

- [54] **PALLET ASSEMBLY**
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- [73] Assignee: **Owens-Illinois, Inc.**, Toledo, Ohio
- [22] Filed: **Sept. 21, 1970**
- [21] Appl. No.: **74,006**

2,544,657	3/1951	Cushman.....	108/53
3,405,666	10/1968	Miller.....	108/58
3,467,032	9/1969	Rowlands et al. ....	108/51
3,481,285	12/1969	Yellin.....	108/58

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- [52] U.S. Cl.....**108/51, 108/58**
- [51] Int. Cl. ....**B65d 19/00**
- [58] Field of Search.....**108/51, 58**

[57] **ABSTRACT**

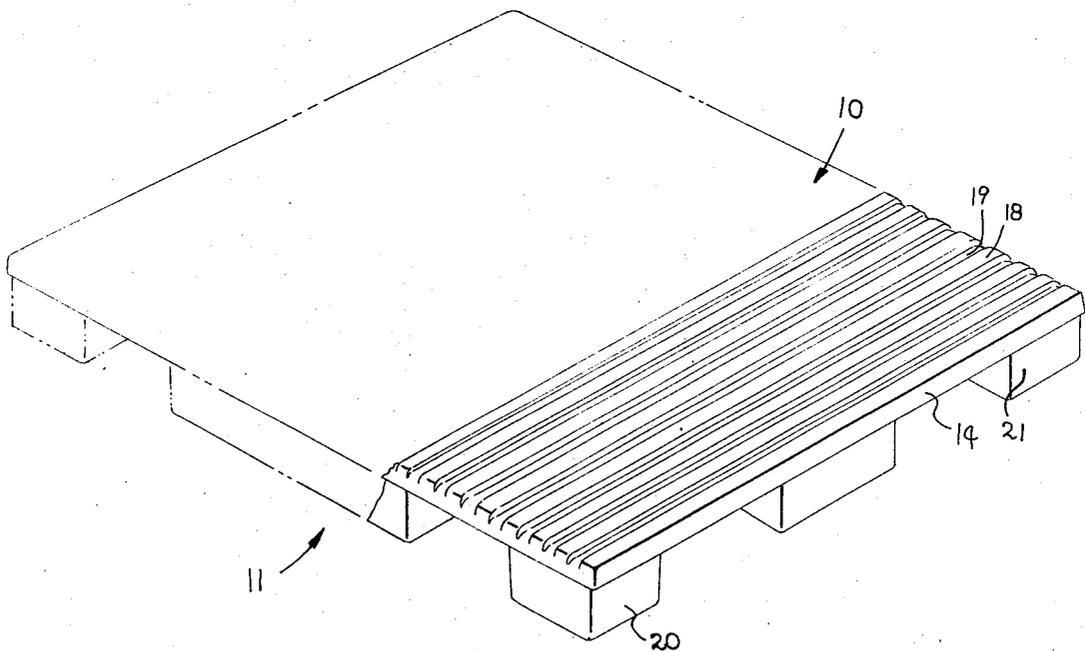
A pallet assembly having an outer shell formed from sheet material. The outer shell provides a water-tight, moisture-resistant, and smooth outer surface. A stiffening assembly is positioned within the shell and reinforces the pallet assembly. The outer shell is formed of sheet material, preferably a thermally formable plastic. Supporting pads are formed in the bottom shell. The supporting pads are reinforced with a foamed hardened plastic.

[56] **References Cited**

**UNITED STATES PATENTS**

3,330,228	7/1967	Donnelly.....	108/51
3,511,191	5/1970	Berry, Jr. et al.....	108/58
3,404,642	10/1968	Belcher et al. ....	108/51

**1 Claim, 3 Drawing Figures**



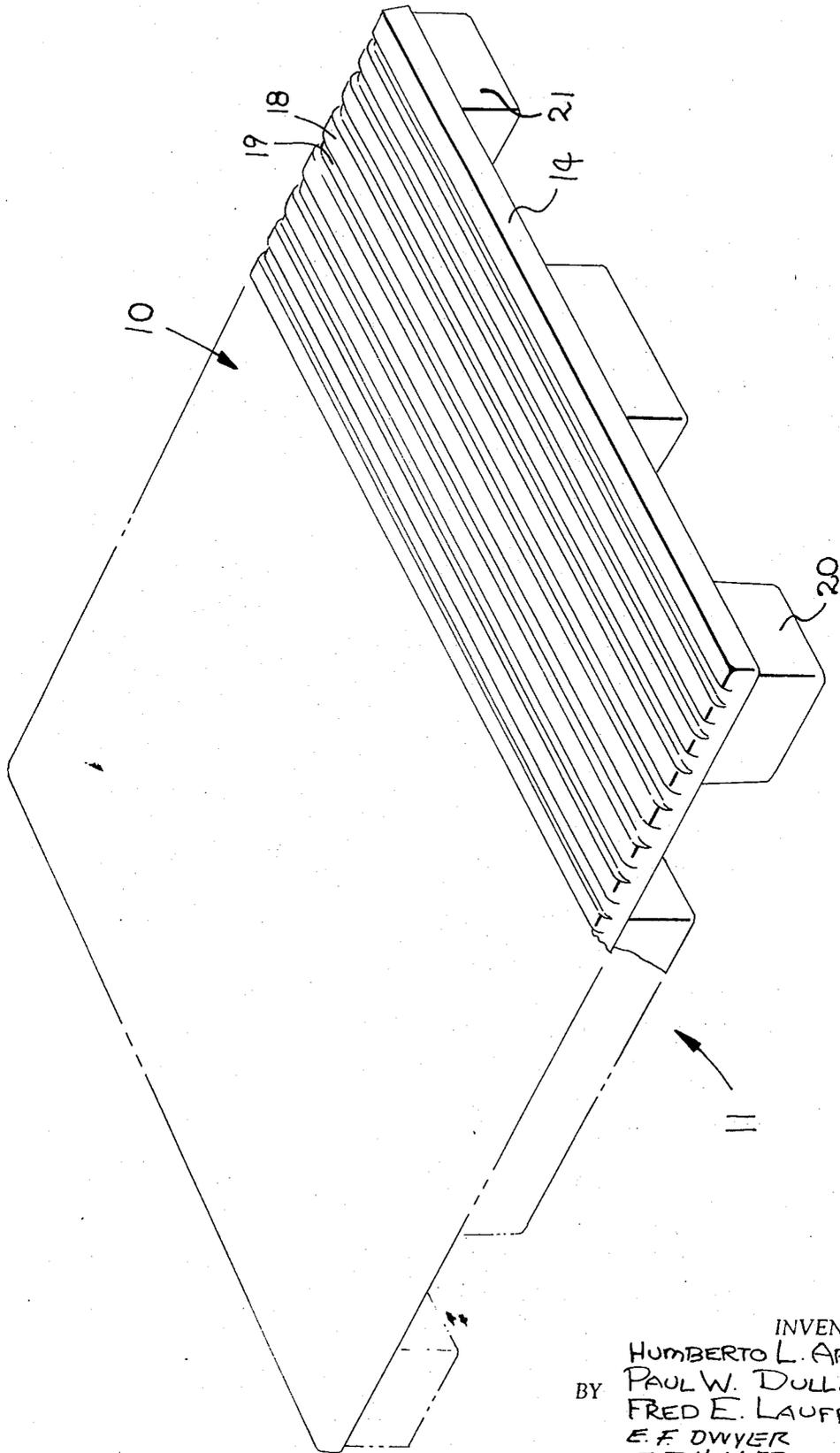


FIG. 1

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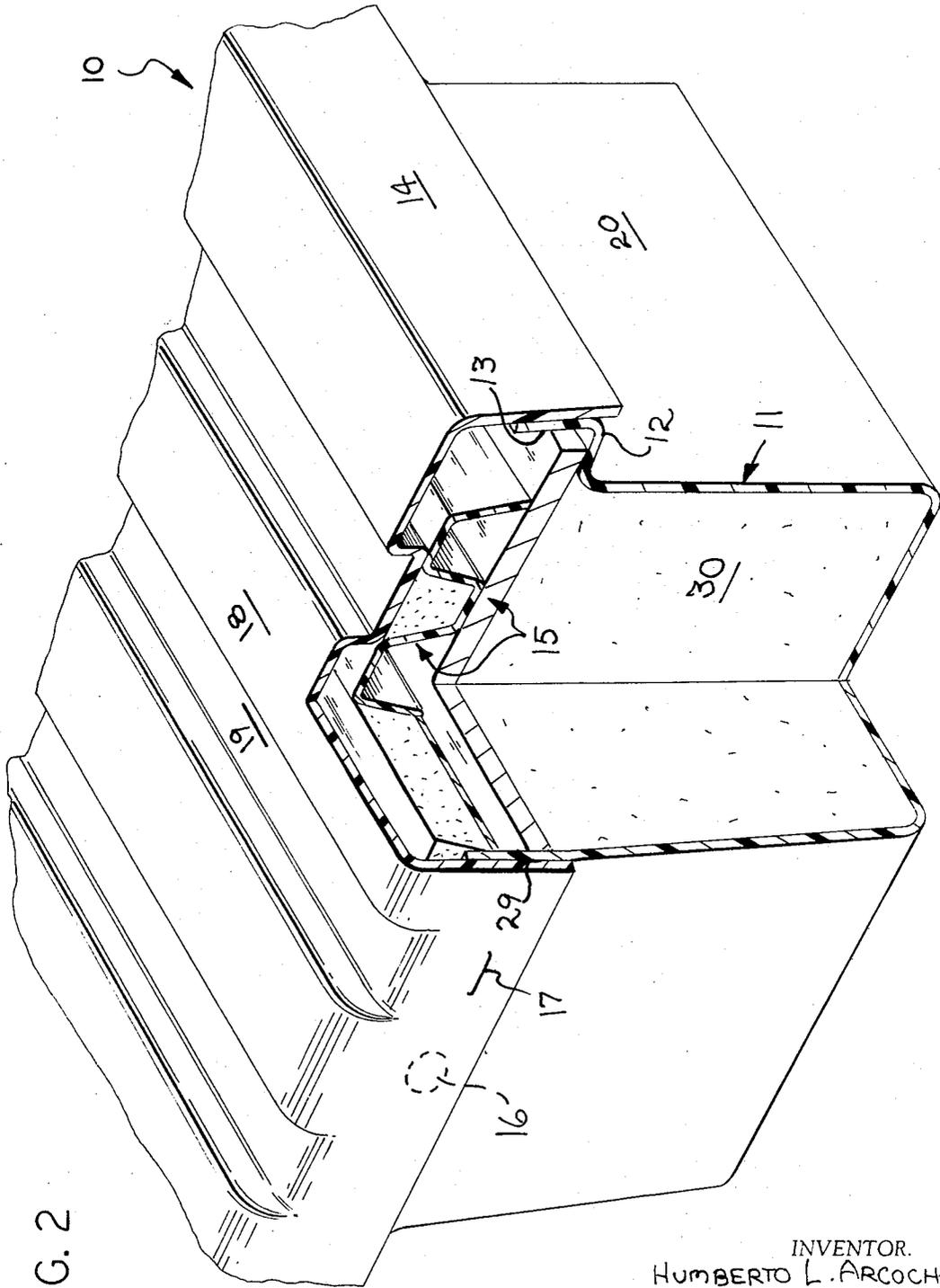


FIG. 2

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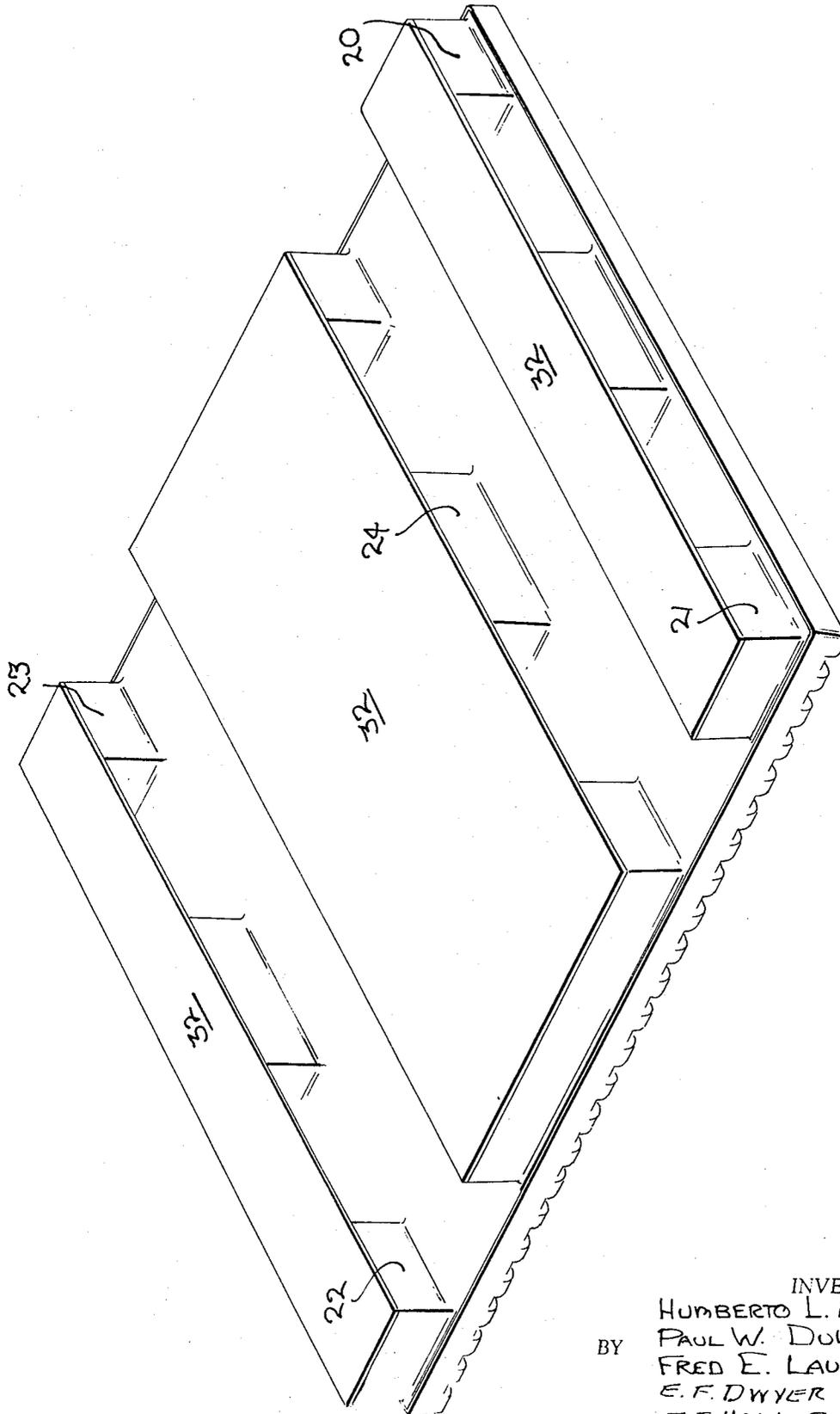


FIG. 3

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## PALLET ASSEMBLY

## BACKGROUND OF THE INVENTION

This invention is a pallet assembly for supporting and transporting heavy weights. The outer shell, made of a plastic material, provides a water-tight, easily cleaned surface. A stiffening assembly is enclosed within the shell to provide a reinforcement for the pallet, capable of supporting extremely heavy weight in excess of 2,500 pounds in a rack load position and 12,000 pounds in conventional compression position.

## DESCRIPTION OF THE PRIOR ART

Many designs of plastic pallets are known in the prior art; however, all designs had a limited weight-bearing capacity in a rack load condition. This pallet design provides resistance to bending when a load is lifted from the floor and, as the edges of the prior art pallets tend to follow the bending moment diagram for a two-point loading system, the loads would fall off.

This invention provides a reinforcing assembly having great strength as compared to the prior art pallets in both rack storage and pick up positions. The pallet assembly has a water-tight surface which permits cleaning and requires little maintenance. Examples of prior art pallets are shown in U.S. Pat. No. 3,467,032 and U.S. Pat. No. 3,404,642.

## SUMMARY OF THE INVENTION

This invention is a plastic pallet presenting a moisture-free surface and having a reinforcing assembly which provides a pallet assembly having resistance to bending and capable of carrying and supporting heavy loads.

## BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the objects and advantages of this invention will be apparent from the description and the accompanying drawing in which

FIG. 1 is a perspective view of the pallet assembly of this invention;

FIG. 2 is a partial cutaway section view of a portion of the pallet of FIG. 1;

FIG. 3 is a perspective view of a bottom shell inverted to show the construction of the pads.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, an assembled pallet has a top shell 10. The top shell is also known as a deck shell. A bottom shell 11 forms a support for the pallet. The bottom shell has a plurality of pads 20 formed into the shell. In a preferred embodiment, the bottom shell 11 has a curved shell section 12 terminating in an upwardly extending flange 13. A completed pallet assembly has a stiffener assembly 15 positioned within the top and bottom shell and which rests on the tops of the pads. The top shell has a depending flange 14 overlapping the bottom shell flange 13. A water-tight seal is made between the shells by a suitable fastening material such as an adhesive 16, staples 17, or what is known as a crimp joint, not shown.

In one preferred embodiment, the top shell is formed having a plurality of depressions or grooves 19 and elevations known as lands 18, across the surface

thereof. In another preferred embodiment, the surface is smooth and planar. This patterned surface provides a smooth, snag-free path for the automatic loading of heavy objects. The bottom shell 11 has a plurality of supporting pads 20, 21, 22, 23 and 24 formed along the peripheral and center areas of the shell. The pads may be positioned to permit either a two-way entry or a four-way entry by the lifts of a fork truck. An alternative embodiment 31 is shown in FIG. 3 by the dashed lines. In this embodiment, the pad is approximately co-extensive with the width of the lower shell. This pad formation permits entry onto lifts from two directions only. In another embodiment, a sheet material 32 acts to connect the pads.

FIG. 2 shows an upper shell 10 and a lower shell 11 in an assembled pallet. The flanges of the shells are in a contacting relationship, to provide a water-tight seal between shells. Another preferred embodiment may be constructed from a single blank of sheet material formed and molded to provide a shell of the design illustrated in FIGS. 1, 2 and 3. The peripheral edges of three sides are sealed to provide a water-tight pallet.

In the embodiment disclosed in FIGS. 1, 2 and 3, the flanges are sealed at their peripheral edges which form the edge seal 29. Ultrasonic welding and heat welding may also be used to seal the shells.

The shells 10 and 11 can be formed from many suitable sheet materials such as a high-density polyethylene or polyvinyl chloride, cellulose, acetate or a paper impregnated with resin. The upper and lower shells are formed by vacuum-molding a heat deformed sheet material. Alternative means of forming the shells include spin-casting, mold-casting, injection molding or blow-molding. In certain embodiments, a dipping and spraying process may also be utilized.

FIG. 2 shows a section of the pallet and the structure of a pad 20. The pad is formed by a depression in the shell which is filled with a foamed urethane plastic 30, which is allowed to harden and forms a strong, lightweight, compression resistant reinforcement for the shell.

The urethane material is injected under pressure while the shell is supported within a mold, to insure that the shell does not deform while the urethane is in the process of hardening to form the pad. FIG. 2 illustrates a typical stiffening assembly 15 positioned within the shells and resting on the top of the pads. This stiffening assembly may be constructed from hardwood, sheet steel or a specially designed assembly which is disclosed in copending application, Ser. No. 71492, filed Sept. 9, 1970, by Fred E. Lauffer, a coinventor of the invention disclosed herein.

We claim:

1. A pallet assembly comprising a top shell, a bottom shell, the bottom shell having a curved section terminating in an upwardly extending flange, said top shell having a depending flange, said upwardly extending flange and surface of the depending flange in a contacting relationship, a stiffener positioned within the bottom shell and supported at its periphery by said bottom shell, a plurality of pads formed integrally in the bottom shell, said pads filled with a compression-resistant material, said top and bottom shells being joined along their respective flanges which are in contacting relationship, to form a moisture-proof pallet.

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