

- [54] **PALLET**
- [72] Inventor: **William J. Francis**, Charlotte, N.C.
- [73] Assignee: **Packaging Specialties, Inc.**, Charlotte, N.C.
- [22] Filed: **Jan. 18, 1971**
- [21] Appl. No.: **107,395**
- [52] U.S. Cl. **108/56**
- [51] Int. Cl. **B65d 19/16**
- [58] Field of Search..... **108/51, 53, 56**

2,706,099 4/1965 Whalley.....108/53

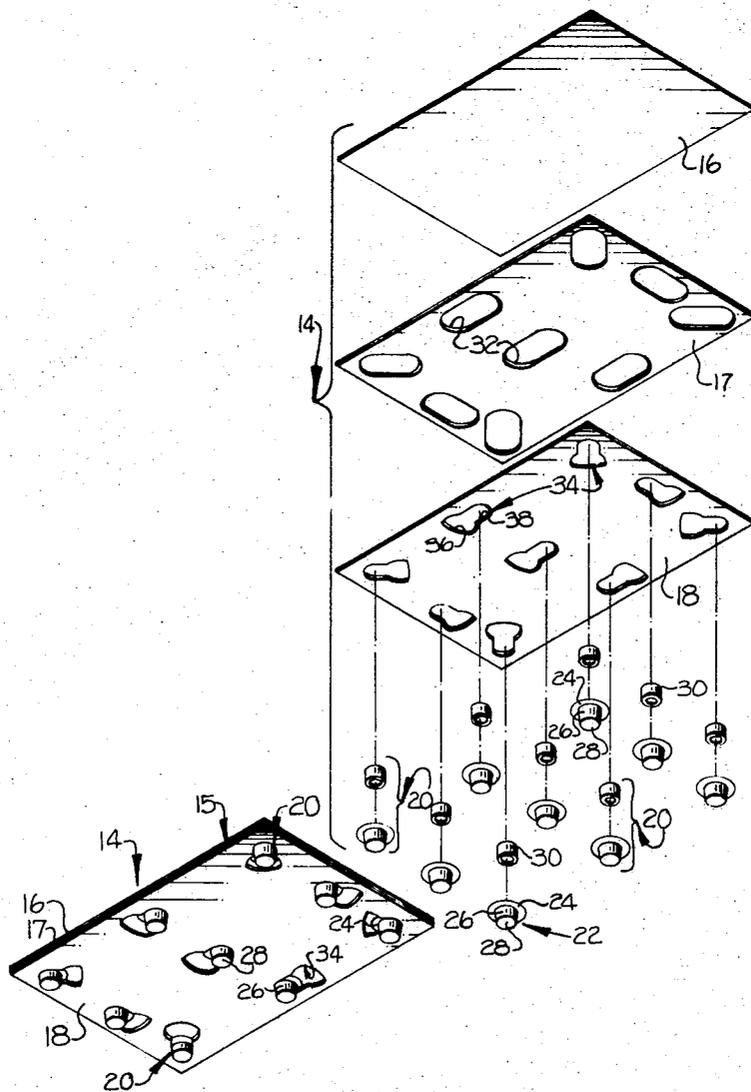
Primary Examiner—Bobby R. Gay
Assistant Examiner—Darrell Marquette
Attorney—Parrott, Bell, Seltzer, Park & Gibson

[57] **ABSTRACT**

A lightweight, inexpensive pallet for supporting a palletized load and which may be readily assembled and disassembled to reduce storage space. The pallet comprises a deck including three interconnected panel members, and a plurality of legs to support the deck above ground level. The lower two panel members include a number of aligned cut-outs for releasably receiving and mounting the legs such that the pallet may be "knocked-down" and the legs stored or shipped separately.

- [56] **References Cited**
- UNITED STATES PATENTS**
- 2,953,339 9/1960 Roshon.....108/56
- 3,407,758 10/1968 Simkins.....108/51

10 Claims, 7 Drawing Figures



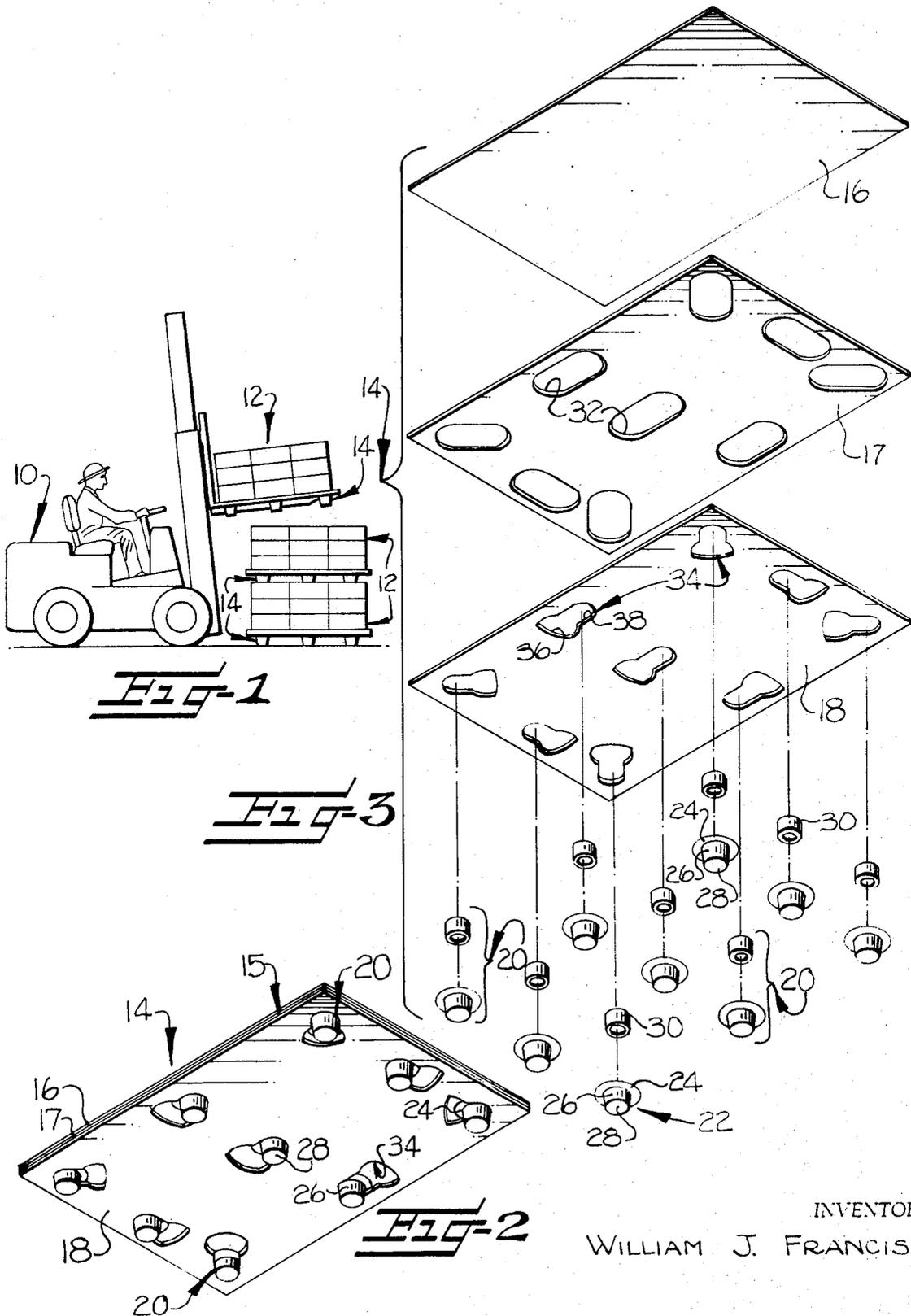


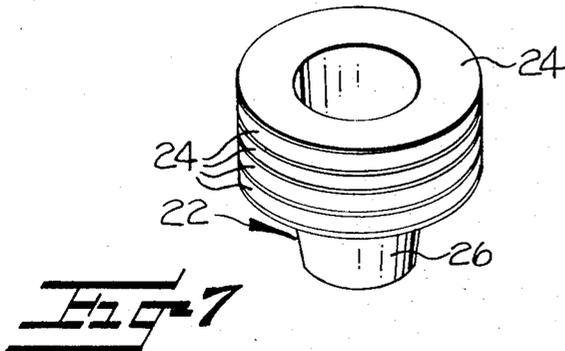
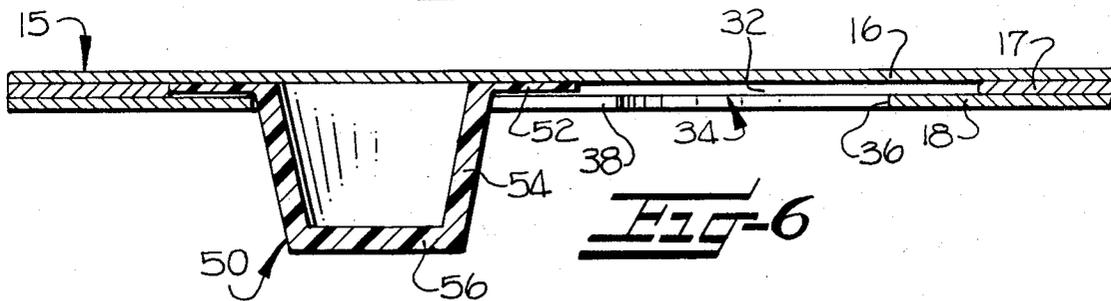
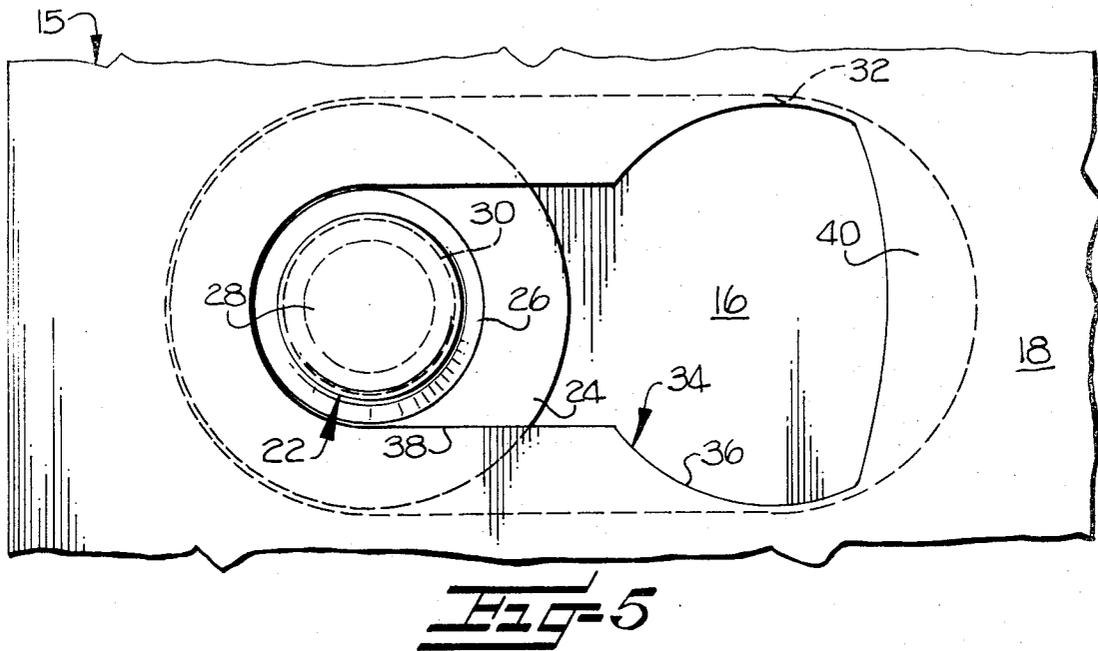
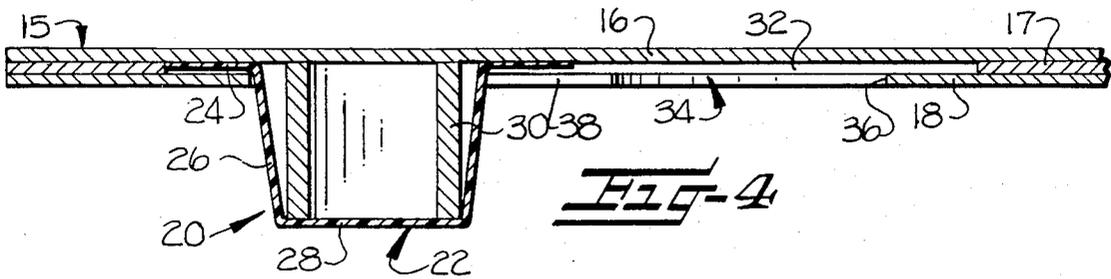
FIG-1

FIG-3

FIG-2

INVENTOR:
WILLIAM J. FRANCIS

BY *Barrett, Bell, Seligson, Park & Libson*
ATTORNEYS



INVENTOR:
WILLIAM J. FRANCIS

BY *Parrott, Bell, Seltzer, Park & Libson*
ATTORNEYS

PALLET

The present invention relates to a lightweight pallet for use in supporting various palletized products during shipment or storage. More particularly, the invention relates to a lightweight, relatively inexpensive pallet, which can be readily assembled and disassembled to thereby facilitate shipment and reuse of the same.

Pallets have long been utilized to provide a convenient platform for storing various manufactured products and for facilitating the transport of the same by a fork lift truck. Typically, pallets have been constructed from heavy oak planking, and are thus expensive to produce, and heavy and cumbersome to handle. In addition, the weight and size of such pallets substantially increase the shipping cost of the products, and they require extensive storage areas, both at the shipping and receiving facility.

Numerous attempts have been made to alleviate the recognized disadvantages of wood pallets, but none of the proposed new designs have met all of the desired requirements for a satisfactory pallet. For example, pallets have recently been fabricated from foamed polystyrene which is molded directly to a reinforcing cover. While these pallets are relatively light in weight, they are somewhat expensive, and they still require a great deal of storage area. Another pallet design is shown in the U.S. Pat. to Whalley, No. 2,706,099, wherein a number of plastic legs having a flanged top are joined to a deck which comprises a pair of joined corrugated paper sheets. The lower sheet overlies the leg flange to permanently secure the leg to the deck. While this latter type pallet is an obvious improvement over the wood pallet, it cannot be disassembled, and thus it occupies a great deal of space during shipment and storage.

It is accordingly an object of the present invention to provide a pallet which is light in weight, relatively inexpensive to manufacture, sufficiently strong to support normal pallet loads, and which may be readily assembled and disassembled to reduce storage space.

Additionally, it is an object of the present invention to provide a pallet which can be shipped in disassembled form to thereby minimize shipping costs, and to facilitate return to the shipper for re-assembly and reuse.

These and other objects and advantages of the present invention are achieved in the embodiments illustrated herein by the provision of a pallet which comprises a substantially planar deck for supporting the palletized load, support means including a plurality of legs projecting perpendicularly from the undersurface of the deck for supporting the deck a predetermined distance above ground level, and means for releasably securing the legs to the deck for quick and easy assembly and disassembly. In the illustrated embodiment, the legs are secured to the deck by a structure which includes a flange carried by each leg and a cavity adapted to receive the flange of each leg positioned in the undersurface of the deck.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which

FIG. 1 is a schematic representation of a fork lift truck shown lifting a palletized load and utilizing a pallet of the present invention;

FIG. 2 is a perspective view of the undersurface of a pallet of the present invention;

FIG. 3 is an exploded perspective view of the pallet shown in FIG. 2;

FIG. 4 is a fragmentary sectional side view illustrating one leg of the pallet;

FIG. 5 is an underside plan view of the leg shown in FIG. 4;

FIG. 6 is a view similar to FIG. 4, but illustrating a second embodiment of the pallet leg;

FIG. 7 is a perspective view illustrating the manner in which the legs of the pallet may be nested to facilitate storage or shipment when disassembled from the deck.

Referring more specifically to the drawings, FIG. 1 illustrates a conventional fork lift truck 10 transporting and stacking a number of palletized loads 12 for shipment or storage. Each load 12 is supported by the pallet of the subject invention which is broadly indicated by the numeral 14.

As seen in FIGS. 2-5, the pallet 14 comprises a substantially planar deck 15 including an upper panel member 16 defining a load bearing surface, an intermediate panel member 17, and a lower panel member 18 defining the undersurface. Preferably, the three panel members are generally rectangular and fabricated from corrugated paper sheeting, but other suitable materials such as fiber board, or Masonite, could be employed. Also, the three members are secured together by any suitable means, such as staples, or adhesives, to form a unitary deck 15 as shown in FIG. 2.

In the illustrated embodiment, nine legs 20 are provided for supporting the deck at a specified distance above ground level. Each of the legs 20 comprises a support member 22 having an upper radially extending generally circular transverse flange 24, an integral depending generally cylindrical portion 26, and a lower bottom wall 28 closing the cylindrical portion. A load bearing member 30 is positioned within the support member cylindrical portion and is axially co-extensive therewith, note FIG. 4. The support member 22 may for example be fabricated from a lightweight molded plastic material, such as polyethylene, polypropylene, or styrene. The load bearing member 30 may for example be fabricated from a spirally wound paper tube of conventional construction.

Means are provided for releasably securing the legs to the undersurface of the deck including nine generally oval openings or cut-outs 32 in the intermediate panel 17, and a corresponding number of second generally T-shaped openings or cut-outs 34 in the lower panel member 18. As shown in FIG. 5, each first cut-out 32 is dimensioned for receiving the flange 24 in coplanar relationship while permitting limited transverse movement. In this regard, each cut-out 32 has a width generally conforming to the diameter of the flange 24, and a length equal to about twice the diameter of the flange. The second cut-out 34 is superposed over the first cut-out and is configured such that portions of the lower panel member 18 overlie the first cut-out as shown in FIG. 5. More particularly, the second cut-out 34 includes a first portion 36 shown at the right side in FIG. 5 having a width generally similar to that of the first cut-out 32 and sufficient to laterally receive the flange 34, and a second portion 38 shown at the left

side in FIG. 5 and having a reduced width adapted to closely receive the support member cylindrical portion 26. Again viewing FIG. 5, it will be seen that the right end edge of the first portion 36 defines a flap 40 which overlies the corresponding end of the first cut-out 32.

To assemble the leg to the deck, the load bearing member 30 is dropped into the support member cylindrical portion 26, and then the flange 24 is laterally inserted through the first portion 36 of the cut-out 34 and into the first cut-out 32. Upon continued translation to the left as seen in FIG. 5, the overlying portions of the lower panel defined by the second portion 38 of cut-out 34 serve to prevent axial movement or separation of the support member in relation to the deck. Should the support member inadvertently slide toward the right during use, the flap 40 will overlie the flange 24 and prevent axial separation. However, should it be desired to remove the leg from the deck, it is merely necessary to lift the leading edge of the flange 24 over the flap 40, by hand or with a suitable tool, and continue movement toward the right. Thus it will be seen that the cut-outs 32 and 34 define a cavity in the undersurface of the deck which is adapted to selectively receive and retain the flange 24 of the leg.

A second embodiment of the subject invention is illustrated in FIG. 6, and comprises a leg support member 50 having an upper circular transverse flange 52, a depending generally cylindrical portion 54 defining a relatively thick side wall, and a bottom wall 56. The support member 50 may be constructed from a plastic of the type utilized in the member 20, but could also be constructed from wood, metal, or other suitable material. Thus by strengthening the side wall of the member 50 in the manner illustrated, the necessity for the load bearing member 30 as shown in the embodiment of FIGS. 2-5 is eliminated.

As seen in FIG. 2, the legs of the pallet are positioned in generally regular rows on the deck undersurface to define passageways for admitting the forks of a lift truck therebetween. As illustrated, the legs comprise three rows, each having three legs therein such that the lift truck may enter from any of the four sides. Also, it will be noted that the cut-outs 32 and 34 are disposed in differing rotational orientations in relation to each other. By this arrangement, the legs will not all be translated in the cut-outs 32 if the pallet is slid along the supporting surface.

As a further aspect of the present invention, it will be appreciated that all nine legs will not be required for supporting a relatively light load. Thus for example, the legs may be placed only at the four corners of the deck for supporting a light load. For slightly heavier loads, an additional leg may be positioned at the center. Thus the total number of legs utilized may be minimized to further reduce the total cost of the pallet.

From the above description, it will be apparent that the illustrated pallet may be quickly and easily assembled and disassembled to significantly reduce the space occupied by the pallets during shipment and storage. For example, the manufacturer may ship the pallets to a user with a large number of decks piled in a stack, and the supporting members nested as shown in FIG. 7. The load bearing members 30, if utilized, may be shipped loosely in a separate container, or they may be purchased locally by the user. The user may then as-

semble the pallets as needed, and after use, they may be quickly disassembled or "knocked-down" without requiring the use of special tools. In the event a palletized load is shipped to a receiver, the receiver may disassemble the pallets for return to and the reuse by the shipper. Alternatively, in view of the low cost of the pallets of this invention, they may be used "one-way" and then simply discarded.

In the drawings and specification, there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

I claim:

1. A lightweight pallet for supporting various products in palletized form during shipment or storage, and which may be readily assembled and disassembled to reduce storage space for the same, comprising
 - a plurality of legs each comprising a support member having an upper transverse flange and a depending portion,
 - an upper panel member,
 - an intermediate panel member defining a plurality of first cut-outs each configured for receiving the upper transverse flange of one of said legs,
 - a lower panel member defining a plurality of second cut-outs each configured for receiving the upper transverse flange of one of said legs in one portion thereof and for entrapping said flange in the remainder thereof,
 means for securing said panel members in stacked relation with said first cut-outs superposed on said second cut-outs and for forming of said panel members a substantially planar deck defining an upper load bearing surface, an undersurface and a plurality of cavities therebetween for receiving in coplanar relationship the upper transverse flanges of said legs,
 - whereby said flanges may be laterally inserted through said one portion of said second cut-outs and into said first cut-outs to be releasably entrapped within said cavities of said deck.
2. The pallet as defined in claim 1 wherein said support member depending portion is generally cylindrical, and said transverse flange is generally circular and extends radially outwardly therefrom.
3. The pallet as defined in claim 2 wherein said second cut-out is of generally T-shaped configuration including a first portion of sufficient width to laterally receive said support member flange and a second portion of reduced width adapted to closely receive said support member cylindrical depending portion.
4. The pallet as defined in claim 3 wherein said first cut-out is generally oval to permit limited translation of the support member flange therein, and said second cut-out first portion defines a flap overlying one end of said oval first cut-out, such that the support member flange will underlie said flap when the support member is translated toward said one end.
5. The pallet as defined in claim 4 wherein said legs are positioned in generally regular rows on said deck undersurface to define passageways for admitting the forks of a lift truck, and at least several of the second cut-outs in the lower panel member are disposed in differing rotational orientations in relation to each other.

5

6

6. The pallet as defined in claim 5 wherein each of said support member cylindrical depending portions is tubular and slightly tapered to facilitate nesting of the same when disassembled from said deck.

7. The pallet as defined in claim 6 wherein each of said legs further comprises a cylindrical load bearing member adapted to be coaxially received within said support member cylindrical portion.

8. The pallet as defined in claim 1 wherein said legs are positioned in generally regular rows on said under-

surface to define passageways for receiving the forks of a lift truck.

9. The pallet as defined in claim 7 wherein said upper, intermediate, and lower panel members each comprise corrugated paper sheeting, and said load bearing member comprises a spirally wound paper tube.

10. The pallet as defined in claim 9 wherein said support member is plastic.

* * * * *

15

20

25

30

35

40

45

50

55

60

65