

12

EUROPEAN PATENT APPLICATION

21 Application number: 79300944.0

51 Int. Cl.²: **B 65 D 5/64**

B 65 D 21/02, B 65 D 85/34

22 Date of filing: 25.05.79

30 Priority: 31.05.78 IE 1099/78
10.07.78 IE 1384/78

43 Date of publication of application:
12.12.79 Bulletin 79/25

64 Designated Contracting States:
AT BE CH DE FR GB IT LU NL SE

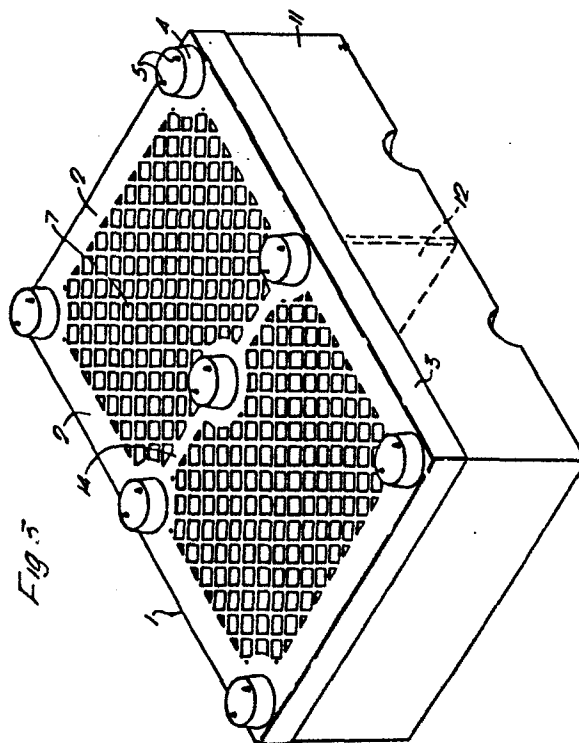
71 Applicant: Flynn, Richard
Convent Road
Rush County Dublin(IE)

72 Inventor: Flynn, Richard
Convent Road
Rush County Dublin(IE)

74 Representative: Kerr, Simonne June
c/o POTTS, KERR & CO. 27, Sheet Street
Windsor, Berkshire SL4 1BY(GB)

54 Improvements in lids for fruit boxes.

57 The invention relates to a lid (1) of moulded plastics material for a fruit box (11), particularly a tomato box. The lid has a rim (2) and depending skirt (3) so that it can fit the top edge of the box and is provided with a centre portion of open lattice work (7) and a plurality of upstanding protrusions (4) which when one box (11) is stacked on top of another serve to space the boxes apart so that air can freely circulate between the fruit. The protrusions (4) are preferably provided with upstanding spikes (5) which become embedded in the underside of a box located on top and so prevent slipping of the boxes. The protrusions (4) are of hollow frusto-conical shape so that the lids (1) can nest one within the other for storage.



EP 0 005 970 A1

- 1. -

Improvements in lids for fruit boxes

The present invention relates to lids for fruit boxes, particularly boxes for transporting tomatoes for sale.

It is conventional to pack fruit such as tomatoes in cardboard boxes. Such cardboard boxes and lids therefor can be assembled from flat blanks at the time of filling so that the minimum of storage space is required on the grower's premises for the boxes and lids before they are filled. However, such cardboard boxes, even when perforated, do not permit adequate circulation of air around and between the fruit. When a number of full boxes are stacked one on top of another, for example during transportation, there is no space between the boxes to permit any circulation of air over the top of the fruit.

Fruit boxes made of plastics materials are available, such fruit boxes having walls and a base perforated by many holes and having rigid upstanding columns at the corners thereof so that when the boxes are stacked each box is held well above the box below it so that air can circulate. However, such fruit boxes are very bulky to store before they are filled and are difficult to stack.

The present invention provides a lid of moulded plastics material for a fruit box, said lid comprising a rim and skirt adapted to fit the top edge of a fruit box and a plurality of protrusions extending from the rim in the opposite direction to the skirt. Preferably in the case of a lid for a rectangular fruit box there are at least six protrusions. Advantageously, at least some of the protrusions are provided at the top thereof with one or more small projections which can embed themselves in the cardboard base of a box placed on top of it.

Suitably the skirt is slightly flared and the protrusions have a hollow tapering form so that one lid can be nested inside another. Preferably, the top central portion of the lid inside the rim is substantially open, or is formed of a lattice of plastics material.

The invention offers many advantages over known constructions. The protrusions and the open central portion of the lid permit adequate circulation of air around and between the fruit. Because the protrusions are located on the lid and not on the base the boxes can conveniently be stacked flat as blanks or can be made nestable so that they occupy a minimum of space when not in use. Furthermore, the lids also are nestable.

Some embodiments of the invention are illustrated in the accompanying drawings wherein:

Figure 1 shows a projection of one embodiment of a lid according to the invention above a schematic representation of a fruit box;

Figure 2 is a perspective view of a second embodiment of a lid according to the invention in place on a fruit box;

Figure 3 is a perspective view of a third embodiment of a lid according to the invention in place on a fruit box; and

Figure 4 shows a detail of a corner of a further embodiment of the lid.

Referring to Figure 1 of the drawings, the lid 1 of moulded plastics material and of rectangular shape comprises a rim 2 and a skirt 3 depending therefrom. The skirt 3 is slightly flared. There are six protrusions 4 standing up from the surface of the rim, one at each of the corners and one at each of the mid-points of the long edges of the lid. The protrusions are frusto-conical in shape and each of the protrusions is moulded integrally with the rim and is hollow so that the interior of the protrusion is open from below. The top of each protrusion is formed as a platform with a small projection or spike 5 standing proud of the platform surface.

The centre part of the lid inside the rim is mostly open but a reinforcing framework 6 of plastics material as shown in the drawing is desirable. Suitably the areas 7 adjacent to the rim may be occupied by a lattice of plastics material as an additional part of the framework.

The end walls 8 of the skirt may suitably be provided with flaps 9 which can be pushed inwardly by manual pressure so that the top edge of the flap engages a slot 10 in the corresponding end wall of the box 11.

A conventional rectangular box 11 of cardboard has a dividing wall 12 across

the centre between the long walls. When the box has been filled with fruit, e.g. tomatoes, a sheet covering is placed on top and then the lid 1 is closed down on to the box. The centre pair of protrusions 4 are supported from below by the dividing wall 12. After another box has been filled, it is stacked on top of the lid, and the protrusions 4 hold the upper box above and spaced away from the lower box. The spikes 5 become embedded in the cardboard bottom of the upper box so that slipping of the boxes is inhibited. Because of the presence of six protrusions, the upper box stays level even if it is offset lengthwise relative to the lower box and so misses the protrusions 4 at one end of the lid of the lower box. An air space equal to the height of the protrusions is left open between successive boxes in a stack.

Prior to use, the cardboard boxes may be stored as flat blanks in the usual manner, and the lids may be stacked one inside the other, the flared skirts permitting successive lids to nest inside one another and the hollow interiors of the protrusions on each lid accommodating the corresponding protrusions of the next lid.

If desired, the skirt in the region of the corners may be extended downwardly a greater distance than the remainder of the skirt so as to increase the strength of the lid and to assist in locating it on the box, as shown in Figure 4 of the drawings. In the embodiment shown in Figure 2 substantially all of the top of the lid is formed of a lattice 7 of plastics material. The construction shown in Figure 3 is similar except that a seventh protrusion 4 is provided in the centre of the lid and is moulded integrally with a supporting cross-member 14. This protrusion and the cross-member 14, when the lid is in use, are supported by the dividing wall 12 of the fruit box.

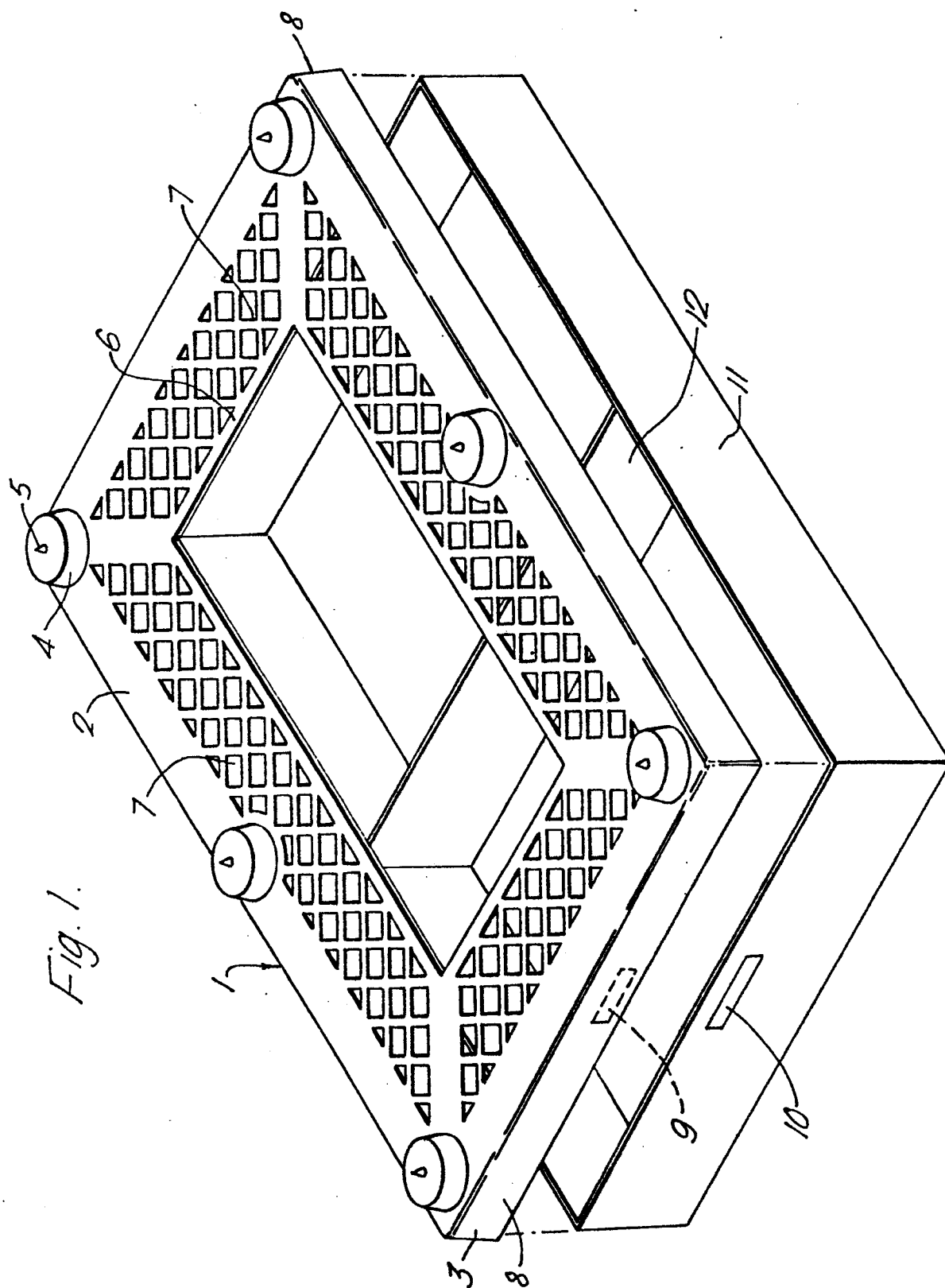
The lid is preferably injection-moulded from polypropylene or polystyrene or other suitable plastics material.

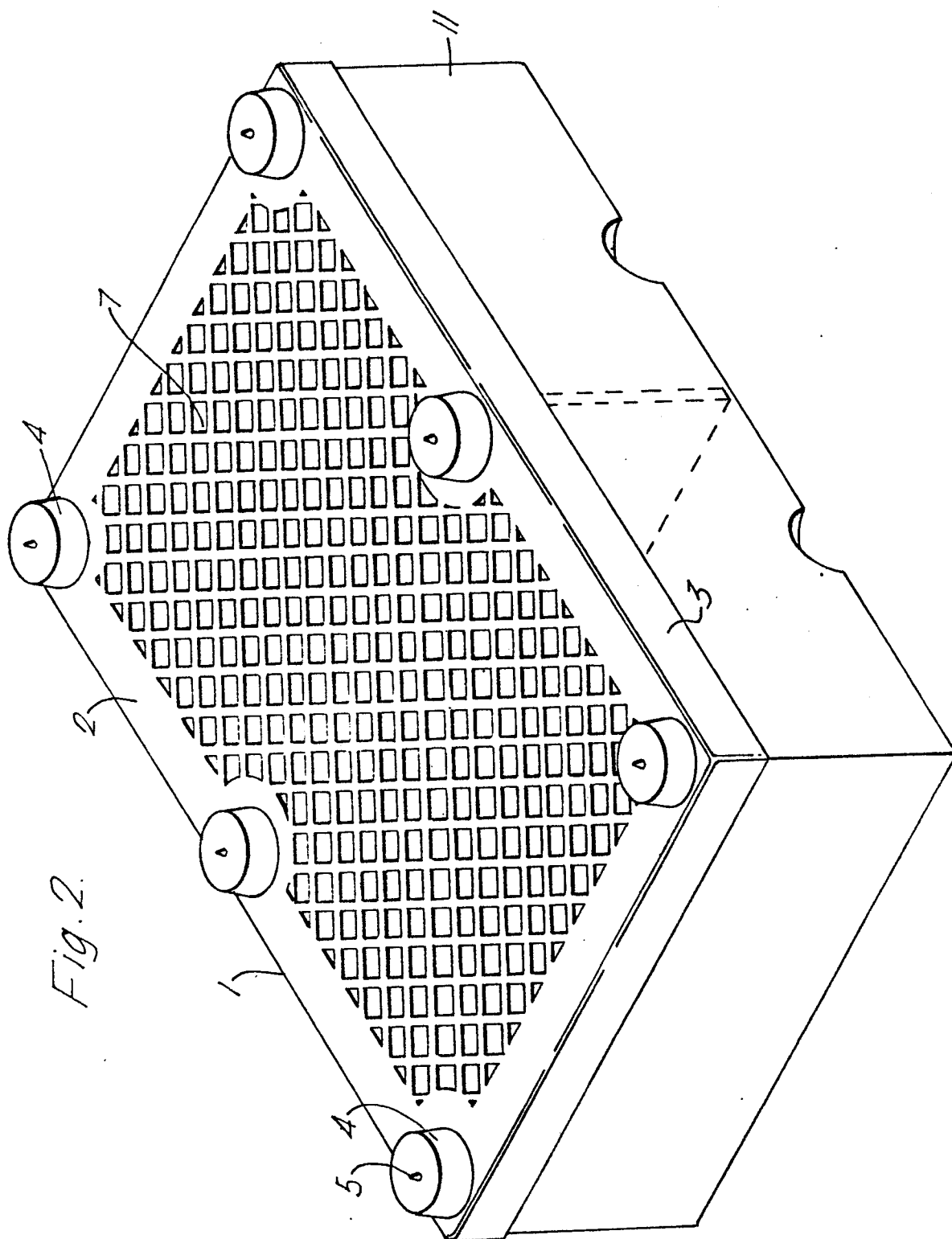
CLAIMS

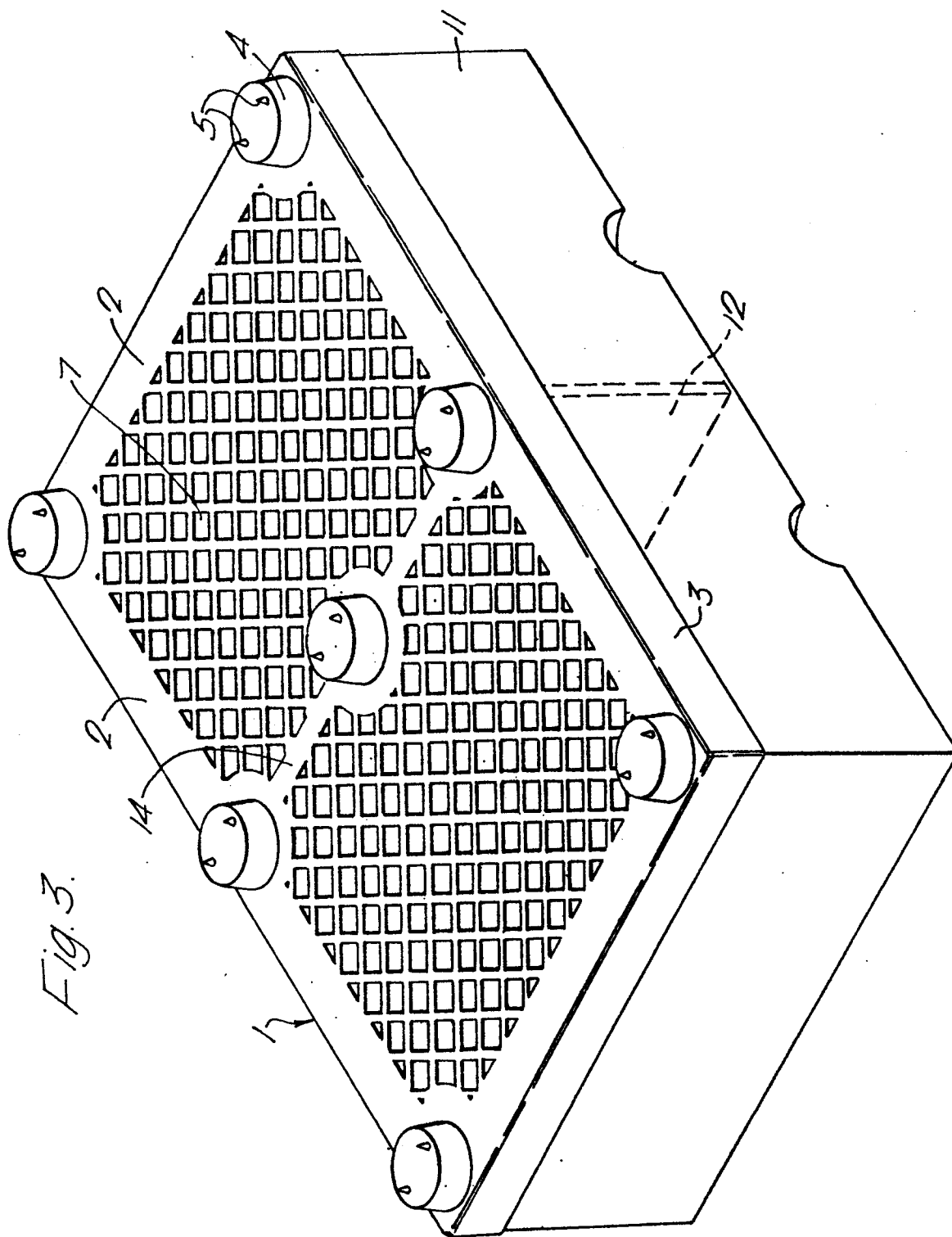
1. A lid of moulded plastics material for a fruit box, said lid comprising a rim and a skirt adapted to fit the top edges of the fruit box characterised in that the lid (1) is formed with a plurality of protrusions (4) which extend from the rim (2) in the opposite direction to the skirt (3).
2. A lid according to claim 1, characterised in that the skirt (3) is flared and the protrusions (4) are hollow and open from below, and of tapering shape so that one lid can be nested within another.
3. A lid according to claim 2, characterised in that the protrusions (4) are of frusto-conical shape.
4. A lid according to any of the preceding claims, characterised in that at least some of the protrusions (4) are provided at the top thereof with one or more spikes (5) which project from the top of the protrusions (4) and are adapted to embed themselves in the cardboard base of a box placed on top of the lid.
5. A lid according to any of the preceding claims, characterised in that the centre portion of the lid within the rim (2) is substantially open to allow air to circulate through the lid.
6. A lid according to claim 5, characterised in that all or part of the centre portion of the lid within the rim (2) is formed of an open lattice (7) of plastics material.
7. A lid according to any of the preceding claims, characterised in that there are at least six protrusions (4), one being located at each corner of the lid and the remaining two located on the rim (2) substantially mid-way of two opposed longitudinal sides of the lid.
8. A lid according to claim 7, characterised in that there is at least one further protrusion located in the centre of the lid and moulded integrally with a supporting cross-member (14).

9. A lid according to any of the preceding claims wherein the skirt (3) is extended downwardly in the region of the corners of the lid a greater distance than the remainder of the skirt.

10. A fruit box having a lid as claimed in any of the preceding claims.







4/4

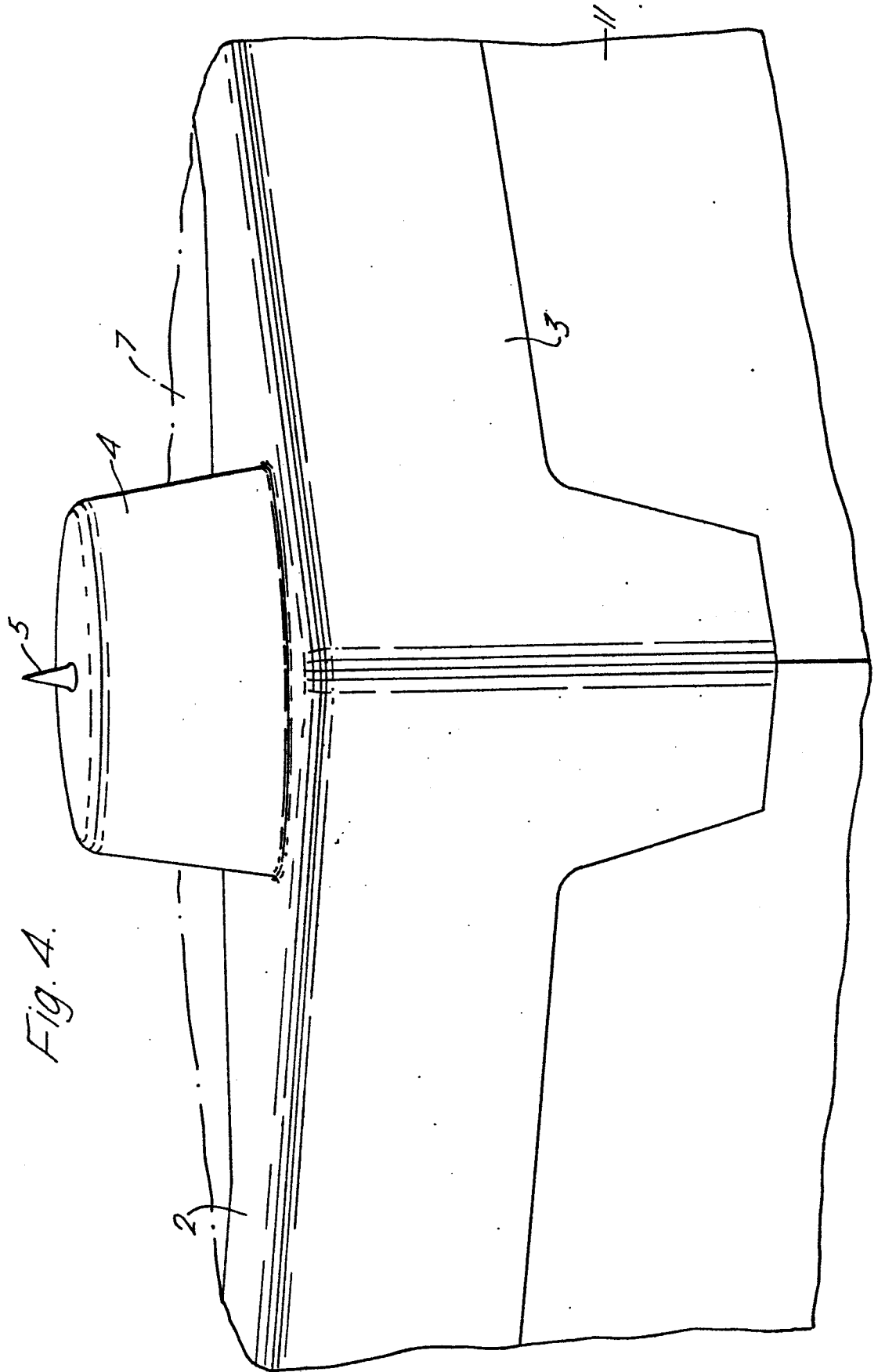


Fig. 4.



European Patent
Office

EUROPEAN SEARCH REPORT

0005970

Application number

EP 79300944.0

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	<u>US- A - 1 898 509</u> (TAYLOR)	1	B 65 D 5/64
X	<u>US - A - 2 351 417</u> (FERGUSON)	5	B 65 D 21/02
X	<u>FR-A - 1 565 635</u> (GATTINI)	6	B 65 D 85/34
			TECHNICAL FIELDS SEARCHED (Int.Cl. ³)
			B 65 D 5/00 B 65 D 5/20 B 65 D 5/42 B 65 D 5/64 B 65 D 5/68 B 65 D 21/00 B 65 D 21/02 B 65 D 85/00 B 65 D 85/30 B 65 D 85/34
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
The present search report has been drawn up for all claims			
Place of search Wien		Date of completion of the search 1979 07 26	Examiner PIPPAN