June 26, 1934. A. M. WALSTROM 1,964,099

COLLAPSIBLE CONTAINER

Filed Feb. 23, 1933 2 Sheets-Sheet 1

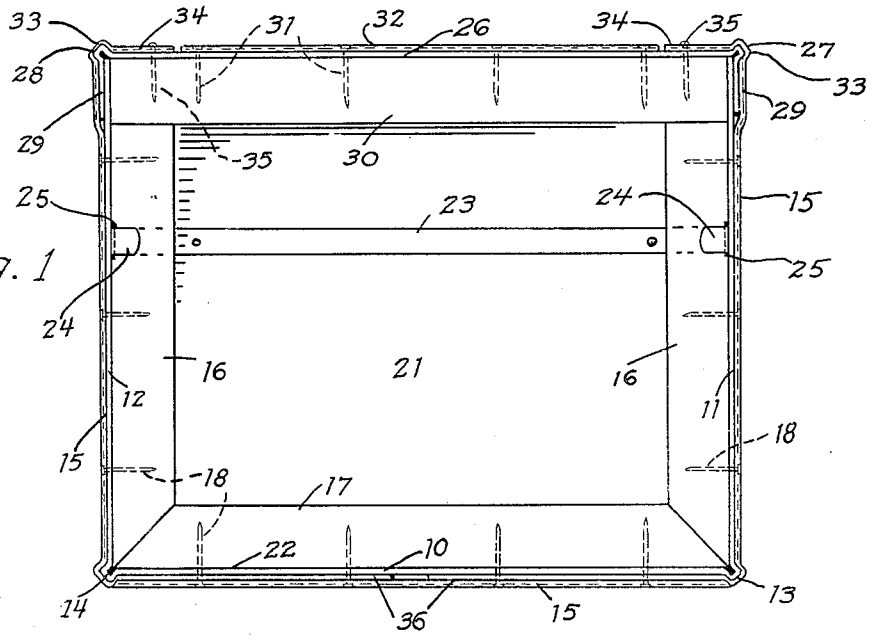


Fig. 1

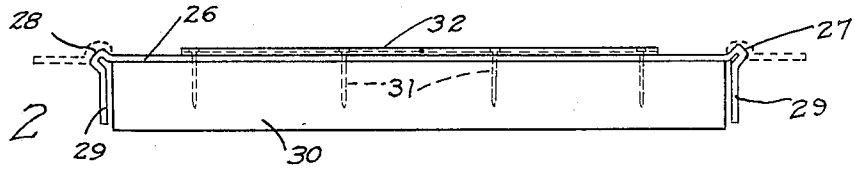


Fig. 2

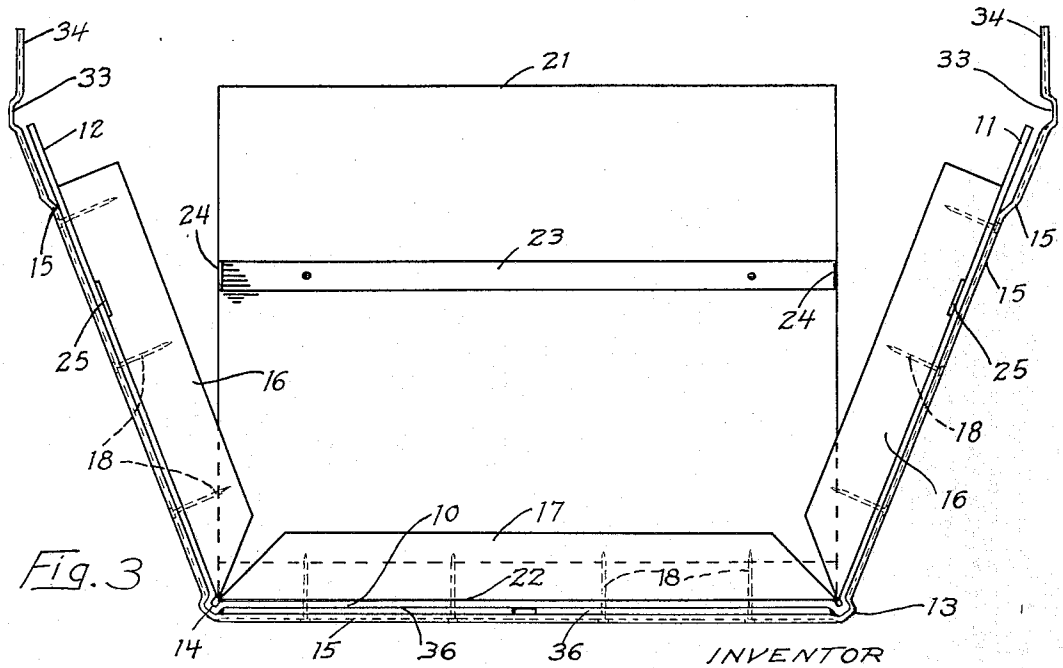


Fig. 3

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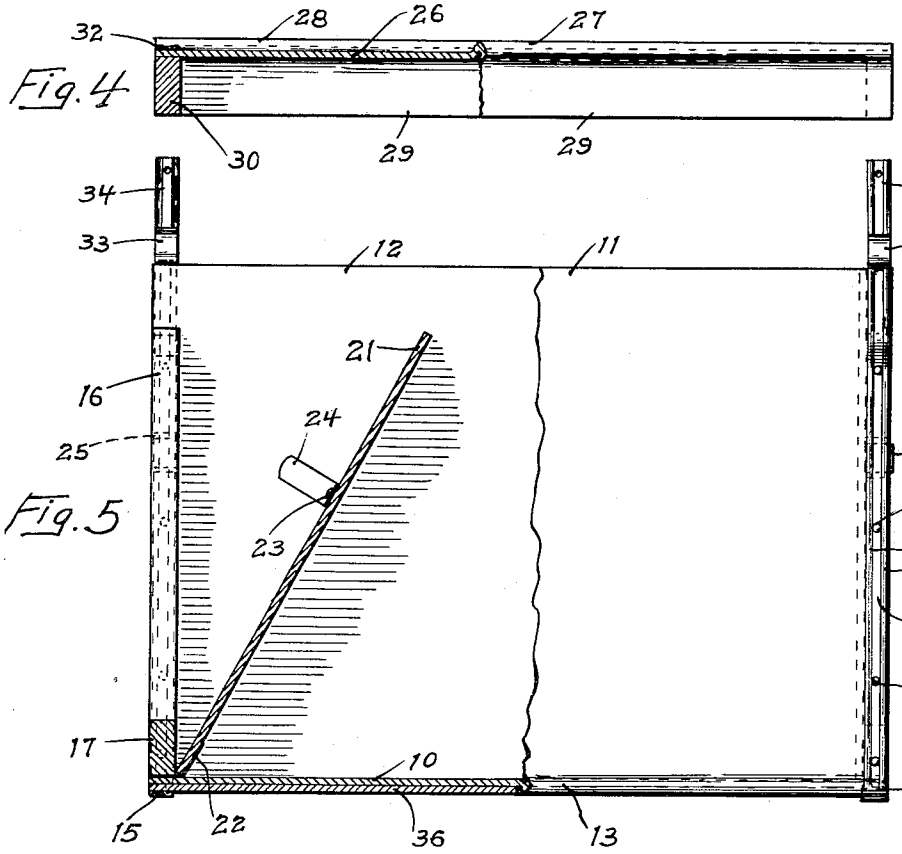


Fig. 4

Fig. 5

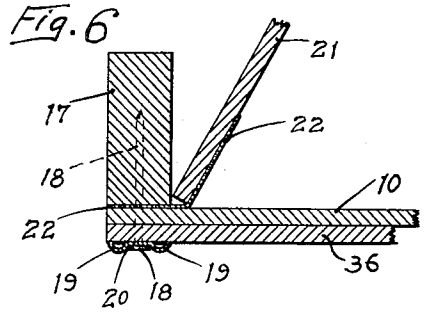


Fig. 6

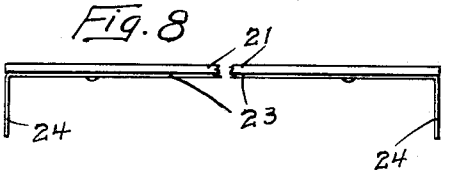


Fig. 8

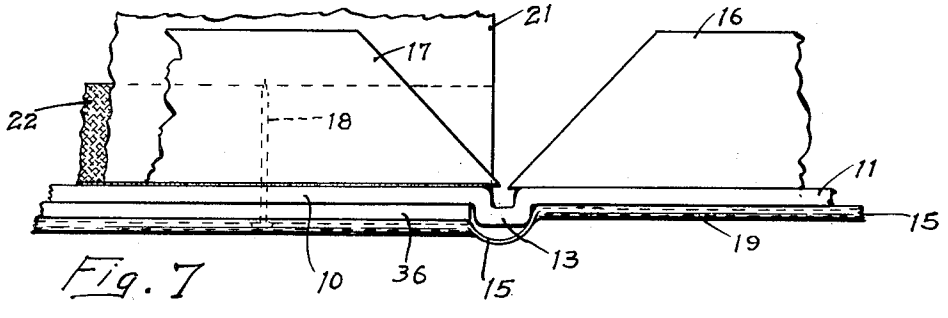


Fig. 7

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UNITED STATES PATENT OFFICE

1,964,099

COLLAPSIBLE CONTAINER

Axel M. Walstrom, Minneapolis, Minn., assignor to The Creamery Package Mfg. Company, Chicago, Ill., a corporation of Illinois

Application February 23, 1933, Serial No. 657,969

4 Claims. (Cl. 217—12)

My invention relates to shipping containers for bulk butter and similar products.

Wooden tubes are now generally used for shipping and storing bulk butter, and they are very substantial and otherwise suitable for this purpose, although comparatively expensive. However, it is a fact that a rectangular package, such as a box of equal capacity, has many advantages over the comparatively bulky wooden tub; as will hereinafter be pointed out. Wooden boxes have also been used to some extent for this purpose, but, as such boxes are generally shipped to the creameries in parts which have to be nailed together before they can be used, they have failed to become popular with creamery operators.

It is therefore an object of my invention to provide the dairy industry with a comparatively light, cheap and substantial fiber board box for this purpose, which box may be shipped to the creameries in collapsed form and is adapted to be easily and quickly set up for use.

Another object of my invention is to fabricate a collapsible box of comparatively inexpensive material so as to obtain maximum strength and rigidity with minimum weight and cost.

A further object of my invention is to provide a compact, light-weight box with a separate cover which is quickly detachable to facilitate inspection and sampling of the butter at the markets and, a still further object is to provide such box with convenient finger grips to facilitate its repeated handling in creamery, transit and storage.

My invention consists of a rectangular box of moisture-proof paper fiber board which has its sides hinged to its bottom so that said sides may be turned down into a horizontal position when empty, but, adapted to be quickly raised into a perpendicular position, and detachably interlocked so as to form a coverless box. A separate cover of the same kind of material is provided for this box, and this cover has flanges which telescope over the top of said box while said cover is detachably held in place thereon by the overlapping free ends of metal strips which are secured about the ends of said box.

My invention consists further of the several features which are defined in the following description and shown in the accompanying drawings.

In the drawings:—

Fig. 1 is an end view of a collapsible container embodying my invention.

Fig. 2 is an end view of the cover part of my invention.

Fig. 3 is an end view of my container with the cover removed and its sides partially collapsed.

Fig. 4 is a side view of the cover, partially broken away, and

Fig. 5 is a similar view of the container, which is also broken away to show one of its end walls in partially collapsed position.

Fig. 6 is an enlarged sectional view of one corner of the container, showing clearly the peculiar construction at that point, and

Fig. 7 is an outside view of the corner portion shown in Fig. 6.

Fig. 8 is a top edge view of one of the end walls, showing the securing means attached thereto.

In the several views, numeral 10 indicates the bottom panel of my container, and numerals 11 and 12 indicate its side-walls. The bottom and side walls are formed of an integral sheet of paper fiber board, such as is used to a great extent in the manufacture of paper boxes for various purposes, and I prefer to pass this sheet through a hot paraffine bath to thoroughly waterproof its sides and edges. This flat sheet is then creased transversely at intermediate points 13 and 14 to form corrugations which allow bending of the sheet at these points without fracturing the material. This creasing of the sheet is common practice and serves to actually hinge the side walls to the bottom panel, so that they may be easily raised to an upright position at right angles to said bottom. Metal binding strips 15 are provided at the outside longitudinal edges of the fiber board sheet, and a series of wooden cleats 16 and 17 are provided at the inside longitudinal edges thereof and a series of nails 18 are driven through said metal strips and through the edges of said sheet into said cleats so as to permanently secure these parts in their relative positions. The metal strips 15 are preferably provided with beaded, or corrugated edges 19 to stiffen them and to improve their appearance, and these corrugations also serve to provide a central groove 20 in said strips, which is adapted to receive the heads of the nails 18 so as to present a smooth exterior. The metal strips 15 are not corrugated at the points 13 and 14 for the reason that said strips must be flexible at these points to allow the side walls 11 and 12 to be bent at right angles to the bottom panel 10 at said points. As shown in Fig. 3, the adjacent inner ends of the cleats 16 and 17 are mitered so as to contact firmly on a 45 degree angle when the side walls 11 and 12 are in the vertical position shown in Fig. 1. The end walls 21 are made of separate sheets of similar fiber board and are preferably hinged to the inside of the cleats 17 by both strips 22 which

are cemented to the lower edge of said end walls and clamped between the cleat 17 and the bottom panel 10, as shown in Fig. 6. A metal strip 23 is secured to the end walls 21, and has extending ends 24 which are adapted to be bent outwardly at right angles so as to pass through recesses 25 in the cleats 16 when the side walls and said end walls are raised to vertical positions where said walls are temporarily interlocked by bending the projecting ends 24 inwardly into contact with the outer face of the cleats 16, as shown in Fig. 1. I prefer to make the cover 26 of a separate sheet of paper fiber board which is transversely creased at points 27 and 28 to allow the narrow side portions 29 thereof to be bent downwardly so as to snugly overlap the upper edge of the side walls 11 and 12, as shown in Fig. 1, and wooden cleats 30 are secured to the underside of the ends of said cover, so as to snugly overlap the upper edge of the end walls 21. The cleats 30 are secured to the cover by a series of nails 31 which are driven through metal strips 32 that are preferably provided on the top of said cover, and the cleats 30 are adapted to extend from one side wall to the other while engaging the upper end of the cleats 16 so as to form the top member of the rectangular end frames which are composed of cleats 16, 16, 17 and 30, when the complete container is assembled. The end portions of the metal strips 15 are spaced from the upper portion of the side walls 11 and 12 and extend beyond the upper edge of said side walls, as shown in Fig. 3, and a flat portion 33 on said strips allow the corrugated ends 34 thereof to be bent inwardly over the edges of the cover where they are secured by nails 35 which are driven through the top of said cover into the cleats 30, as shown in Fig. 1. I may also prefer to secure strips 36 of suitable material to the under surface of the bottom panel 10, for the purpose of re-inforcing said bottom against excessive wear and tear.

A box constructed as above specified will have exceptionally great strength and rigidity with comparatively light weight and low production cost, due to the novel manner in which its several parts are joined together and interlocked. In this efficient structure, the wooden cleats cooperate to form a rigid rectangular frame at each end of the assembled box, as shown in Fig. 1, and about these frames the fiber board panels are firmly bound by the corrugated metal binding strips, while the series of coated nails serve to permanently secure these simple parts in their relative cooperating positions. When the cover is placed in position on this box, the side portions 29 thereof and the cleats 30 thereon serve as depending flanges thereabout, which snugly overlap the upper end of said box to firmly support its side walls and end walls in their respective vertical positions, and said flanges also serve to effectively seal the top of said box against the entrance of foreign matter. The cleats 30 are also adapted to serve as convenient finger grips by which the filled boxes may be lifted and carried about, and, although the box and its contents is suspended from the cover when it is lifted by said cleats, the weight of said box and contents will be sustained by the upper portions of the metal binding strips at the four corners thereof, with practically no tendency to pull out the nails 35, due to the right angle bend of the corrugated ends 34. The nails 35, however, are easily pulled out by inserting a flat tool under the ends 34, so that the cover may be entirely removed whenever desired; but, this cover need not be entirely removed when the contents of the box is merely to be inspected and sampled at the markets, for in such case, the nails 35 on one side of the box only will be pulled out to allow one side of the cover to be raised to afford access to the contents of said box.

My improved container has the important advantage of being considerably more compact than the wooden tub. In its collapsed form, when bundled for shipment to the creameries, it occupies less than one-half the space required by an equal number of empty wooden tubs which are nested for shipment; and, when filled with butter my container occupies less than two-thirds the space required by a filled tub of equal capacity. Further, as my container is a rectangular box of correct inside dimensions and square corners, its contents may be cut into standard size "prints" without left-over trimmings; whereas, the contents of a tub must be re-packed into box molds and re-hardened in a refrigerator before being cut into prints. A still further advantage of my container is the fact that it weighs only about one-half as much as a wooden tub of equal capacity, which makes possible a considerable saving in shipping costs, especially on large shipments. The greatest advantage of my improved container, however, is its comparatively low production cost, which, if efficiently produced in large volume, will be only about one-half the production cost of the standard wooden butter tub of equal capacity.

It is evident that the specified construction of my container may be modified to some extent without deviating from the scope of my invention. For instance, the cover panel 26 may be made an integral part of one of the side walls, and in such case the fibrous board would be made sufficiently longer and creased at four points so as to form, in sequence, the front wall 11, bottom 10, rear wall 12, cover 26, and the narrow flange 29. The cover and its cleats 30 would, in such case, be permanently hinged to the rear wall and would open at the front edge only, but would otherwise be similar to the construction specified. It will also be evident that any suitable means, other than the metal ends 24 and recesses 25, may be provided to interlock the sides and ends of the box, and, it may also be desirable in some cases, to miter the adjoining ends of the cleats 16 and 30 in a manner similar to the adjoining ends of the cleats 16 and 17.

From the above description, it will be apparent that I have devised a new and novel container for bulk butter which will be of considerable economic importance to the dairy industry of this country, and in view of this fact, I beg an early and just consideration of the following claims which clearly define the most important features of my invention.

I claim as my invention:—

1. A collapsible box comprising: a sheet of fibrous board which is transversely creased at intermediate points to form the bottom and sides of said box, a series of wooden cleats secured to the inside longitudinal edges of said sheet and shaped to form rectangular end frames in said box when said sides are raised to vertical positions, separate end sheets of fibrous board adapted to be detachably secured against the inner side of said end frames, a separate cover of fibrous board which is transversely creased near its edges to provide integral flanges which are adapted to be turned downwardly over the sides of said box,

a wooden bar secured beneath each end of said cover and adapted to form the top member of said rectangular end frames, metal binding strips arranged laterally about the ends of said box and secured thereto by a series of nails which are driven through said strips and the edges of said sides and bottom into said wooden cleats, said metal strips having free ends adapted to overlap the edges of said cover, and means for detachably securing said free ends so as to hold said cover in position on said box.

2. A collapsible box comprising: a sheet of fibrous board which is transversely creased at intermediate points to form the bottom and sides of said box, a series of wooden cleats secured to the inside longitudinal edges of said sheet and shaped to form bottom and side members, rectangular end frames in said box when said sides are raised to a vertical position, separate end sheets of fibrous board adapted to be detachably secured against the inside of said end frames, a separate cover of fibrous board having depending side flanges which are adapted to overlap the upper portion of the vertically positioned sides of said box, said cover having cleats secured thereto adapted to overlap the upper portions of the vertically positioned ends of said box and to form the top members of said rectangular end frames, metal strips secured about the ends of said box and having extending ends adapted to overlap the edges of said cover, and means for detachably securing the ends of said metal strips so as to hold said cover in position on said box.

3. A collapsible box comprising: a sheet of fibrous board which is transversely creased at intermediate points to form the bottom and sides of said box, a series of wooden cleats secured to the inside longitudinal edges of said sheet and shaped to form bottom and side members of rectangular end frames in said box when said sides are raised to a vertical position, separate end sheets of fibrous board hinged to said bottom cleats and adapted to be detachably secured against the inner side of said end frames, a separate cover of fibrous board having depending flanges which are adapted to overlap the upper end of said box, metal strips secured about the ends of said box and cover, and the ends of said metal strips adapted to detachably secure said cover in position on said box.

4. A collapsible box of fibrous board having a bottom provided with integral side walls which are adapted to be raised to a vertical position, a series of cleats secured to the inside edges of said bottom and side walls so as to form bottom and side members of rectangular end frames in said box when said side walls are vertically positioned, separate end walls secured at one edge to said bottom and adapted to be raised into engagement with the inside of said end frames, and a cover having flanges adapted to overlap the upper portion of said side walls, said cover having cleats secured thereto adapted to overlap the upper portions of the vertically positioned ends of said box and form the top members of said rectangular end frames.

AXEL M. WALSTROM.