Nov. 15, 1938. J. W. SIMMONS 2,136,762

COLLAPSIBLE PACKAGE

Filed May 4, 1936 2 Sheets-Sheet 1

Fig. 1.

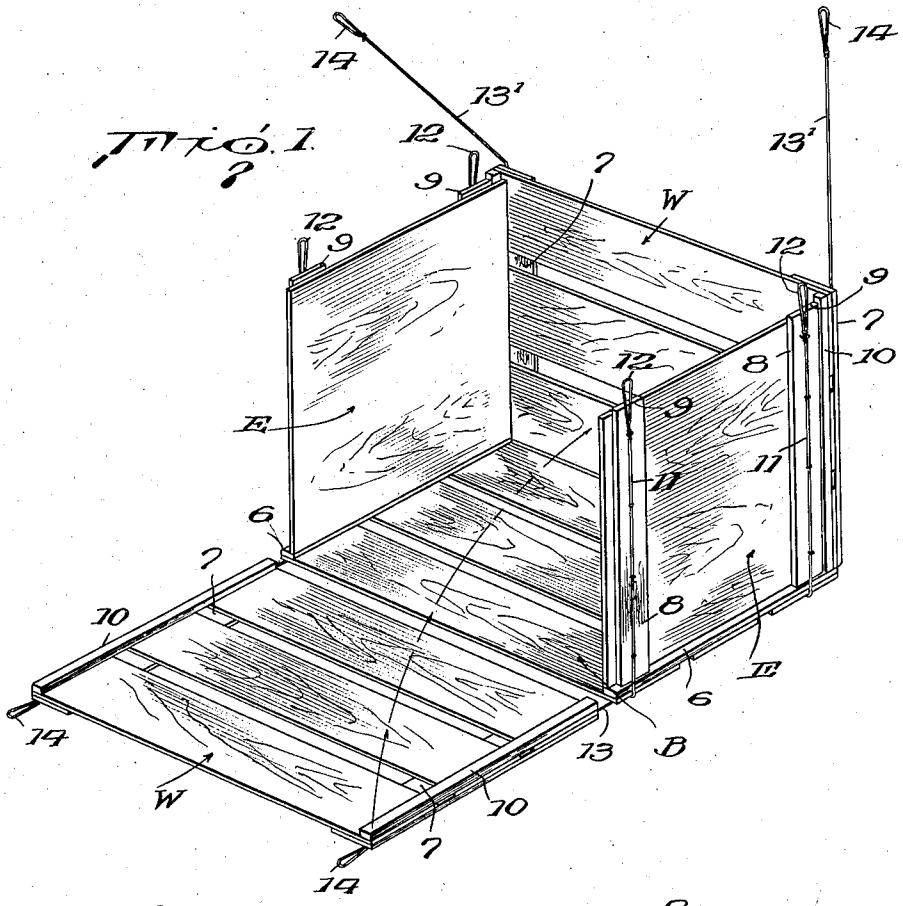
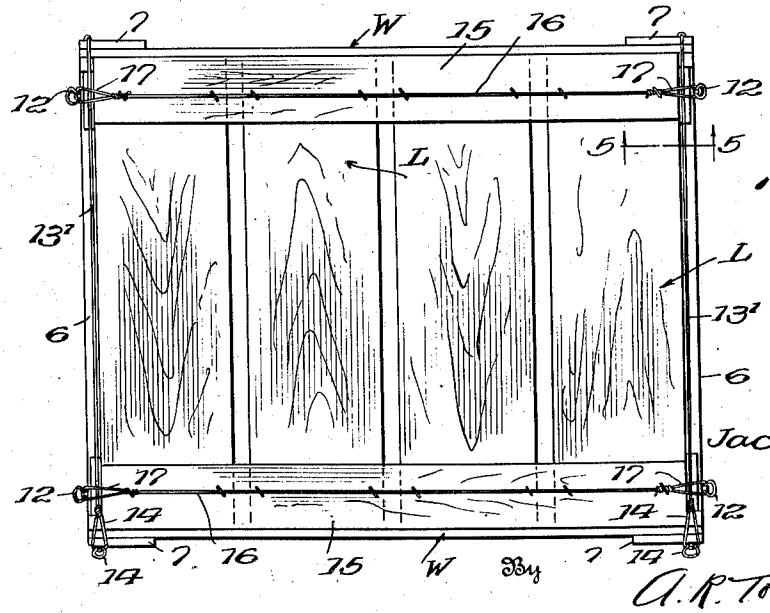


Fig. 2.



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Fig. 3

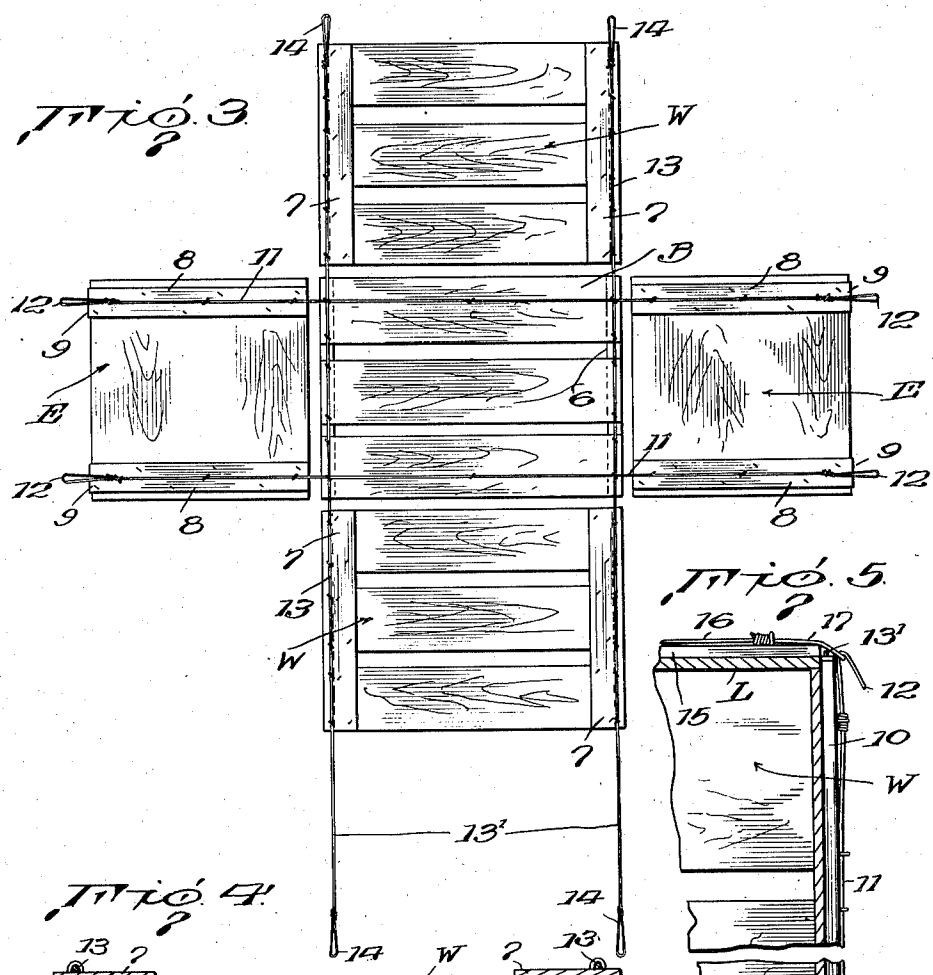
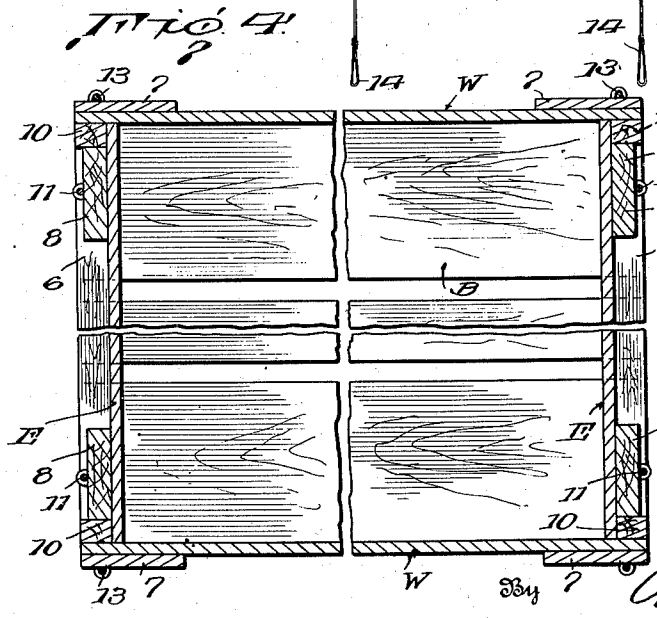


Fig. 5

Fig. 4



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COLLAPSIBLE PACKAGE

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Application May 4, 1936, Serial No. 77,846

2 Claims. (Cl. 217—47)

This invention relates to the art of loose cooperage, and in particular to collapsible or knock-down packages of the type generally employed as shipping containers for fruits and vegetables.

An object of the invention is the provision of a collapsible package formed of mutually foldable sections whereof the component portions, except the lid, are permanently united in hinged relation by means of flexible binding elements attached thereto in a manner to function also as hinges.

Another object is the provision in such a package of novel end and wall structure arranged for mutual reinforcement at the corners of the package when service assembled.

A further object is the provision in such a package of means for mounting a lid in a manner to brace the corners of the assembled package against stresses laterally of the ends or side wall sections. Other objects will be apparent from the description to those skilled in the art.

The present disclosure constitutes a practical embodiment by which the invention is reduced to practice. It is to be understood that the details of structure may be varied as desired within the limits imposed by the scope of the invention as claimed. In the drawings:

Figure 1 is a perspective view of a partially assembled package as constructed in accordance with the invention.

Figure 2 is a top plan view of the complete package as service assembled.

Figure 3 is a bottom plan view of the blank from which the package is formed.

Figure 4 is a horizontal section through an assembled package.

Figure 5 is a fragmentary vertical section on the line 5—5 of Figure 2.

The package of this invention is designed to be assembled without the use of nails, screws, or any type of headed fastening elements. In the embodiment herein illustrated it comprises a blank consisting of a bottom section B, two opposed side walls W, and opposed ends E, all of which are permanently connected in foldable relation. The bottom section is provided on its inner face at each end with appropriately attached end cleats 6 transversely arranged and having their respective ends flush with the side edges of the bottom and with their outer side edges flush with the ends of the bottom, as best shown in Figure 3.

Each of the side walls W has attached to its outer face at each end a relatively wide transverse end cleat 7 of greater width than the width of the bottom section end cleats. These wall section end cleats 7 have their ends flush with the side edges of the respective walls and their outer side edges flush with the wall ends. The walls and bottom are of the same length.

Each end section E has attached to its outer face a side cleat 8 which parallels the side edge of the end section with its lower end flush with the bottom edge of the section and having its upper edge extending above and beyond the upper edge of the section, these projecting upper ends of the cleats 8 providing abutments 9 for a purpose hereinafter described. The outer side edges of the end section cleats 8 are spaced inwardly from the side edges of their respective sections a distance equal to the thickness of internal end cleats 10, substantially square in cross section, secured on the inner faces of the wall sections W at each end and coextensive in length to the cleats 7, their outer edges being flush with the wall ends.

As shown best in Figure 3 the component sections of the blank are permanently connected in loosely hinged relation by means of flexible binding elements, here shown as wire straps. The ends E, equal in width to the bottom B, are connected thereto by the binding wires 11 which lie along the longitudinal centers of the cleats 8, being stapled or otherwise suitably attached thereto and to the bottom section and having their ends formed as looped extensions 12 projecting beyond the abutments 9.

Extending at right angles to the wires 11 and likewise attached to the bottom B are binding wires 13 secured along the wall cleats 7 adjacent their outer edges. The wires 13 are provided with looped ends 14 and are of greater length than the wires 11, extending beyond one side wall section, as indicated at 13', a distance slightly greater than the width of the assembled package. The sections of the blank are arranged in spaced relation so that sufficient clearance is provided to prevent binding as they are swung into position.

When assembling the package the end sections E are swung up in a vertical arc perpendicular to the bottom B with the lower end edges of the end sections seating over and upon the bottom section end cleats 6. The sides W are then swung up into position perpendicular to the bottom whereby to bring their inner cleats 10 into abutting engagement with the outer side edges of the end section cleats 8, overlapping the adjacent side edge portions of the ends with the bottoms of the cleats 10 seating on the bottom section cleats 6 at each end thereof. The wires 13' are then bent down transversely across the package ends so that the loops 14 may be sprung over the loops

14 the engaged loops being twisted or bent to obtain a tight connection between the ends of the wires 13.

The package lid L has secured to its upper face along each side edge a relatively wide edge cleat 15 to which are attached the binding wires 16 provided with end loops 17 to engage over the end loops 12 of the wires 11, the loops 12 being then bent downwardly to function as securing bails by which the lid is attached. It will be noted that the loops 17 overlie the wires 13' so that as the bail loops 12 are bent down the end loops 17 are drawn down over the wires 13' to secure same against dislodgment laterally outward of the ends.

The dimensions of the lid L are such that it fits snugly between the upper edges of the side walls seating at each end on the upper edge of the subjacent end section behind the abutments 9 of the end section cleats 8 and behind the upper end portions of the side wall inner cleats 10. By this arrangement the lid provides a top brace for the corner post structure of the package and thus serves a double purpose.

While the package as shown is of the wirebound type it is within the province of the invention that other suitable binding elements may be employed and other types of hinged connection may be used between any or all of the sections.

I claim:

1. A collapsible package comprising a bottom section, end sections connected thereto in hinged relation, opposed side wall sections, flexible binding elements secured to the outer faces of said bottom and wall sections and connecting same in loose hinged relation, a cleat at each end of said wall sections and engageable over the outer face of the end sections, a lid detachably seated between said walls on the upper edges of said end sections, cooperative lid securing means on said lid and end sections, and said flexible binding elements having portions arranged to underlie said lid securing means.

2. A collapsible package comprising a bottom section, end sections, flexible binding elements connecting said bottom and end sections in loosely hinged relation, opposed side wall sections, flexible binding elements connecting said bottom and wall sections in loosely hinged relation, a lid detachably engageable between said walls and seating at each end on the upper edges of said end sections, cooperative lid securing means on said lid and end sections, the flexible binding elements of said bottom and wall sections having portions bendable transversely across and over the tops of said end sections and under said cooperative lid securing means, and said bendable portions having terminal portions arranged for connection with the opposite ends of the same binding elements at one side of the package.

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