United States Patent

Schmid

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[45] **Aug. 15, 1972**

[54] **PALLET**

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[52] **U.S. Cl.** **108/156,** 108/58

[51] **Int. Cl.** **B65d 19/18**

[58] **Field of Search** ..... 108/51–58; 248/224, 239; 287/20 R, 20.925, 20.926

[56] **References Cited**

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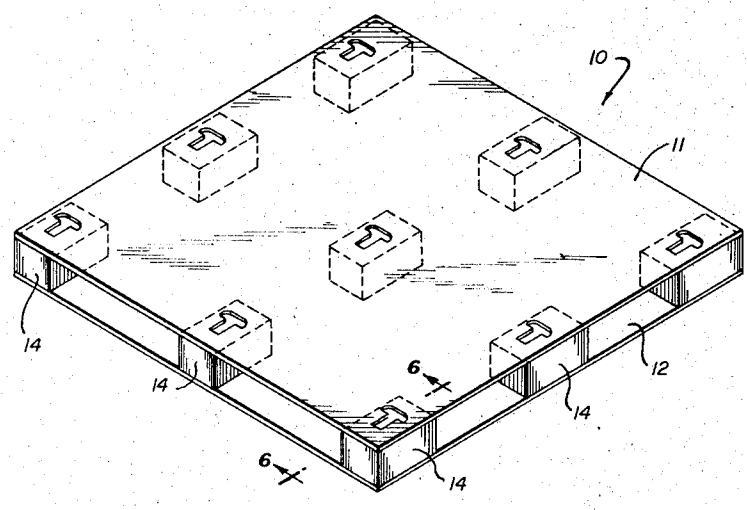
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[57] **ABSTRACT**

A pallet which includes a top and a bottom pallet surface of corrugated paperboard or the like which are fastened to a number of blocks of a plastic material such as polystyrene by foldable interlocking elements. These interlocking elements are precut or otherwise formed in the pallet surfaces, and are lockingly affixed to the blocks by extending them into a void in the blocks. Upon being extended into the voids, the interlocking elements lockingly engage with offset shoulder means therein, to automatically lock the pallet surfaces to the blocks.

6 Claims, 7 Drawing Figures

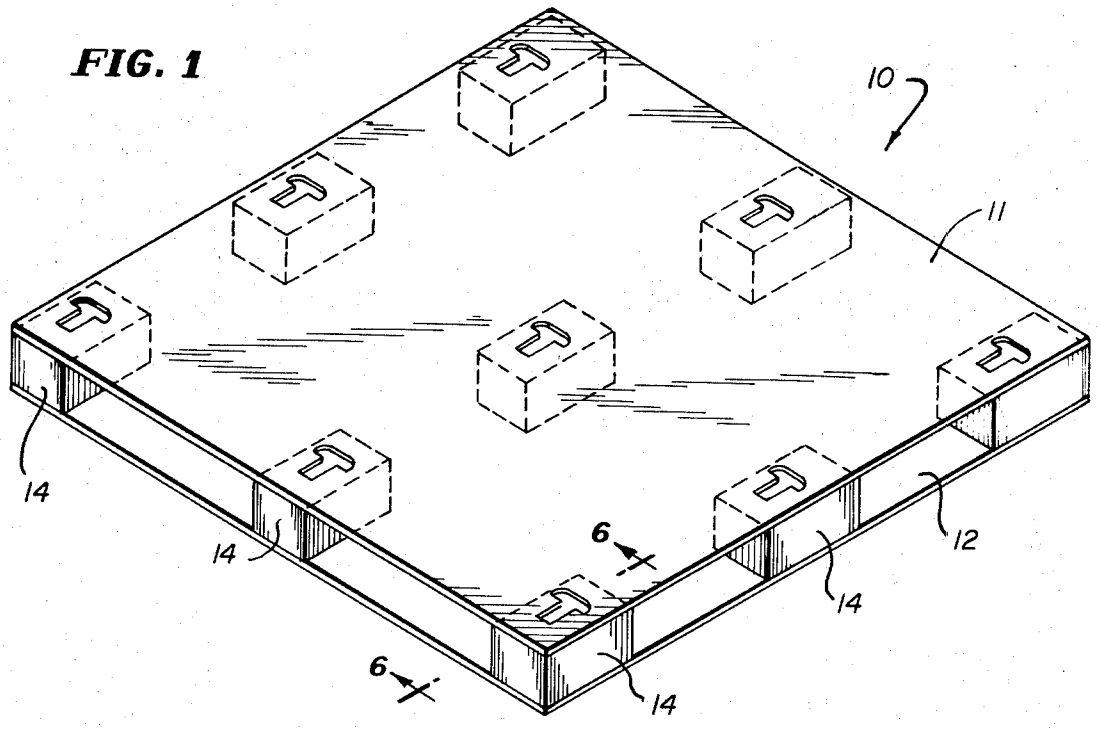


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SHEET 1 OF 2

FIG. 1



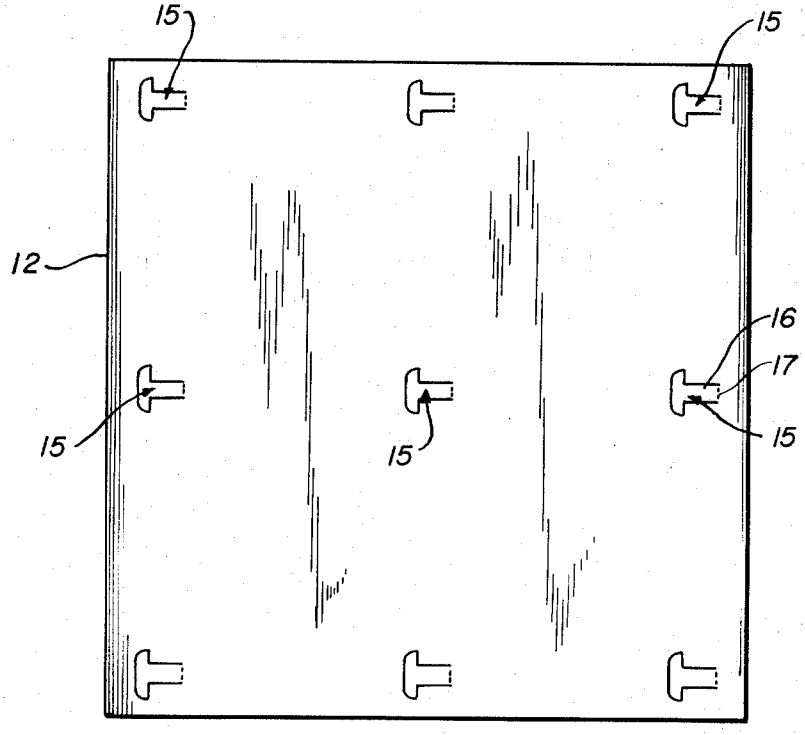


FIG. 2

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FIG. 4

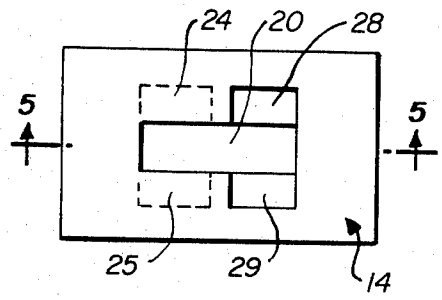


FIG. 5

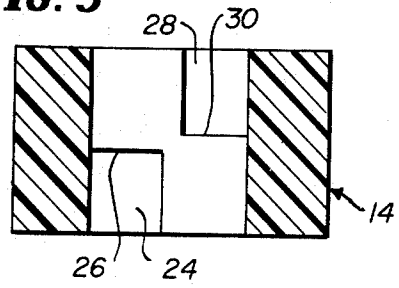
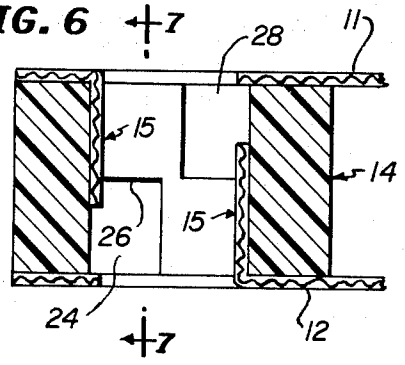


FIG. 6



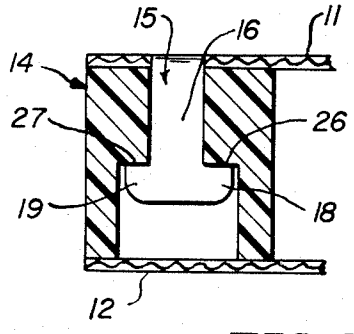
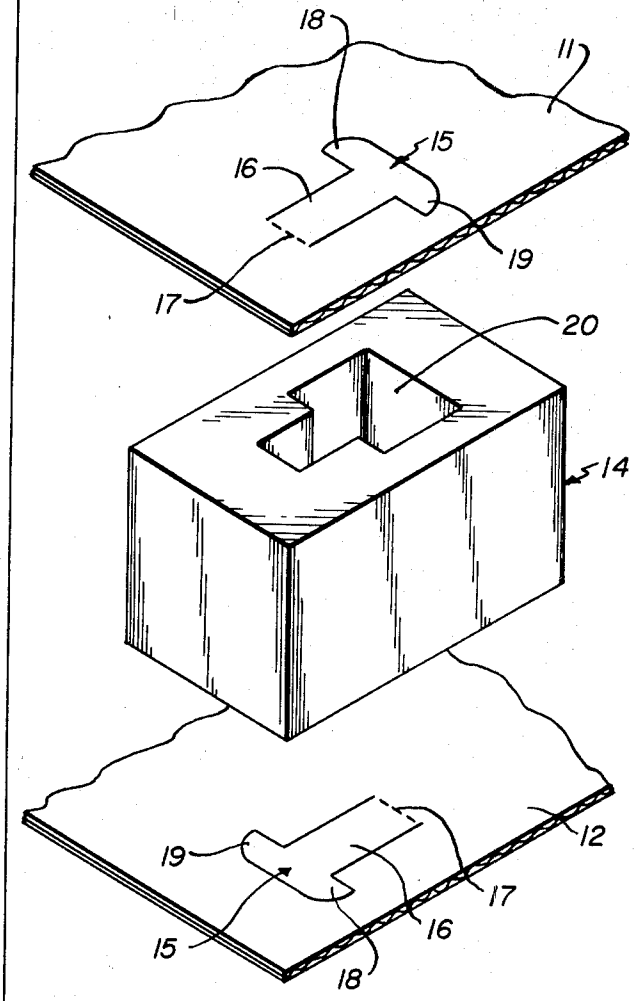


FIG. 7

FIG. 3



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PALLET

This invention relates, generally, to improved pallets, and more particularly, to improved pallets which can be stored or shipped knocked down, and thereafter, easily and quickly assembled in situ.

The advantages of a pallet which can be stored and/or shipped knocked down is apparent. For example, pallets generally are several inches thick and, if pre-assembled, considerable space is required simply to store them until they are used. Shipping costs also are generally much higher for a fewer number of pallets can be shipped pre-assembled than can be shipped knocked down, and in shipping cartons taking advantage of bulk volume and weight rates. In addition, the basic cost of the pallets are substantially increased if they are pre-assembled, in view of the labor involved.

Accordingly, it is an object of the present invention to provide improved pallets.

More particularly, it is an object to provide improved pallets which can be stored and/or shipped knocked down, and can be easily and quickly assembled for use.

Another object is to provide improved pallets of the above-described type which can be assembled without the need of additional tools or the like, or without the necessity of gluing or stapling them.

A still further object is to provide improved pallets of the above-described type which can be inexpensively fabricated.

Still another object is to provide improved pallets of the above-described type which are extremely flexible in the sense that they can be adapted to support objects of different weights merely by substituting therein blocks having a predetermined density and/or surface area.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The above objectives are accomplished with a pallet which includes a top and a bottom pallet surface of corrugated paperboard or the like which are fastened to a number of blocks of a plastic material such as polystyrene by foldable interlocking elements. These interlocking elements are precut or otherwise formed in the pallet surfaces, and are lockingly affixed to the blocks by extending them into a void in the blocks. Upon being extended into the voids, the interlocking elements lockingly engage with offset shoulder means therein, to automatically lock the pallet surfaces to the blocks.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIG. 1 is a perspective view of an assembled pallet;

FIG. 2 is a top plan view of one of the pallet surfaces;

FIG. 3 is an exploded perspective view generally illustrating the manner in which one of the blocks is secured between the top and bottom pallet surfaces;

FIG. 4 is a top plan view of one of the blocks;

FIG. 5 is a sectional view taken along lines 5—5 of FIG. 4;

FIG. 6 is a view similar to FIG. 5, generally illustrating the manner in which the interlocking tabs of the pallet surfaces are lockingly engaged within the void in the blocks; and

FIG. 7 is a sectional view taken along lines 7—7 of FIG. 6.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings, in FIG. 1 there is illustrated a pallet **10** exemplary of the invention including a top pallet surface **11** and a bottom pallet surface **12** which are supported in spaced apart relationship by means of a number (nine in the illustrated embodiment) of blocks **14** disposed in predetermined, spaced positions between them. The blocks **14** are secured in position by means of interlocking tabs **15** which are precut or otherwise formed in the top and bottom pallet surfaces **11** and **12** and are foldable to lockingly engage with offset shoulder means in the blocks, all as more fully described below.

More specifically, the pallet **10** includes a top and a bottom pallet surface **11** and **12** which are identical in construction so that they are interchangeable. Accordingly, only one die cutting apparatus or the like is necessary to form them. The top and bottom pallet surfaces **11** and **12** can be of any heavy weight paperboard material, and even plastic sheet material or other similar types of material which is capable of providing support for an object or objects placed on the pallet **10**. However, corrugated paperboard is a preferred material because of its weight and strength.

A number of interlocking tabs **15** corresponding in number to the blocks **14** which are to be used are precut in the top and bottom pallet surfaces **11** and **12**, in the position in which the blocks **14** are to be located. These interlocking tabs **15**, as seen in FIGS. **2**, **3** and **7**, are generally T-shaped having a stem portion **16** which is scored at **17** to form a fold line. At the opposite end of the stem portion **16** are laterally extended locking tabs **18** and **19**.

The blocks **14** preferably are of polystyrene, however, other types of plastics, rubber and even stacked pieces of corrugated paperboard or the like can be used to form the blocks. Polystyrene, however, is light in weight, can be provided in various different densities to provide various different degrees of support, is easily formed by, for example, molding it, and is inexpensive. Polystyrene, therefore, is an ideal and preferred material for the blocks **14**.

The blocks **14** can be of various different shapes, however a rectangular shape, as illustrated, is preferred. Each of the blocks **14** is formed with a void **20** (FIG. **5**) centrally thereof for receiving therein the interlocking tabs **15** formed in the top and bottom pallet surfaces **11** and **12**. These voids **20**, as can be best seen in FIGS. **3–7**, are generally in the form of two T-shaped cutouts which extend approximately one half the way through the block from each of its opposite sides, respectively, with one T-shaped cutout being reversed 180° from the other. When formed in this fashion, the top T-shaped cutout (FIGS. **3**, **4** and **5**) provides two spaced apart portions **24** and **25** having lower interior surfaces which form offset locking shoulders **26** and **27** (FIGS. **5** and **7**) beneath which the laterally extending locking tabs **18** and **19** of the inter-

locking tabs **15** can lockingly engage. The bottom T-shaped cutout likewise provides two spaced apart portions **28** and **29** which form offset locking shoulders (only one of which, locking shoulder **30**, can be seen in FIGS. **5** and **6**).

As indicated above, one of the advantages of the pallets **10** is that they can be packaged in a compact, knocked down, or dis-assembled configuration for storage and/or shipment, and thereafter assembled when needed. In this fashion, substantial savings are realized not only in terms of savings and storage space, but in terms of freight costs and assembly costs. The latter is a substantial factor for labor costs alone can increase the cost of the pallets by 10 to 15 percent.

When it is desired to assemble the pallet **10**, each of the individual blocks **14** is placed in position against one of the pallet surfaces **11** or **12**, and the interlocking tabs **15** folded along the score lines **17** to extend into the voids **20** in the blocks. When continually pressed into the void **20**, the laterally extending locking tabs **18** and **19** thereon will snap-fit into position and lockingly engage beneath the offset locking shoulders, such as the locking shoulders **26** and **27**, in the blocks. When all of the blocks have been affixed to one of the pallet surfaces, the other one of them is placed atop the blocks and the interlocking tabs **15** therein folded to lockingly engage in the voids **20**, in the above-described manner.

From the above description, it can be seen that the pallets **10** can be easily and quickly assembled using just the hands and fingers to manipulate the interlocking tabs **15**. No gluing or stapling is necessary but, of course, it could be used if desired.

If for some reason it is desired to again dis-assemble the pallets, the above-described procedure of assembly is simply reversed. In this case, it is necessary to extend a finger or other object into the void **20** to dis-engage the locking tabs **26** and **27** from beneath the offset locking shoulders in the block, to permit the interlocking tabs to be released.

While the pallet **10** has been described as comprising a top and a bottom pallet surface **11** and **12**, pallets having only a top pallet surface can be constructed. The blocks **14** then would merely seat on a flat surface such as the floor, or the bottom of a shipping carton. Also, in affixing the blocks **14** to the pallet surface or surfaces, the blocks preferably are spaced such that the tines of a forklift truck can be disposed beneath the pallet **10**. While these blocks **14** can assume various different shapes and can be of various different densities, the size and shape of these blocks, as well as the density of the polystyrene material should be correspondingly chosen to provide the necessary support for the object to be placed on the pallet. Knowing the weight of the object, these factors can be easily established.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and certain changes may be made in the above article. Accordingly, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Now that the invention has been described, what is claimed as new and desired to be secured by Letters Patent is:

1. A pallet which can be stored and/or shipped knocked down and easily and quickly assembled for use without the need of any tools comprising, at least a top pallet surface and a plurality of blocks affixed to said top pallet surface to support the latter and in predetermined spaced positions, said top pallet surface having interlocking tabs at least corresponding in number to the blocks affixed thereto pre-formed therein, each of said blocks having a void therein for receiving said interlocking tabs, said interlocking tabs being foldable into said voids by means of a finger operation, said interlocking tabs and said voids being correspondingly formed such that said interlocking tabs releasably lock within said voids beneath shoulders formed therein to affix said blocks to said top pallet surface.

2. The pallet of claim **1**, wherein said interlocking tabs pre-formed in said top and bottom pallet surfaces each is generally T-shaped having a stem portion which is hingedly affixed at one end to said pallet surface and has laterally extending locking tabs at the other end thereof, each of said blocks having a void centrally formed therein in a fashion such as to form two pairs of offset shoulders beneath which said laterally extending lock tabs on said interlocking means lockingly engage when said interlocking means are folded into said voids to lockingly engage said blocks to said top and bottom pallet surfaces, respectively.

3. The pallet of claim **2**, wherein said top and bottom pallet surfaces are of corrugated paperboard.

4. The pallet of claim **2**, wherein said blocks are of polystyrene.

5. The pallet of claim **2**, wherein said top and bottom pallet surfaces are of corrugated paperboard and said blocks are of polystyrene.

6. The pallet of claim **1**, further including a bottom pallet surface having interlocking tabs at least corresponding in number to the blocks affixed to said top pallet surface preformed therein, said interlocking tabs in said bottom pallet surface being foldable into said voids in said blocks by means of a finger operation, said interlocking tabs in said bottom pallet surface and said voids also being correspondingly formed such that said interlocking tabs releasably lock with said voids beneath shoulders formed therein to affix said bottom pallet surfaces to said blocks.

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