

[54] **PALLET**  
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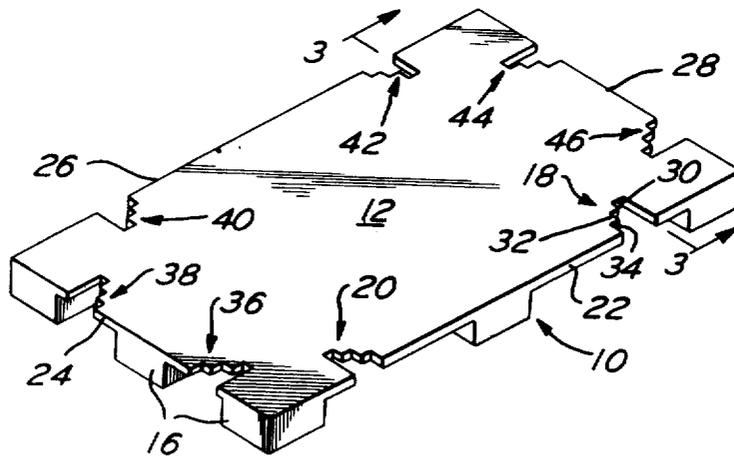
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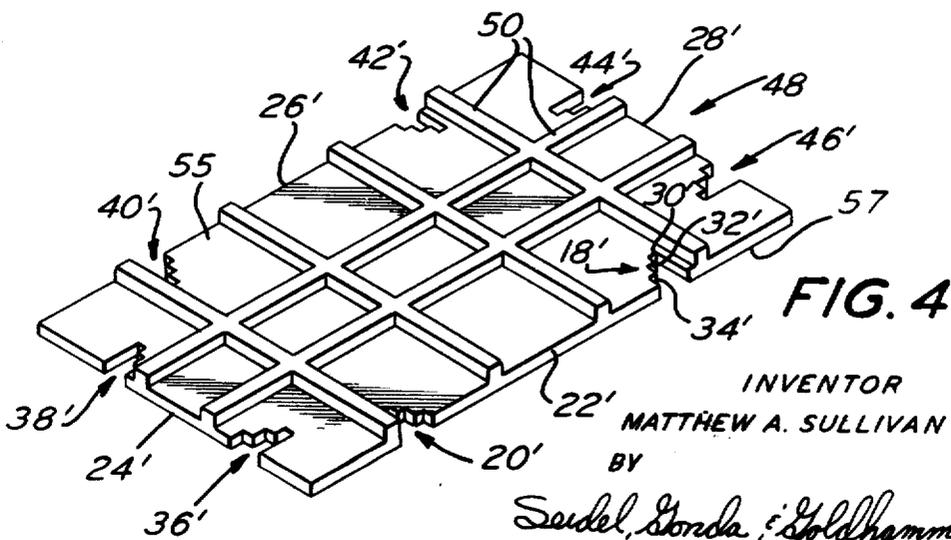
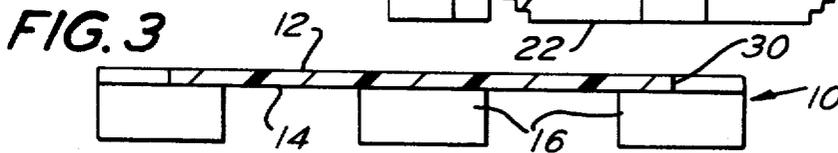
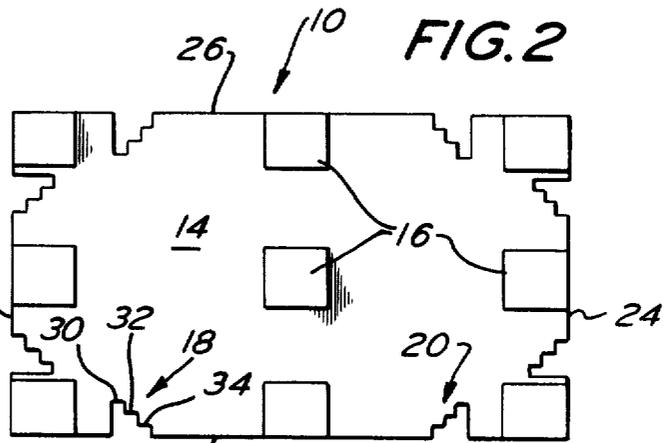
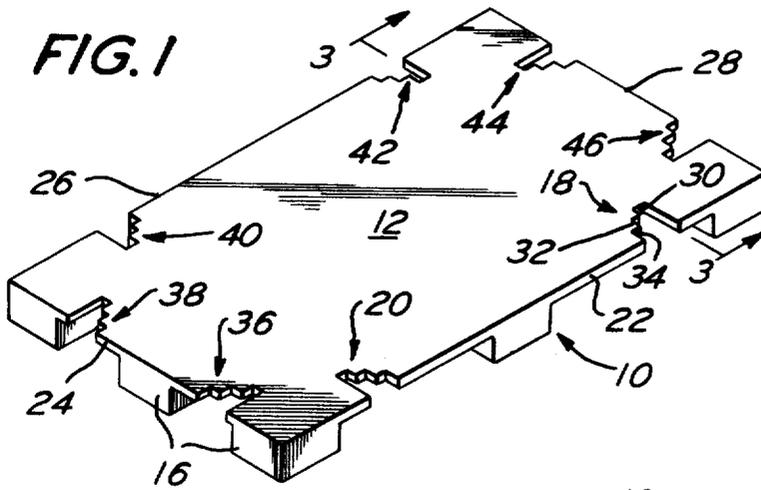
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[57] **ABSTRACT**

A pallet for supporting loads of various sizes. The pallet includes a pallet bottom having load supporting surface having notch means on at least two sides thereof. Each notch means has a plurality of band contact surfaces at varying distances from its respective side of the load supporting surface to permit tight banding of various size loads. A pallet top may be provided for further securing the load and to permit stacking of the pallets.

**6 Claims, 5 Drawing Figures**





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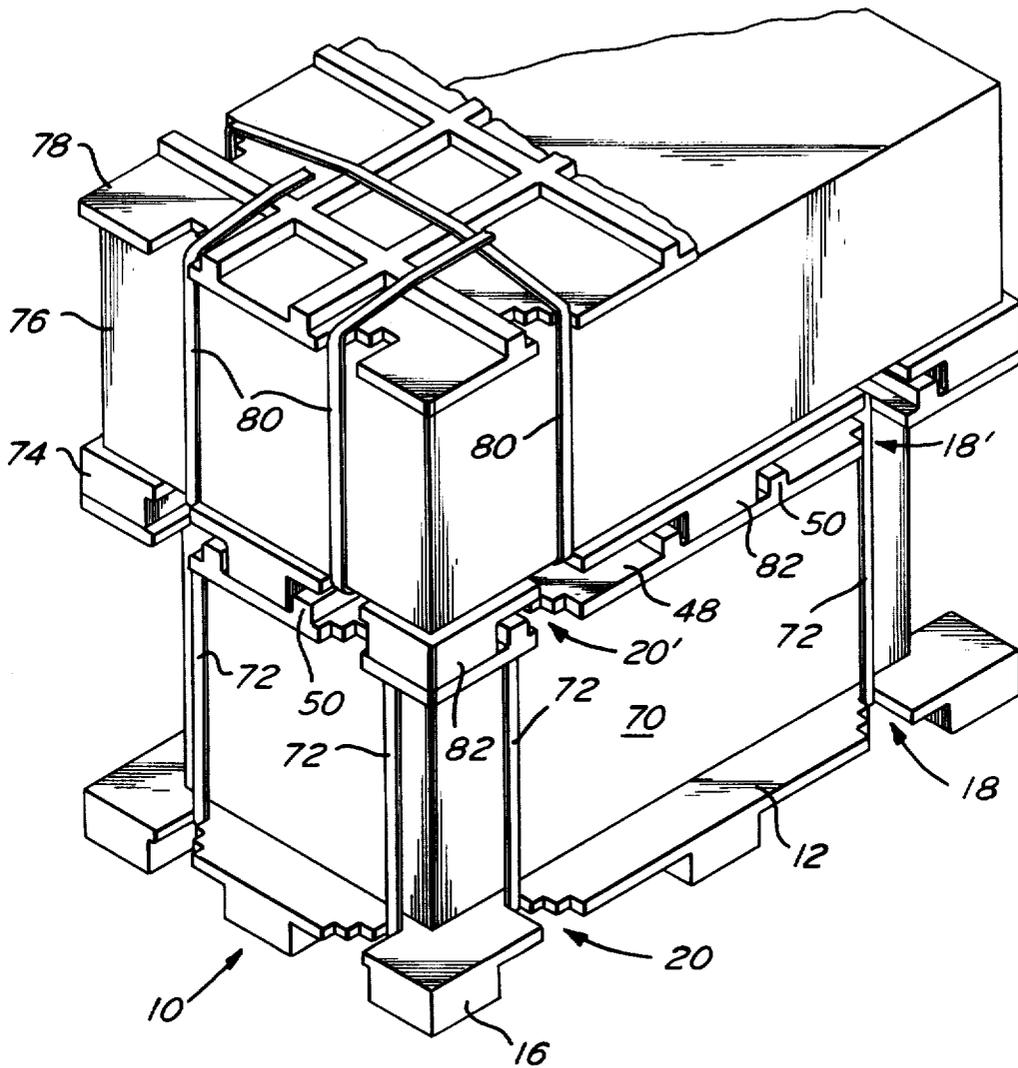


FIG. 5

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## PALLET

The present invention is directed to a pallet and more particularly to a pallet having notch means to permit tight banding of various size loads.

The convenience of utilizing pallets for transporting loads is well known in the art. Pallets which are to be reused many times are usually constructed of wood or other material which will not be adversely affected by prolonged use. Generally, the effective usage of pallets requires that a load cover substantially the entire load supporting surface of the pallet.

Often, the loads to be transported do not cover the entire load supporting surface of the pallet. Examples of such loads would include books, small cartons of varying sizes, and the like. Normally, it is necessary to first place the books or odd sized cartons into larger cartons and thereafter stack the larger cartons on the load supporting surface of the pallet. The larger cartons will distribute the load over the entire pallet load supporting surface and thereby permit banding or strapping of the load to the pallet.

Obviously, the double handling of products to be moved on a pallet is undesirable. Hence, excessive handling creates added expense and loss of time.

It is an object of the present invention to overcome the deficiencies of prior art pallets as set forth above.

It is another object of the present invention to provide a pallet which can be used for moving loads of various sizes without special handling of such loads.

It is a further object of the present invention to provide a pallet which is extremely versatile in that loads of various sizes can be handled thereon and which is relatively inexpensive to construct.

It is yet another object of the present invention to provide a pallet which can convey loads of various sizes, is highly reliable in use, and yet is relatively simple to utilize.

It is yet a further object of the present invention to provide a pallet which may utilize a pallet bottom and a pallet top which have notch means associated therewith to permit tight banding of loads of various sizes.

Other objects will appear hereinafter.

The above and other objects are accomplished by providing the pallet of the present invention. The pallet includes a pallet bottom which is preferably made of a high strength plastic which may be injection molded, blow molded, or rotational molded. The pallet may be made of polyethylene, polypropylene, polystyrene, or the like. The pallet bottom is preferably a one-piece molded product.

The pallet bottom includes a load support surface. A plurality of legs are secured to the other surface thereof. In the preferred form, all four sides of the pallet bottom have notch means associated therewith. Each notch means includes band contact surfaces at varying distances from the side edges of the pallet bottom. Varying size loads can be placed upon the support surface of the pallet bottom. When the load is comprised of numerous small units, such as books or the like, bands or straps are provided for securing the load to the pallet bottom.

The bands will contact one of numerous band contact surfaces depending upon the size of the load supported by the pallet bottom. By providing a plurality of band contact surfaces at varying distances from the edges of the pallet bottom, varying size loads can be tightly banded to the pallet bottom. The notch means and the legs will be so located such that there is no interference between the bands and the legs of the pallet bottom.

A pallet top may be provided for further confining the load. It is preferred that the pallet top be constructed of the same material as the pallet bottom. However, pallet bottoms and pallet tops of different materials may be utilized, if desired. The pallet top should also be of one-piece molded construction which may be injection molded, blow molded, or rotational molded. Suitable materials for the pallet top include polyethylene, polypropylene, polystyrene, and the like.

The pallet top is preferably provided with ribs to provide reinforcement for the pallet top. The pallet top is also pro-

vided with notch means along the edges thereof. Preferably, such notch means are aligned with the notch means on the pallet bottom.

The ribs serve not only to reinforce the pallet top but also apply tension to the bands. Further, the ribs insure that the bands will be easily accessible for severance once the pallet has been delivered to its desired location. The ribs will be so located so as to permit stacking of pallets.

The provision of notch means in the pallet top insures that loads of varying sizes can be tightly banded to the pallet. It is not essential that the pallet top be utilized with the pallet bottom. However, where it is desired to stack a plurality of pallets, it is preferred to utilize pallet tops. Hence, the pallet tops will provide a smooth upper surface to facilitate stacking.

The notch means can include a single notch having a configuration so that the band contact surfaces increase in distance from the side edge of the pallet. Alternatively, each notch means can include a plurality of notches of varying depths to provide the varying band contact surfaces. It is preferred that the stepped configuration be utilized in order to minimize costs in molding of the pallet.

For the purpose of illustrating the invention there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIG. 1 is a perspective view of a pallet bottom produced in accordance with the principles of the present invention.

FIG. 2 is a bottom plan view of the pallet bottom of FIG. 1.

FIG. 3 is a section view taken along line 3-3 of FIG. 1.

FIG. 4 is a perspective view of the pallet top constructed in accordance with the principles of the present invention.

FIG. 5 is a perspective view of stacked pallets embodying the features of the present invention wherein loads of varying sizes are supported by the pallets. Referring now to the drawings in detail wherein like numerals indicate like elements throughout the several views, there is shown in FIGS. 1-3 a pallet bottom generally indicated by the reference numeral 10.

The pallet bottom 10 includes a load engaging surface 12 and a bottom surface 14. A plurality of legs 16 are formed integrally with the pallet bottom 10 and extend from the bottom surface 14. In a preferred embodiment of the invention, nine such legs are provided with three legs being spaced along each side and one leg being provided in the center of the pallet (note particularly FIG. 2).

The pallet bottom 10 has notch means 18 and 20 along the side 22 thereof. Notch means are provided along the sides 24, 26 and 28 of the pallet bottom 10. Notch means 36 and 38 are provided along side 24; notch means 40 and 42 are provided along side 26; and notch means 44 and 46 are provided along side 28. In the preferred embodiment of the present invention, all of the notch means are substantially identical. Notch means 18 and 20 are identical except they are of opposite hand as will be explained hereinafter. Accordingly, only notch means 18 will be described in detail.

Notch means 18 includes three band contact surfaces 30, 32 and 34. Band contact surface 30 is located approximately 4 inches in from side 22. Band contact surface 32 is located approximately 3 inches in from side 22. Band contact surface 34 is located approximately 2 inches in from side 22. A greater number of band contact surfaces could be provided or the location of such band contact surfaces could be varied with respect to side 22. Side 22 also provides a band contact surface when the load covers the entire surface 12 of the pallet bottom 10.

Notch means 20 also has three band engaging surfaces. As viewed in FIG. 1, the deepest band engaging surface in notch means 20 is on the left. The deepest band engaging surface namely, surface 30, in notch means 18 is on the right. Both notch means 18 and 20 have stepped configurations. Accordingly, notch means 18 and notch means 20 are identical except that notch means 18 is a mirror image of notch means 20. This may otherwise be described as notch means 18 being

of left hand configuration whereas notch means 20 is of right hand configuration. If desired, notch means 18 and notch means 20 can be identical and of the same hand. The remaining notch means located on sides 24, 26 and 28 preferably have the identical relationship as notch means 18 and 20.

The pallet may include a pallet top 48 (note FIG. 4). The pallet top 48 is provided with ribs 50 which serve to reinforce the pallet top. Preferably, the pallet top is molded in a single piece. The ribs 50 reinforce the pallet top 48, tension the bands which encircle the load carried by the pallet, and permit easy access to the bands so that the bands can be cut when the load has arrived at its desired destination.

The pallet top 48 includes exposed surface 55 and load contact surface 57. A plurality of notch means are provided on the sides or edges of the pallet top 48. Since the notch means on pallet top 48 correspond to the notch means provided on the pallet bottom 10, corresponding structure on pallet top 48 has been denoted by a prime notation of the same reference numerals used with respect to pallet bottom 10.

Side 22' of pallet top 48 has notch means 18' and 20' located thereon. When the pallet top is located above pallet bottom 10, notch means 18' and 20' on pallet top 48 will be aligned with notch means 18 and 20 on pallet bottom 10. Notch means 18 includes band contact surfaces 30', 32', and 34'. Notch means 36' and 38' are located on side 24'; notch means 40' and 42' are located on side 26'; and notch means 44' and 46' are located on side 28'. The desired relationship of the pallet bottom 10 and the pallet top 48 is shown in FIG. 5.

A load 70 is shown supported by the load engaging surface 12 of the pallet bottom 10. Since the load 70 does not extend to the perimeter of the pallet bottom 10, the notch means are utilized in banding the load to the pallet. As shown, the load 70 is quite small and hence, the innermost band contact surfaces of the notch means have been utilized. Suitable bands or straps 72 extend around the bottom surface 14 of the pallet bottom 10, through the notch means provided on the pallet bottom 10, through the notch means provided on the pallet top 48 and over the ribs 50 on the pallet top 48. The ends of the bands can be connected in any suitable conventional manner. The bands 72, as shown, closely confine the load 70 and secure the same to the pallet bottom 10 and the pallet top 48.

A second pallet is shown stacked on pallet top 48. The second pallet includes a pallet bottom 74 which supports a load 76. A pallet top 78 engages the top of the load 76. Suitable bands 80 are used to secure the load 76 to the pallet bottom 74 and pallet top 78. As can be readily seen, the load 76 is substantially larger than the load 70. Hence, the outermost band contact surfaces of the notch means in the pallet bottom 74 and pallet top 78 are utilized in banding the load 76 to the pallet. The legs 82 of the pallet bottom 74 rest upon pallet top 48 and do not interfere with ribs 50 on pallet top 48 or the bands 72.

In utilizing the pallet of the present invention, loads of irregular shapes can also be tightly banded to the pallet. Hence, the band contact surface on each side of the pallet top and bottom which will permit tight banding of the load to the pallet will be utilized. The same band contact surfaces need not be utilized on all sides of the pallet. However, to provide even distribution of the weight of the load over the pallet, it is

preferred that the load be substantially centrally located on the pallet.

It is believed readily apparent that the pallet of the present invention will permit tight banding of loads of various sizes thereto. Hence, unnecessary handling of loads is avoided. In the pallet of the preferred embodiment of the present invention, the legs are substantially square and each side of each leg is approximately 8 inches. Each notch means may include any desired number of band contact surfaces. The location and depth of the band contact surfaces may be varied without departing from the spirit and scope of the present invention. The side edges of the pallet bottom and top provide band contact surfaces so that loads covering the entire load engaging surface of the pallet bottom can be banded to the pallet. The location of the notch means is such that the bands will not interfere with legs of pallets to be stacked. Further, the ribs provided on the pallet tops will not interfere with the stacking of the pallets.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. A pallet comprising a pallet bottom, said pallet bottom including a flat load support surface, a bottom face and a plurality of sides, a plurality of legs supported by said bottom face, notch means formed on at least two of said sides, each of said notch means including a plurality of band contact surfaces disposed in a stepped configuration so that said band contact surfaces increase in distance from said sides in which said respective notches are formed so that different size loads can be tightly banded to said pallet bottom, and said notch means being positioned to avoid interference between bands and said legs.

2. A pallet as set forth in claim 1 including a pallet top, said pallet top having a load engaging surface, an exposed surface, and a plurality of edges, said exposed surface having ribs thereon for increasing the strength of said pallet top, and notch means provided along the edges of said pallet top.

3. A pallet as set forth in claim 2 wherein the notch means on said pallet top and the notch means on said pallet bottom are aligned when a load is supported by and banded to said pallet bottom and pallet top, said pallet bottom being composed of a single molded member and said pallet top being molded of a single molded member.

4. A pallet as set forth in claim 1 wherein a pair of notch means are provided along each side of said pallet bottom, and said stepped band contact surfaces being spaced approximately 1 inch apart to permit various size loads to be tightly banded to the pallet bottom.

5. A pallet as set forth in claim 2 wherein the ribs on said pallet top are so located to avoid interference with the legs of the pallet bottom when a pallet bottom is stacked onto said pallet top, and the deepest band contact surface being located approximately 4 inches in from each side of the pallet bottom.

6. A pallet as set forth in claim 2 wherein said notch means on said pallet top includes a plurality of band contact surfaces, and said band contact surfaces on said pallet top and said band contact surfaces on said pallet bottom being aligned when a load is banded to said pallet bottom and pallet top.

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