

United States Patent

Pollack et al.

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[54] MOLDED EXPANDABLE NURSERY TRAY

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[58] Field of Search **220/21.2, 23.4, 23.8; 206/56 AB; 47/34, 37, 34.11, 34.13**

[56]

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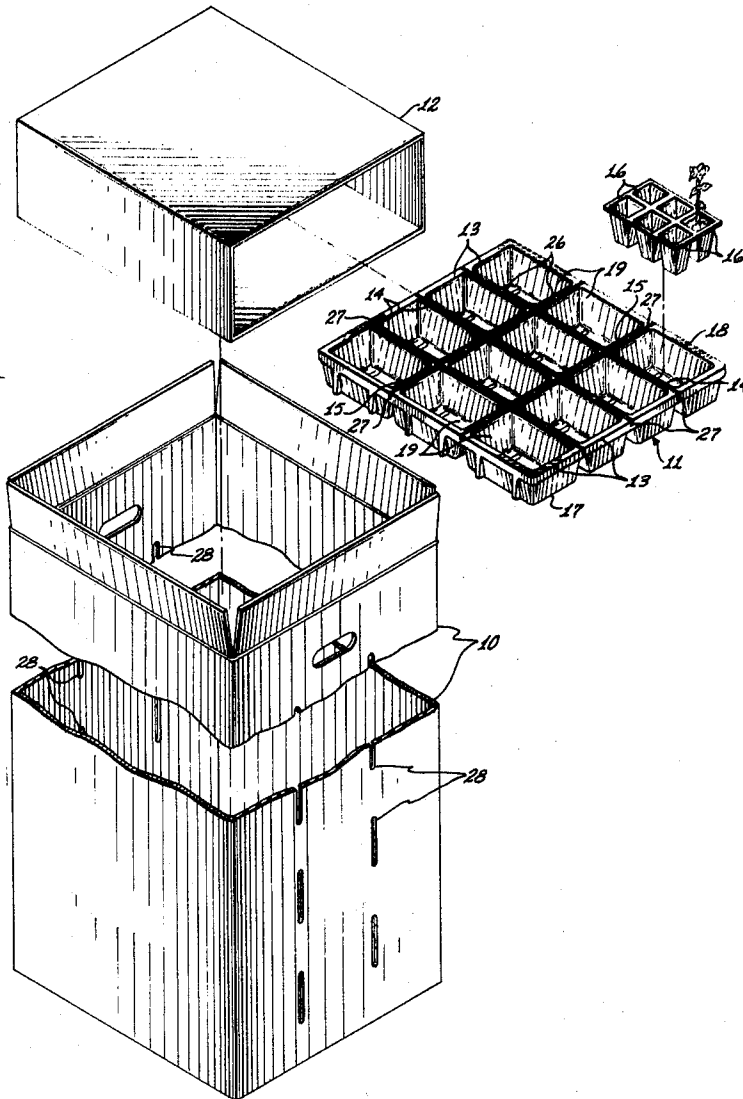
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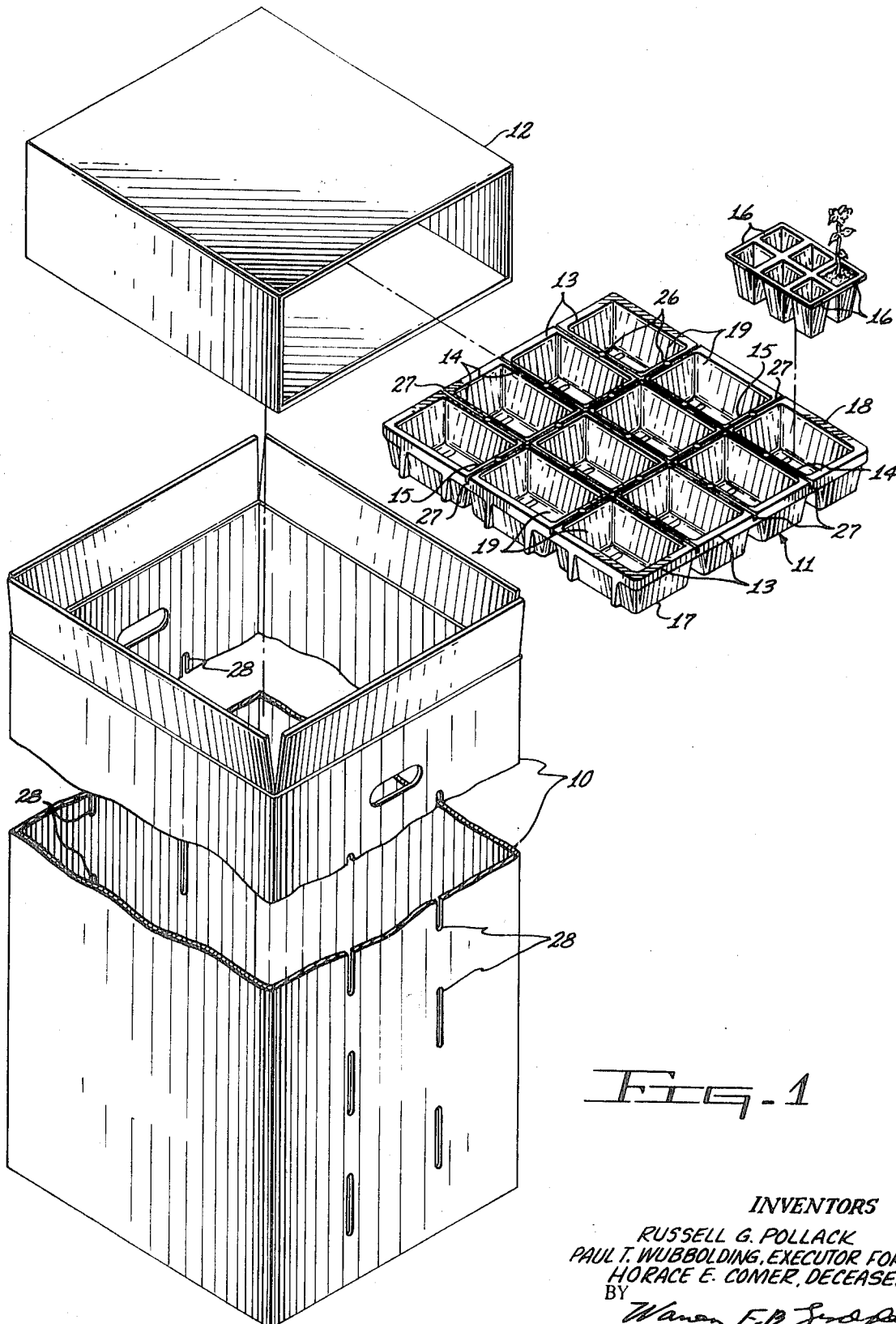
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[57] ABSTRACT

A molded expandable breakaway nursery tray and corrugated shipping container therefor.

7 Claims, 7 Drawing Figures





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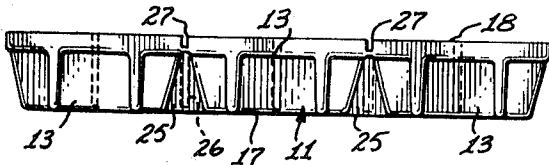


Fig. 2

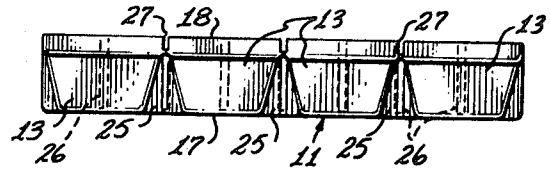


Fig. 3

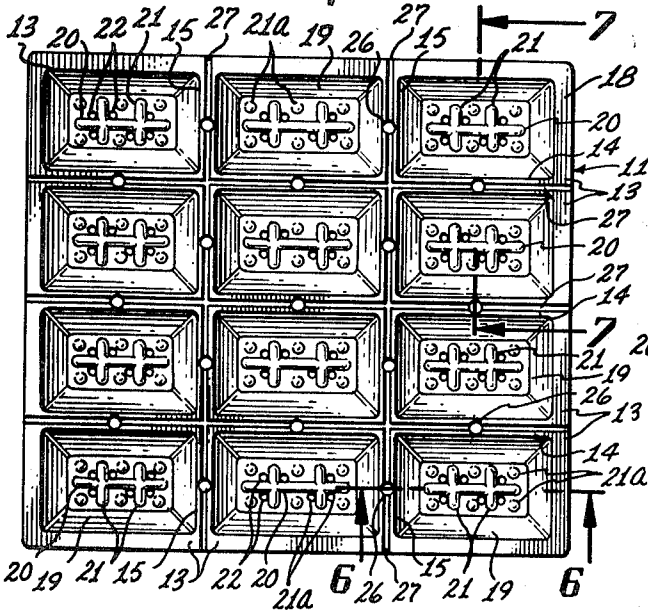


Fig. 4

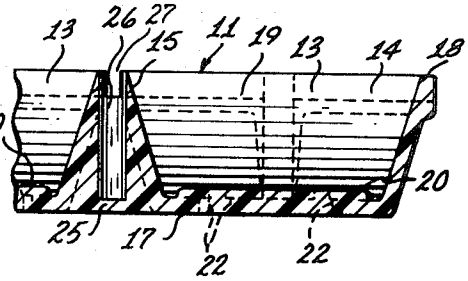


Fig. 6

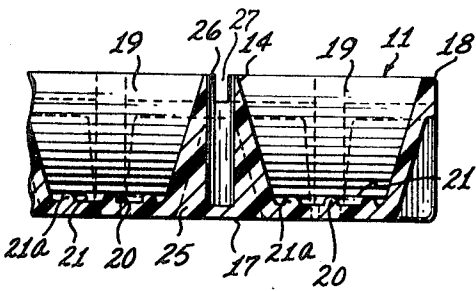


Fig. 7

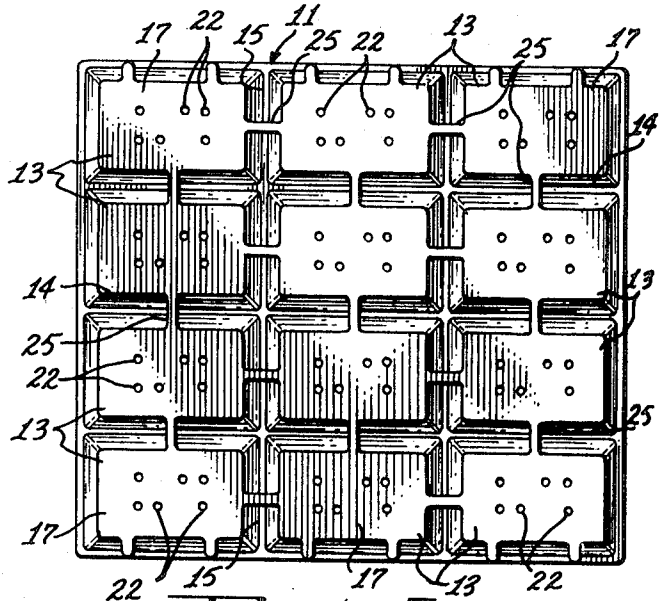


Fig. 5

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MOLDED EXPANDABLE NURSERY TRAY

BACKGROUND OF THE INVENTION

This invention relates to nursery trays and more particularly to molded breakaway nursery trays which may be expandable in number to accommodate various needs of the trade for growing, shipping and marketing nursery plants.

1. Field of the Invention

This invention is particularly directed to breakaway trays which serve as the growing container in which bedding plants are grown and also as a shipping container for moving the plants to market. The tray also serves a breakaway structure which may be broken apart to accommodate the requirements of the wholesale and retail market.

2. Description of the Prior Art

At the present time nursery trays used for growing have not been satisfactory for shipping, receiving and display purposes. Furthermore, the trays have not been of a unitized construction so as to render it possible to package a number of trays in a common shipping carton without damaging the plants or endangering their growth during packaging and shipping.

The prior art also lacks a packaging carton for a plurality of like designed trays thereby adding to the costs of nursery plants by adding substantial handling and packaging costs whenever the nursery stock was packaged and sent to the wholesale and retail market. It is believed essential in today's market to grow, package, ship and merchandise the nursery products in the same container at the same time displaying the products in appealing, attractive containers.

SUMMARY OF THE INVENTION

In accordance with the invention claimed a new and improved plant packaging nursery tray, encasing sleeve and box packaging means for more than one sleeve is provided which utilizes an improved structure for the growing, shipping and selling needs of the trade. The nursery tray disclosed and claimed is of an expandable design which serves as a growing container in which bedding plants are grown and later shipped into the wholesale and retail markets. The tray is provided with breakaway features to accommodate the requirements of large and small purchasers.

It is, therefore, one object of this invention to provide an improved breakaway tray for growing, shipping and merchandising nursery stock.

Another object of this invention is to provide an improve breakaway tray that provides an uninterrupted bottom surface for conveyor use.

A further object of this invention is to provide a new and improved tray that is rigid for handling purposes but easily broken apart for merchandising needs.

A still further object of this invention is to provide a breakaway tray employing a plurality of containers wherein each container is arranged to receive individual plant growing pot like boxes and wherein each container is reinforced in such a manner as to divide the container into a plurality of parts for receiving said boxes.

A still further object of this invention is to provide an improved shipping carton for stacking a plurality of breakaway trays containing growing plants.

A still further object of this invention is to provide an improved means for attaching abutting containers forming a breakaway nursery tray yet render the entire tray solid enough for housing nursery stock during handling and shipping functions.

Further objects and advantages of the invention will become apparent as the following description proceeds and the features of novelty which characterizes this invention will be pointed out with particularly in the claims annexed to and forming part of this specification.

BRIEF DESCRIPTION OF THE DRAWING

The present invention may be more readily described by reference to the accompanying drawing in which:

FIG. 1 is an exploded perspective view of a shipping box, tray enclosing sleeve, breakaway tray and individual plant growing pots or boxes and embodying the invention;

FIG. 2 is a side view of the breakaway tray shown in FIG. 1;

FIG. 3 is an end view of the breakaway tray shown in FIG. 1;

FIG. 4 is a top view of the breakaway tray shown in FIG. 1;

FIG. 5 is a bottom view of the breakaway tray shown in FIG. 1;

FIG. 6 is a cross sectional view of FIG. 4 taken along the line 6 — 6; and

FIG. 7 is a cross sectional view of FIG. 4 taken along the line 7 — 7.

DESCRIPTION OF PREFERRED EMBODIMENT

Referring more particularly to the drawing by characters of reference, FIG. 1 discloses a shipping carton 10 for housing a plurality of trays similar to tray 11 when each tray is inserted in a sleeve 12. Tray 11 comprises a plurality of similar containers 13 which are attached together along abutting sides or ends of walls 14 and 15, respectively, of the containers. Each container is provided to house a plurality of pots or boxes 16 for growing nursery stock.

Tray 11, which has particular utility in the nursery business, is provided to function as a growing platform or housing and comprises a plurality of like containers 13 which may be made out of suitable plastic material of expandable polystyrene produced as a clear or colored water-resistant resin. Although it is not intended to limit this invention to the use of any particular material the above defined plastic made out of polystyrene has proven successful.

Each of the containers 13 forming tray 11 has a tapered configuration so that the side and end walls 14 and 15 of each tray taper outwardly from a bottom surface 17 toward an upper surface 18 defined by the edges of side and end walls 14 and 15. The side and end walls 14 and 15 together with the bottom surface 17 form a tapered cavity 19.

When tray 11 is molded it results in a plurality of containers 13 fixedly attached along their abutting side and end walls with each container defining a cavity tapered outwardly from the container's bottom surface toward its open top. All of the containers forming the tray are arranged so that their bottom surfaces lie in a first common plane and the surfaces formed by the top edges of each of their side and end walls lie in a second common plane. FIGS. 1, 2, 3 and 6 illustrate this feature.

The inside bottom surface of each container 13 is provided with a ridge or rib 20 extending longitudinally of the container and, as shown, may be arranged along the container's longitudinal axis. Each rib 20 is provided with one or more cross arms 21 which divide the inside bottom surface of the container into a plurality of parts. Each part of the divided container bottom is provided with a raised protrusion such as a spherical projection 21a which serves as a platform for the base of one of the pots or boxes 16. This protrusion serves as a means for air circulation and drainage between the bottom of box 16 and the inside bottom surface of container 13. As shown in FIG. 1 the pots or boxes 16 are clustered together in a breakaway tray structure and these boxes when so assembled may be firmly held by the surfaces of the inside walls of cavity 19 of containers 13. The pots or boxes 16 may be made of any suitable material such as pressed moisture absorbing material such as pressed paper.

The ridges or ribs 20 of containers 13 also have another function in that they provide an air space between the bottom surface of containers 13 and the bottoms of boxes 16 so that any water drainage from boxes 16 is provided through apertures 22 formed in the bottom surface 17 of each container.

In order to reinforce tray 11 formed by the cluster of containers 13 into a relatively rigid structure so that it may be easily handled empty, partly filled or full of soil and plants, a plurality of rib support members 25 are arranged between adjacent end and side walls of abutting containers. These rib sup-

port members may be of a narrow wedge shaped configuration with the wide end of the wedge lying in the plane of the outside surface of containers 13 forming tray 11. With this configuration an uninterrupted surface extends between the bottom surface of each of the containers thereby making it possible to use the tray structure having more than one container 13 on conveyors or like automatic handling equipment.

In order to facilitate the breaking of one container from another each of the rib support members 25 is provided with a hollow cavity 26. This may be formed in the molding process of the tray. Cavity 26 helps keep the tray structure light in weight but is primarily provided to help render the tray breakable, i.e., make it possible to easily separate one container 13 from another in the tray structure.

In order to further expedite the breakaway features of the tray the top surface of the abutting end and side walls 14 and 15, respectively, of the containers are provided with grooves 27 cut as shown in FIG. 1 to extend more than half way through the abutting top edges of the end and side walls so that this part of the tray structure may be easily ruptured when it is intended to separate one container from another from the tray.

One of the problems of modern day merchandising of nursery stock is the packaging and moving of it to the retail market. Growing plants need air to grow and remain fresh looking; plant stems and flowers must be protected against breakage; and sufficient space must be provided for stock of different size plant stems; and the trays must be stacked and packaged more than one in a carton for easy handling and particularly to reduce the cost of handling and packaging.

Therefore, in accordance with the invention, each tray 11 may be slidably inserted into a sleeve 12, shown in FIG. 1, for housing the tray during handling and shipping with the height of the sleeve being sufficient to allow for plant growth or extension above the top of the tray. Each tray with its sleeve around it is then placed horizontally into carton 10. More than one tray and sleeve combination may be stacked in the carton one upon another. Suitable slots 28 are provided in carton 10 along its side wall for providing ventilation to each of the sleeves for keeping fresh the plant stock and aiding its continued growth during packaging and shipment.

It should be noted that not only does the disclosed and claimed tray, sleeve and carton packaging structure make it possible for the growing tray to be used during the growing, wholesaling and retailing efforts but it makes it possible to package the plants ahead of time before shipment and still maintain the plants in a fresh growing state.

Although but one embodiment of the present invention has been illustrated and described, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

What we claim is:

1. A molded nursery tray comprising more than one breakaway container, each of said containers defining a tapered box and similar cavity having an open top formed by the edges of side and end walls of each container and a bottom, each of said containers abutting another container along an edge of at least one of its end or side walls, the top of each container lying within a first common plane and the outside surface of the bottom of each container lying within a second common plane, rib support members arranged between the interconnecting abutting sides and end walls of each container, said rib support members extending between the edges of said abutting sides and end walls with one end of each rib support member lying within said second common plane to provide a continuous surface between outside surfaces of the bottom of each abutting container, said abutting edges of said side and end walls of each container being grooved to facilitate breaking away individual containers from said tray.

2. The combination set forth in claim 1 wherein said rib supporting members are hollow to further facilitate the breaking away of one container from another.

3. The combination set forth in claim 1 wherein the inside surface of each of the bottoms of the containers is provided with a ridge along its longitudinal axis to reinforce the bottom and divide the container into sections.

4. The combination set forth in claim 1 wherein the inside surface of each of the bottoms of the containers is provided with a ridge extending longitudinally along the inside surface of the bottom of each container and having cross arms extending transversely of its longitudinal axis for dividing each container inside bottom surface into a plurality of parts.

5. The combination set forth in claim 1 in further combination with a sleeve for encasing said tray and providing an air space above said tray for plant extension.

6. The combination set forth in claim 5 in further combination with a box like means for encasing more than one vertically stacked sleeve.

7. The combination set forth in claim 3 wherein protrusions are provided in each section to provide air space between the container and any inserted box for drainage and air circulation purposes.

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