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REUSABLE PALLET BIN

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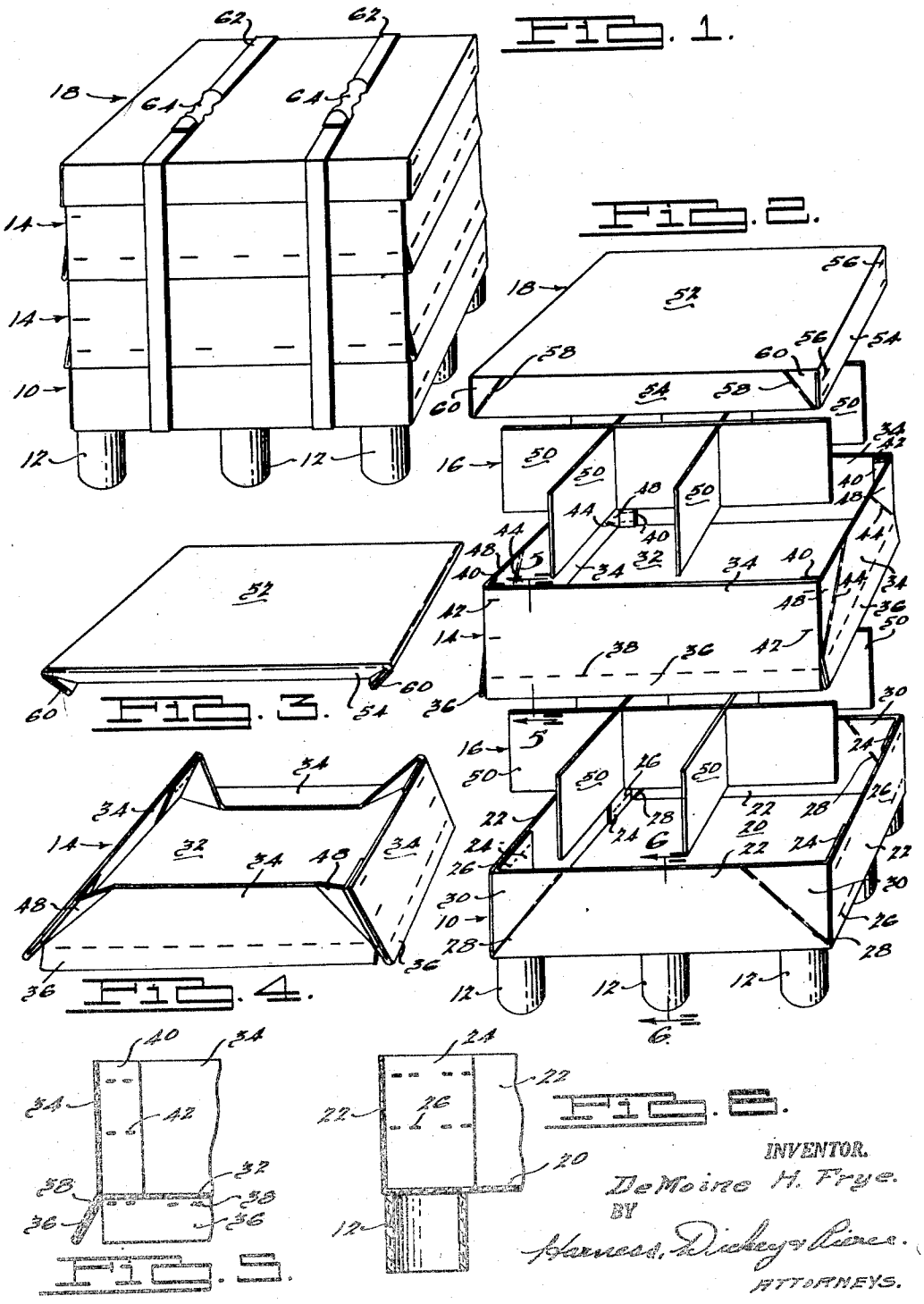


FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

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RE-USABLE PALLET BIN

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2 Claims. (Cl. 229—23)

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This invention relates broadly to reusable shipping and storage bins of fiberboard or the like.

Suitable cartons or containers are conventionally used to ship small articles and if the latter are highly finished or fragile, they usually are wrapped individually or separated from each other by suitable dividers.

Manifestly, each container should be rugged in construction to withstand handling and jostling during shipment and in order that it may be used repeatedly in successive shipments. Furthermore, it is desirable that the containers be light in weight, since the shipper must pay freight charges on them as well as on the articles.

In general, it has been found that containers of fiberboard, cardboard or the like are best adapted for the shipment of small articles since they are relatively light in weight; however, these cartons have several disadvantages all of which tend to limit their use by the trade. For example, it is difficult to make containers of this type sufficiently strong so that they stand up under the abuse of handling and shipping. In general, fiberboard containers must be relatively small in order to give them sufficient strength; consequently, a large number of cartons is required for each carload shipment. This requires excessive handling and entails high labor costs. Moreover, this inadequacy is cumulative since the cartons are handled repeatedly—first at the shipper's, then during loading of the carrier, again during unloading of the carrier, and finally at the consignee's. In addition, the cartons tend to disintegrate if they become wet. At the present time, cardboard cartons are used only once and then discarded as scrap. This practice is wasteful and to some extent diminishes the economy which otherwise would derive from their use.

An important object of the invention is to provide a fiberboard carton or container that is small enough to assure ample strength but is uniquely formed so that a plurality of them can be stacked together and handled as a unit.

Another object of the invention is to provide a shipping and storage bin of the above mentioned character in which the various containers or sections interlock in such manner that they are held securely assembled.

Still another object of the invention is to provide a shipping and storage bin that can be made to any desired size merely by adding or removing a selected number of sections.

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Yet another object of the invention is to provide a shipping and storage bin in which the sections can be easily and expeditiously assembled or disassembled.

A further object of the invention is to provide a shipping and storage bin of the above mentioned chacracter in which the empty and disassembled sections can be readily folded or collapsed into compact bundles for return shipment.

A still further object of the invention is to provide a shipping and storage bin in which the base section is supported in such manner that it cannot easily become wet even though placed on a damp surface or in a damp location.

A yet further object of the invention is to provide a shipping and storage bin that will facilitate and expedite packing and unpacking of articles to be shipped.

Another object of the present invention is to provide a shipping and storage bin of the above mentioned character that is strong and durable in use, light in weight, and relatively inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the drawing forming a part of this specication and wherein like numerals are employed to designate like parts throughout the same;

Fig. 1 is a perspective view of a shipping and storage bin having a base container section and two superposed or nested container sections disposed thereon;

Fig. 2 is an exploded perspective view of a shipping and storage bin having one less section than the bin shown in Fig. 1;

Fig. 3 is a perspective view of the cover comprising a part of the bin and illustrating the manner in which the rim of the cover is folded or collapsed;

Fig. 4 is a perspective view of a container section and illustrating the manner in which the sides of the section are folded or collapsed;

Fig. 5 is a fragmentary, vertical sectional view taken on the line 5—5 of Fig. 2, and

Fig. 6 is a fragmentary, vertical sectional view taken on the line 6—6 of Fig. 2.

As suggested, the shipping and storage bin embodying the instant invention is made up of several sections stacked together in interlocking relations and each forming a separate storage compartment in the bin.

Fig. 2 shows a relatively simply assembly which comprises a base container section 10

having supporting legs 12, and a single container section 14 which is adapted to be supported by and to interlock with the base section. Both container sections 10 and 14 preferably are provided with dividers 16 and the upper section 14 is adapted to be closed by a cover 18. Both of the bin sections and their adjuncts are made of fiberboard. In this connection, it should be noted that the term "fiberboard" is here employed to designate any conventional, relatively stiff and foldable fibrous sheet material such as cardboard, corrugated cardboard, pasteboard or the like.

The base section 10, which is made from a single sheet of fiberboard, has a substantially square bottom 20 and integrally attached upstanding sides 22. Opposed sides 22 are formed with integral end tabs 24 which underlap the adjacent sides and are fastened securely thereto in any suitable manner, as by stitching or by metal clips 26.

All four sides 22 normally stand erect as shown in Fig. 2 to provide an open-topped carton or container for articles to be stored or shipped.

As suggested, however, it is desirable to make the sections collapsible so that they can be shipped back empty in a neat, compact bundle. According to the present invention, this is accomplished by providing opposed sides 22 with fold lines 28. It will be observed that fold lines 28 are provided at opposite ends of the two sides 22 and that each fold line extends angularly upwardly at an angle of substantially 45° from the lower corner to the upper edge of its respective side. Fold lines 28 are formed so that the angular end portions 30 defined thereby fold back against the middle portions of sides 22 when the latter are folded inwardly against the bottom 20. Simultaneously, the other two sides 22 fold down flatly against the bottom 20 substantially as shown for the upper container section 14 in Fig. 4.

The legs 12 preferably comprise short tubular pieces of fiberboard or the like and, manifestly, all should be of the same length so that each rests on the supporting surface and contributes to the support of the bin. Any desired number of legs may be provided and they can be arranged in any manner that will best support the bin. In the box here shown by way of illustration, four legs are provided at the corners of the bottom 20, an additional leg is provided substantially midway between each pair of corner legs and a single leg is provided substantially at the center of the bottom. Since both the base section 10 and legs 12 are made of fiberboard, the latter can be glued to the bottom 20 or otherwise fastened thereto in any desired manner.

The upper section 14 also is formed from a single piece of fiberboard and has a substantially square bottom 32 adapted to rest on and coincide with the sides of base section 10. At the edges of bottom 32 are sides 34, and each side is connected to its respective edge by an integral U-shaped fold 36. The two sides of folds 36 are held together in any suitable manner as by stitching or by suitable metal clips 38, but the various folds are unattached or separate from each other, as best shown in Fig. 5. One pair of opposed sides 34 is formed with end tabs 40, which tabs are folded inwardly behind the opposite or adjacent pair of walls and fastened thereto by metal clips 42 or the like.

One pair of opposed sides 34 also is provided with fold lines 44 which correspond to and function in the same manner as fold lines 28 in base section 10. Thus, when the two sides 34 containing fold lines 44 are folded inwardly, as shown in Fig. 4, the corner portions 46 fold back against the middle portions thereof and the other two sides 34 fold down flatly thereagainst. Thus, all four sides 34 can be collapsed against the bottom 32; and, when the sides are thus positioned, the various folds 36 extend outwardly in the same plane as the bottom. On the other hand, when sides 34 are expanded or positioned upright with respect to the bottom 32, and section 14 is assembled on base section 10, the U-shaped folds 36 fit over and interlock with the sides 22 to hold the two sections 10 and 14 against relative lateral displacement in the assembly.

The dividers 16 are identical and each comprises a plurality of right-angularly disposed, interfitting panels 50. These panels seat edgewise on the bottoms of the sections and preferably extend substantially flush with the sides. Although dividers 16 are not needed to hold the sides of sections 10 and 14 expanded, the partitions 50 do abut opposed walls and assist in maintaining the same upright on the bottoms of the sections. Also, it will be observed that the dividers partition sections 10 and 14 into a plurality of small compartments each of which compartments is adapted to receive one or a limited number of articles to be shipped or stored. It will be readily apparent that the number of panels used in the dividers will vary according to the size of its section and the nature of the articles to be placed therein. If desired, the dividers can be omitted altogether.

The cover 18 also is made from fiberboard and comprises a substantially square portion 52 having an integrally attached depending flange or rim portion 54 at each edge thereof. One pair of opposed flanges 54 has inturned end flaps which are fastened to the other pair of flanges by metal clips 56 or the like. Also, one pair of opposed flanges 54 has fold lines 58 which define triangular end portions 60 and are arranged and function in the same manner as fold lines 28 and 44. By reason of fold lines 58 the flanges 54 can be folded flatly against the portion 52, in the manner illustrated in Fig. 3.

In practice, it is contemplated that every bin have a base section 10 and that any desired number of the sections 14 be stacked together and assembled thereon. For example, Fig. 2 shows a bin assembly comprising one base section 10 and one section 14, while Fig. 1 shows a bin assembly having a base section 10 and two sections 14. Manifestly, three or more sections 14 could be included in the assembly if desired. When the sections are assembled in this manner, flaps 36 interlock with the subjacent section regardless of whether it is a base section 10 or another section 14. Thus, all of the sections automatically interlock regardless of the number of sections 14 in the assembly. After the sections have been loaded and assembled, cover 18 is placed on the topmost section and the entire assembly bound together by straps 62, as shown in Fig. 1. These straps may be either of webbing, metal, or any other suitable material, and may be fastened in any desired manner as by conventional crimp fasteners 64.

All of the sections used in the bin are relatively easy and inexpensive to manufacture; moreover, they are exceedingly light in weight, to maintain shipping costs at a minimum. The various sec-

tions are easily assembled or disassembled and after the articles are removed by the consignee the sections can be readily collapsed and tied into compact bundles for return shipment.

Important advantages are achieved by making the various sections separate and separable from each other. For example, each section can be used repeatedly until it becomes torn or otherwise unfit for use and then replaced by a new section. Thus, it is not necessary to discard the entire bin if only part of it is damaged as in the case of conventional shipping cartons. It is contemplated that the consignor maintain a reserve stock of sections so that they can be easily and quickly replaced whenever necessary. Moreover, since sections 14 are identical and interchangeable in the assembly, it is not necessary to maintain the parts of one bin separate from the parts of another when they are returned knocked down to the shipper.

Also, making the bin in separate sections facilitates packing and unpacking of the same and eliminates much handling of heavy containers. For example, the separate sections can be packed separately and then assembled directly in the freight car if desired. However, it will be observed that the legs 12 are spaced to accommodate the fork of a conventional lift truck so that the bin can be handled easily in this manner even after all of the sections are assembled. Moreover, when articles are shipped in the bin from a parts manufacturer to an assembly plant consignee, the bins can be moved to the assembly line directly upon delivery, covers 18 removed, and the sections unpacked successively as the parts are needed. As each section is emptied it can be folded and stored away for return shipment.

It is to be understood that the form of the invention herewith shown and described is to be taken as the preferred example of the same, and that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the appended claims.

Having thus described the invention, I claim:

1. As a subcombination, a collapsible shipping and storage carton fabricated from a single piece of foldable fiberboard sheet material, said material having a central portion forming a bottom and portions at the edges of said central portion forming sides, each of said sides joined to its respective edge of the bottom by a fold of the material, said folds extending below the bottom and separate from each other, said sides extending above the bottom and adjacent sides being fastened together.

2. As a subcombination, a collapsible shipping and storage carton fabricated from a single piece of sheet material, said material having a central portion forming a bottom and portions at the edges of said central portion forming sides, adjacent sides being fastened to each other and each of said sides joined to a respective edge of the bottom by a fold of said material, said folds adapted to extend below the bottom and separate from each other, certain of said sides having fold lines extending angularly from the bottom corners to the upper edges thereof, and defining triangular portions which fold inwardly and back against said certain sides whereby to permit all of said sides to be folded inwardly flatly against said bottom.

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