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54 **Container bag.**

57 A container bag (10) comprises a body of flexible material having lifting loops (16). Channels (20, 22) are provided within which stiffening rods (26) are placed. The ends of the rods are joined by means of corner fittings (28) to provide an orthogonal framework to enable the bag to be free standing and self supporting.

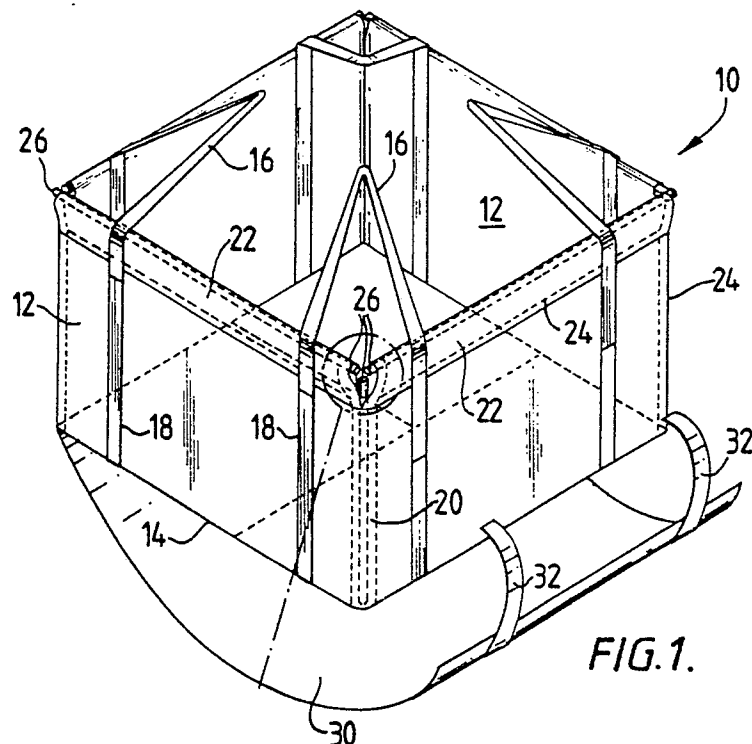


FIG.1.

EP 0 300 622 A1

CONTAINER BAG

This invention relates to container bags and in particular to container bags for carrying loads in the range of one-half to two tonnes and known as Intermediate Bulk Containers (IBC's).

Intermediate Bulk Containers are increasingly employed in cargo handling and transporting situations, especially for the carriage of particulate and pulverulent material. A typical IBC will be manufactured from a fabric woven from polyolefin tape yarn and have integral lifting loops. Examples of such containers are described in UK Patent Nos. 1591091 and 2063816.

Such IBC's, being flexible, need to be supported during filling, for example from their lifting loops. In many applications this is no great problem since IBC's will be filled sequentially from a hopper containing fertiliser, cement, or the like. However, in other applications such as the on site removal of rubble or other waste material, the fact that an IBC is not self supporting is a considerable disadvantage.

The invention seeks to provide an IBC improved in the above respects.

According to the present invention there is provided a container bag which comprises a body of flexible material having lifting loops characterised in that the body is provided with stiffening to enable it to be free standing.

Preferably the stiffening is removable or at least demountable so that the IBC can be folded or rolled for transport and storage. In one preferred form the stiffening comprises four ribs or rods of a suitable material such as metal, wood, plastics material and the like retained in suitable channels formed in the IBC walls.

Since, once the freestanding IBC has been filled, it is preferable that it should be liftable (e.g. by means of a fork-lift truck) without removing the stiffening, it is preferred that the latter should be sufficiently resilient to withstand the stresses involved in the handling of a fully loaded IBC. To this end one preferred form of stiffening material comprises stiff but resilient rods, for example of nylon.

Conveniently, the stiffening may be in a number of discrete lengths which may be linked by, for example, corner fittings so as to form a framework and thereby support the IBC in its free standing configuration.

The fabrics from which the IBC of the invention are formed may be conventional fabrics for use in this type of container bag and may be woven from polyethylene or polypropylene tape yarns. Preferably however at least the side walls are made from a fabric having reinforced zones or areas of interwoven reinforcing yarns, for example as disclosed

in our UK Patent No. 1591091. Where such reinforcing areas are provided these may be as described in that patent and may be formed of interwoven threads of high tensile strength reinforcing yarns such as polyamide, polyester or twisted or fibrillated polypropylene. The lifting loops are attached to such reinforced areas. Alternatively, the IBC may be 'underslung' where the lifting loops extend down the side walls and under the base of the container body. In either case the lifting loops will preferably be of a woven webbing of synthetic yarns, for example of the type used for car seat belts and in IBC lifting loops, or may be ropes or hawsers of suitable strength.

The container bag of the invention may be fitted with a filling spout but, since it is primarily intended for piecemeal filling on site it is preferred that the top be left substantially open. Discharge spouts may be provided, and in a preferred form the entire base of the bag may be openable to give a rapid release of the bag's contents. This may be effected by means conventional in the IBC art.

The invention will be described further, by way of example, with reference to the accompanying drawing, in which:

Figure 1 is a diagrammatic perspective view of an IBC constructed in accordance with the invention; and

Figures 2(a) and (b) are views of alternative corner fittings.

Referring to the drawings, an intermediate bulk container generally designated 10 comprises side walls 12, a base 14 and lifting loops 16. The lifting loops 16 are of woven webbing and are attached to reinforcing bands 18 interwoven in the sides 12 of the body 10 by suitable means such as stitching, for example in a box and cross stitching pattern. The side walls 12 carry vertical channels 20 and horizontal channels 22 formed by lines of stitching 24 defining pockets for stiffening rods 26.

As can be seen from figure 2, the rods 26 are formed into a framework by means of removable corner fittings 28a or 28b.

The top of the IBC illustrated is left open for easy filling and the base 14 is closed by a releasable flap 30 attached by means of straps 32 to a suitable quick release means (not shown) on the IBC side wall.

With the corner units 28 removed, even with the stiffening rods 26 in place, the IBC can be folded flat for storage and transport and can, for example, be supplied stacked on a pallet or in bales. On site an IBC is unfolded and four corner units 28 fitted thereby forming an orthogonal framework allowing the IBC to be self supporting and

free standing. The IBC may be filled piecemeal, by means of shovels, mechanical diggers, or the like possibly over a period of time. When full it may be lifted by means of the loops 16 either employing a fork lift truck or a crane in the manner known per se. The quick release flap 30 ensures rapid discharge of the contents when the IBC has been transported to the discharge point. The flap 30 may then be reconnected by means of the straps 32 and the IBC returned for further use.

In a preferred form of the invention the supports are thin nylon rods which have the necessary stiffness to allow the IBC to be free standing yet are sufficiently resilient to withstand the forces involved in handling a filled IBC without themselves breaking. Thus the IBC may be reused. Where the IBC is intended to be disposable, that is destined for a single trip operation only, the support rods may be of flimsier or less resilient material which may well be broken during handling or lifting of the IBC which of course is after they have performed their function of holding the IBC upright during filling.

The IBC of the invention is ideal for use at building and construction sites and the like.

Claims

1. A container bag which comprises a body of flexible material having lifting loops characterised in that the body is provided with stiffening to enable it to be free standing.

2. A bag as claimed in claim 1 in which the stiffening is removable or demountable so that the bag can be folded or rolled for transport and storage.

3. A bag as claimed in either of claims 1 or two in which the stiffening comprises four ribs or rods retained in suitable channels formed in the bag walls.

4. A bag as claimed in claim 3 in which the rods or ribs are formed of metal, wood or plastics material.

5. A bag as claimed in claim 4 in which the plastics material is nylon.

6. A bag as claimed in any of claims 3 to 5 in which the rods or ribs are linked by fittings so as to form a framework whereby to support the bag in its free standing configuration.

7. A bag as claimed in claim 6 in which the fittings are corner fittings adapted to receive the ends of three rods or ribs and retain them mutually at 90° to one another.

8. A bag as claimed in any of claims 1 to 7 provided with a fully openable base.

9. A bag as claimed in claim 8 in which the base is provided with a quick release mechanism.

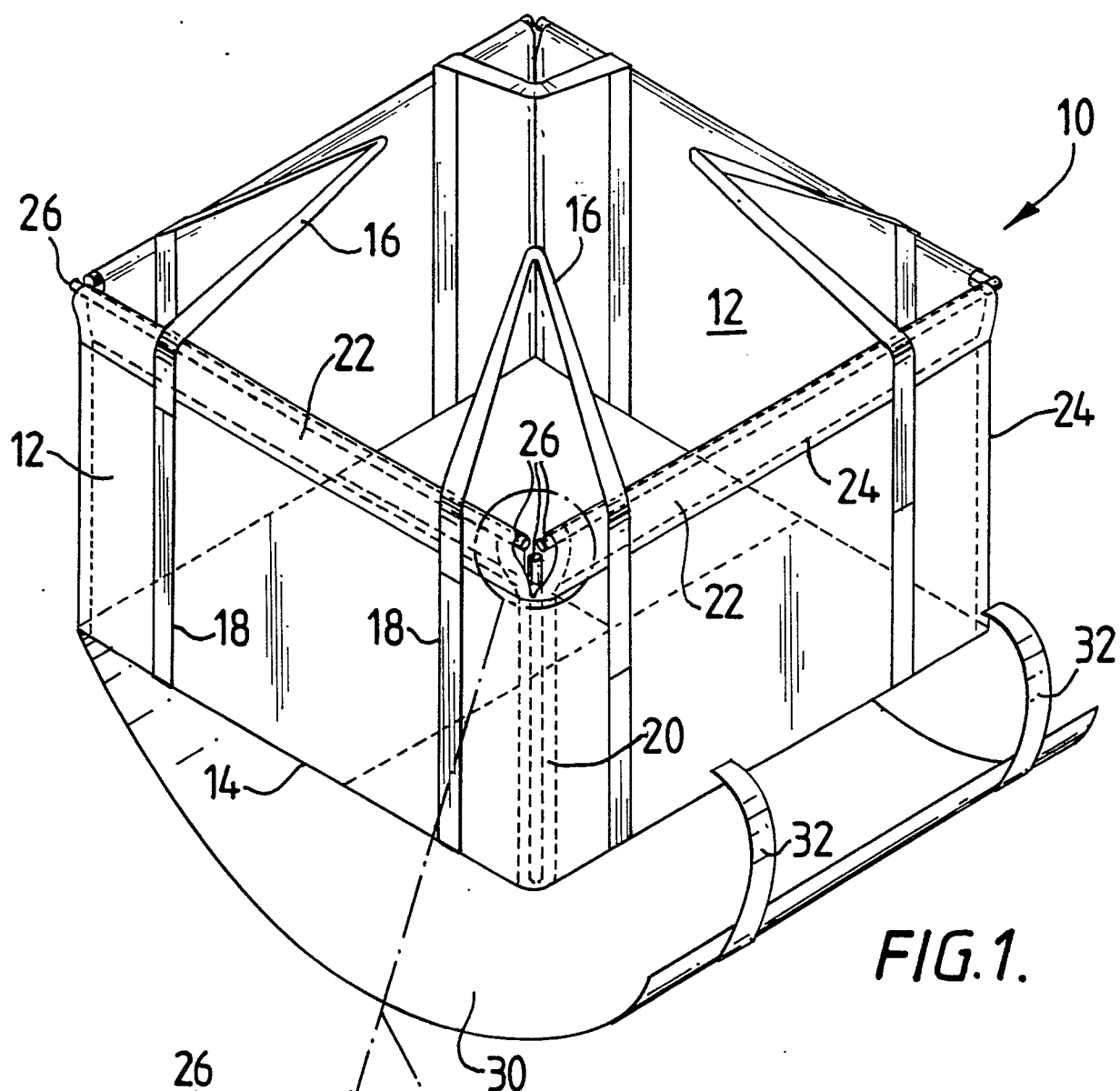


FIG. 1.

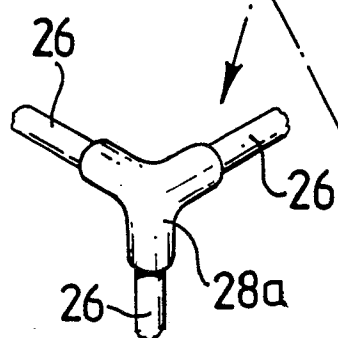


Fig. 2a.

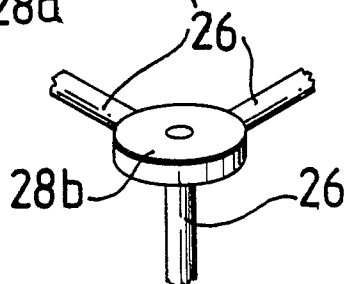


Fig. 2b.



EP 88 30 5670

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. 4)
X	GB-A-1 131 113 (INTERFIL) * Whole document *	1-6	B 65 D 90/20
Y	---	7,8,9	B 65 D 88/16
Y	DE-A-1 586 645 (HOECHST) * Whole document *	7	
A	---	1-4,6,8	
Y	DE-A-3 434 543 (AQUA PHYSIK) * Figures; abstract *	8,9	
A	FR-A-1 509 039 (MALGRANGE) * Whole document; especially figure 1; reference number 25 *	1,2,4,7 -9	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			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 19-10-1988	Examiner WERNER D.M.
CATEGORY OF CITED DOCUMENTS 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 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			