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(54) **Large-size bag provided with inner bag.**

(57) The present invention concerns a large-size bag (10) provided with an inner bag (20). At least the lower part of said inner bag (20) consists of at least two material thicknesses. A sleeve-like material piece (21) has been placed outside the inner bag (20), whereby said sleeve-like material piece (21) remains between the inner bag (20) and the large-size bag (10).

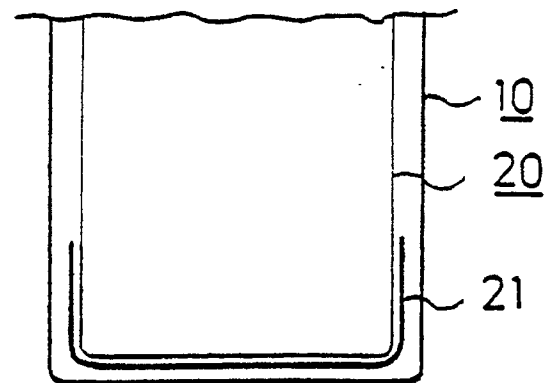


FIG. 2

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LARGE-SIZE BAG PROVIDED WITH INNER BAG

The present invention concerns a large-size bag provided with an inner bag.

Large-size bags are used for transporting and storing bulk goods, and the quantity of bulk goods being in general from several hundreds of kilos to several tons. The inner bag of said large-size bag is exposed to damaging during filling, storing, transfer, lifting, or other forms of treatment. During said treatments sharp angles, folds, pleats or equivalent are formed in the inner bag of said large-size bag because of which larger or smaller holes are produced in the inner bag either from the inside or outside. Certain products to be packed in large-size bags, such as fertilizers, are extremely sensitive to moisture. When moisture enters through the holes formed in the inner bags, the fertilizers become moistened, and they cannot be used e.g. in seeding fertilizer means at all because the fertilizing spades of the seeding fertilizer means become blocked.

The above-described problem is generally recognized, but nowadays no solution exists against said tendency of the inner bag becoming damaged. The inner bag materials used currently simply are not sufficiently strong to remain undamaged during filling, storing, transfer, lifting, or equivalent treatment of the large-size bag.

The object of the invention is to provide a large-size bag with an inner bag in which said damaging tendency of the inner bag has been eliminated in a most simple manner.

The aims of the invention are achieved with a large-size bag provided with an inner bag which is mainly characterized in that at least the lower part of the inner bag is formed from at least two material thicknesses.

In a number of advantageous embodiments of the invention, a separate sleeve-like material piece is used which is fitted either inside or outside the inner bag. Said sleeve-like material piece may be attached to the inner bag, or said sleeve-like material piece is not attached to the inner bag.

In an alternative embodiment of the invention said sleeve-like material piece is part of the large-size bag, that is, of the outer bag, whereby said sleeve-like material piece has already been attached to said outer bag.

In an advantageous embodiment of the invention the sleeve-like material is of the same material blank as the inner bag. Hereby, from the material blank of the inner bag can be formed a sleeve-like material piece by folding said inner bag blank either inwards or outwards, and by joining said folded bottom with a bottom seam. This kind of folding may be provided with or without any in-

dividual pleats.

An inner bag may also be produced from a material tube which is folded inwards or outwards and provided either with a bottom seam only, or with a bottom seam and side seams.

The sleeve-like material piece may also be produced from a separate folded strip surrounding the inner bag at least in the bottom, said folded strip being attached to the inner bag in an appropriate manner.

The sleeve-like material piece may also be formed by placing two separate films on both sides of the inner bag blank and by attaching said separate films in an appropriate manner.

When using the inner bag of the invention, it has been found, surprisingly, that a large-size bag provided with the inner bag of the invention will not be damaged during filling, storing, transferring, lifting, or other equivalent treatment. Therefore, a large-size bag provided with the inner bag of the invention is particularly well suited for packing such bulk goods which are very sensitive to moistening.

The inner bag of the invention may be applied in any kind of large-size bag. Therefore, the large-size bag may be a large-size bag which is provided with lifting loops, as disclosed in the Finnish patent applications Nos. 57 381 and 61 174, or a large-size bag in which the open upper end of the large-size bag is closed with rope or equivalent. In the latter case, no proper lifting loops are therefore provided in said large-size bag at all.

The invention is described in detail, reference being made to certain advantageous embodiments of the invention presented in the figures of the drawing attached, but to which the invention is not intended to be exclusively confined.

Fig. 1 presents a large-size bag known in the art, in axonometric view.

Fig. 2 presents an advantageous embodiment of the inner bag of the invention in schematic elevational view.

Fig. 3 presents a second advantageous embodiment of the inner bag of the invention in schematic elevational view.

Fig. 4 presents a third advantageous embodiment of the inner bag of the invention in schematic elevational view.

Fig. 5 presents a fourth advantageous embodiment of the inner bag of the invention in schematic elevational view.

Fig. 6 presents a fifth advantageous embodiment of the inner bag of the invention in schematic elevational view.

Fig. 7 presents a sixth advantageous embodiment of the invention in schematic elevational

view.

Fig. 8 presents a seventh advantageous embodiment of the inner bag of the invention in schematic elevational view.

In Fig. 1 is presented a large-size bag 10 disclosed in the Finnish patent application No. 61 174. From a tubular blank has been produced in a manner known in itself in the art a flexible container as shown in Fig. 1, that is, a large-size bag 10, provided with an envelope 11a, bottom 12, a substantially central filling aperture 13, and lifting loops 14a,15a and 14b,15b. The bottom 12 of the container is closed with a joining seam 20 closing the open lower edge of the tubular blank. Hereby, the joining seam 18 is located substantially in the centre region of the bottom 12. As may be seen in Fig. 1, the flexible container 10 is a so-called pleated container, in the envelope 11a whereof are produced two pleats in opposed positions. In Fig. 1 is shown only one pleat which is produced in the manner indicated by a broken line 19, in other words, the lower part of said pleat 19 being folded to the plane of the bottom 12 of the container 10.

The lifting loops 14a,15a, respectively 14b,15b, have been produced advantageously in the manner disclosed in the Finnish patent application No. 57 381 as follows. The strip-like parts 14a and 15a are folded overlappingly relative to one another, and substantially the lower edge of the strip-like part 14a is connected with the substantially upper edge of the strip-like part 15a by means of a joining seam 16. Thereafter, the strip-like parts 14b and 15b are folded overlappingly relative to one another, and the substantially lower edge of the strip-like part 15b is joined to the substantially upper edge of the strip-like part 14b with a joining seam 17. Hereby, in the lifting loops 14a,15a, resp. 14b,15b, the joining seam 16, resp. 17, are located on the opposite sides of the lifting loops. E.g. the strip-like parts 14b and 15b may naturally be joined to one another in that the substantially lower part of the strip-like part 14b is with a joining seam 17 connected to the substantially upper edge of the strip-like part 15b. Hereby, the joining seams 16 and 17 are located on the same side of the lifting loops.

If desired, the substantially upper edge of the strip-like part 14a can be attached to the substantially lower edge of the strip-like part 15a with another joining seam 16, and respectively, join the strip-like parts 14b and 15b likewise. Hereby, both lifting loops 14a,15a, resp. 14b,15b, are provided with two joining seams 16, resp. 17, positioned on the opposite sides, being located at a substantial distance from the centre region.

The large-size bag of Fig. 1 is in general provided with an inner bag. For the sake of clarity, in Fig. 1 this kind of inner bag to be placed inside

a large-size bag 10 is not presented. On the other hand, the inner bag of the invention is in no way critical relative to the large-size bag design, as is already noted in the foregoing.

In the embodiment of Fig. 2, a sleeve-like material piece 21 is placed outside the inner bag 20, whereby said sleeve-like material piece 21 is left between the inner bag 20 and the outer bag, that is, the large-size bag 10.

In the embodiment of Fig. 3, the sleeve-like material piece 21 is positioned inside the inner bag 20.

In the embodiment of Figs 2 and 3, the sleeve-like material piece may be attached to the inner bag 20, or said sleeve-like material bag 21 is not attached to the inner bag 20.

In the embodiment of Fig. 4, the sleeve-like material piece 21 has already been attached to the outer bag 10, whereby the sleeve-like material piece 21 forms part of said outer bag 10.

In the embodiment of Fig. 5 the sleeve-like material piece 21 is of the same material blank as the inner bag 20. In said embodiment the inner bag 20 is folded inwards and the folded bottom is seamed with a bottom seam 22.

In the embodiment of Fig. 6 the inner bag 20 is folded outwards, whereby the sleeve-like material piece 21 is formed outside the inner bag 20. The folded bottom has been as shown in Fig. 5 seamed with a bottom seam 22.

In the embodiment of Fig. 7 the inner bag 20 is first folded and thereafter the inner bag 20 provided with pleats 23 is folded either inwards as in Fig. 5, as is presented in Fig. 7, or outwards, as in Fig. 6. The pleated folded bottom is attached with a bottom seam 22.

In the embodiment of Fig. 8, the inner bag 20 provided with a sleeve-like material piece 21 is formed from a material tube by folding one open end of said material tube either inwards in the manner shown in Fig. 5, or outwards as in Fig. 6. The folded end is attached either with a bottom seam 22 only, or both with a bottom seam 22 and side seams 24.

The embodiment of Fig. 8 may be embodied, instead of folding the open end of the material tube, in that on both sides of one open end of the material tube is placed a separate material film, and said material films being attached to the material tube as shown in Fig. 8.

Common to the embodiment of Figs. 2-8 is that at least in the lower part of the inner bag 20 are produced at least two material thicknesses.

In the foregoing are presented a few advantageous embodiments of the invention only, and it is obvious to a person skilled in the art that a plurality of modifications may be performed therein within the scope of the inventive idea presented in the

accompanying claims.

The present invention concerns a large-size bag (10) provided with an inner bag (20). At least the lower part of said inner bag (20) consists of at least two material thicknesses. A sleeve-like material piece (21) has been placed outside the inner bag (20), whereby said sleeve-like material piece (21) remains between the inner bag (20) and the large-size bag (10).

Claims

1. A large-size bag (10) provided with an inner bag (20), characterized in that at least the lower part of the inner bag (20) is formed from at least two material thicknesses.

2. Large-size bag according to claim 1, characterized in that a sleeve-like material piece (21) is placed outside the inner bag (20), whereby the sleeve-like material piece (21) remains between the inner bag (20) and the large-size bag (10).

3. Large-size bag according to claim 1, characterized in that the sleeve-like material piece (21) is positioned inside the inner bag (20).

4. Large-size bag according to claim 2 or 3, characterized in that the sleeve-like material piece (21) is attached to the inner bag (20).

5. Large-size bag according to claim 2 or 3, characterized in that the sleeve-like material piece is not attached to the inner bag (20).

6. Large-size bag according to claim 1, characterized in that the sleeve-like material piece (21) is attached to the large-size bag (10), whereby the sleeve-like material piece (21) forms part of said large-size bag (10).

7. Large-size bag according to claim 1, characterized in that the sleeve-like material piece (21) is of the same material blank as the inner bag (20).

8. Large-size bag according to claim 7, characterized in that the inner bag (20) is in the lower part folded in wards, whereby the sleeve-like material piece is formed inside the inner bag (20).

9. Large-size bag according to claim 7, characterized in that the inner bag (20) is in the lower part folded outwards, whereby the sleeve-like material piece is produced outside the inner bag (20).

10. Large-size bag according to any one of claims 8,9 or 10, characterized in that the folded lower part of the inner bag (20) is provided with a bottom seam (22).

11. Large-size bag according to claim 8,9 or 10, characterized in that the inner bag (20) is first pleated and thereafter said inner bag (20) provided with pleats (23) is folded in the lower part, and said folded lower part is provided with a bottom seam (22).

12. Large-size bag according to claim 1, character-

ized in that the inner bag (20) provided with a sleeve-like material piece (21) is produced from a material tube by folding one open end of the material tube either inwards or outwards, and that said folded end is provided either with a bottom seam only, or with a bottom seam (22) and side seams (24).

13. Large-size bag according to claim 1, characterized in that the inner bag (20) provided with a sleeve-like material piece (21) is formed from a material tube by placing a separate material film on both sides of one open end of the material tube, and that the separate material films are attached to the material tube either with a bottom seam (22) only, or both with a bottom seam (22) and side seams (24).

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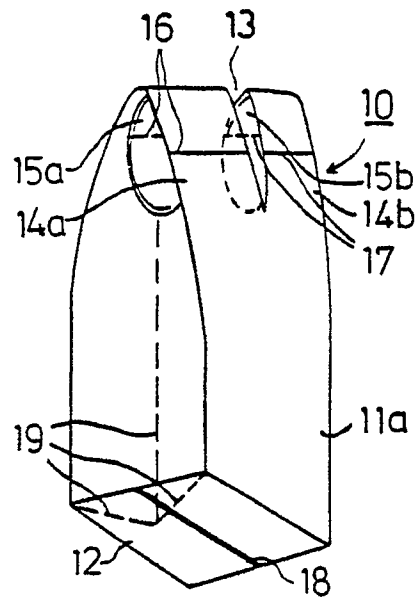


FIG. 1

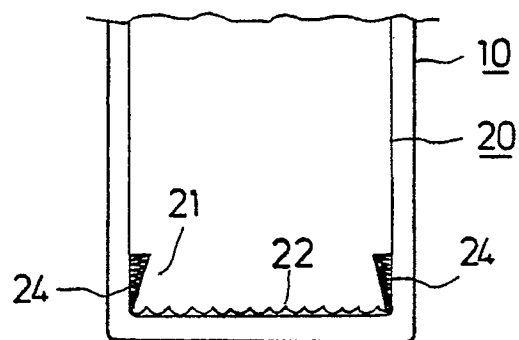


FIG. 8

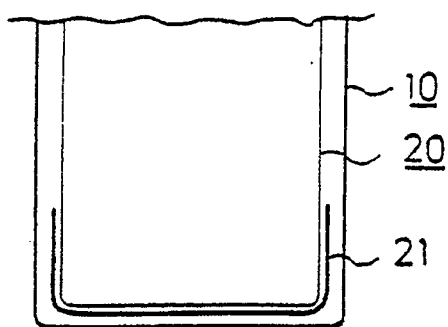


FIG. 2

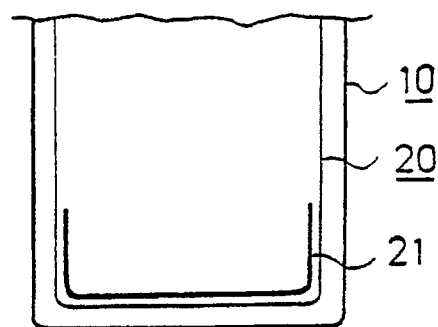


FIG. 3

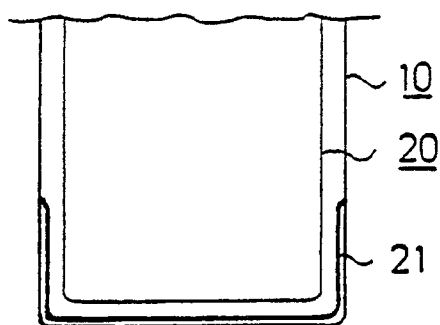


FIG. 4

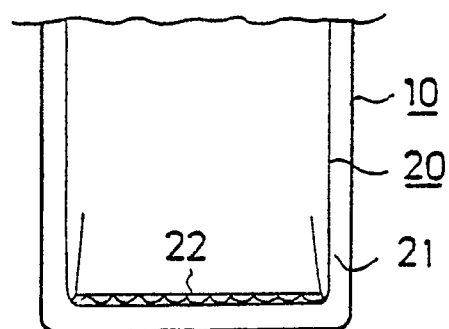


FIG. 5

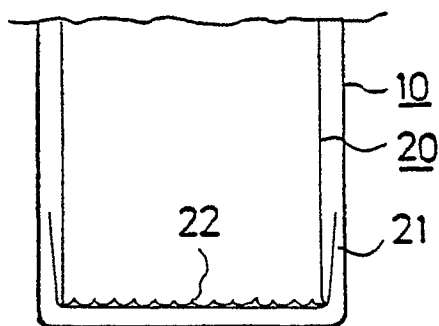


FIG. 6

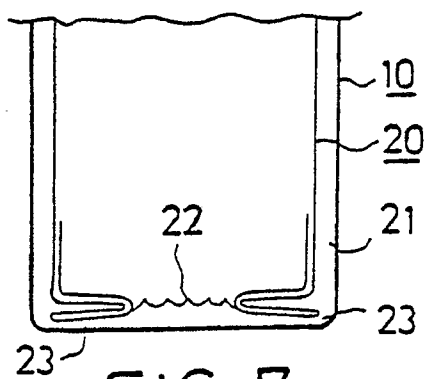


FIG. 7



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EUROPEAN SEARCH REPORT

Application Number

EP 89 11 4574

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)
X	EP-A-0 083 505 (SUPER SACK MANUFACT. CO.) * Page 26, lines 1-7; figure 27C *	1,7	B 65 D 88/16
Y	---	2,4,6	
Y	GB-A-2 173 169 (K.H. SENGEWALD) * Page 2, lines 71-105; figure 3 *	2,4,6	
X	---		
X	DE-A-2 437 670 (ORTH GEB. EUTENEUER) * Whole document *	1,2,5, 10	
A	---	12,13	
A	US-A-4 064 302 (E.C. KOZLOWSKI) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			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 10-04-1990	Examiner BEERNAERT J.E.
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