

Oct. 11, 1966

J. E. TALBOT

3,277,849

PACKAGE SUPPORTING UNITS

Filed Feb. 15, 1965

2 Sheets-Sheet 1

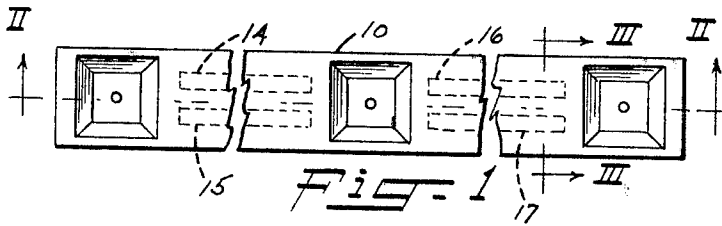
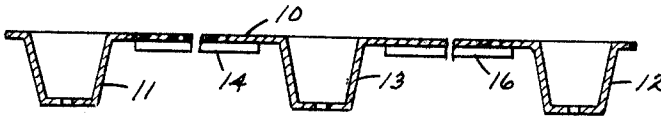
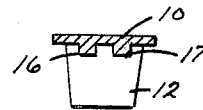
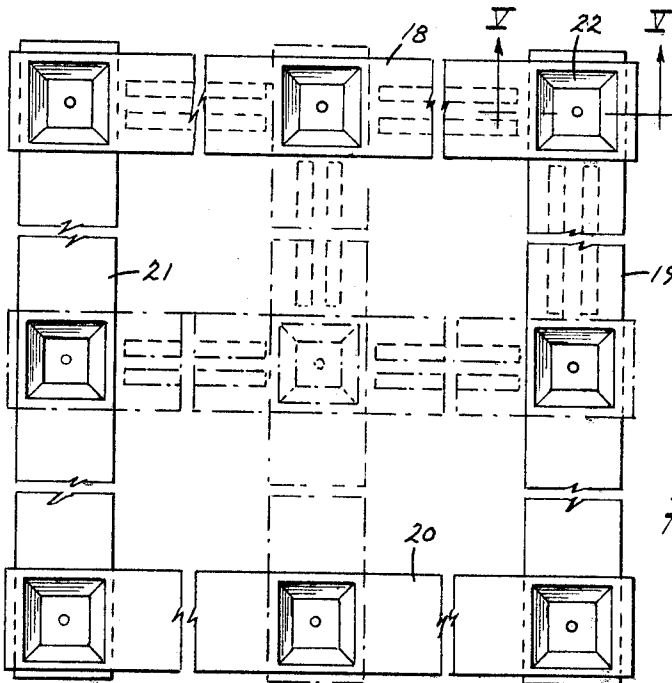
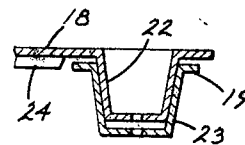
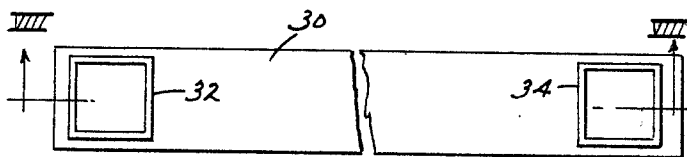
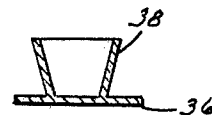
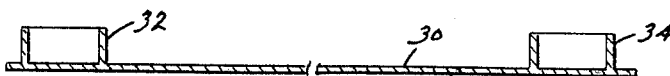


Fig. 8

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2 Sheets-Sheet 2

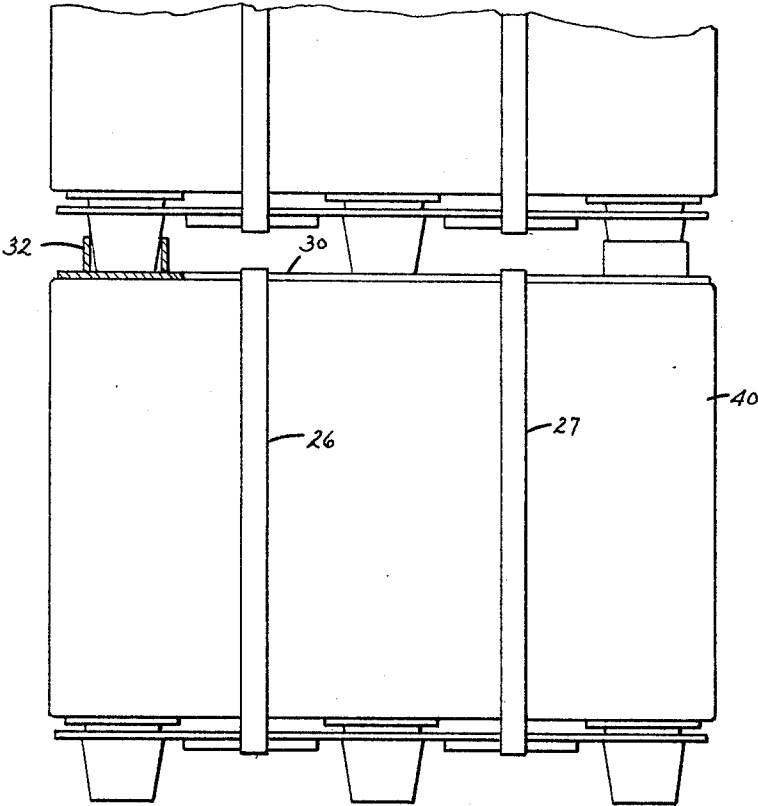


Fig. 10

1

3,277,849

PACKAGE SUPPORTING UNITS

James E. Talbot, Wynnewood, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Feb. 15, 1965, Ser. No. 432,759
5 Claims. (Cl. 108—58)

This invention relates to light weight units for supporting packages during transportation and while the packages are stored in a warehouse or the like. More particularly the invention relates to simple units which may be readily assembled to form a load supporting pallet and to a pallet formed from such units and also to units which interfit to prevent slipping when one palletized load is stacked on top of another.

A convenient way of transporting bulky packages and groups of relatively small packages is by means of a fork lift truck. In order to permit the tines of the fork to pass beneath the load preparatory to lifting the same, the package or group of packages forming the load is mounted upon a pallet, which is a flat platform supported on short legs and which serves to hold the load spaced above the floor. The load is frequently, in fact generally, strapped or otherwise secured to the pallet whereby the pallet travels with the load from the shipper to the consignee, at which point (and frequently during or before shipment) several loads and their pallets are stacked one on top of another. Usually, pallets are made of wood and are relatively costly and weigh from about twenty pounds upwards. Due to the cost of the pallet it is usual to return the same to the shipper after it has served its purpose and because of both the weight and bulk this return shipment is itself a noticeable item of expense. Of course the weight of the wooden pallet also adds to the original shipping charges.

It is an object of the present invention to provide a load carrying pallet formed of inexpensive, readily separable units which units are so constructed as to nest together into a compact package which can be shipped at a minimum of expense.

A further object of the invention is to provide a pallet which is so light in weight that its presence does not noticeably add to the cost of shipping the articles carried thereupon.

A still further object of the invention is to provide a structural unit for use in making a load supporting pallet which unit is so arranged that a plurality of the same will nest together into a compact package.

Another object of the invention is to provide a package supporting unit which will facilitate the stacking of palletized packages.

Other and further objects of the invention will become apparent as the description of certain preferred embodiments thereof proceeds.

Referring now to the drawing:

FIG. 1 is a plan view of one form of the pallet forming unit;

FIG. 2 is a sectional view taken along the line II—II of FIG. 1;

FIG. 3 is a sectional view taken along the line III—III of FIG. 1;

FIG. 4 is a sectional view showing a modified form of construction;

FIG. 5 is a sectional view taken along the line V—V of FIG. 6;

FIG. 6 is a plan view of a pallet formed of interfitted units of the type shown in FIG. 1;

FIG. 7 is a plan view of a package supporting unit for facilitating the stacking of loads supported on pallets of the type shown in FIG. 6;

FIG. 8 is a sectional view taken along the line VIII—VIII of FIG. 7;

2

FIG. 9 is a sectional view of a modified form of unit of the type shown in FIG. 7; and

FIG. 10 is a side elevational view showing stacked palletized loads.

The structural units for forming the pallet are preferably molded from a plastic material such as polypropylene, nylon or other long-chain linear polymer capable of being molded into a tough, resilient structure. The unit shown in FIGS. 1, 2 and 3 comprises an elongated relatively narrow thin strip 10 having projections 11 and 12 formed integrally therewith and extending outwardly from one face thereof near each end of the strip. Depending upon the size of the pallet to be formed and the weight of the load to be carried by the pallet other projections are provided intermediate the end projections 11 and 12, one intermediate projection 13 being shown in the drawing. If there is only one intermediate projection it is located mid-way between the end projections and when more than one intermediate projection is provided the intermediate ones are evenly spaced from one another and from the end projections, the reason for this arrangement presently to become apparent. The various projections are hollow, taper inwardly away from strip 10 and have flat sides. A preferred form for the projections is that of a truncated pyramid having a square base. Since strip 10 may be quite thin and therefore fairly flexible it is desirable to provide stiffening means between the projections and in that form of the unit shown in FIGS. 1, 2 and 3 the stiffening means is in the form of a pair of longitudinally extending ribs 14 and 15 formed integrally with the strip and located on the same face of the strip as the various projections, ribs 14 and 15 extending between projections 11 and 13 but stopping short of the immediate vicinity of the projections, for reasons presently to be explained. Between projections 12 and 13 another pair of ribs 16 and 17 are provided in a manner similar to ribs 14 and 15.

The forms of unit shown in FIG. 4 is similar to that previously described except that the strip is stiffened by corrugating the same longitudinally and here again the corrugations are omitted in the immediate vicinity of the projections. In FIG. 4 the corrugated strip is indicated at 10' and one of the projections at 12'. An advantage of this corrugated arrangement over that of the ribbed construction is that it requires somewhat less material.

Because of the tapered configuration of the projections the units above described may be compactly nested together with the projections of one unit extending into the hollow interior of the projections of an adjacent unit. Thus a considerable number of such units may be nested together into a relatively small package convenient for shipping. The bottoms of the projections are provided with an opening as shown which prevents air from being trapped within the projections. This not only permits a very snug nesting but facilitates the separation of the units from one another.

In FIG. 6, in full lines, is shown a pallet formed of four units 18, 19, 20 and 21 similar to the units shown in FIGS. 1, 2 and 3. As shown in FIG. 5, end projection 22 of unit 18 is nested within an end projection 23 of the unit 19 and since the two projections are in the form of truncated square based pyramids, the two units are locked against angular displacement. In FIG. 5 one of the stiffening ribs of unit 18 is indicated at 24 and since this rib, as previously mentioned, does not extend into the immediate vicinity of the projection 22 it does not interfere with the complete nesting of projection 22 within projection 23 of unit 19. It will be apparent that the other three corners of the pallet of FIG. 6 are arranged similarly to the one corner shown in FIG. 5. Thus, with a pallet as shown in full lines the two end projections of each unit are nested with an end projection of two other

units and the various units are interlocked against relative movement.

If a higher strength pallet is required than would be provided by the four units, additional cross units may be provided as shown in ghost outline in FIG. 6, the end projections of the ghosted units nested with an intermediate projection of the side units and intermediate projections of the ghosted units nesting with one another. Most pallet forming units will have three projections and in those cases of course the ghosted units have their central projections nested together. A pallet for carrying relatively light loads may be formed by merely using the two ghosted units shown in FIG. 6, the crossed arrangement being maintained by the flat sided nested projections.

In loading the pallet, packages may be placed directly across the top of the units forming the pallet or if desired a sheet of double-faced corrugated paper board may be laid on the pallet to provide a solid floor so that the packages will not fall into the spaces between the units. The need for a solid floor is of course dictated by the size of the packages. After positioning the desired number of packages on the pallet, straps such as shown at 26 and 27 in FIG. 10 are encircled about the load and beneath the strip portions of the pallet forming units whereby the units are held securely to the load. The projections of the units of course serve as legs for the pallet to hold the load carrying surface thereof above the level of the floor so that the tines of the fork lift truck may be inserted beneath the pallet between the projections or legs.

FIGS. 6 and 7 show a form of unit which may be secured to the top of the pallet mounted load to facilitate the stacking of a second palletized load thereupon. These units comprise an elongated relatively narrow thin strip 30 provided near each end with integrally formed hollow support members 32 and 34. In FIGS. 7 and 8, the support members 32 and 34 are square and have non-tapering sides whereby they may receive the truncated square projections of pallet forming units of the type shown in FIGS. 1 through 4. Ordinarily it is not necessary to provide the strips 30 with an intermediate support member. FIG. 9 shows a modified form of support member comprising an elongated relatively narrow thin strip 36 having support members 38 formed integrally therewith. Members 38 are in the form of open-ended truncated square pyramids which enable the truncated square projections of the pallet forming units to nest snugly there-within. This form of structure provides somewhat more positive locking action than does the form shown in FIGS. 7 and 8.

In FIG. 10 one of the strips 30 is shown secured to the top of a palletized load 40 and the end projections or legs of one of the units of the upper pallet are shown extending into the members 32 and 34. In preparing the load for stacking at least two of the strips 30 are secured to the top of the load, said strips extending parallel to one another and spaced apart the distance between the

end projections of the units forming the pallet whereby one palletized load may be stacked securely on top of another without danger of slipping.

Having thus described certain preferred embodiments of the invention, what is claimed is:

1. A structural unit for use in making a load-supporting pallet, said unit comprising an elongated relatively narrow thin strip having a plurality of widely spaced, flat sided hollow projections arranged in a single straight line and extending from one face thereof, said projections being formed integrally with said strip, and said projections being open-ended in the plane of said strip and tapering inwardly in the direction away from the plane of said strip, whereby a plurality of such units may be nested together with the projections of one unit extending into the hollow interiors of the projections of an adjacent unit, said strip having a stiffening means between said projections, and said strip being free of stiffening means in the vicinity of said projections.

2. The structural unit set forth in claim 1 wherein said stiffening means comprises at least one rib formed integrally with said strip and extending longitudinally of the strip on the same face thereof as said projections.

3. The structural unit set forth in claim 1 wherein said stiffening means comprises longitudinally extending corrugations formed in said strip.

4. A load supporting pallet comprising a plurality of individual structural units as defined in claim 1, a contacting pair of said units being angularly disposed with respect to one another, and one of the flat-sided hollow projections of one of the units of said pair being nested within one of the projections of the other unit of said pair whereby said pair of units are locked against relative angular movement.

5. A load supporting pallet comprising at least four individual units as defined in claim 1, and two projections of each unit being nested with a projection of two other units.

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FRANK B. SHERRY, *Primary Examiner*.

G. O. FINCH, *Assistant Examiner*.