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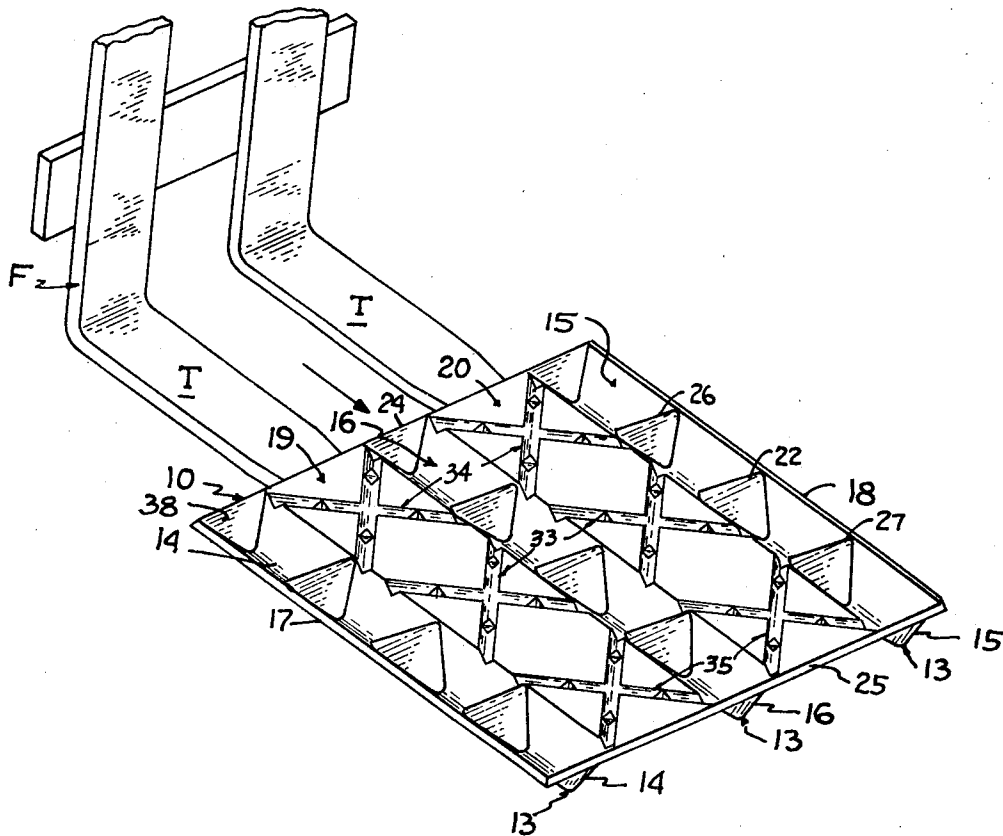
[54] **PALLET**  
5 Claims, 14 Drawing Figs.

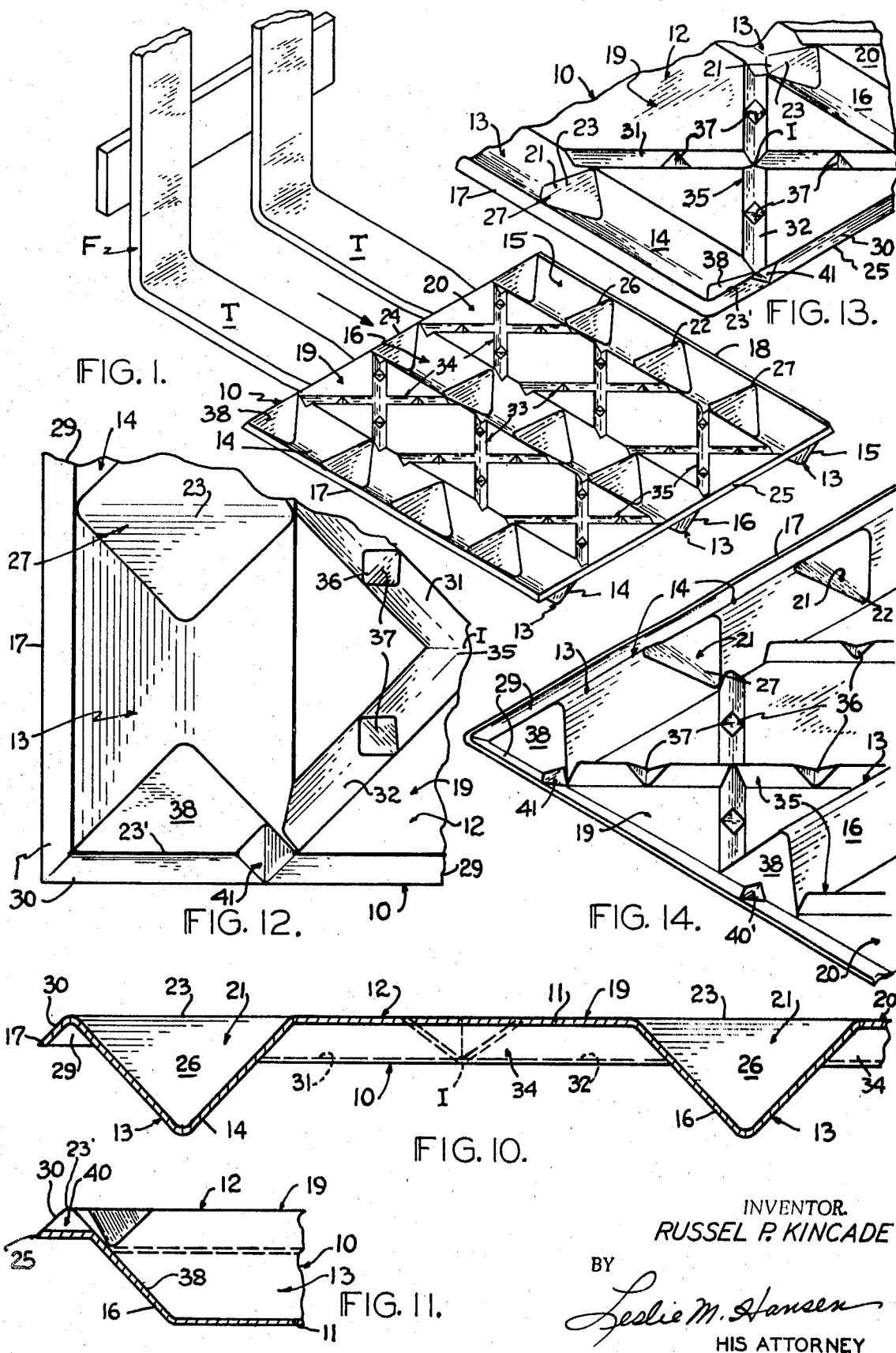
[52] U.S. Cl. .... **108/53**  
[51] Int. Cl. .... **B65d 19/18**  
[50] Field of Search .... **108/51—58**

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**UNITED STATES PATENTS**

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**ABSTRACT:** Nestable pallet forms in a single sheet of thin gauged bendable material having a flat top surface from which V-shaped reinforcing depressions extend downwardly to provide parallel spaced legs between spaced web portions beneath which to receive the tines of a fork lift; and a plurality of inverted V-shaped zones aligned transversely of the legs in combination with trusslike crossed V-grooves in the web portions for rigidifying such pallet structure.





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FIG. 2.

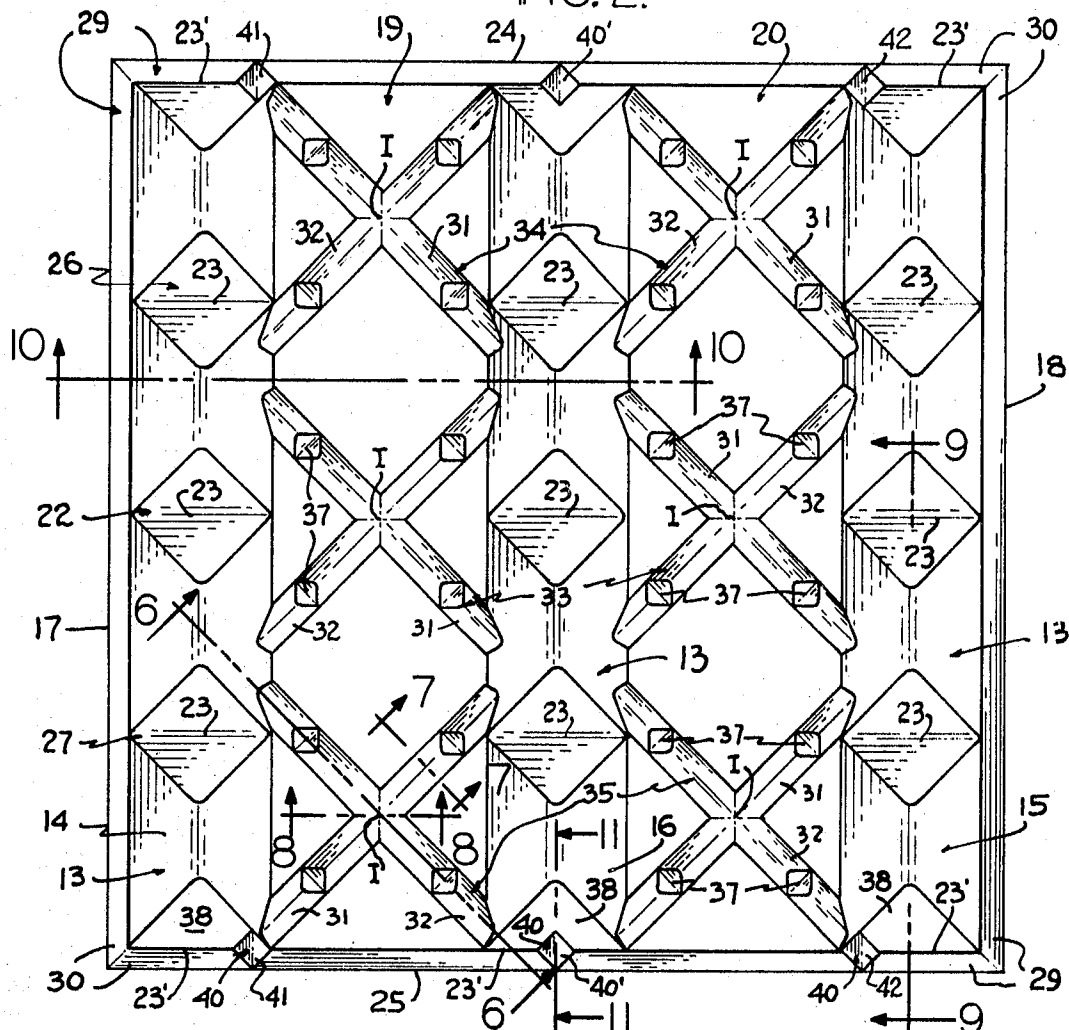


FIG. 3.

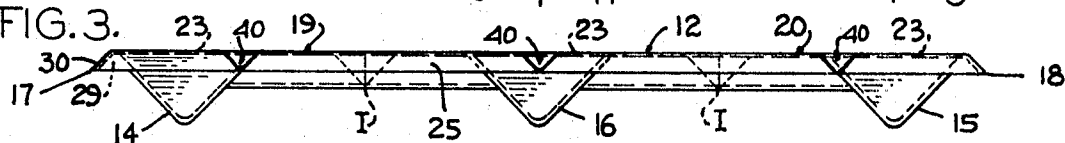


FIG. 6.

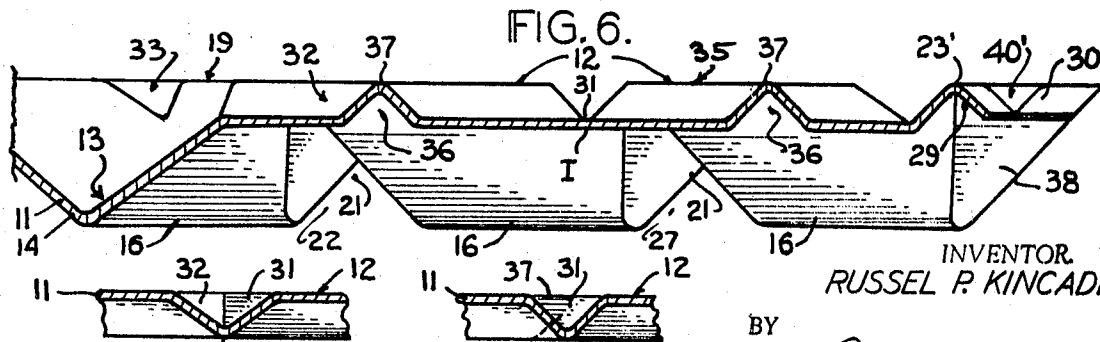


FIG. 8.

FIG. 7.

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FIG. 4.

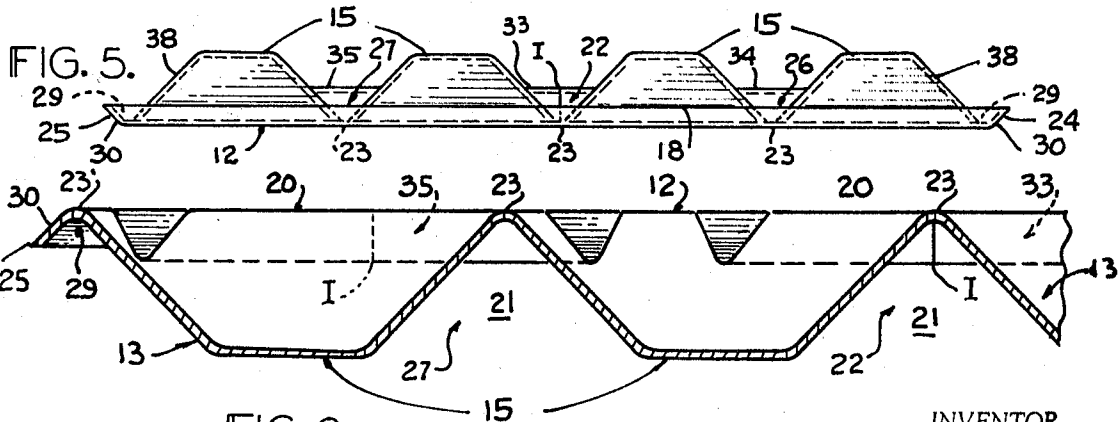
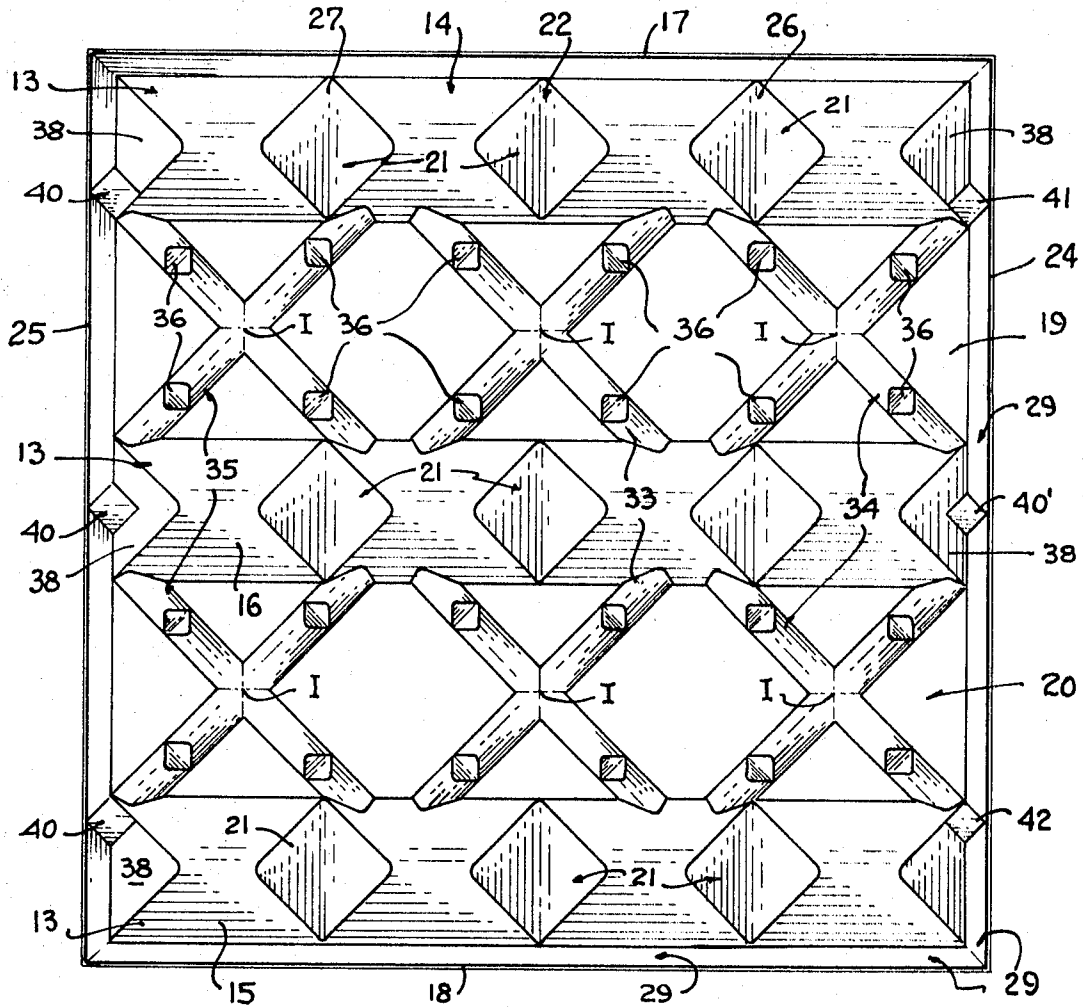


FIG. 9.

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## PALLET

## BACKGROUND

This invention relates to pallets and more particularly to an article supporting platform formed of a single sheet of material having reinforcing shapes formed therein.

Various types and styles of pallets have been devised utilizing a minimum of material so drawn and shaped as to provide a flat support for cartons, cans and like articles during movement or storage in stacked relation. Among the known U.S. Patents in the art are: Stoner No. 2,463,214, Mar. 1, 1949; Cushman No. 2,615,661, Oct. 28, 1952; Johnson No. 3,120,825, Feb. 11, 1964; DeLuca No. 3,140,672, July 14, 1964; and Sept. et al. No. 3,228,358, Jan. 11, 1966.

## THE PRESENT INVENTION

The present invention has as an object the provision of a substantially flat top supporting surface provided with three deep V-shaped legs in spaced, parallel relation in one direction cooperating with intermediate V-shaped depressions in the legs as well as trusslike crossed V-grooves of lesser depth in the webs between the deep V-grooves.

The pallet of the present invention has as its principle object to provide in a single sheet of bendable or formable material with utilitarian shapes formed therein in such a manner as to strengthen and/or rigidify the material. The invention contemplates the formation of a plurality of V shapes in the material in such a manner as to leave a flat top supporting surface from which V-shaped depressions extend downwardly in an unique and utilitarian pattern. In this connection three sets of V shapes are provided, each to a different depth to achieve the utilitarian purpose, yet obtain the basic reinforcement necessary for carrying a standard load of articles.

In addition to the foregoing intermediate inversed V shapes dispersed along the lengths of the major sets of V shapes serve to strengthen the latter. The combination further includes an inverted V-shaped bead about the perimeter of the single sheet of material providing a beveled edge about the flat top surface. The pallet thus formed according to the present invention lends itself to nesting for purposes of compact storage as well as the joint use of two or more such pallets for supporting greater loads as necessity may require.

These and other objects of the present invention will become apparent from a reading of the following description in the light of the accompanying three sheets of drawing in which:

FIG. 1 is a perspective view of a pallet constructed in accordance with the present invention about to receive the tines of a fork lift, shown in part;

FIG. 2 a plan view of the pallet of FIG. 1 at slightly larger scale;

FIG. 3 is an end view of FIG. 2 as seen from the lower end thereof;

FIG. 4 is a bottom plan view of the pallet of FIGS. 2 and 3 and turned 90° with respect thereto;

FIG. 5 is a side elevational view of FIG. 4 as seen from the lower side thereof;

FIG. 6 is a fragmentary section through FIG. 2 taken along line 6-6 therein and at double the scale thereof;

FIG. 7 is a similar section through FIG. 2 taken along line 7-7 therein;

FIG. 8 is another fragmentary section of FIG. 2 taken along line 8-8 thereof;

FIG. 9 is still another partial section through FIG. 2 taken along line 9-9 therein;

FIG. 10 is yet another partial section through FIG. 2 taken along line 10-10 thereof;

FIG. 11 is a fragmentary detail section through another portion of FIG. 2 along line 11-11 therein;

FIG. 12 is a fragmentary plan view of one corner of FIG. 2 and at larger scale with respect thereto;

FIG. 13 is a perspective view of the fragmentary corner shown in FIG. 12; and

FIG. 14 is a perspective view of the same corner as seen from below as in the bottom plan in FIG. 4.

Referring to FIGS. 1, 2 and 4 a pallet 10 is shown in the form of a single unitary square membrane for supporting cartons, cans and the like articles in various patterns of stacking for storage as a unit and for joint movement during transit.

The pallet 10 is formed of a single sheet of bendable or formable material 11 such as sheet metal, aluminum or plastic of substantially uniform thickness or gauge throughout. This single sheet of material 11 has its major portion disposed to provide a flat top surface 12 as a platform for receiving and supporting articles at a uniform level. From this flat top surface 12 three sets of V-shaped depressions extend downwardly to different depths and at various locations relative to the load supporting platform or pallet 10. Each of these V-shaped depressions is preferably a right angled V in which the sides thereof are disposed at 45° relative to the top surface 12.

The deepest set of V-shaped depressions comprises a plurality of legs 13 for disposing the flat top surface 12 in an elevated position above a floor or surface upon which the pallets might normally rest sufficiently to receive the tines T of a forklift F in the conventional manner as illustrated in FIG. 1. In accordance with the present invention two legs 14 and 15 are formed in the material 11 adjacent each of two opposite sides 17 and 18 of the pallet and one leg 16 at an intermediate position parallel to and between the outside legs. This leaves a weblike portion 19 and 20 at the flat top surface 12 between the outer and intermediate legs beneath which portions 19-20 the tines of a forklift can be received.

Each of the deepest V shapes or legs 13 thus provides rigidifying reinforcement to the single sheet of material 11 in one direction. To reinforce the material 11 in a direction transverse to the V-shaped legs 13 each of the latter is provided with inverted V-shaped zones 21 at spaced intervals between its ends. One medial set 22 of these inverted V-shaped zones 21 is disposed with their apexes 23 aligned midway the two ends 24 and 25 of the pallet 10 and in the plane of the flat top surface 12 thereof. A second and third set 26 and 27 of these inverted V-shaped zones 21 is disposed in the same manner across the pallet between the medial set 22 and the respective end 24 and 25 of the pallet. The ridges formed by each of these three sets of inverted V-shaped zones 21 combined with the weblike portions 19 and 20 at the level of the flat top surface 12 thus provide rigidifying reinforcement to the single sheet of material 11 transversely of the legs 13.

In combination with the foregoing the weblike portions 19 and 20 are each rigidified by a plurality of trusslike V-shaped grooves of substantially lesser depth than the legs 13 and their reinforcing inverted V-shaped zones 21.

Both sides 17-18 as well as the ends 24 and 25 of the pallet 10 have a downturned inverted V shape 29 providing a beveled edge 30 around the entire perimeter of the pallet extending diagonally downward from the flat top surface 12 thereof at the same angle as the V-shaped legs and grooves already mentioned.

The trusslike V-shaped grooves are preferably in the form of a cross in which two such grooves 31 and 32 extend diagonally across the web portion 19-20 at substantially right angles to each other. The medial sets 33 of these trusslike grooves 30 have their point of intersection I disposed in alignment with the ridge line established by the apexes of the medial set 22 of inverted V-shaped zones 21 in the legs. A similar set of trusslike grooves 34 and 35 is likewise formed on the web portions 19 and 20 but adjacent the respective end 24 or 25 of the pallet as the case may be. These end sets of trusslike grooves 34 and 35 have their outer ends disposed contiguous to the beveled edge 30 in the end 24 and 25, respectively, the opposite ends of such end sets of grooves 34 and 35 opening up into the V-shaped legs 13 beyond the outer sets of inverted V-shaped zones 26 and 27, respectively, therein. In this manner the weblike portions 19 and 20 are rigidified by the trusslike crossed grooves which extend diagonally between the V-shaped legs 13 of the pallet.

The diagonal grooves 31 and 32 of each set 33, 34 and 35 thereof are further strengthened by minor inverted V-shaped zones 36 of a depth comparable to the grooves 31 and 32. These minor inverted V-shaped zones 36 are preferably disposed with their apexes 37 traversing the grooves 31 and 32 midway their longest side between their point of intersection I and the V-shaped leg 13 they extend to. The apexes 37 of each minor V-shaped zones 36 is disposed at the plane of the flat top surface 12 and thus prevent any crosswise buckling of the grooves 31 and 32.

As best seen in FIGS. 2, 4 and the ends 38 of each of the major V-shaped leg depressions 13 consist of a half side of an inverted V-shaped zone 21 and an apex 23' is formed with the beveled edge 30. In conjunction with these leg ends 38 inverted V-shaped bead zones 40 are formed between the same and the adjacent beveled edge 30 to strengthen the latter against undue buckling. In the present disclosure one such V-shaped bead zone 40' is disposed in axial alignment with the intermediate V-shaped leg 16 and one at the end 38 of each of the two side legs 14 and 15 as indicated at 41 and 42, respectively. These latter mentioned inverted V-shaped bead zones 41 and 42 preferably disposed closest to the inner sidewall of the respective V-shaped legs 14 and 15, i.e. adjacent the weblike portion 19 or 20 bordering the same. Similar inverted V-shaped bead zones may be provided in the beveled edge 30 at each side 17 and 18 of the pallet 10 to prevent the latter from buckling inwardly if desired.

While I have described my new pallet structure in specific detail it will be appreciated by those skilled in the art that variations thereof may be made without departing from the spirit of my invention therein. What I claim as new and desire to protect by Letters Patent is:

I claim:

1. In a pallet formed of a single sheet of material of substantially uniform thickness throughout comprising in combination:

- a. a flat top surface for supporting articles at a uniform level;
- b. a V-shaped leg extending downwardly adjacent each of

two opposite sides of said top surface;

c. an intermediate V-shaped leg extending downwardly of said top surface midway between and parallel to said side legs and providing spaces therebetween for receiving the tines of a conventional fork lift;

d. each of said side and intermediate V-shaped legs having a medial set of said inverted V-shaped zones disposed with their apexes in the plane of said flat top surface and aligned midway opposite ends thereof transverse to the said two opposite sides of said pallet and a set of said aligned inverted V-shaped zones disposed with their apexes in the plane of said flat top surface and extending substantially midway between and parallel to said medial set of inverted V-shaped zones and a respective opposite end of said pallet;

e. a plurality of trusslike crossed V-shaped grooves in said flat top surface between each of said legs and of lesser depth than the latter; and

f. a down turned inverted V-shaped bead edge at the perimeter of said flat top surface providing a beveled edge substantially the depth of said trusslike crossed V-shaped grooves in said flat top surface.

2. The pallet in accordance with that of claim 1 including inverted V-shaped zones each of a depth comparable to and within and midway the ends of each of said trusslike crossed V-shaped grooves.

3. The pallet in accordance with that of claim 2 including inverted V-shaped bead zones in the downturned inverted V-shaped edges at the perimeter of said flat top surface adjacent the ends of each of said V-shaped legs.

4. The pallet in accordance with that of claim 1 including a half inverted V-shaped zone at each end of said V-shaped legs and forming an apex with the adjacent downturned head edge at the beveled edge of said pallet.

5. The pallet in accordance with that of claim 4 including an inverted V-shaped bead zone between each of said half inverted V-shaped zones at the ends of said legs and the adjacent beveled edge of said pallet.