

- [54] **DRUM PALLET**
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- [52] U.S. Cl. **108/51**
- [51] Int. Cl. **B65d 19/00**
- [58] Field of Search 108/51-58; 248/346, 175, 117.2, 117.6, 127-146; 220/97 B, 69; 217/43 A; 211/71; 214/105, 621

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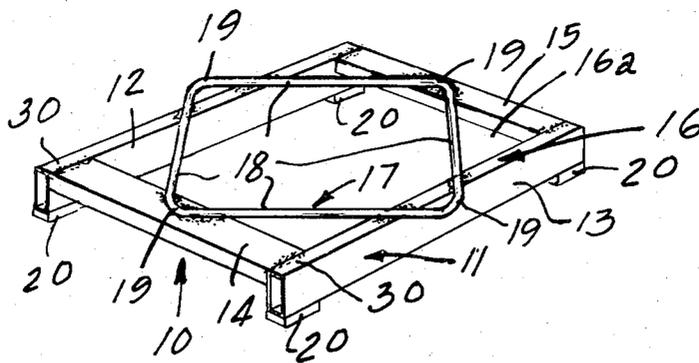
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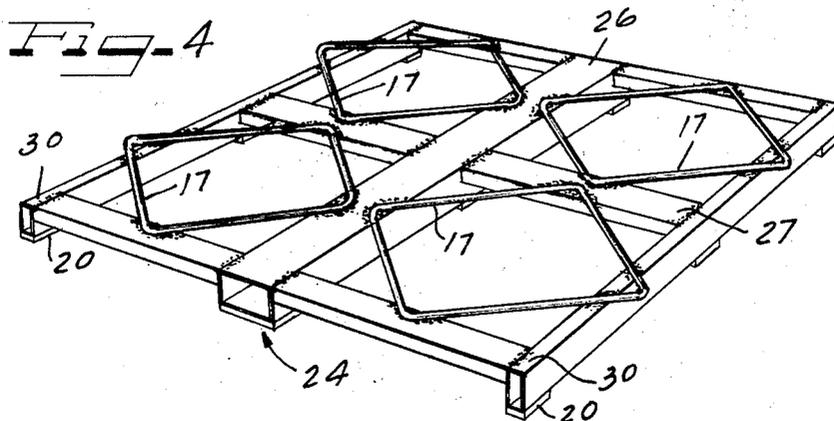
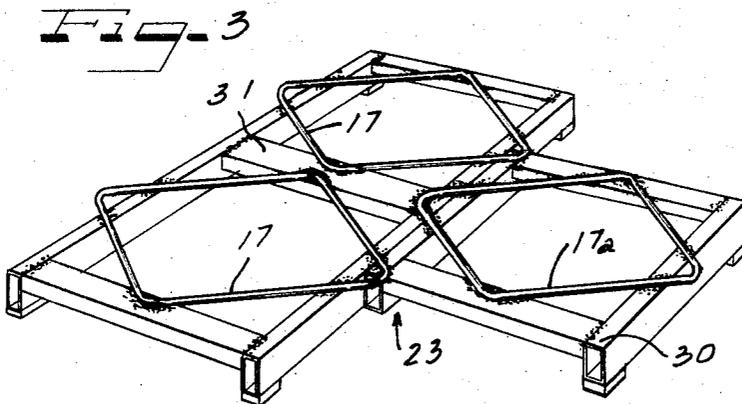
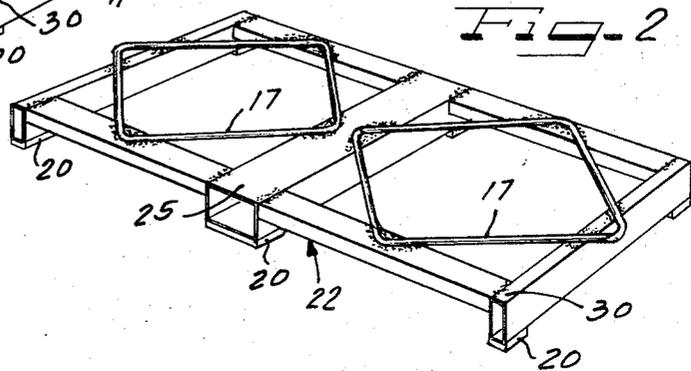
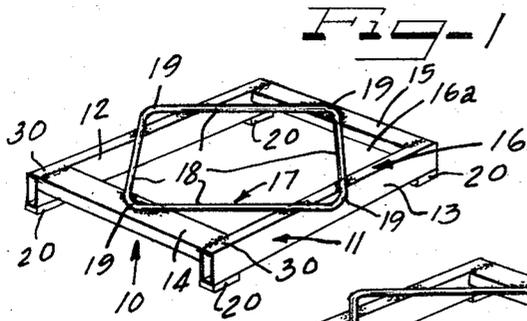
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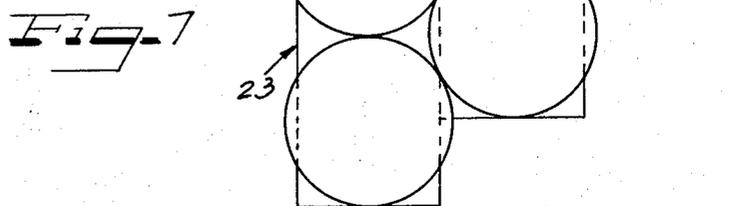
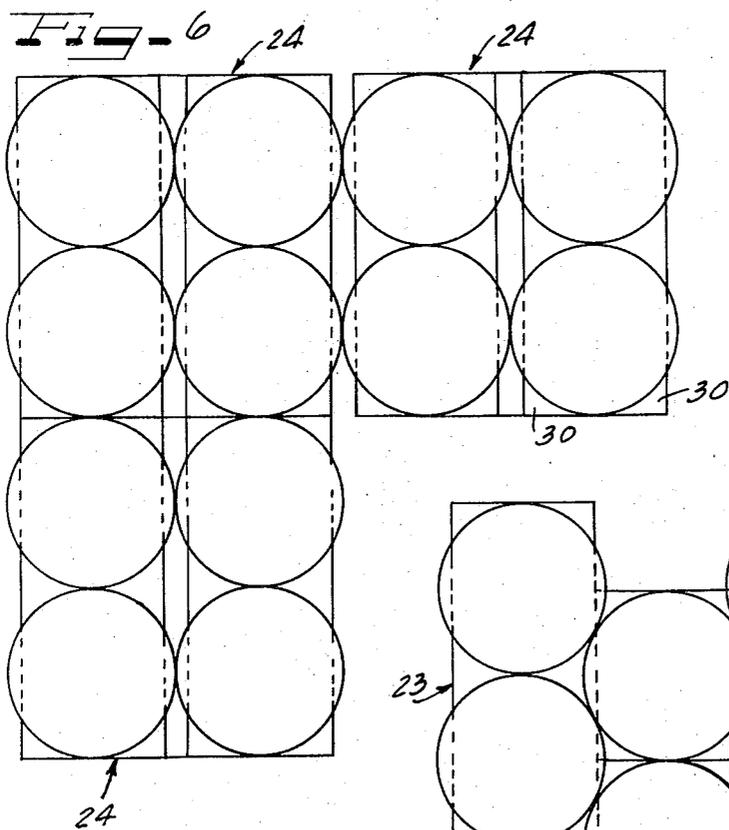
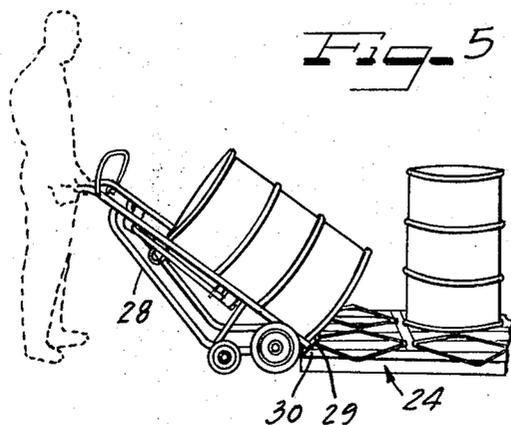
[57] **ABSTRACT**

A drum pallet, such as of steel, includes a shallow metal rectangular base or base portion, a loop of metal receptive in the bottom rim of a drum, such loop being secured to the upper side of said base and overhanging the longer sides thereof, there being one to four such loops on each base, a set of cleats on the bottom of the base receptive of the top rim or rims of another drum or drums on which the pallet is stacked, such structure enabling the use of a hand truck to load a filled drum directly onto the pallet.

8 Claims, 9 Drawing Figures







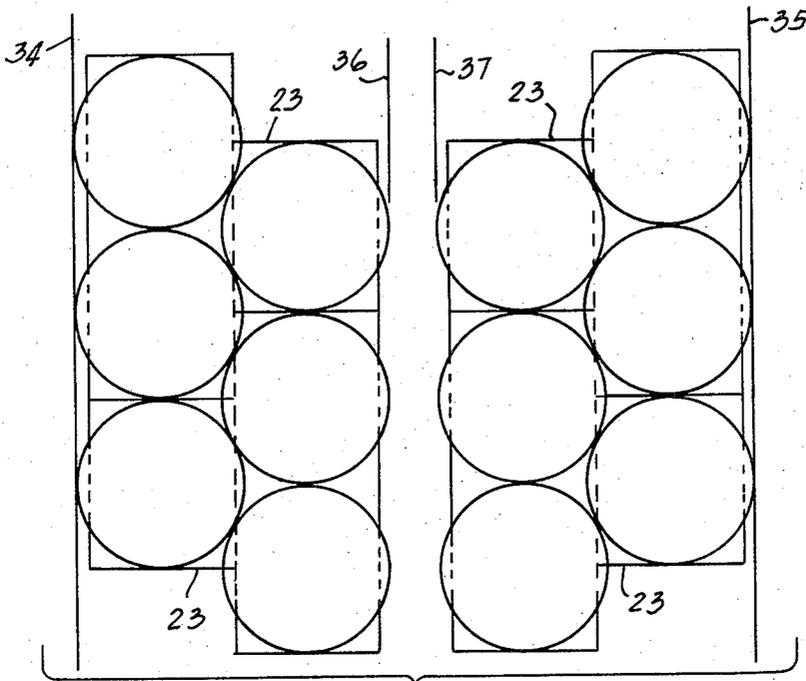


Fig. 8

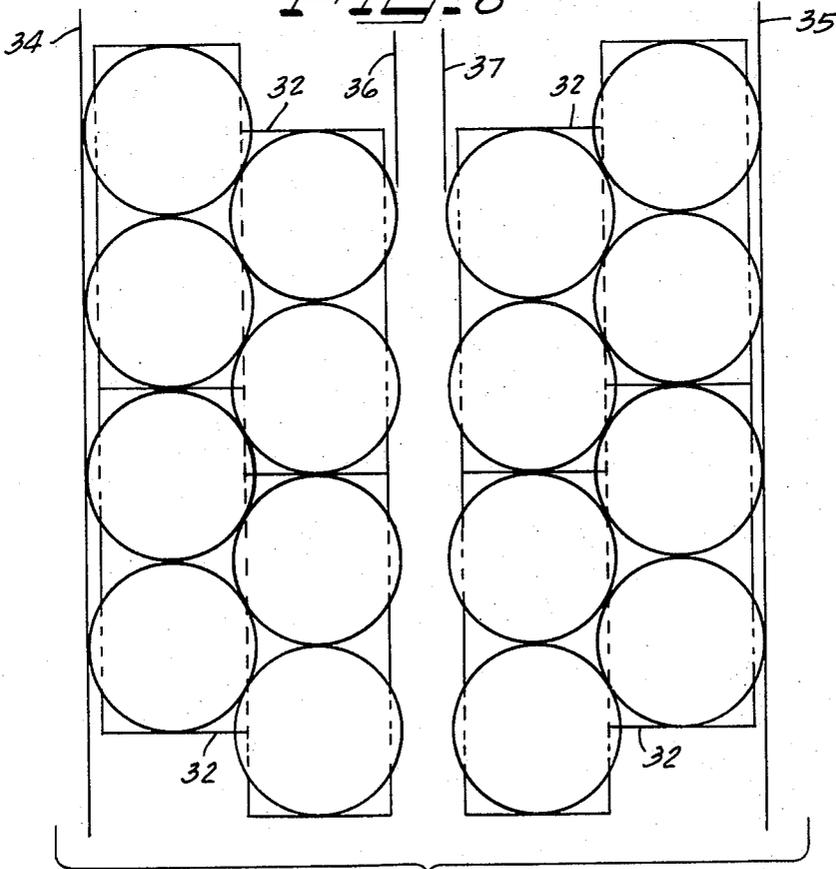


Fig. 9

DRUM PALLET

BACKGROUND OF THE INVENTION

This invention pertains to a drum pallet, and more specifically to a metal drum pallet that can be directly loaded and unloaded by means of a hand truck.

PRIOR ART

The most common type of pallet used with steel drums are conventional wooden pallets. It is relatively difficult to load such a pallet with a hand truck because of the height of the pallet. Further, there is no structure on the pallet which would keep a drum from shifting on the pallet while the same was being transported in a railroad car or truck. Such wooden pallets have relatively short life and are relatively bulky on a return trip and during storage.

U.S. Pat. No. 3,521,777 discloses a pallet for a drum, but the same is relatively expensive in that the tooling needed to produce the same would cost thousands of dollars. Moreover, the fingers of a forklift truck could pick up two such loaded pallets and thus pick up two barrels, but assuming conventional 55 gallon barrels, loads of four barrels could not be lifted. Further, a pallet such as this is difficult to load.

It has been found that users having known types of drum pallets have found them to be unsatisfactory since a filled drum typically has a gross weight of 550 to over 800 pounds each, and unless the drum were resting on a pallet before the drum was filled, some kind of crane or other lifting device was necessary in order to get the barrel on the pallet in the first place. In no event could a filled barrel be loaded onto a known drum pallet using only a hand truck of the typed used for drums, and such potential use required the supplemental use of some other lifting device to get the barrel on the pallet in the first place after a hand truck had brought the same to the vicinity of the pallet or vice versa.

SUMMARY OF THE INVENTION

The present invention is directed to a drum pallet that can be directly loaded with filled barrels by use of a hand truck of a type normally used for handling filled drums, such pallet including a rectangular base, and a loop of metal secured to the upper side of such base, the loop overhanging the longer sides thereof, there being from one to four such loops on a particular base.

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

A further object of the present invention is to provide a drum pallet that can be directly loaded by a hand truck of the type used for drums.

A still further object of the present invention is to provide a drum pallet of minimum height for facilitating loading and for minimizing the bulk thereof during return and storage.

A further object of the present invention is to provide a pallet which includes means by which one or more drums thereon are prevented from shifting on the pallet during shipment.

Yet another object of the present invention is to provide a construction for a metal pallet which can be manufactured without any special tooling.

Many other advantages, features and additional objects of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which preferred structural embodiments incorporating the principles of the present invention are shown by way of illustrative example.

ON THE DRAWINGS

FIG. 1 is a perspective view of a drum pallet provided in accordance with the principles of the present invention;

FIG. 2 is a perspective view of a modification of the pallet of FIG. 1 for handling two drums;

FIG. 3 is a modification of the pallet of FIG. 1 for handling three drums;

FIG. 4 is a further modification of the pallet of FIG. 1 for handling four drums;

FIG. 5 illustrates the loading of a pallet of FIG. 4 with a hand truck of the drum type;

FIG. 6 is a top diagrammatic view of a number of drums disposed for shipment or storage on pallets according to FIG. 4;

FIGS. 7 and 8 are top diagrammatic views of a number of drums disposed on pallets in accordance with FIG. 3 for storage or shipment, FIG. 8 representing the manner of loading in a truck; and

FIG. 9 is a top diagrammatic view of a number of drums disposed for shipment in a truck on a further modification of the pallet which is a hybrid of the pallets of FIGS. 3 and 4.

AS SHOWN ON THE DRAWINGS

The principles of the present invention are particularly useful when embodied in a drum pallet such as illustrated in FIG. 1 generally indicated by the numeral 10. The pallet 10 has a rectangular metal base 11 comprising four elongated members 12-15 which jointly define a rectangular opening 16a. Two of the members 12, 13 are longer than the other two members 14, 15. The longer members 12, 13 in this embodiment comprise tubing of rectangular cross section disposed on edge and the shorter members 14, 15 comprise similar tubing arranged in a flat manner and secured near the upper surface of the longer members 12, 13 as by welding. The vertical height of the longer members 12, 13 typically is 2½ inches and is sufficient to provide a space receptive of the fork of a forklift truck (not shown). The position of the shorter members 14, 15 thus provides a space whereby the base 11 is adapted to receive such lift fork,

Secured to the upper side 16 of the metal base 11 is a loop 17 of metal which has multilateral straight sides 18, 18 of equal length, a square configuration being preferable and preferably being provided with rounded corners 19 as shown. The loop 17 is so disposed that its sides 18 are disposed at an angle with respect to the elongated members 12-15 which is substantially 45 degrees. The diagonal distance across the loop 17 is slightly less than the length of the rectangular base 11 and is slightly greater than the width thereof so that two of the corners overhang the longer side members 12, 13. The loop 17 is secured to each of the members 12-15 at points where the configurations intersect or touch, and the sides 18 of the loop 17 span the opening 16a at each of its corners. Each side 18 is also a stiffen-

ing brace which rigidifies the open rectangular construction of the base 11.

To the lower side of the base 11, at each corner, there is secured a cleat 20 which cleats jointly define a recess that receives the top rim of another drum upon which the pallet 10 may be stacked.

In FIG. 2 there is shown a pallet 22 that accommodates two drums, in FIG. 3 there is shown a pallet 23 that accommodates three drums, and in FIGS. 4 and 9 there are shown pallets 24 and 32 which accommodate four drums. There is a loop 17 provided on the upper side of each base of the pallets 22-24, 32 for each drum that is to be accommodated. By increasing the number of drums on a pallet, certain efficiencies are achieved. It is no more work to operate a forklift truck for a plurality of drums than it is for a single drum. Also, the rectangular base portion provided for each drum is constructed so that certain of the elongated members of the base are common to more than one rectangular base portion or opening. In these embodiments, each base is a rectangular portion of a unified base structure.

With reference to FIG. 2, the longer elongated members meet and are here constructed as a single tubular member 25 preferably having a cleat 20 at each end to prevent sagging, there being also four cleats 20, one at each corner. The center-to-center spacing between the loops 17 is the same as though two of the pallets 10 having drums thereon were placed together with the drums substantially touching. A forklift truck can pick up two of the pallets 22 at the same time, thereby handling four drums.

The pallet 24 of FIG. 4 is a structure which is a unification of two of the pallets 22 of FIGS. 2, and to that end, the common elongated member 25 of FIG. 2 is made twice as long as shown at 26 and the other tubular members are correspondingly elongated. In addition, the elongated members that define the shorter ends of the rectangular openings are constructed as one common elongated member 27, having separate sections.

As shown in FIG. 5, a hand truck 28 is provided with shoes 29 which come to rest on the upper corner surfaces 30 of the rectangular base or base portion, surfaces 30 being those that project from the space occupied by the drum or to be occupied by the drum, thus enabling the hand truck operator to deposit the drum directly onto the pallet or to pick it up directly from the pallet for any of the embodiments disclosed herein. Once a pallet is fully loaded, such as the pallet 24, a forklift truck can dispose the loaded pallets in a truck-trailer, freight car or warehouse with an arrangement such as that shown in FIG. 6 and can stack additional palletized drums on the top thereof. Note that it is the drum dimensions and not the pallet dimensions that determine how closely the drums can be stacked, and therefore storage space is utilized efficiently.

To obtain an even greater efficiency in the use of storage space, such as shown diagrammatically in FIGS. 7-9, the pallet 23 of FIG. 3 or the pallet 32 of FIG. 9 is utilized. The construction of the pallet 23 is quite similar to the taking of three of the pallets 10 and arranging them as shown, utilizing one common member 31 where the short ends of two of the rectangular openings meet, the elongated members of the longer sides being secured to the longer side of a third rectangular base portion. The center of the loop 17a is

aligned with the short ends of common member 31. With this arrangement, three barrels are handled by the forklift truck at a time, and the horizontal efficiency of a honeycomb is approached so that an even larger number of drums may be stored in a given storage or shipping space. The construction of the four drum pallet of FIG. 9 is like that of FIG. 3 except that the single pallet portion is replaced with a double pallet portion like that shown in the left half of FIG. 3.

To arrange the pallets as shown in FIG. 7, there is needed a relatively large maneuvering space for the forklift truck because certain of the pallets, for instance the one in the upper righthand corner of the drawing, need to be skidded laterally, which may be inconvenient.

It is therefore more preferable to arrange the pallets 23 as shown in FIG. 8. In this view, interior side walls of a truck are shown diagrammatically at 34,35. Where the side walls 34,35 are 94 inches apart, there will be a clearance space between the lines 36,37 of 6 inches where the distance between the lines 34 and 36 and the distance between the lines 35 and 37 is 44 inches. The first pallet 23 is deposited as shown, and the next one can be placed at the end of the first one directly by the forklift truck. The truck can also directly place a pallet at the opposite side of the 6 inch aisle.

The four drum pallets 32 are loaded as shown in FIG. 9 and achieve the same space efficiency as the arrangement of FIG. 8.

The pallet in its various embodiments of this invention is readily loaded directly by a hand truck onto a selected pallet which is so constructed that the pallet keeps the drum from shifting thereon during shipment. The construction of the pallet gives it a long life, and also gives it a minimum bulk during empty return and empty storage. Up to four drums can be handled at one time by equipment now in use in industry. Further, the present invention can be constructed without special tooling, utilizing only cutoff, bending and welding equipment of generally utility. Yet an extremely heavy filled barrel can be unloaded or loaded directly from the drum pallet without need for an additional lifting device.

Because of its open construction, a pallet constructed in accordance with this invention can be used to support a barrel or drum as a gravity-type of dispensing device.

The present invention speeds drum handling and also prevents accidents while facilitating stacking, all in an efficient manner. A forklift truck of adequate capacity can pick up and transport as many as eight drums at one time, stacked two high, for rapid loading and unloading of trailers or freight cars. As the overall width of the four drum pallet 24 is less than the diameter of two drums, it is possible to place two loaded pallets side by side in a truck-trailer body of conventional width. The overall strength of this pallet construction allows heavy multiple stacking without danger of accidental tipping. The low profile removes a danger prevalent when loading drums on standard wooden pallets. The loops 17 and the cleats 20 prevent the drum from slipping off the pallet or vice versa during transport. The staggered construction of the pallets 23 and 32 permits a maximum number of drums to be placed side by side. The longer elongated members in each of the embodiments when drums are stacked provide an even weight distribution to the lower drums.

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Although various minor modifications might be suggested by those versed in the art, it should be understood that I wish to embody within the scope of the patent warranted hereon, all such embodiments as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. A drum pallet for a drum having a bottom rim, comprising:

a. a rectangular metal base having an upper side for supporting the drum and said base being adapted to be lifted by a fork truck; and

b. a continuous fixed loop of metal secured to said upper side of said base and axially receivable inside the bottom rim of the drum, said loop, within the rim, overhanging at least one of the longer sides of said rectangular base.

2. A drum pallet according to claim 1 in which it is one of said corners of said loop which overhangs said longer one of said sides of said rectangular base.

3. A drum pallet according to claim 1 including at least two of said loops of metal, receivable within a corresponding number of drums, and all secured to said upper side of said rectangular base.

4. A drum pallet according to claim 3 in which said

base comprises elongated members joined together and jointly defining at least two rectangular openings, each respectively underlying one of said loops, certain of said elongated members being common to more than one of said rectangular openings.

5. A drum pallet according to claim 1 including four cleats secured to the lower surface of said base, one at each corner, and so sized and placed in relation to said loop as to jointly define a recess receptive of the upper rim of another corresponding axially aligned drum.

6. A drum pallet according to claim 3 including at least four cleats secured to the lower surface of said base, and so sized and placed in relation to said loops as to jointly define a recess receptive of the upper rim of a corresponding number of additional corresponding axially aligned drums.

7. A drum pallet according to claim 1 in which said loop has a square form with rounded corners.

8. A drum pallet according to claim 1 in which said base comprises four elongated members joined together and jointly defining a rectangular opening, said loop being secured to each of said four elongated members and spanning a portion of said opening at each of the four corners of said opening.

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