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(54) **FLEXIBLE CONTAINER**

FLEXIBLER BEHÄLTER

CONTENANT SOUPLE

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EP 2 197 757 B1

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Description

FIELD OF THE INVENTION:

[0001] This invention relates to flexible containers.

[0002] More particularly, this invention relates to bags used for storage and transportation of building materials like sand, gravel cement and the like.

INTRODUCTION AND BACKGROUND:

[0003] Storage and transportation of bulk materials for industrial consumption is unavoidable in the sense that various raw materials and or semi finished products required to sustain the industrial activity is never available in the immediate vicinity of the unit. This led to various types of containers and storage systems specially adapted to suit the requirements of a particular type of industry.

[0004] In a manufacturing unit it is possible to build specific handling and storage facilities like conveyor belts, bucket elevators and storage silos to receive and store bulk materials as the quantum of consumption is clearly known and remains constant for a known rate of production. The situation however is very different in a building site. It is not feasible to provide permanent storage and handling facilities as the same would be of no use once the construction activities are completed and would have to be uprooted and shifted to another site, involving prohibitive cost. Also the quantum of storage of materials like sand, gravel and cement and the like vary widely through the various stages of completion of the building.

[0005] This has lead to the use of cheaper and flexible storage means and use of standard handling facilities like mobile cranes and fork-lift trucks. Builder bags are typically used for filling sand, aggregates and gravel. In some countries, typically, the U.K. these materials can not be dumped on ground and hence they are stored and transported in these bags. Each bag is typically of 1000 Kg. The use of flexible bags made of woven fabric with some reinforcement material PP/HDPE/LDPE/Metallic wires are known in the prior art.

[0006] A prior art builder bag are substantially square in open cross section and are provided with loops at the four top corners. The bag has a flat bottom suitably reinforced to withstand the designed load and four side walls. The loops are hooked to a cranes lifting hook and used to lift and shift a loaded bag. These bags are invariably loaded on wooden or polymer pallets, as this facilitates lifting and shifting at a later stage, by using fork-lift trucks. Such bags are loaded on flatbed trucks along with pallets and are delivered to a building site where the unloading is done normally by fork-lift trucks. These pallets are expensive as they are provided with fork-lift tine entry access on at least two sides to facilitate easy handling and storage. The pallets are made of members having high cross sectional area to withstand storage loads and wear and tear encountered in rough and often careless

handling, adding to their cost. Many of the pallets are also damaged and at times not returned to the original owner. The cost of a pallet is many times higher than the cost of a builder bag.

5 [0007] This led to the development of Tunnel lift bags, as disclosed in GB 2 429 199, as these bags could be transported without pallets in a truck and unloaded at the site by using standard fork-lift trucks. The tunnel lift bags have tunnels made of fabrics on two sides of the bag in addition to the four loops on the top corners. These loops are slung on to a cranes hook and used for lifting where as the side tunnels are used by a fork lift truck, as a tine entry access for handling the bags.

10 [0008] This design eliminates the use of pallets for fork lift handling but the problem is that the tunnel has reinforcement only at the edges and the center of the tunnel is not strong enough. This results in tearing off the tunnels when the fork lift tine is entering the tunnels as the tunnel flap is not in a fully open position and may accidentally tear off in the middle.

20 [0009] Another problem is that in windy conditions and or if two bags are positioned close to each other the tunnel flaps does not open out fully to permit easy entry of the fork lift tine into the tunnel requiring another workman to open the tunnel so that the fork lift driver can guide the tine into the tunnel. These bags are normally stored in two or three tier stacks and the use of additional workman not only adds to the cost of handling but also has other inherent short comings from a safety angle as the workman, has to climb up the stack to hold the flap in open position and accidents while assisting in insertion of the tine into the tunnel cannot be avoided. To solve the above inherent problems in the use of conventional builder bag a modified builder tunnel bag of this invention was developed.

30 [0010] In this specification the term "delta" is used to indicate a three sided triangular shape, similar to the shape of a flap of an envelope.

40 OBJECTS OF THIS INVENTION:

[0011] One of the objects of this invention is to provide a flexible lift bag that does not require a pallet for storing and handling.

45 [0012] Yet another object of this invention is to provide a flexible lift bag that has a set of lift loops and tunnels suitable for use either with a crane or a fork lift truck.

[0013] Yet another object of this invention is to provide a flexible lift bag that has a set of loops or tunnels which are easily hooked to a crane hook and to a fork lift tine.

50 [0014] Yet another object of this invention is to provide a flexible lift bag that can be lifted and positioned by a fork lift truck operator without the use of additional man power.

55 [0015] Yet another object of this invention is to provide a flexible lift bag that is simple in construction.

[0016] Yet another object of this invention is to provide a flexible lift bag that is robust.

[0017] Yet another object of this invention is to provide a flexible lift bag that is easily storable when empty. Yet another object of this invention is to provide a flexible lift bag that reduces the turn around time of a truck by improving the efficiency of loading and unloading operations.

[0018] Yet another object of this invention is to provide a flexible lift bag that circumvents the problems encountered in opening of a closed up side tunnel.

SUMMARY OF THE INVENTION

[0019] According to the present invention there is provided a builder bag for carrying building material said bag comprising:

(i) a - U shaped fabric element comprising two side wall panels and a base panel; said U element comprising triangular panels formed by folding over the side wall panels at top edges and attaching the tip of the delta panels to the side wall panels, defining triangular profiled tunnels for use with tines of a fork lift truck;

(ii) two wall panels attached to said U element; said two wall panels defining top edges at a level lower than the top edges of the side wall panels of said U element; said U element and two wall panels, in an assembled operative configuration defining carrying means;

(iii) first reinforcement strips attached to edges of said triangular panels and extending through the side wall panels;

(iv) second reinforcement strips attached at the edges between the wall panels and the U element; and

(v) loops made of reinforced fabric strip material provided at the four corners of the side wall panels.

[0020] Typically, the panels are made of woven fabrics of polypropylene, high density polyethylene or a combination thereof.

[0021] According to the invention, the first and second reinforcement strips are reinforced woven fabric strips provided with 60 to 100 ends of reinforcement material along the length of the strip.

[0022] Typically, the reinforcement material is selected from a group of materials consisting of polypropylene, high density polyethylene, low density polyethylene, linear low density polyethylene and metallic wires.

[0023] Typically, the first reinforcement strip and the second reinforcement strips are continuous.

[0024] Typically, the loops are a continuity of said second reinforcement strips.

BRIEF DESCRIPTION OF THE DRAWINGS:

[0025] All the aspects and advantages of the invention will become apparent with the description of the preferred, non-limiting embodiment, when read together with the accompanying drawings in which:

Figure 1 is the perspective view of the builder bag in accordance with this invention;

Figure 2 is the side perspective view of the builder bag of Figure 1;

Figure 3 is another side perspective view of the builder bag of Figure 1; and

Figure 4 is top perspective view of the builder bag of Figure 1;

DETAILED DESCRIPTION OF THE DRAWINGS:

[0026] Referring to the accompanying drawings the builder bag of this invention is indicated generally by the reference numeral 10 as seen in figure 1 of the accompanying drawings.

[0027] Referring to Figure 1 the builder bag 10 is provided with a U shaped fabric element consisting of two side wall panels 12, base panel 16, and two other side panels 14. The U element and side wall panels are made of polypropylene, high density polyethylene or a combination thereof; The U element in its assembled configuration defines a top edge 18, on folding over the said side wall 12 on two opposite sides. This U element edge is cut forming a V shape, defining a triangular profiled tunnel in the form of a delta envelope flap 28. The other two side wall panels 14 being stitched to the U element defining top edges 20 at a lower level than edge 18; The U element consisting of side wall panels 12 and base panel 16 and said two other side wall panel 14 in their assembled operative configuration defines a carrying means 26; said carrying means 26 being the receptacle for receiving the material to be loaded.

[0028] The builder bag is further provided with reinforced woven fabric strip 22 having 60 to 100 ends of reinforcement material running along the length of the strip. The reinforcement material could be PP / HDPE / LDPE / LLDPE / Nylon / Metallic Wires and the like. The strip 22 is stitched on top of the U element at the V formation and along the lower half of side wall panel 12 to make the triangular profiled tunnel 28 stiff and retain its shape even after repeated and prolonged use.

[0029] The builder bag is further provided at least four loops 24 made of reinforced fabric strip material at the four corners defined by the upper edges 18 and 20 of the side panels 12 and 14.

[0030] To lift and shift a loaded builder bag 10 by means of a crane the loops 24 are hooked on to the crane hook whereas the triangular profiled tunnel in the form of delta envelope flaps 28, formed on the side wall panels 12 are used as tine entry access for handling a loaded bag with a fork lift truck.

[0031] While considerable emphasis has been placed herein on the particular features of "builder bag" and the improvisation with regards to it, it will be appreciated that various modifications can be made, and that many changes can be made in the preferred embodiment without departing from the principles of the invention. These and other modifications in the nature of the invention or the preferred embodiments will be apparent to those skilled in the art from the disclosure herein, whereby it is to be distinctly understood that the foregoing descriptive matter is to be interpreted merely as illustrative of the invention and not as a limitation.

Claims

1. A builder bag (10) for carrying building material said bag comprising:

a U shaped fabric element comprising two side wall panels (12) and a base panel (16); two wall panels (14) attached to said U element; said U element and two wall panels (14), in an assembled operative configuration defining carrying means; loops (24) made of reinforced fabric strip material provided at the four corners of the side wall panels;

characterized in that:

said U element comprises triangular panels formed by folding over the side wall panels (12) at top edges (18) and attaching the tip of the panels to the side wall panels (12), defining triangular profiled tunnels for use with tines of a fork lift truck; and the bag further comprises:

first reinforcement strips (22) attached to edges of the triangular panels (28) and extending through the side wall panels; second reinforcement strips (22) attached at the edges between the wall panels (14) and the U element;

wherein said two wall panels define top edges (20) at a level lower than the top edges (18) of the side wall panels (12) of said U element; and wherein said first and second reinforcement strips are reinforced woven fabric strips provided with 60 to 100 ends of reinforcement material along the length of the strip.

2. A builder bag for carrying building material as defined in claim 1, wherein said panels are made of woven fabrics of polypropylene, high density polyethylene or a combination thereof.

3. A builder bag for carrying building material as

claimed in any preceding claim wherein said reinforcement material is selected from a group of materials consisting of polypropylene, high density polyethylene, low density polyethylene, linear low density polyethylene and metallic wires.

4. A builder bag for carrying building material as claimed in any preceding claim, wherein said first reinforcement strip and second reinforcement strips are continuous.
5. A builder bag for carrying building material as claimed in any preceding claim, wherein said loops are a continuity of said second reinforcement strips.

Patentansprüche

1. Großbeutel (10) für Baumaterialien zum Transport von Baustoffen, der folgendes umfasst:

- ein U-förmiges Gewebepanele einschließlich zwei Seitenwandpanele (12) und eine Bodenpanele (16); zwei an das U-förmiges Gewebepanel befestigte Wandpanele (14);
- das U-förmiges Gewebepanel und zwei Wandpanele (14), die in deren montierte operative Konfiguration das Transportmittel definieren;
- Schlaufen (24) aus verstärktem Gewebematerial, die an den vier Ecken der Seitenwandpanele vorgesehen sind;

gekennzeichnet dadurch,

- **dass** das U-förmiges Gewebepanel dreieckige Panele umfassen, die durch das Falten über die Oberkante der Seitenwandpanele (12) und das Fixieren der Panelspitzen an den Seitenwandpanele gebildet werden und wo die Spitze der Panele, die dreieckigen Profiltunnel zur Bedienung mit den Zinken eines Gabelstaplers definieren, und darüber hinaus umfasst die Großbeutel:

- erste an den Kanten der dreieckigen Panele (28) befestigten Verstärkungstreifen (22) und die durch den Seitenwandpanele erstrecken;
- zweite an den Kanten zwischen der Wandpanele (14) und das U-förmiges Gewebeelemente befestigten Verstärkungstreifen (22),

wobei die zwei Wandpanele die Oberkanten (20) auf einer niedrigeren Ebene als die Oberkanten (18) der Seitenwandpanele (12) des U-förmiges Gewebeelemente definieren; und

wobei die ersten und zweiten Verstärkungstreifen

aus verstärkten Gewebematerial sind, die über deren Länge mit 60 bis 100 Verstärkungsmaterialien versehen sind.

2. Großbeutel für Baumaterialien zum Transport von Baustoffen nach Anspruch 1, wobei die Panele aus Polypropylengewebe, aus Polyethylen hoher Dichte oder einer Kombination des beiden sind. 5
3. Großbeutel für Baumaterialien zum Transport von Baustoffen nach jeder vorhergehenden Ansprüche, wobei das Verstärkungsmaterial aus einer Materialskategorie aus Polypropylen, Polyethylen hoher Dichte, Polyethylen niedriger Dichte, lineares Polyethylen niedriger Dichte und metalledrähnen gewählt wird. 10
4. Großbeutel für Baumaterialien zum Transport von Baustoffen nach jeder vorhergehenden Ansprüche, wobei die ersten Verstärkungstreifen und zweiten Verstärkungstreifen durchgehend sind. 20
5. Großbeutel für Baumaterialien zum Transport von Baustoffen nach jeder vorhergehenden Ansprüche, wobei die Schlaufen eine Verlängerung der zweiten Verstärkungstreifen sind. 25

Revendications

1. Un sac de constructeur (10) pour le transport de matériaux de construction, ledit sac comprenant : 30
 - un élément en tissu en forme de U comportant deux panneaux muraux latéraux (12) et un panneau de base (16); deux panneaux muraux (14) attachés audit élément en U; 35
 - ledit élément en U et deux panneaux muraux (14), dans une configuration assemblée opérationnelle définissant les moyens de transport; 40
 - des boucles (24) faites de bandes de tissu renforcé prévues au niveau des quatre coins des panneaux muraux latéraux; 45

caractérisé en ce que:

- ledit élément U comprend des panneaux triangulaires formés en repliant les panneaux muraux latéraux (12) aux bords supérieurs (18) et attachant le bout des panneaux aux panneaux muraux latéraux (12), définissant des tunnels profilés triangulaires pour l'utilisation avec des dents d'une chariot élévateur à fourche et le sac comprend en outre: 50
- les premières bandes de renforcement (22) attachées aux bords des panneaux triangulaires (28) et s'étendant à travers les panneaux muraux latéraux; 55

- les secondes bandes de renforcement (22) fixées au niveau des bords entre les panneaux muraux (14) et l'élément en U;

dans lequel lesdits deux panneaux muraux définissent les bords supérieurs (20) à un niveau plus bas que les bords supérieurs (18) des panneaux muraux latéraux (12) de l'élément en U, et **dans lequel** les premières et secondes bandes de renforcement sont des bandes tissées renforcées fournies avec de 60 à 100 extrémités de matériau de renforcement sur la longueur de la bande.

2. Sac de constructeur pour le transport de matériaux de construction selon la revendication 1, **dans lequel** les panneaux sont faits en tissus de polypropylène, de polyéthylène de haute densité ou d'une combinaison de ceux-ci. 15
3. Sac de constructeur pour le transport de matériaux de construction selon l'une quelconque des revendications précédentes, **dans lequel** ledit matériau de renforcement est choisi dans un groupe de matériaux comprenant du polypropylène, du polyéthylène de haute densité, du polyéthylène de basse densité, du polyéthylène linéaire de basse densité et des fils métalliques. 20
4. Sac de constructeur pour le transport de matériaux de construction selon l'une quelconque des revendications précédentes, **dans lequel** ladite première et deuxième bande de renforcement sont continues. 30
5. Sac de constructeur pour le transport de matériaux de construction selon l'une quelconque des revendications précédentes, **dans lequel** lesdits boucles sont une continuité de ladite deuxième bande de renforcement. 35

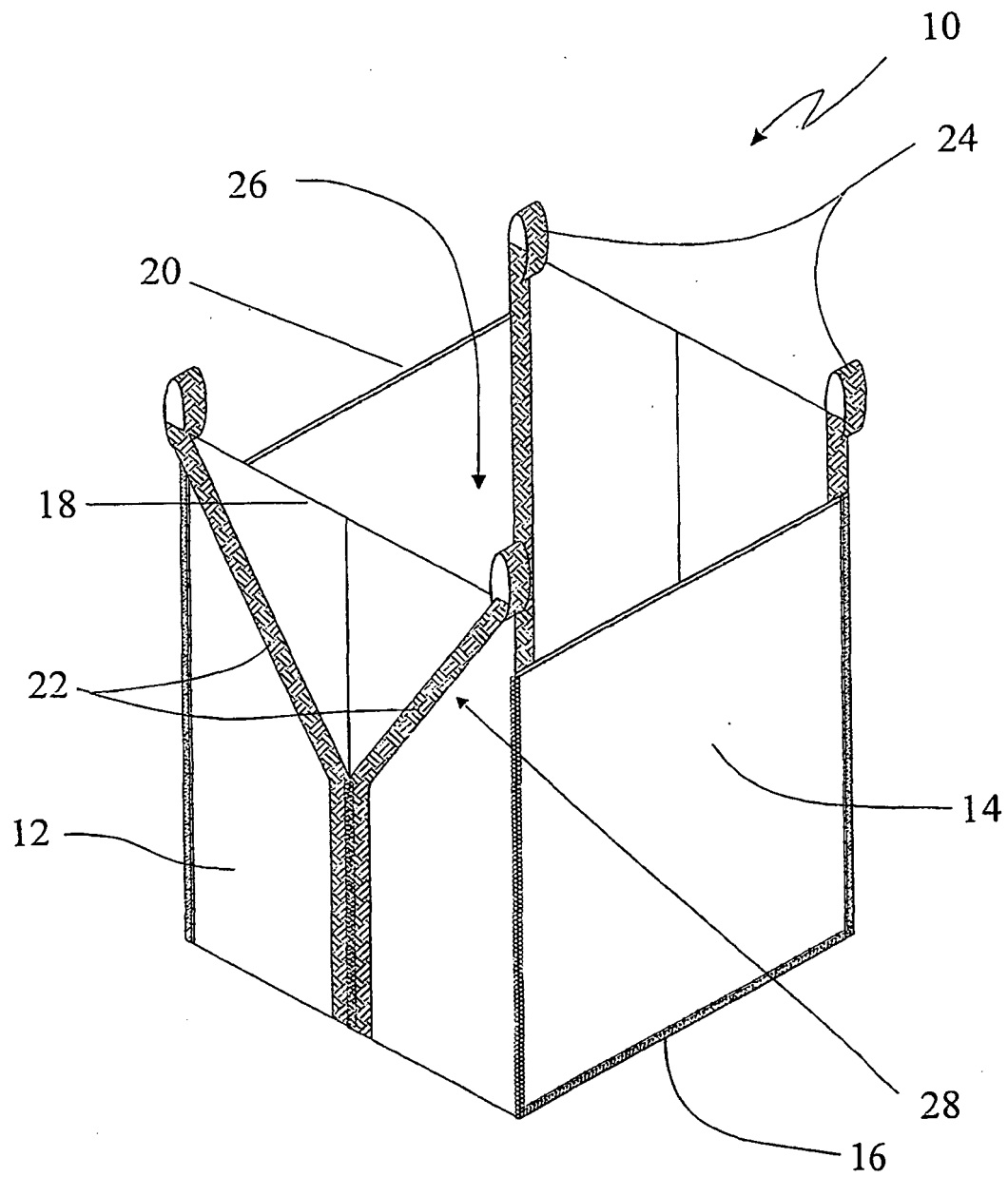


FIGURE - 1

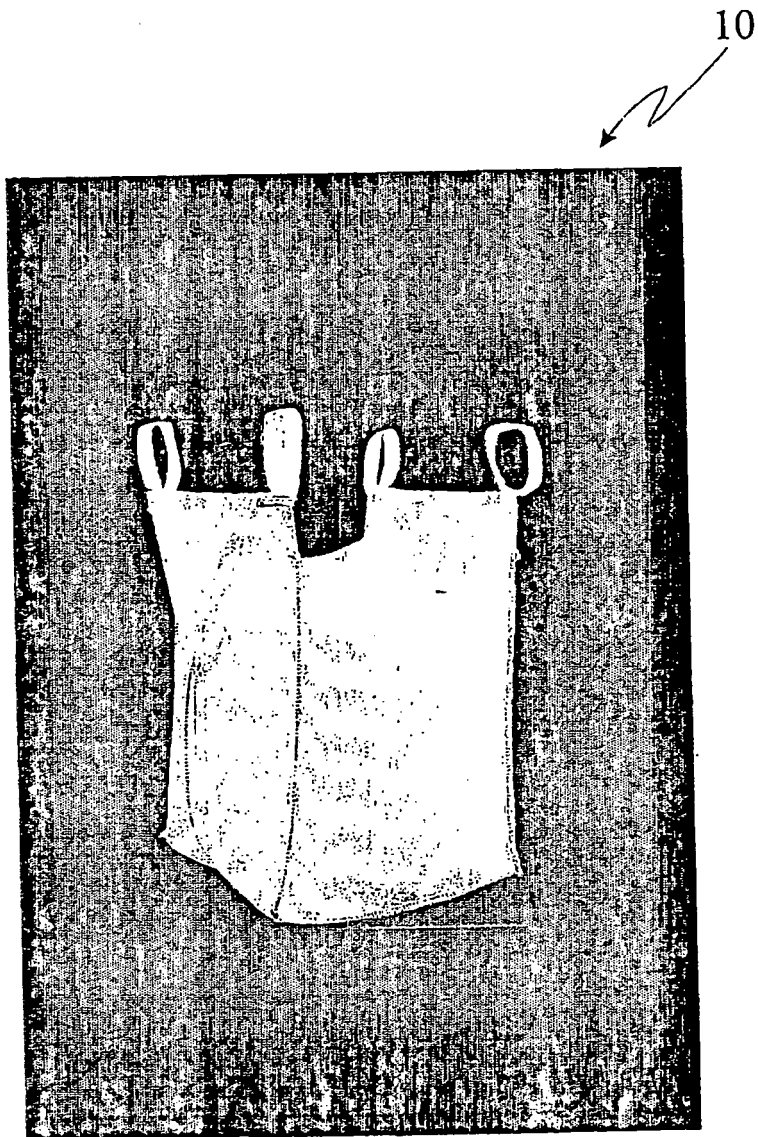


FIGURE - 2

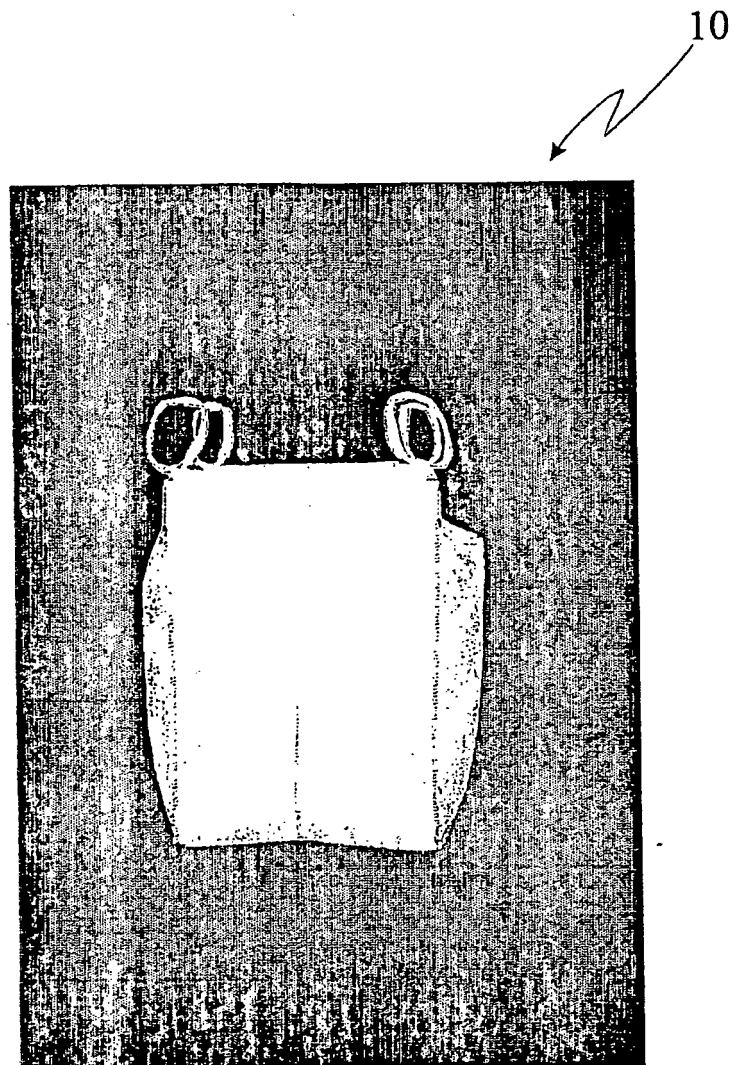


FIGURE - 3

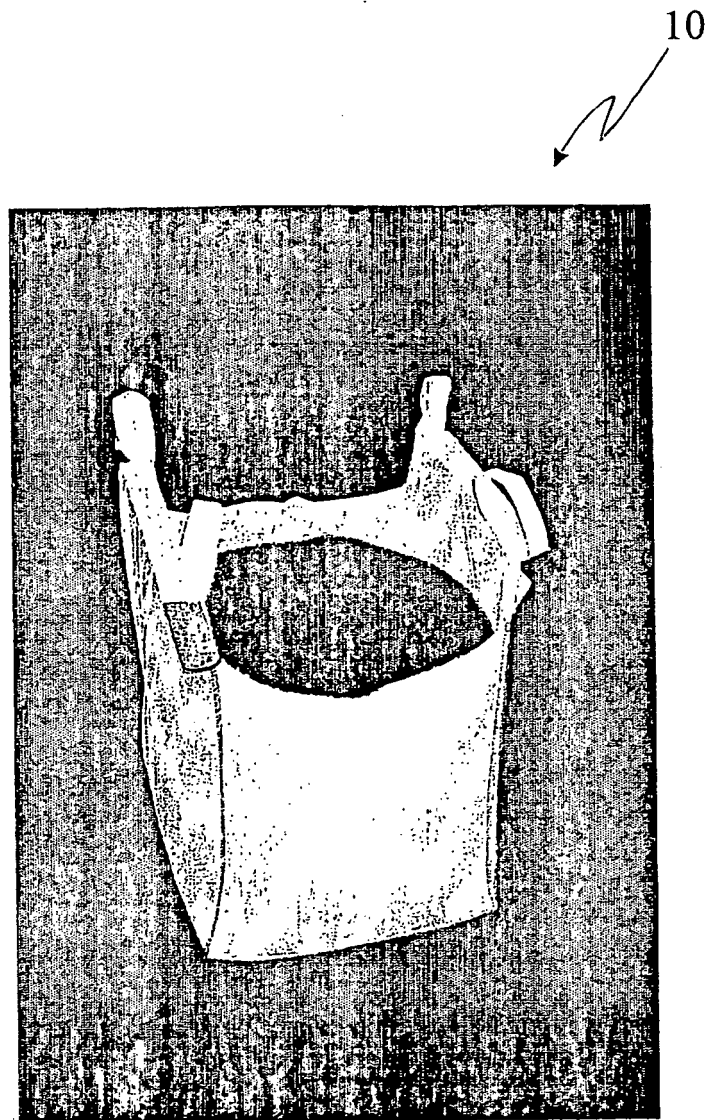


FIGURE - 4

REFERENCES CITED IN THE DESCRIPTION

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