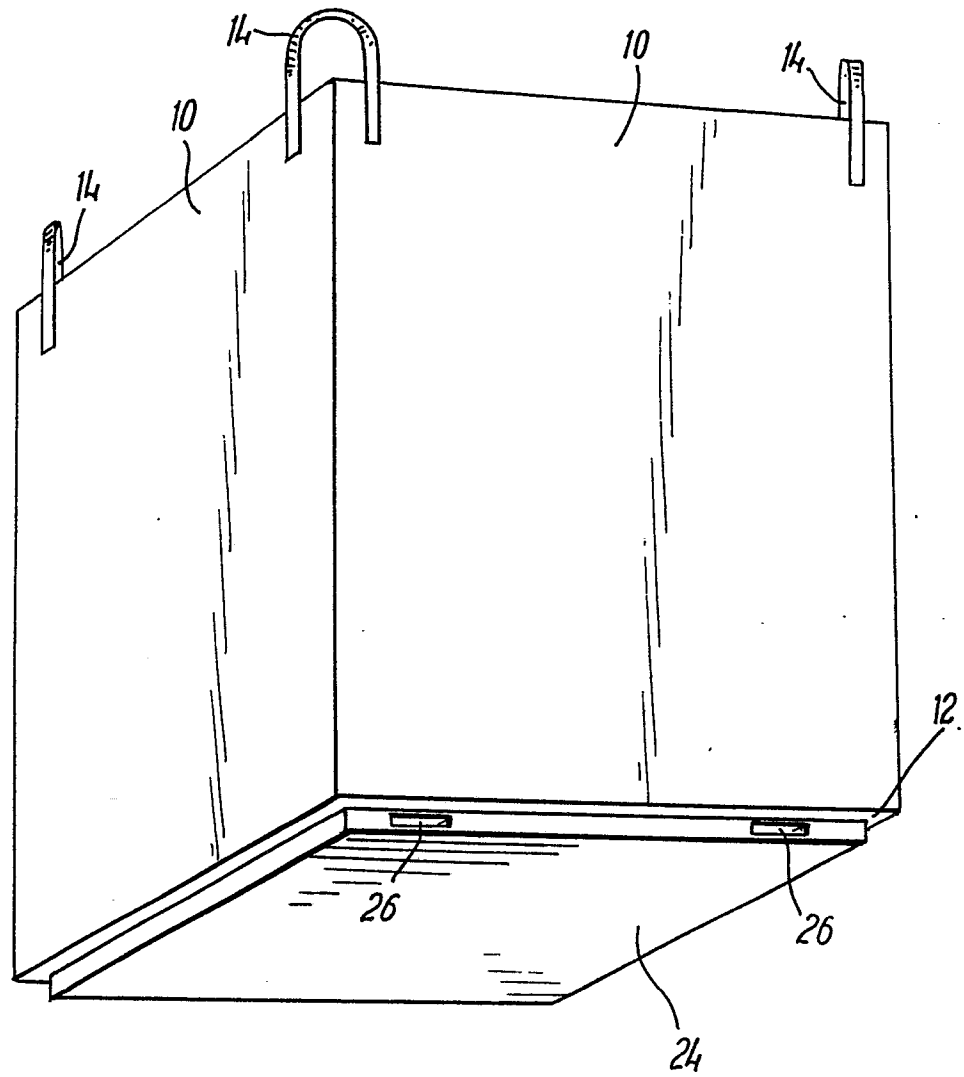


FIG. 3



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.5)
Y	EP-A-0 105 238 (CUSTOM PACKAGING SYSTEMS) * Page 14, lines 11-27; figure 14 *	1	B 65 D 88/16
A	---	2,3,10,11	
Y	EP-A-0 214 791 (MINNESOTA MINING) * Page 3, line 16 - page 4, line 24; page 6, lines 4-32; figures 4,5 *	1	
A	---	4,9	
A	DE-B-1 092 372 (CONTINENTAL GUMMI-WERKE) * Columns 3,4; figure 4 *	1-4,6,7	
A	US-A-4 574 976 (W.R. HESS et al.) * Entirely *	1,8,10	
A	DE-C- 806 623 (VERPACKUNGSBEDARF) * Entirely *	1,4	
A	GB-A-1 458 262 (I.B.C. TRANSPORT) * Entirely *	4,5	
A	GB-A-1 431 582 (F. NATTRASS et al.) * Page 1, lines 68-73 *	6,11	B 65 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 05-02-1990	Examiner NEVILLE D.J.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			