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(54) **Transport packing for plant-containers.**

(57) The invention relates to a transport package for holders for plants, consisting of a central section (1) with receiving pockets (2) for the holders (3) and two side sections (4,5) positioned at both sides of the central section (1) and being connected with the central section (1) at parallel hinge-lines (6) and that are displaceable between an opened position for placing the holders (3) into the transport package or removing them therefrom, and a closed position for retaining the holders (3) in the transport package. In the opened position the side sections (4,5) extend substantially in the same plane with the central section (1) whereas in the closed position the side sections (4,5) extend practically perpendicular to the central section (1) above the receiving pockets (2) thereof and contact each other. Further clamping bosses (11) are provided for clamping the holders (3).

EP 0 290 680 A1

Transport package for holders for plants

The invention relates to a transport package for holders for plants comprising a number of sections hingeable relative to each other, said sections being displaceable between an opened position for placing the holders into the transport package or removing them therefrom, and a closed position for retaining the holders in the transport package.

A known transport package of this type comprises two substantially symmetrical sections each forming one-half of the ready transport package. In the closed position of the transport package these both sections contact each other along their total circumferences so that the holders are completely confined within this transport package.

In this known transport package holes are formed in the two hingeable sections, said holes being necessary for the supply of air to the plants. By application of these holes the transport package is considerably weakened. In the opened position of the transport package both hingeable sections occupy a position that differs from the normal position of the holders, so that placing the holders in the transport package will lead either to tilting the holders towards an unwanted tilted position or to a complicated manipulation for correctly maintaining the holders while closing the transport package. Finally this known transport package offers in its closed position only a low strength, restricting the possibility of stacking such transport packages.

It is an object of the invention to provide a transport package of the type referred to above overcoming these disadvantages in a simple, but nevertheless effective way.

Therefore the transport package according to the invention is characterized in that the transport package consists of a central section with receiving pockets for the holders and two side sections positioned at both sides of the central section and being connected with the central section at parallel hinge-lines, wherein in the opened position the side sections extend substantially in the same plane with the central section whereas in the closed position the side sections extend practically perpendicular to the central section above the receiving pockets thereof and contact each other.

By the application of a central section with receiving pockets for the holders these holders can be positioned in the transport package in a correct orientation. Next, by pivoting the side sections relative to the central section, the transport package may very simply be closed.

In a preferred embodiment of the transport package according to the invention the side sections are provided with clamping bosses that in the closed position contact the upper edge of holders

placed in the receiving pockets.

These clamping bosses retain the holders very effectively in the receiving pockets of the central section.

Further it is possible that each clamping boss is bevelled such at its side cooperating with a holder that in the closed position the distance between the clamping boss and the holder increases as seen in the direction of the opposite side section.

As a result of this bevelled configuration of the clamping bosses sliding the clamping bosses over the corresponding edge of the holder is simplified. Meanwhile plant material possibly projecting beyond the edge of the holder can be pushed back by this clamping boss without damaging this plant material. Further the clamping force exercised by a clamping boss on a corresponding holder will increase while pivoting the side sections towards the closed position so that an effective locking of the holders will occur.

It is advantageous if the central section and the side sections are interconnected such, that in addition to a relative pivotal movement around the hinge-lines too a moderate mutual resilient movement is possible perpendicularly to the hinge-lines. Due to this an automatic adjustment of the position of the side sections relative to the central sections is possible, dependent of small differences of the dimensions of the holders or of the exact position of the holders in the receiving pockets of the central section.

Moreover it is advantageous if the side sections are provided with support bosses that in the closed position contact each other in pairs at some distance above the holders. These support bosses offer the transport package in its closed position a large strength in its transverse direction.

According to a further embodiment of the transport package according to the invention at least some of the support bosses are provided with latching means for releasably interconnecting the side sections in the closed position. It is possible that the latching means comprise cooperating projections and openings receiving these projections. Opening and closing the transport package can be managed simply by using these latching means.

Finally it is possible that in the closed position openings are formed between the pairs of cooperating support bosses. This guarantees an optimal air-supply to the plants in the holders.

Next the invention will be explained further with reference to the drawing in which is illustrated an embodiment of the transport package according to the invention.

Fig. 1 illustrates a frontal elevational view of a transport package according to the invention in its opened position;

Fig. 2 illustrates the transport package according to fig. 1 in its closed position;

Fig. 3 shows a top plan view of the transport package according to fig. 2 in its closed position, and

Fig. 4 shows a side elevational view of a transport package according to one of the preceding figures in its closed position.

The transport package shown in fig. 1 comprises a central section 1 with receiving pockets 2 for holders 3. In the holders 3 plants, not shown, can be placed.

At both sides of the central section 1 two side sections 4,5 are provided. Each side section 4,5 is connected with the central section 1 at a hinge line 6.

In the opened position of the transport package represented in fig. 1 the base portions 7, 8 of the side sections 4,5 extend substantially in the same plane with the main plane 9 of the central section 1. In fact the base portions 7,8 and the main plane 9 are part of the original strip of material from which the transport package is moulded.

The side sections 4,5 are, relative to the central section 1, movable from the opened position of the transport package represented in fig. 1 towards the closed position of the transport package represented in fig. 2. In the illustrated closed position of the transport package the side portions 4,5 extend practically perpendicularly to the central section 1 above the receiving pockets 2 thereof and the side sections 4,5 contact each other.

The side sections are provided with clamping bosses 11 that in the closed position contact the upper edge 10 of holders 3 placed in the receiving pockets 2. As appears from fig. 4 each side section comprises in the embodiment shown only one clamping boss 11 extending along the entire length of the side section.

Each clamping boss 11 is bevelled such at its side cooperating with the holder 3 that in the closed position (fig.2) the distance between the clamping boss 11 and the upper edge 10 of the corresponding holder 3 increases as seen in the direction of the opposite side section. In fig. 2 it can be seen clearly that the clamping notches 11, starting from the outer edge of the upper edge 10, extend inwardly away from said upper edge. Further it appears that the hinge lines 6 between the side sections 4,5 and the central section 1 consist of an opened practically tubular material section. This configuration of the hinged connection between the said sections allows a moderate mutual resilient motion perpendicularly to these hinge-lines. As a result the distance between the clamp-

ing bosses 11 and the main plane 9 of the central 1 can vary slightly. The advantage is, that an adjustment is possible of the position of the side sections 4,5 relative to the central section 1 in dependence of the exact dimensions and position of the holder 3. Further the ends of the clamping notches 11, that in fig. 2 are positioned at the innermost location, will just grip over the upper edge 10 of the holder 3 while pivoting the side sections 4,5 from the opened towards the closed position and will firmly clamp the holder 3 in the receiving pocket 2 when the closing motion proceeds. Moreover plant material possibly projecting beyond the upper edge 10 will be effectively pushed inwardly without being damaged.

Further the side sections 4,5 are provided with support bosses 12,13 that in the closed position contact each other in pairs at some distance above the holders 3. As appears clearly the support bosses 12,13 form a continuation of the clamping bosses 11. In fact the clamping bosses 11 and the support bosses 12,13 form that part of the wide sections 4,5 that is not positioned in the plane of the basis portion 7 or the basis portion 8, respectively. In contrary to the clamping bosses 11, the support bosses 12,13 do not extend along the entire length of the side sections 4,5, as can be seen clearly in fig. 3. It appears that, in the closed position, openings are formed between the cooperating support bosses 12,13. These openings, that are circular in fig. 3, are meant for the supply of air to the plants in the holders 3. Further the shown configuration of the support bosses 12, 13 provides a large strength in the transversal direction so that the unwanted compressing of the transport package becomes difficult.

Some of the support bosses 12,13 are provided with latching means for, in the closed position, releasably interconnecting the side sections 4,5. These latching means consist of cooperating projections 14 and openings 15 clampingly receiving these projections.

Fig. 4 shows, that the transport package is entirely composed of hollow parts. In the shown position one looks as it were in the side section 4, wherein the clamping boss 11, the support bosses 12 and the projections 14 are clearly visible. Further curved wall sections 16 are visible constituting the connection between adjacent support bosses 12 and constituting the boundary of the openings formed between the support bosses.

As a result of the configuration of the transport package shown in fig. 4, comprising a large number of mutually inclined planes the transport package is very rigid. The shown embodiment is further controlled by the demands related to the production.

The invention is not limited to the embodiment

described above, but can be varied widely within the scope of the invention. Thus, it is possible that the transport package is adapted for containing a number of holders 3 differing from three.

Claims

1. Transport package for holders for plants comprising a number of sections hingeable relative to each other, said sections being displaceable between an opened position for placing the holders into the transport package or removing them therefrom, and a closed position for retaining the holders in the transport package, **characterized** in that the transport package consists of a central section with receiving pockets for the holders and two side sections positioned at both sides of the central section and being connected with the central section at parallel hinge-lines, wherein the opened position the side sections extend substantially in the same plane with the central section whereas in the closed position the side sections extend practically perpendicular to the central section above the receiving pockets thereof and contact each other.

2. Transport package according to claim 1, **characterized** in that the side sections are provided with clamping bosses that in the closed position contact the upper edge of holders placed in the receiving pockets.

3. Transport package according to claim 2, **characterized** in that each side section comprises one clamping boss extending along the entire length of said side section.

4. Transport package according to claim 2 or 3, **characterized** in that each clamping boss is bevelled such at its side cooperating with a holder that in the closed position the distance between the clamping boss and the holder increases as seen in the direction of the opposite side section.

5. Transport package according to one of the claim 2-4, **characterized** in that the central section and the side sections are interconnected such, that in addition to a relative pivotal movement around the hinge-lines too a moderate mutual resilient movement is possible perpendicularly to the hinge-lines.

6. Transport package according to claim 5, **characterized** in that the hinged connection between the central section and each side section consists of an opened, substantially tubular material section.

7. Transport package according to one of the claims 1-6, **characterized** in that the side sections are provided with support bosses that in the closed position contact each other in parts at some distance above the holders.

8. Transport package according to claim 7, **characterized** in that the support bosses form a continuation of the clamping bosses.

9. Transport package according to claim 7 or 8, **characterized** in that at least some of the support bosses are provided with latching means for releasably interconnecting the side sections in the closed position.

10. Transport package according to claim 9, **characterized** in that the latching means comprise cooperating projections and openings receiving these projections.

11. Transport package according to one of the claims 7-10, **characterized** in that in the closed position openings are formed between the pairs of cooperating support bosses.

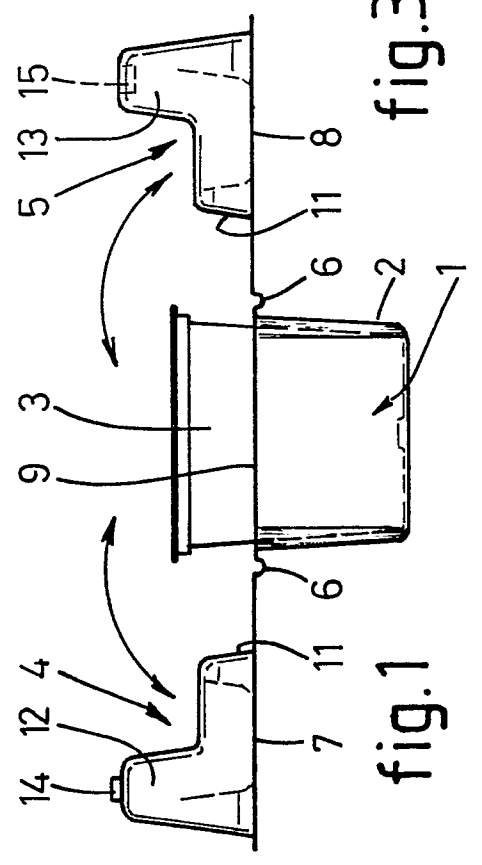
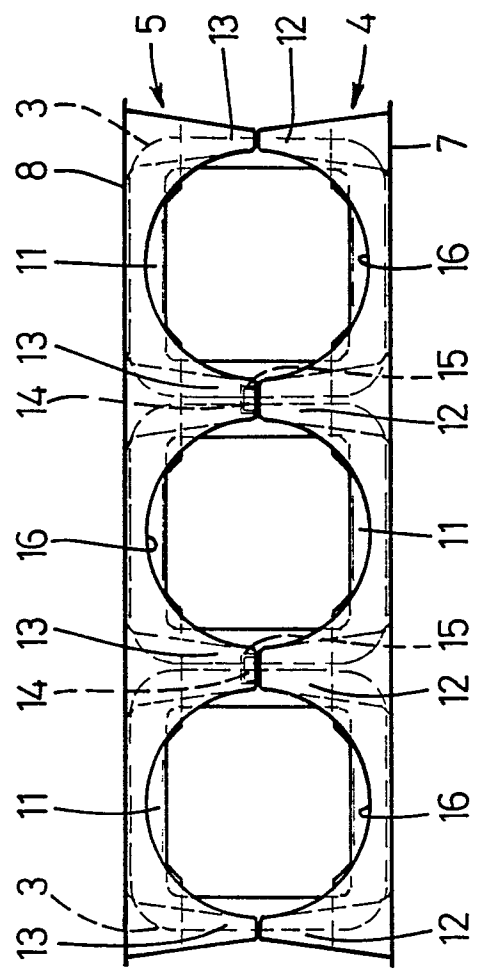


fig.1

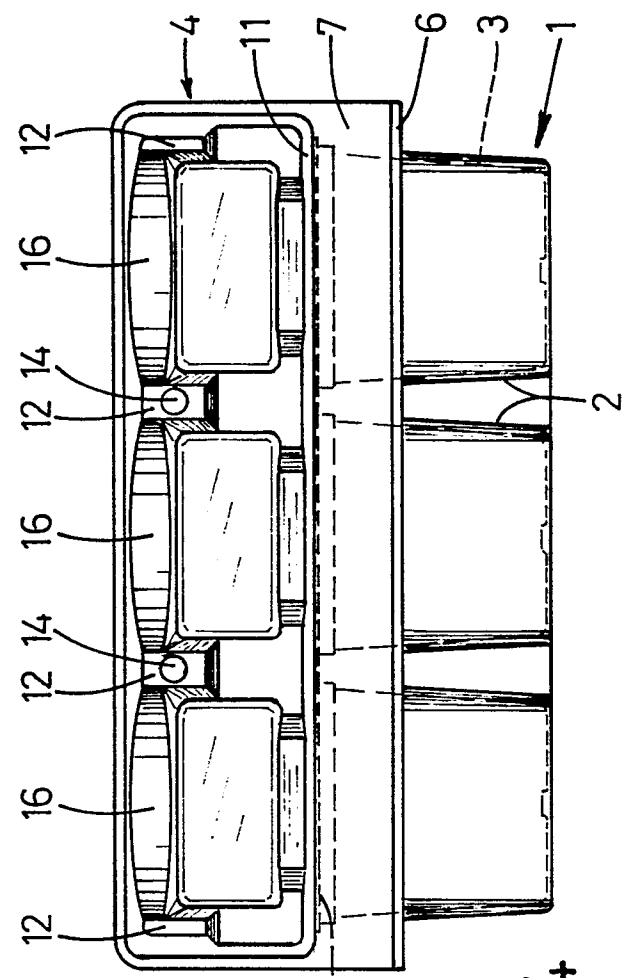


fig.3

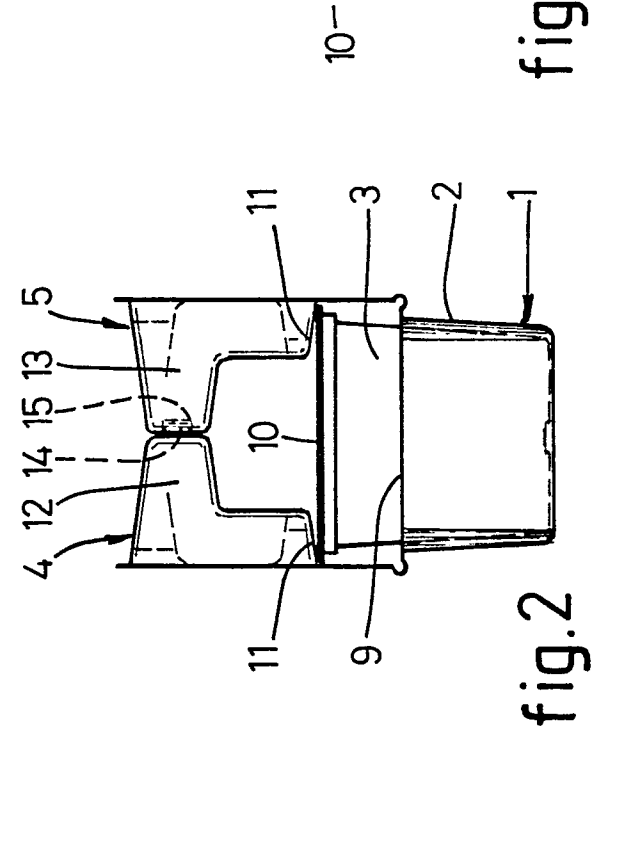


fig.2

fig.4



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	BE-A- 902 106 (VAN BRIEL) * figures 1, 2 *	1	B 65 D 85/52
A	---	2-5,7,9 ,10	
A	US-A-4 184 595 (WACKERMAN) * column 7, lines 1-11; figures 1-6 *	1,7	
A	DE-U-1 951 961 (KLINGELE PAPIERWERKE) * claims 1-4; figures 1-4 *	1,2,7,9 ,10	
A	DE-U-1 882 972 (A. ILLIG MASCHINENBAU) * claim 1; figures 1-3 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			B 65 D 85/00
Place of search BERLIN		Date of completion of the search 27-12-1987	Examiner GRUNFELD D.P.
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