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Lewis

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[54] **COMBINATION CONTAINER AND SKID SUPPORT**

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[51] **Int. Cl.** **B65d 19/04,** B65d 19/18

[58] **Field of Search** 108/51, 52, 56, 58; 220/1.5, 69

[56] **References Cited**

UNITED STATES PATENTS

3,043,450	7/1962	Caprin	108/56
3,187,690	6/1965	Desbois	108/58
3,433,184	3/1969	Addy	108/58
3,481,285	12/1969	Yellin	108/58
3,603,273	9/1971	Riffe	108/58

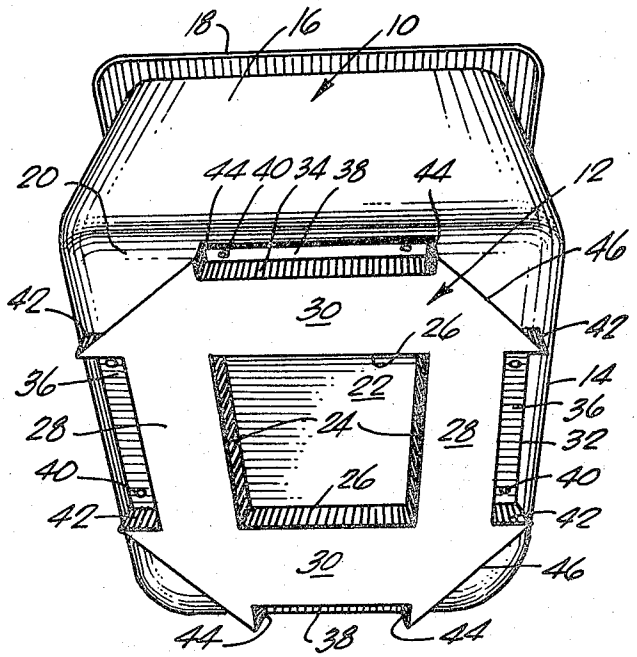
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[57] **ABSTRACT**

A vacuum-formed polyethylene container and skid support for forklift handling wherein the skid support has a four-way forklift entry for expeditious handling and has a self-reinforcing configuration which makes it light but rugged.

3 Claims, 2 Drawing Figures



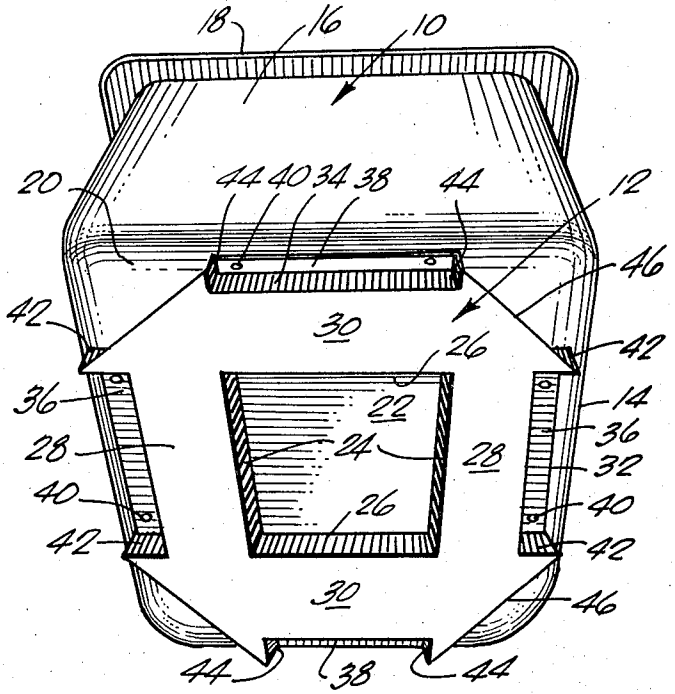

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Fig. 1

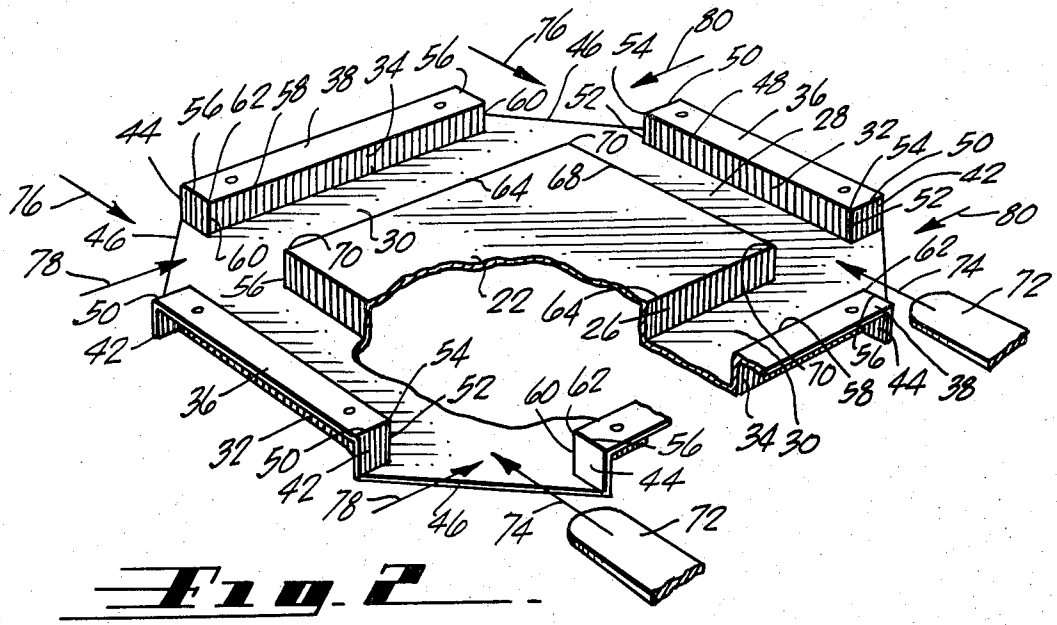

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Fig. 2

COMBINATION CONTAINER AND SKID SUPPORT

BACKGROUND OF THE PRESENT INVENTION

In industrial areas, trash, scrap, manufactured parts and other items are placed in containers for storage, utilization or transportation to other areas. Steel tubs have been used for many years. Even though they are protected by corrosion-resistant paint, the corrosion problem still exists requiring refurbishing periodically. Those having hinged lids still do not afford environmental protection since moisture can and does seep in to damage the material or add to the corrosion problem. For comparison purposes, their initial cost of approximately 500.00 dollars is distributed over a 15-year life expectancy. A wood box with pallet is one of the most inexpensive containers in use, costing about 14.00 dollars. However, a complete replacement must be made every 45 days when subjected to the same environment as the steel tub previously mentioned. The wooden sides of the box are abrasive to the material contents being transported and the absence of a lid subjects the material contents to pilferage and weather damage. Both the steel tubs and the wood boxes are raised from the floor and set on skid bases which permit them to be moved around and lifted by a conventional forklift for loading, emptying or movement to other areas.

SUMMARY OF THE PRESENT INVENTION

A plastic transport tub of a high-density polyethylene made by a vacuum-forming process has been developed to provide the maximum in environmental protection for shop supplies and perishable tools. Its cost, as compared with the others, is about 73.00 dollars each. A typical tub is 48 inches in length, 42 inches in width, and 33 inches high, and weighs 60 pounds. The inner volume of 38.5 cubic feet has a support capacity of 1,500 pounds and a life expectancy of 15 years. In a 2-hour period, a 2,500 pound load caused a deformation but when pressure was released, the container immediately returned to its normal configuration. The thickness of the material preferably was 0.350 inch although appropriate ribs, flanges, or rims would be of a greater thickness. Generally, the configuration of the skid support is a central portion of rectangular shape, positioned against the base of the container. This central portion is bounded by four intersecting open channels to receive forks of a forklift truck from any direction. The outer walls of these channels terminate in fastening flanges for attachment to the containers and reinforcement edges provide additional rigidity and strength.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view looking upwardly from underneath to show the container skid as it is attached to the container; and

FIG. 2 is a perspective view of the top of the skid with the container removed.

Referring now to FIG. 1 there is shown a container 10 having a skid support 12 fastened to the base thereof to function as an integral unit. The container preferably is of a high-density polyethylene on the order of 0.350 inch thick. The longitudinal or side walls 14 are 48 inches long and the transverse or end walls 16 are 42 inches wide. The height is 33 inches, with the walls terminating in a reinforcing lip or flange 18. The end and

side walls 14 and 16 at the bottom curve into a base 20 to form a single integral unit without sharp corners to facilitate easy cleaning. This container has a volume of 38.5 cubic feet and a load capacity of 1,500 pounds. The skid support 12 has a central portion 22 of generally rectangular shape, having downturned walls 24 and 26 along its sides which are load bearing. The transverse walls 26 intersect and join the longitudinal walls 24 to form vertical corners for additional rigidity and strength. These walls also serve as inner guide walls which are part of the channels through which the forks of a forklift pass when so positioned.

Extending horizontally and outwardly from the vertical walls 24 and 26 are intersecting longitudinal and lateral floor contacting skid portions 28, 30. The outer edges of the longitudinal and lateral skids, 28, 30, have upstanding walls 32 and 34 respectively of the same height as the inner walls 24 and 26. They also serve as outer guide walls and load bearing members to support the container 10 as it rests on the skid support 12 on the ground or floor. The tops of these upstanding walls 32 and 34 flare outwardly to form fastening flanges 36 and 38 respectively for attachment to the base 20 of the container 10 such as by means of bolts 40. The ends of fastening flange 36 entend downwardly to form reinforcement edge walls 42 which also connect at their lower edge with the edge of skid portion 30 at points extending outwardly from skid 28. They also are connected with the end of the outer guide wall 32 to form vertical corner supports. These end members are in alignment with, and appear to be an extension of, the inner walls 26. It is noted that flange 36 is equal in length to inner wall 24. Similarly, fastening flange 38 also terminates at its ends in reinforcement edge walls 44. These edge walls 44 unite with the outer upstanding wall 34 and appear to be an outer extension of skid portion 28. The intersecting walls 34 and 44 form a vertical corner which serve as a reinforcement.

Longitudinal and transverse skid portions 28, 30 intersect and then terminate along diagonal edges 46 which entend between edge walls 42 and 44 at each of the corners. This provides openings for the placement of lift forks between the base 20 and skid portions 28 or 30. Entrance may be made from any of four directions. The inner and outer walls 24, 32 and 26, 34, together with skid portions 28, 30, form open channels for the lift forks which then bear against the base 20 of the container 10 when lifting it for movement.

The intersection of horizontal and vertical walls form horizontal corners, i.e., the line of intersection is horizontal. Similarly, the intersection of vertical walls form vertical corners, i.e., the line of intersection is vertical. In the embodiment shown there are thirty-two horizontal corners to resist sag and twelve vertical corners for strength and rigidity. Moreover, as horizontal and vertical corners intersect they each reinforce the other, resulting in an extremely rugged lightweight skid support.

It may be observed, particularly in FIG. 2, that the reinforcement edge walls 42 and inner edges of fastening flanges 26 connect with the outer guide walls 32 to form two horizontal corners 48, 50 and one vertical corner 52 which intersect at a point 54. Similarly, reinforcement edge walls 44 and inner edges of fastening flanges 38 connect with inner guide walls 34 to form two horizontal corners 56, 58 and one vertical corner 60 which intersect at a point 62. There are eight such

points, one at each end of the fastening flanges **36, 38,** which reinforce and protect the outer guide walls **32** and **34** of skid portions **28, 30.**

The inner guide walls **24** and **26** form vertical corners **56** at their planes of intersection. They also form horizontal corners **64** and **68** where they intersect central portion **22.** These corners form points **70** at each corner of the central portion. These four points reinforce and protect the inner guide walls **24, 26** of skid portions **28, 30.**

Obviously, the points and corners need not be sharp nor the corners squared but should approach these within the limits of practical manufacturing. The intersection of the three planes provide reinforcement and rigidity for the skid support **12** in supporting the container **10** and in moving it with a forklift. The forks **72** may be inserted above the skid portions **28** in the direction of arrows **74** or **76** and above skid portions **30** in the direction of arrows **78** or **80** as desired.

Having thus described an illustrative embodiment of the present invention, it is to be understood that modifications thereof will become apparent to those skilled in the art and it is to be understood that these deviations are to be construed as part of the present invention.

What is claimed is:

1. An integral one-piece skid support comprising:

a central portion of rectangular shape adapted to contact the bottom of a container to be supported thereby,

intersecting channels bounding said central portion,

said channels having floor contacting skid portions,

said channels being open at the ends thereof to receive forks of a forklift truck from any of four directions, said channels having inner vertical walls terminating at their upper edges with the edges of said central portion

said channels having vertical outer walls terminating in fastening flanges for attachment to a container to be supported thereby,

said fastening flanges having downturned reinforcement edges connecting with said floor contacting skid portions and with said channel outer vertical walls

said channels inner vertical walls forming horizontal corners at their tops with said central portion,

said channel inner vertical walls intersecting to form vertical corners,

said inner vertical walls terminating at their lower edges in said floor contacting skid portions and forming horizontal corners therewith.

2. A skid support as in claim **1** wherein said reinforcement edges are in alignment with said inner vertical walls and extend outwardly from intersecting channels.

3. A skid support as in claim **1** in combination with a container positioned thereon,

means connecting said fastening flanges to the bottom of said container,

said channels being open at the top thereof to permit contact of the forks of a forklift with the bottom of said container between said flanges and said central portion.

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