

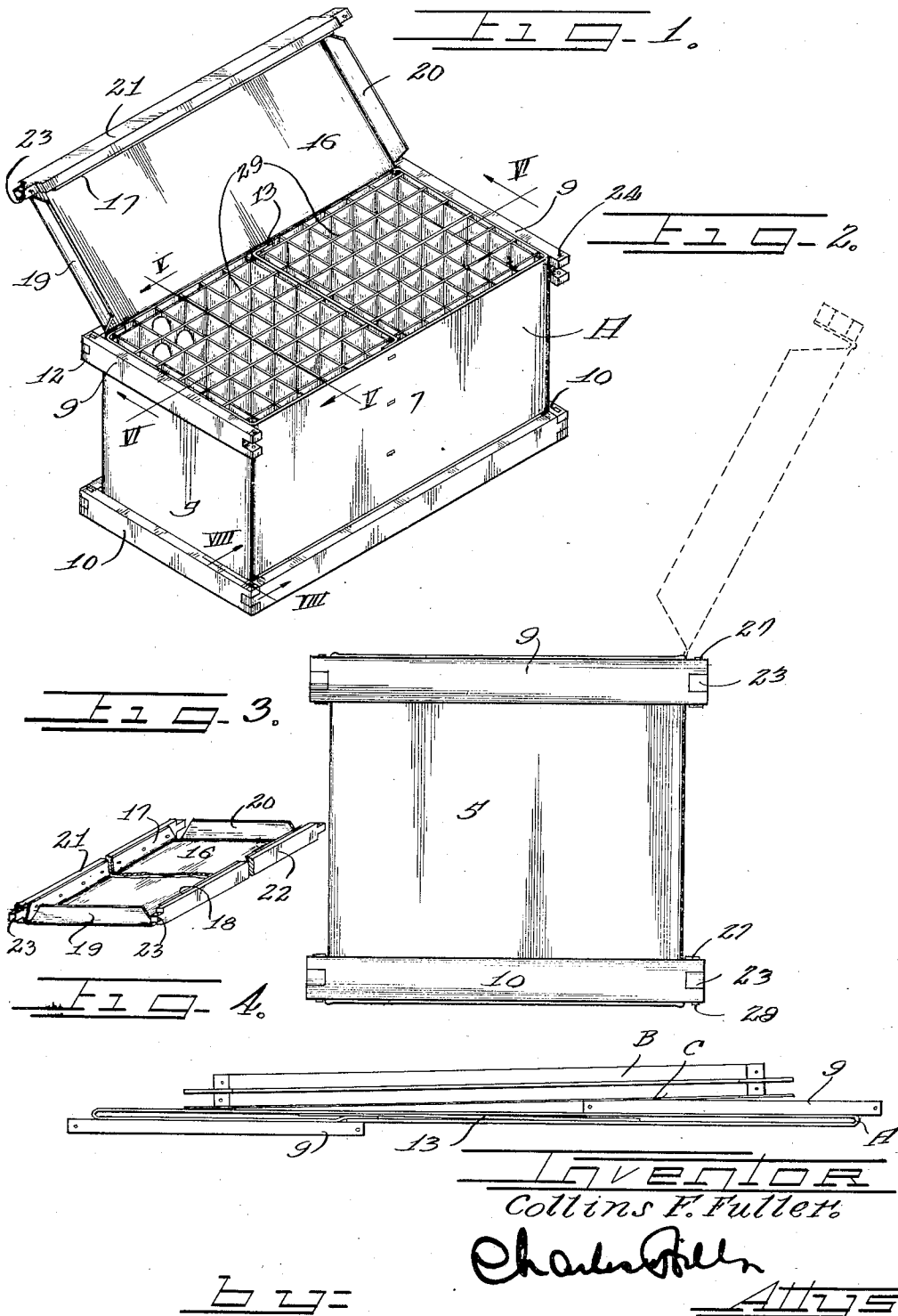
March 3, 1936.

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2,032,928

KNOCK-DOWN CONTAINER

Original Filed Dec. 17, 1932 2 Sheets-Sheet 1



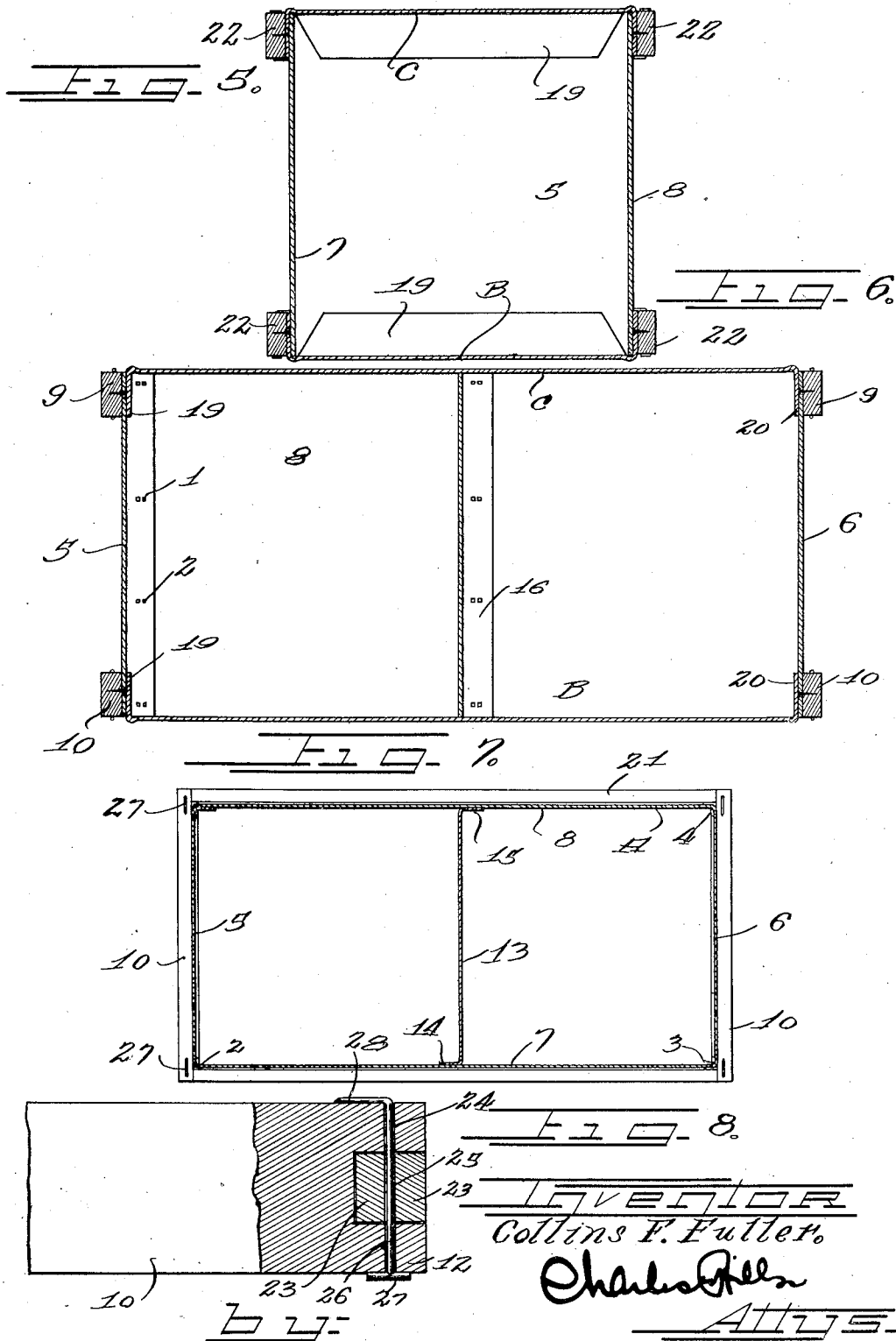
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UNITED STATES PATENT OFFICE

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KNOCKDOWN CONTAINER

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6 Claims. (Cl. 229—41)

This invention relates to a knockdown container and more particularly to one suitable for shipment of goods, such as eggs, wherein the cost of the container must be kept as low as possible and at the same time the container must be sufficiently strong to properly protect the contents from breaking during shipment and handling, and which container is capable of reuse.

Generally speaking, the invention contemplates a container suitable and useful for packaging and shipping eggs and like products where the cost of the container must be kept at a minimum and which container in the present instance is made preferably of inexpensive material such as fiber, strawboard, cardboard, or the like. The invention contemplates a container including a body and two separate members one a top member and the other a bottom member all made of inexpensive material. The body is made from a single sheet of material with the ends fastened together and scored at the corners to provide a rectangular shape when open, and the top and bottom members have flaps certain of which engage inside the body for retaining it in open rectangular position. The body and members are provided with cleats which have mortises and tenons for interfitting engagement when the parts are assembled with removable attaching means such as pins, nails or the like passed through the mortises and tenons so that the box may be opened for inspection and closed or may be reused.

An object of the present invention is to provide a knockdown container which is economical to manufacture and which may be sold at low price and which at the same time possesses sufficient strength and rigidity as to be acceptable to the trade.

Another object of the invention is to provide a knockdown container of fiber board or other suitable material connected for ready assembly and disassembly and available for inspection of the contents without damage to any of the container parts.

A further object of the invention is to provide a knockdown container made of inexpensive material constructed and arranged so that when in use all of the edges are closed and the various elements entering into the construction of the container tend to brace and rigidify the same for use.

Another and still further object of the invention is to provide a fiber knockdown container with removable bottom and top members of fiber, the container and the members being connected by cleats which have interfitting engagement one

with another to rigidify and connect the various elements in box form, the connections being such that the container is capable of reuse and may be folded and extend as desired.

Another and still further object of the invention is to make a substantially three-piece knockdown container or box comprising a body and top and bottom members of sheet material, such as fiber or the like, and assembling the top and bottom and body members in a manner to provide a box structure which is sufficiently rigid and strong for the purposes intended.

The above, other and further objects of the invention will be apparent from the following description, accompanying drawings, and appended claims.

An embodiment of the invention is illustrated in the accompanying drawings, and the views thereof are as follows:

Figure 1 is an isometric view of a knockdown container constructed in accordance with the present invention and shown arranged with an egg filler for use as an egg crate or shipping package.

Figure 2 is an end view of the container of Figure 1 with the lid closed and showing in dotted lines a position assumed by the lid when opened for filling or inspection purposes.

Figure 3 is an isometric view of one of the members which may be used as a top member as well as a bottom member.

Figure 4 is a plan view of the body in folded or collapsed condition and the top and bottom members thereon assembled as the same would appear when arranged for shipment or storage in knockdown condition.

Figure 5 is a sectional view taken substantially on the plane of line V—V of Figure 1 with the partition members removed.

Figure 6 is an enlarged sectional view taken substantially in the plane of line VI—VI of Figure 1 with the partition members removed.

Figure 7 is a horizontal sectional view through the container of Figure 1 with the partition members removed.

Figure 8 is an enlarged view partially fragmental and partially in section, the section being taken substantially in the plane of line VIII—VIII of Figure 1.

The drawings will now be explained.

The body of the container chosen to exemplify the present invention is herein designated generally as A and is illustrated as consisting of a body made from a single piece of material such as fiber, cardboard, strawboard, sheet metal or

like inexpensive material, with the ends fastened together as by rivets or staples 1 and with the body scored to provide the corners 2, 3 and 4 whereby the body A may be folded in a flat or collapsed position as shown in Figure 4 or opened and extended into substantially rectangular position as elsewhere shown.

Simply for the purpose of illustration and description, the panels 5 and 6 are herein designated as the end panels while the panels 7 and 8 are herein designated as the side panels. This designation is merely for convenience of description and is not by way of limitation.

Attached along the upper and lower margins of the ends 5 and 6 are cleats 9 and 10. These cleats are attached by nails or staples driven through the material comprising the body A, into the cleats. The cleats are fastened to the outsides of the ends 5 and 6. The ends of the cleats 9 and 10 are provided with mortises 11 thus forming ears 12 defining the slots which constitute the mortises.

The body A is preferably provided with a middle partition 13 which is of the same material as the body A and which has flanges 14 and 15 extending in opposite directions from the body of the partition and which flanges are fastened by staples 16 or other fastening means to the sides 7 and 8 of the body. This construction of the partition member 13 enables hinging action of the same with respect to the body as the same is collapsed into folded position as shown in Figure 4 or opened or extended as shown in Figures 1, 6 and 7. This partition rigidifies the central portion of the container when opened thus making possible a reduction in the cost of the manufacture of the container.

The body A when open in plan has the appearance of a rectangle and the body constitutes the walls of the container.

The container or package is completed by means of top and bottom members one of which is illustrated in Figure 3. The members are similar in all respects and are applied to the body A when in open position, one from the under side and the other from the top side.

The member illustrated in Figure 3 comprises a flat portion 16, side flaps 17 and 18 and end flaps 19 and 20. The member of Figure 3 is constructed of the same material as the body A of the container and the flaps are formed by cutting and scoring such member. Along the outsides of the side flaps 17 and 18 cleats 21 and 22 are attached by nails, staples or like fastening means. These cleats 21 and 22 have tongues or tenons 23 or other suitable interfitting joints in the ends of the same for interfitting with the mortises in the end cleats 9 and 10 of the body when the parts are assembled.

The container of the present invention is assembled in the following manner:

The body A in folded form as shown in Figure 4 is set up on one edge and opened into rectangular form or shape. Then one of the members such as that illustrated in Figure 3 is applied to the top side of the body in its then position with the end flaps 19 and 20 inserted against the insides of the ends 5 and 6 of the body and the side flaps 17 and 18 applied against the outsides of the sides 7 and 8 of the body and the tenons 23 of the cleats 21 and 22 brought into engagement with the mortises 11 of the adjacent cleats, thus locking together the member with the then top side of the body. The ears 12 defining the mortises 11 and the tenons 23 are drilled at 24 and

25, as may be observed in Figure 8, to receive therein attaching pins such as nails 26. The nails 26 as herein illustrated are provided with enlarged heads 27. When the nails are inserted in the bores 24 and 25 the pointed ends thereof are clinched over as at 28 to lock together the mortises and tenons of the cleats for the then top side of the container. When this has been accomplished the container is turned upside-down so that the other member may be applied to the then top side.

Before the second member is applied, and if the container is to be used as an egg crate, partition members 29 are placed within the body A against the then bottom and between the ends 5 and 6 of the body and the central partition 13 as illustrated in Figure 1. These partitions are then filled with eggs to maximum capacity.

The lid or cover is then applied in the same manner as described with respect to the then bottom, that is, the member such as that illustrated in Figure 3 is turned up-side-down so that the end flaps 19 and 20 engage against the insides of the top margins of the ends 5 and 6 of the body with the side flaps 17 and 18 and the cleats engaging the outsides of the sides of the body. The cleats are then connected to the top cleats 9 on the ends of the body and locked by insertion of the pins or nails 26 as heretofore described.

The utilization of the end flaps 19 and 20 on the top and bottom members and arranged in engagement against the insides of the ends 5 and 6 of the body served to rigidify and strengthen the container, thereby enabling the use of lighter and inexpensive material for constructing it. The utilization of the cleats and the arrangement of the same in the manner described provide encircling reinforcement for the container and sufficient strength and rigidity to provide a satisfactory shipping package for articles such as eggs.

Should it be desired to inspect the contents of such a package when packed with eggs, and it is customary to so inspect eggs, then all that it is necessary to do is to remove two of the nails from similar ends of the top cleats 9 and raise the lid or cover to the position shown in Figures 1 and 2, thereupon exposing to view the contents of the container. When the inspection has been completed the container may be closed as before by returning the cleat 21 of Figure 1 into engagement with the mortises 11 in the cleat 9 of the body A and securing these together by the nails 26.

It will be observed that the manner of attaching and detaching the top and bottom members with respect to the body is one which is simple and which enables ready attachment and detachment without damaging any of the parts entering into the container. The nails are the only things which have to be replaced for such inspection purposes or have to be replaced after removal of the nails from a set up container when it is desired to collapse it for storage or shipment purposes for reuse. The construction of the interfitting cleats and the attaching means therefor is simple, cheap and efficient and enables reuse many times of the container for desired purposes.

It will be observed that when the container is completely closed, all of the edges are closed thus excluding dirt from the interior of the container and aiding in keeping the contents clean. The construction of the present container makes

the same readily available for inspection purposes when desired. Furthermore, the construction of the present container is such as to enable its reuse many times. There is nothing to be damaged or harmed by repeated applications and removals of the nails 26.

For convenience and reference, the bottom is designated at B and the top at C.

The cleats are herein illustrated as being wooden cleats. It is within the contemplation of this invention to utilize other material than wood for such cleats if occasion arises.

The present invention has herein been described more or less precisely as to details, yet it is to be understood that the invention is not to be limited thereby as changes may be made in the arrangement and proportion of parts, and equivalents may be substituted without departing from the spirit and scope of the invention.

The invention is claimed as follows:

1. A knockdown container comprising a body and removable top and bottom members, cleats attached to said body and other cleats attached to said members, the body and the member cleats having mortise and tenon engagement, and removable pins passing through the mortise and tenon connections for maintaining said connections in box shape, the removal of the pins allowing ready collapse of the container to knockdown condition for storage or shipment.

2. A knockdown container comprising a body made from a single piece of material having its ends connected together and scored to form corners, said body being foldable into substantially flat condition and extensible into rectangular shape in plan, separate top and bottom members of similar material each having marginal flaps, the said top and bottom members being applied to said body with certain flaps engaging the insides of parts of said body for retaining the body in rectangular form, and said members and body having cleats secured thereto for rigidifying the container when set up in box form, and fastening means engaging the interfitting portions of said cleats for connecting the top and bottom members and body together in box-like structure.

3. A knockdown container having a body foldable into flat form and extensible into substantially open rectangular shape, cleats secured to the upper and lower margins of two opposite portions of said body, separate top and bottom members of similar material, said members being insertable in said body to form with it a closed box-like structure, said members having cleats thereon which interfit with the body cleats and with them provide bracing effective about said structure, the body and member cleats being

disengageably fastened together whereby said structure may be collapsed into folded form for shipment or storage and connected in extensible condition for packaging purposes.

4. A knockdown container having a body foldable into flat form and extensible into substantially open rectangular shape, cleats secured to the upper and lower margins of two opposite portions of said body, separate top and bottom members of similar material, said members having end flaps and side flaps, cleats secured to the side flaps of said members, said members being insertable in said body to form with it a closed box-like structure, the end flaps of said members being inserted inside certain portions of the body and the side flaps carrying the cleats being applied outside other portions of said body, the cleats of said body and said member having mortise and tenon engagement, and means passing through the mortises and tenons for disengageably connecting said cleats together to maintain said container in box-like form, the end flaps of said members and said cleats cooperating to rigidify said container.

5. A knockdown container having a body foldable into flat form and extensible into substantially open rectangular shape, cleats secured to the upper and lower margins of two opposite portions of said body, separate top and bottom members of similar material, said members having end flaps and side flaps, cleats secured to the side flaps of said members, said members being insertable in said body to form with it a closed box-like structure, the end flaps of said members being inserted inside certain portions of the body and the side flaps carrying the cleats being applied outside other portions of said body, the cleats of said body and said member having mortise and tenon engagement, and means passing through the mortises and tenons for disengageably connecting said cleats together to maintain said container in box-like form, the end flaps of said members and said cleats cooperating to rigidify said container, certain of said connecting means being removable for opening the top of said structure for filling and inspection purposes.

6. A knockdown container comprising a body and removable top and bottom members, cleats attached to said body and other cleats attached to said members, the body and member cleats having the ends thereof arranged for interfitting engagement, and removable members passing through the interfitting ends of said engaged cleats for maintaining said container in box shape, the removal of the removable members allowing ready collapse of the container to knockdown condition for storage or shipment.

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