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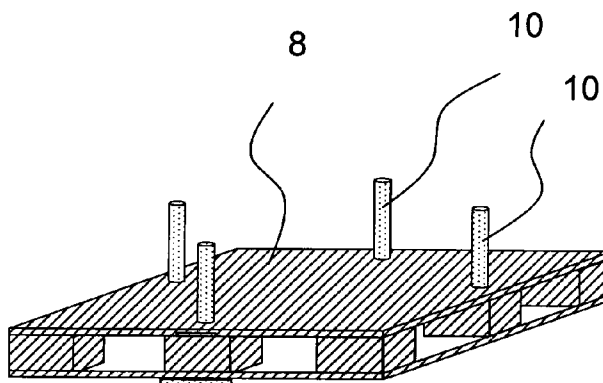


Fig. 8

(57) Abstract: The present invention relates to a container for the transportation and stacking of bulk, powder, grained, liquid, fluid, or semi-fluid and similar materials of any kind, the container comprises plurality of vertically positioned columns in connection with the pallet, being easily connectable either to a standard pallet or to a pallet with holes opened thereon, and the container optionally not containing a rigid connection element such as a frame on its upper part.



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A CONTAINER HAVING VERTICAL SUPPORT ELEMENTS ADAPTABLE TO CONTAINER PALLET

5 Field of Invention

The present invention relates to a container for the transportation and stacking of bulk, powder, grained, liquid, fluid, or semi-fluid and similar materials of any kind, the container comprises plurality of vertically positioned columns in connection
10 with the pallet, being easily connectable either to a standard pallet or to a pallet with holes opened thereon, and the container optionally not containing a rigid connection element such as a frame on its upper part.

Background of the Invention

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Various containers have been proposed in prior art for transporting and stacking bulk, powder, liquid, fluid, semi-fluid materials and the like of any kind.

The document DE60204427 discloses a container, which comprises vertical
20 columns assembled to the corners of pallets and to the central points of each pallet edge, and also a frame joining said columns from their upper parts. The upper frame and all vertical columns of the container disclosed in DE60204427 both provide an adequate supporting force when the containers are placed one on the other, i.e. superimposed, and avoid the big bag positioned in the pallets from
25 sliding to the edges while being carried on forklifts.

Document US2897211 discloses a container wherein panels are provided on the upper and lower sections of the container, and vertically extending columns being fastened to said panels.

30

Description of Invention

The object of the present invention is to provide the connection of containers, which comprise plurality of vertical columns, with the pallets in a simple manner.

5

Another object of the present invention is to eliminate a rigid frame joining vertical columns from their upper parts for such type of containers comprising various numbers of vertical columns.

10 In order to achieve these objects, the present invention provides a container comprising a pallet for the transportation and stacking of any kind of bulk, grained, powder, liquid, fluid, semi-fluid and similar materials, varying number of vertically-extending vertical columns connected to the pallet, and a big bag connected to said columns; said container being characterized by comprising at least one
15 fastening element, having one side connected to a section where at least one of said vertical columns is present, and the other side connected to a suitable section of said pallet.

According to a preferred embodiment of the present invention, said fastening
20 element is a stripe-shaped element of adequate strength, and is fastened to the container from one end so as to correspond to the vertically-extending column at the center of one of the lateral surfaces of said container, and the other end of said fastening element being looped around a support block provided at the lower part of the pallet and then fastened back to the container at a point close to the
25 fastening point of the first end.

According to an alternative embodiment of the present invention, at least one of the vertically-extending columns is passed into a slot or hole opened on the pallet, or is fastened after being passed therethrough. According to this alternative
30 embodiment of the present invention, the vertical columns that cannot be fastened to the pallet are provided for encountering the loads originating from the vertical stacking, whereas the columns fastened to the pallet provide supporting force so

as to avoid the big bag from sliding down from the pallet while the container is moved.

Description of Figures

- 5 The present invention is to be evaluated together with annexed figures briefly described hereunder to make clear the subject embodiment and the advantages thereof.

10 Figure 1 gives a top cross-sectional view of the container according to the present invention.

Figure 2 gives a perspective view of the container according to the present invention, along with the pallet fastening elements.

- 15 Figure 3 gives a perspective view of the container according to the present invention, prior to being positioned on the pallet.

Figure 4 gives a top view of the container according to the present invention.

- 20 Figure 5 gives a perspective view of the container according to the present invention covered by fabric.

Figure 6 gives a perspective view of the container pallet according to the present invention.

25

Figure 7 gives a perspective view of a preferred embodiment of the container pallet along with vertical columns according to the present invention.

- 30 Figure 8 gives a perspective view of an alternative embodiment of the container pallet along with vertical columns according to the present invention.

Figure 9 gives a side view of the vertical column fastened to the container pallet according to an alternative embodiment of the present invention.

Figure 10 gives a perspective view of the container according to the present invention in the assembled state.

Reference Numbers of Parts in Figures

1	Big bag fabric
2	Vertical column
3	Stitch
4	Big bag fabric
5	Base
6	Top face
7	Inlet stack
8	Pallet
9	Slot/hole
10	Fixation bar
11	Pin
12	Fastener
13	Liner
14	Stitch
15	Fastening element
16	Block

Detailed Description of Invention

Figure 1 gives a top cross-sectional view of the container according to the present invention. According to Figure 1, vertical columns (2) are provided around the walls of the big bag in said container. The big bag's fabric is composed preferably of pockets in between one outer (1) and one inner (4) layers so as to maintain the vertical columns (2) for ensuring the fixation thereof (2). For stabilizing the vertical

columns (2) in said pockets formed between said big bag fabrics (1, 4), the big bag fabric (1) is stitched along the columns at sections where the columns are present (Figure 2). Although the big bag fabric (1) is provided in double layers along the periphery of the big bag according to a preferred embodiment of the present invention, it can nevertheless be designed in a single layer. In the latter case, pieced fabrics to be stitched to the big bag fabric at the sections only where vertical columns (2) are present may be adequate. According to an alternative embodiment of the present invention, the interior of the big bag fabric (1) may be covered by an impermeable liner (13) particularly for the transportation or stacking of fluid materials. According to another alternative embodiment, the entire fabric material may also be formed without such liner, but with a single layer of any plastic material known in the art like PE with a thickness of e.g. 1000 microns.

As illustrated in Figure 1, said vertical columns (2) are brought together with the big bag fabric (1) so as to remain partially in and partially out of the rectangular shape of container according to the preferred embodiment of the present invention. If desired, it is possible to design said columns (2) so as to entirely remain in or entirely out of the rectangular formation of said big bag.

According to the preferred embodiment of the present invention, said vertical columns (2) are made in a hollow tubular geometry from any material such as plastics, cardboard of adequate rigidity. As illustrated in Figure 2, fastening elements (15) are provided at the sections where vertically-extending columns (2) are present preferably at the big bag's central part of lateral surfaces, said fastening elements (15) being fixed from two ends to the outer surface of big bag by means of stitches (14). Prior to stitching, said fastening elements (15) are looped around the support blocks (16) of pallet (8) whereon the container is placed, so as to provide the interconnection between the container and pallet (8). Said fastening element (15) can be connected to any other proper section of the pallet (8) other than the support block (9). Said fastening element (15) can provide the connection between the container and pallet (8) in any other way, except said looping approach, so that one end of said element (15) is connected to the container and the other end to the pallet (8), as well. According to the preferred

embodiment of the present invention, the pallet (8) placed under said container is a commercially-available standard pallet.

An alternative embodiment of the present invention is given in figures 4 to 10. With respect to this alternative embodiment, some of the vertical columns are fastened to the pallet through slots or holes (9) formed on the pallet. Other vertical columns (2) not fastened to the pallet (8) are preferably located on the pallet so as to settle in easily detachable/attachable manner on a slot or hole formed on the pallet. In the latter case, the vertical columns not fastened to the pallet become movable in a swinging manner around the vertical axis passing through the slot. According to the density of material that may be placed into the interior cavity of vertical columns (2), these vertical columns (2) can also be placed freely on the pallet without any structural connection like such slots.

As illustrated in figures 2 and 6, fixation bars (10) of adequate rigidity are provided, said bars (10) being fixed to the pallet (8) and becoming introduced into the interior cavities of vertical columns (2) essentially at the central points of pallet (8) edges. According to this alternative embodiment of the present invention, the fixation bars (10) can be fixed to the pallet (8) either by being passed directly through the holes (9) opened on the pallet (8), or as illustrated in figures 8 and 9, by being passed through said holes (9) and then fixed by a pin (11) and fastener (12), so that the container (8) is prevented from sliding and falling down from the pallet (8) while being moved.

According to an alternative embodiment of the present invention, instead of using the fixation bars (10) the vertical pallets (2) on the central points on the pallet edges, or the entire vertical pallets can be fastened directly to the pallet, or the vertical columns (2) present at such points can be eliminated so that the fixation bars are used directly.

According to the preferred embodiment of the present invention, the vertical columns (2) wherein no fixation bars (10) are introduced do not have the function of avoiding the falling-down of big bags from the pallet while being moved, but

have the function of encountering the loads originating from another container stacked thereon.

Another embodiment of the present invention may involve the introduction of one
5 fixation bar (10) into each vertical column (2).

Material inlet into the container's big bag may be realized through an input stack
(7) formed on the top face (6), and the material output can be performed by means
of an output stack (not shown in figures) formed on the base part (5). Said stacks
10 can also be adapted to the lateral walls.

The fabric (1, 4) of the container's big bag according to the present invention is relatively thinner, allowing the big bag to be easily folded when it becomes necessary to do so.

CLAIMS

1. A container comprising a pallet (8) for the transportation and stacking of any
5 kind of bulk, grained, powder, liquid, fluid, semi-fluid and similar materials, a
number of vertically-extending vertical columns (2) connected to the pallet
(8), and a big bag associated with the columns (2); said container being
characterized by comprising at least one fastening element (15), having one
10 side connected to a section where at least one of said vertical columns (2) is
present, and the other side connected to a proper section of said pallet (8).
2. A container according to Claim 1, characterized by further comprising
15 stitches (14) providing the fastening of said fastening element (15) from one
end to the outer surface of big bag, and from the other end to the outer
surface of said big bag after being looped around the pallet's support block
(16).
- 20 3. A container according to any of the preceding claims, characterized in that
said pallet (8) is a commercially available standard pallet.
4. A container according to any of the preceding claims, characterized in that
25 said vertical columns (2) are made preferably in a hollow tubular geometry
from any materials such as plastic, cardboard of adequate rigidity.
5. A container according to any of the preceding claims, characterized in that
30 said big bag contains an outer part (1) and an inner part (4) for connecting
said vertical columns (2) to the big bag, and in that pockets are provided
between the stitches (3) by means of which said outer part (1) is stitched to
the inner part (4) for fixing the position of these vertical columns (2).

6. A container comprising a pallet (8) for the transportation and stacking of any kind of bulk, grained, powder, liquid, fluid, semi-fluid and similar materials, a varying number of vertical columns (2) connected to this pallet (8) on the vertical direction, and a big bag connected to said columns (2); said container being characterized in that the upper part of said vertical columns (2) are left open by not providing any element combining the upper part of these columns (2) and in that at least one of said vertical columns (2) comprises at least one fixation bar (10) to fix such at least one vertical column to the pallet (8).
7. A container according to Claim 6, characterized in that said fixation bar (10) that provides supporting force for avoiding the big bag from falling down from the pallet is positioned within the respective vertical column (2), and in that this vertical column (2) is positioned essentially at the central part of the pallet (8) edges.
8. A container according to any of claims 6 and 7, characterized in that holes (9) are opened on the pallet (8) into which said fixation bars (10) are introduced in order to have said fixation bars (10) be directly fixed to the pallet (8).
9. A container according to any of claims 6 to 8, characterized in that said fixation bars (10) comprise a fastener (12) and a pin (11) in order to have said fixation bars (10) be directly fixed to the pallet (8).
10. A container according to any of the preceding claims, characterized in that the fabric (1, 4) of big bag is relatively thinner to provide a convenient folding of the big bag.

11. A container according to any of the preceding claims, characterized in that slots are formed on the pallet to connect to the pallet the vertical columns, which are not fixed to the pallet (8), but reacting to the stacking loads originating as the containers placed one on the other.

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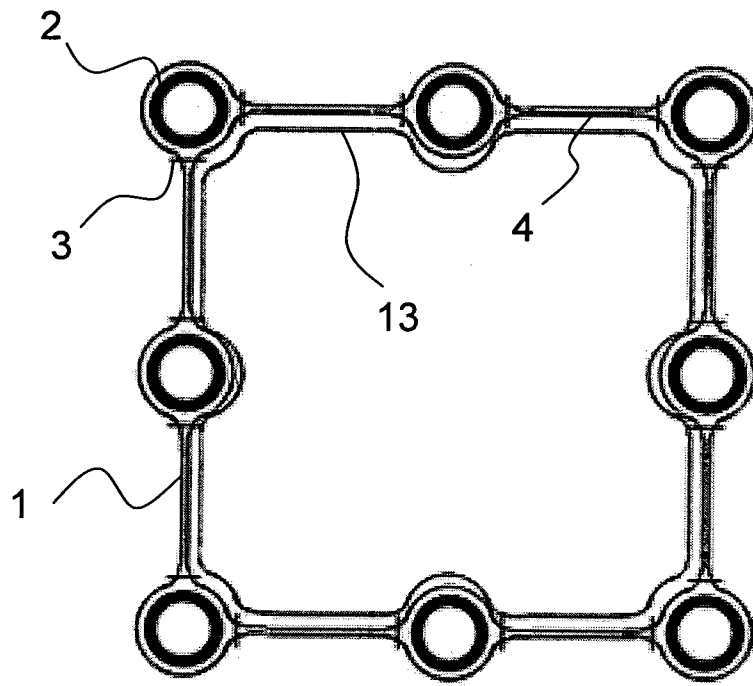


Fig. 1

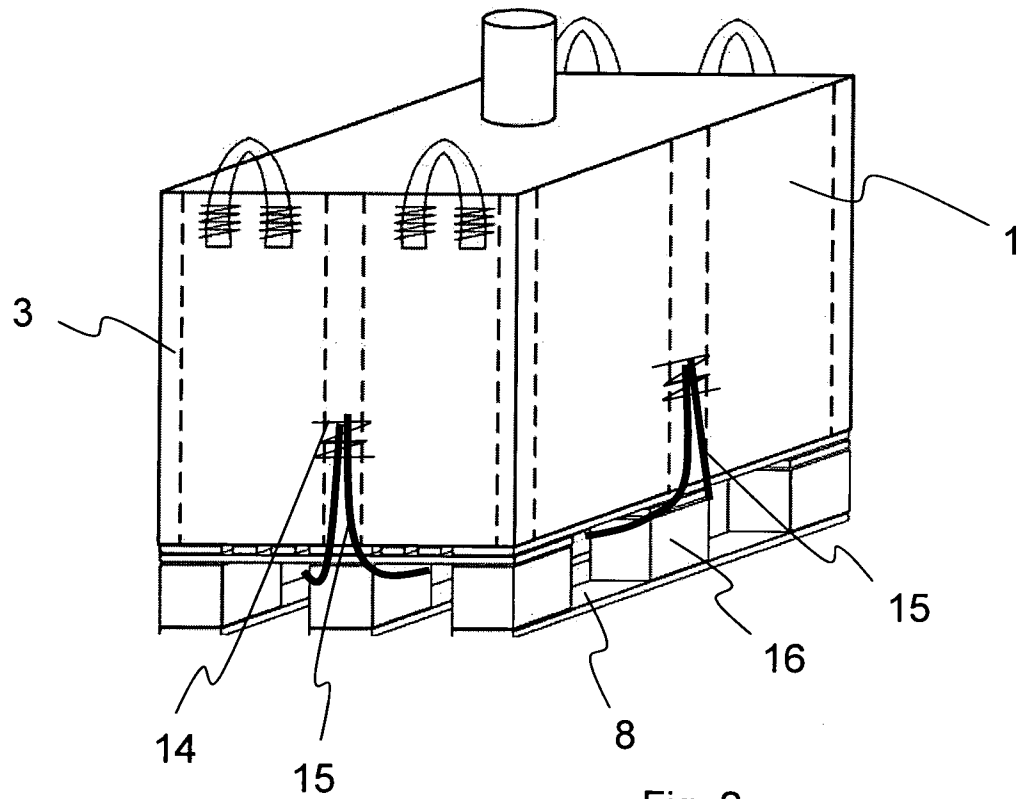
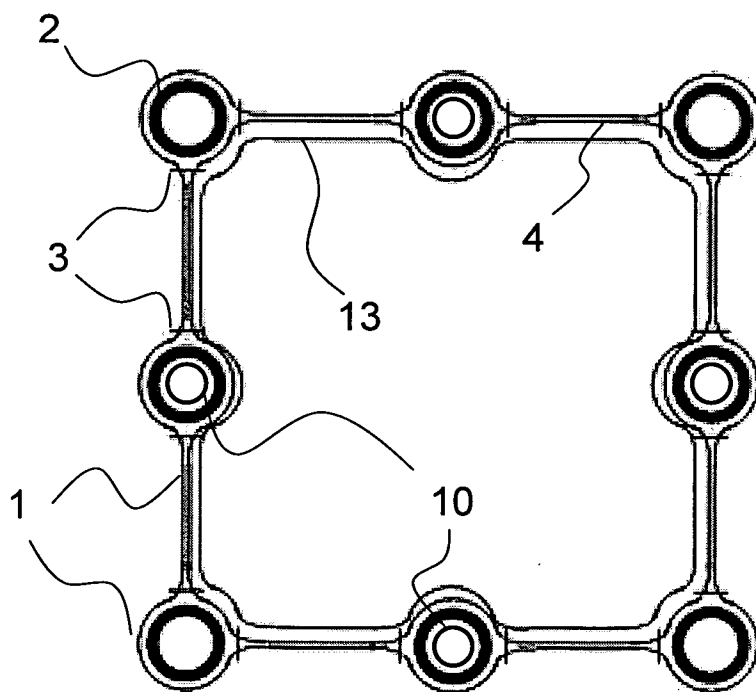
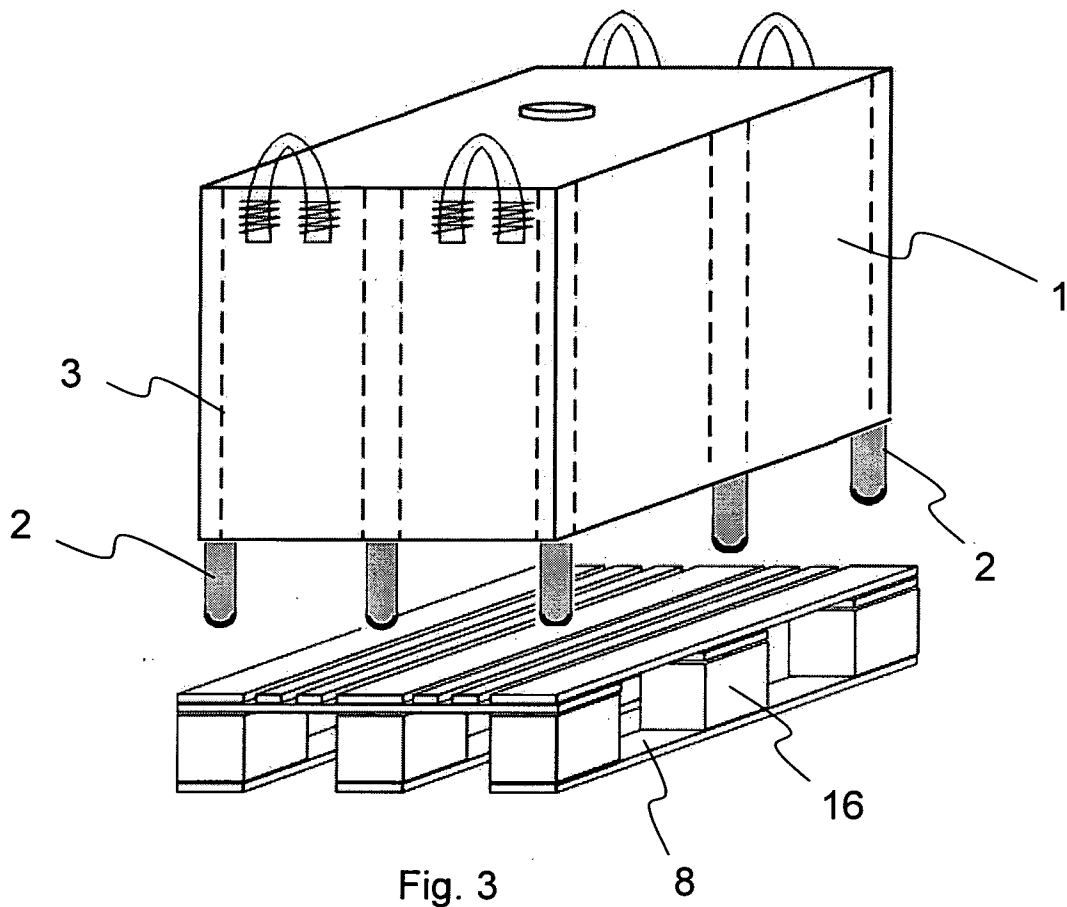
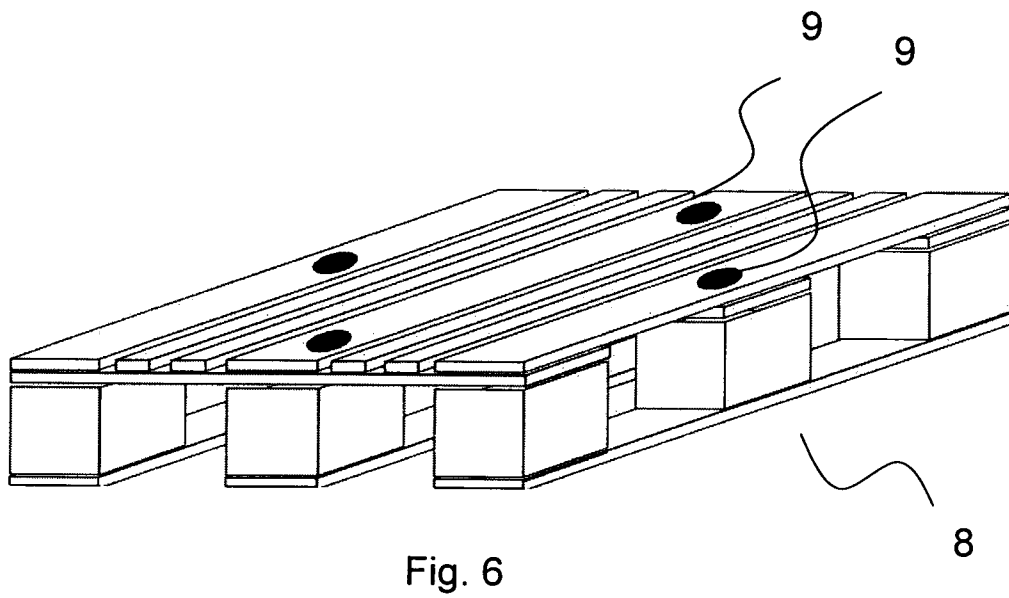
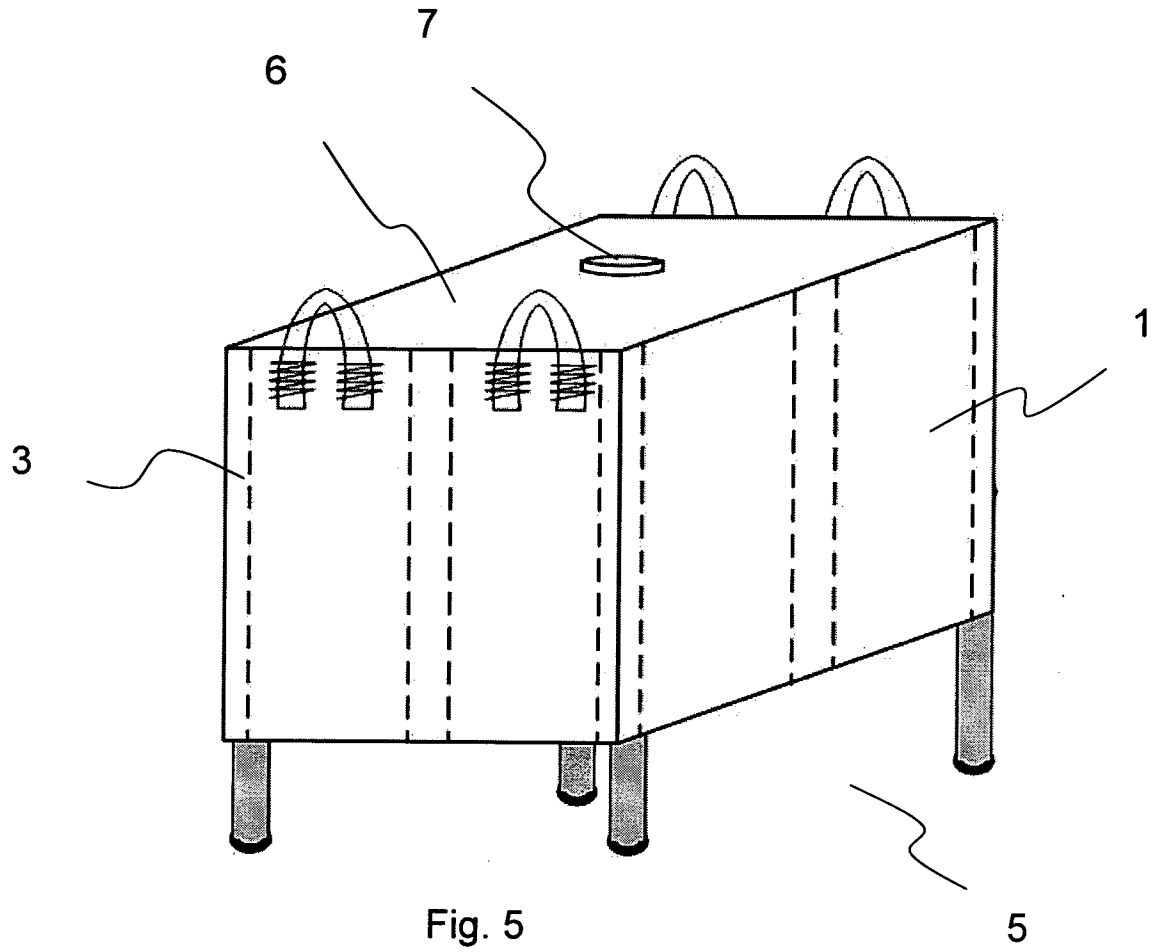


Fig. 2

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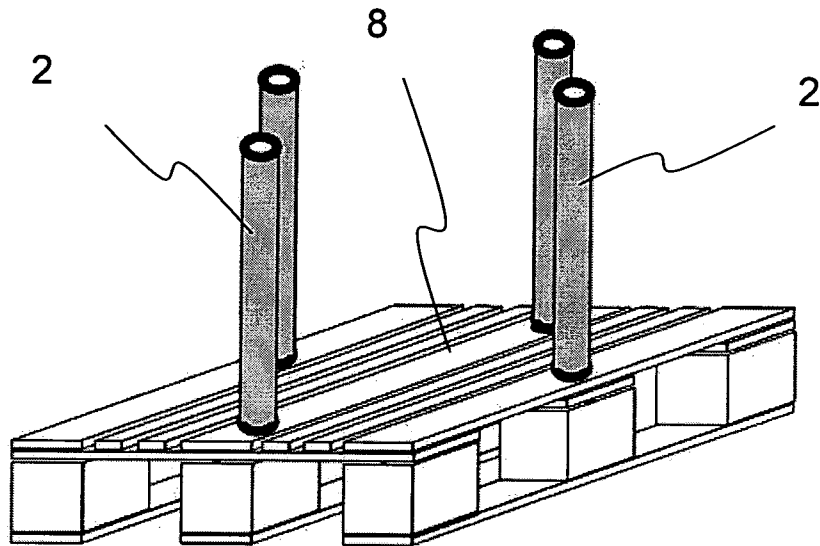


Fig. 7

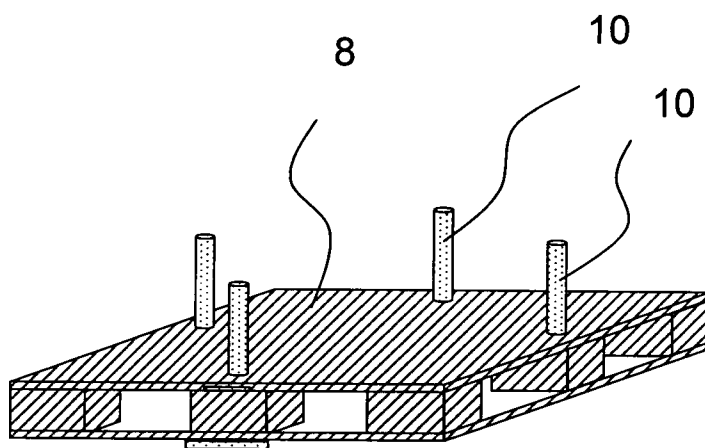


Fig. 8

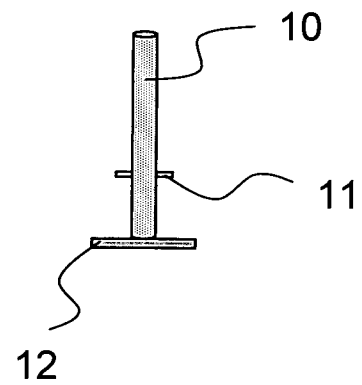


Fig. 9

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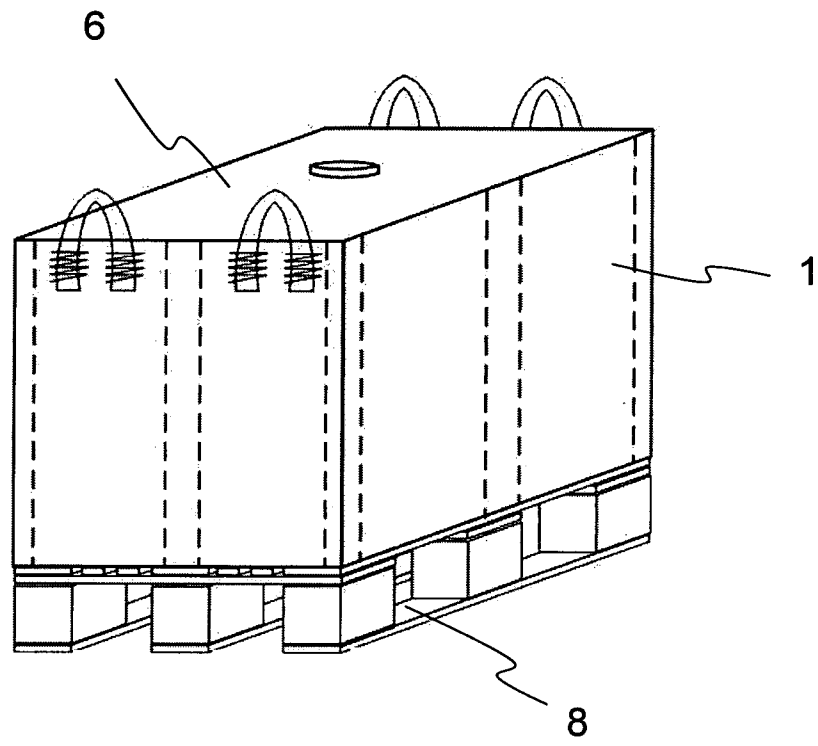


Fig. 10