Feb. 3, 1931. E. C. POTTER 1,790,676

PACKING OR SHIPPING BOX

Filed Aug. 10, 1927 2 Sheets-Sheet 1

Fig. 1.

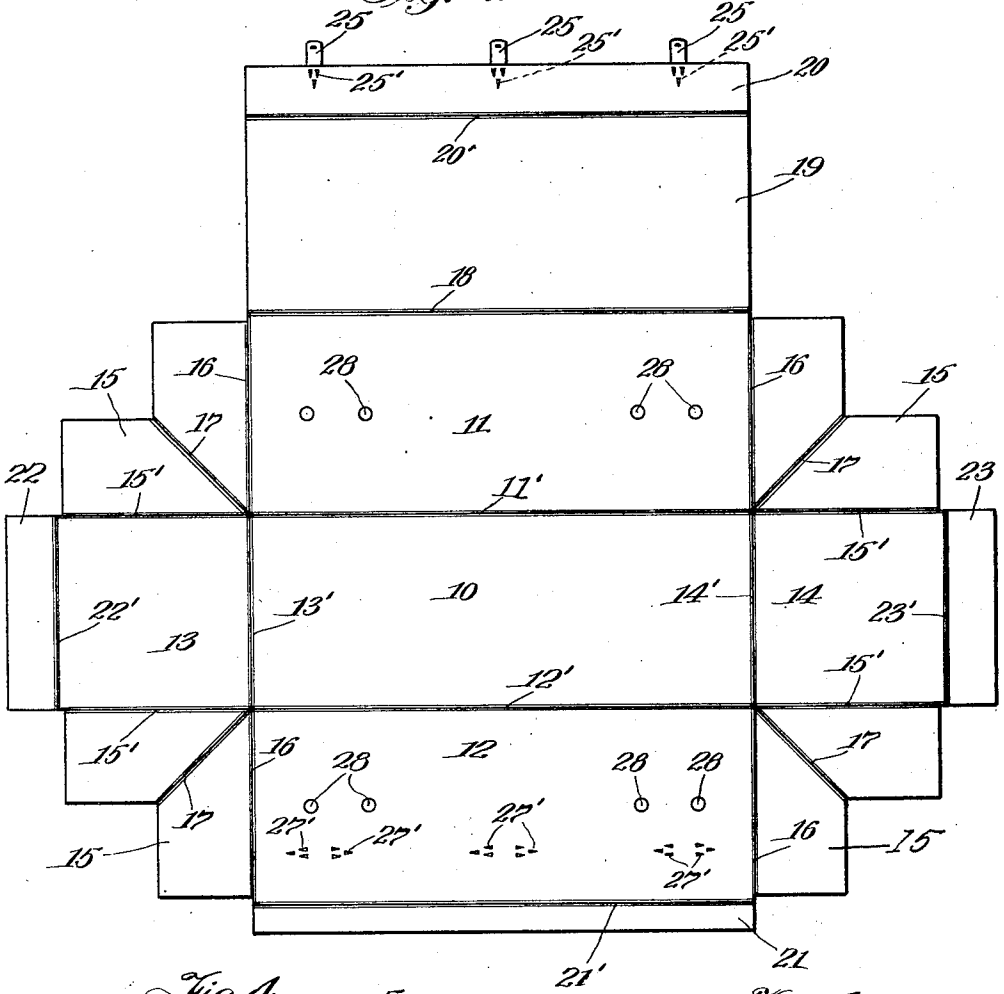


Fig. 4.

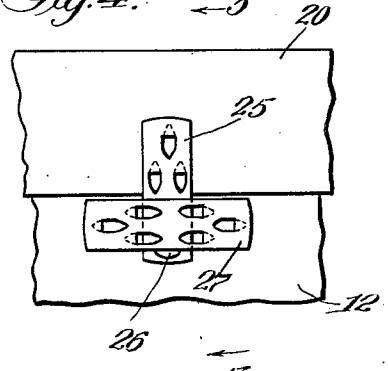
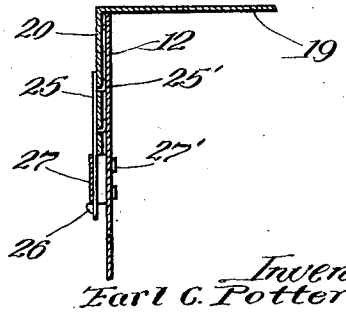


Fig. 5.



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Fig. 2.

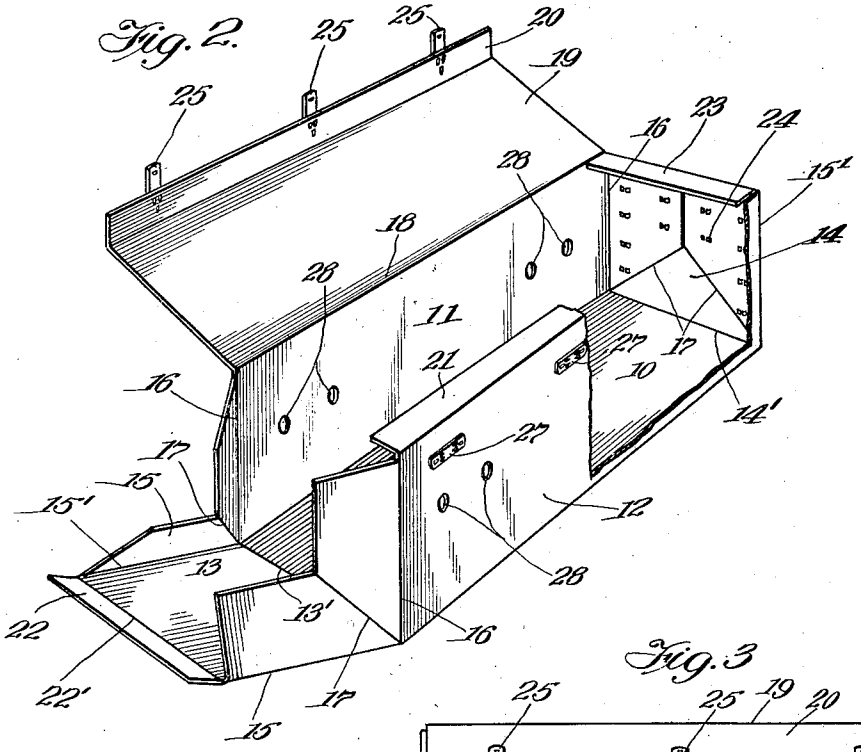


Fig. 3

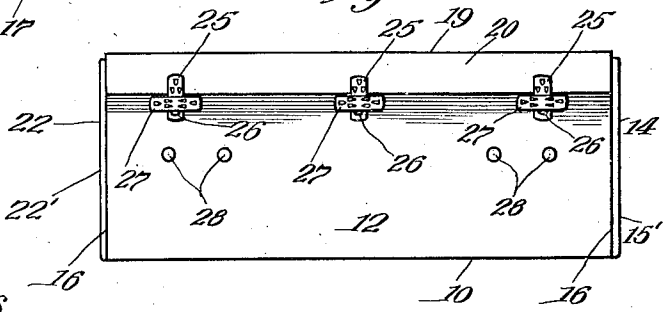
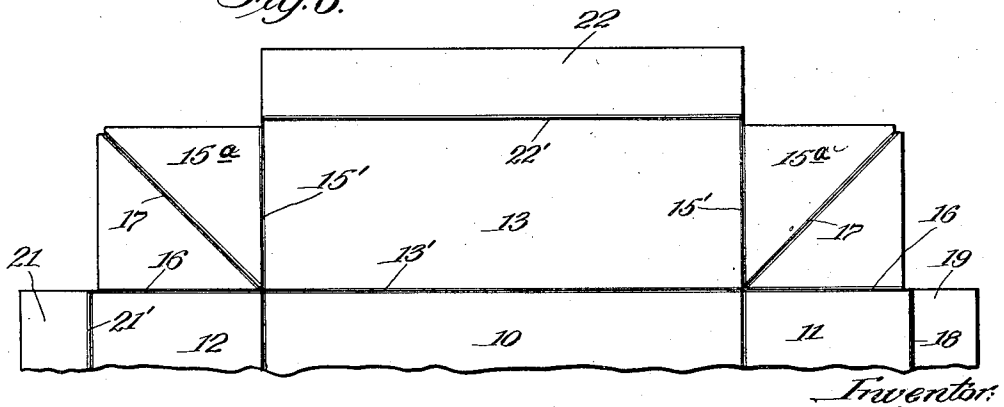


Fig. 6.



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Patented Feb. 3, 1931

1,790,676

UNITED STATES PATENT OFFICE

EARL C. POTTER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CONTAINER CORPORATION OF AMERICA, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE

PACKING OR SHIPPING BOX

Application filed August 10, 1927. Serial No. 211,891.

My invention relates to packing or shipping boxes and has to do particularly with water-proof paper-board boxes adapted for the packing, shipping and storing of goods such as meats, fruits, and the like.

It is customary to ship goods of this character in closed containers under refrigerated conditions to warehouses or other storage places. Before such goods are received in the warehouses, and at times during shipment, they are usually subjected to inspection during which it is required that the containers be opened and again closed in substantially the same manner as originally for the proper preservation of the goods. A great number of such containers may be shipped at a time as in a refrigerator car, and during such shipment, and also during storage, they may be stacked one upon the other. It is desirable that these containers be so formed that they may be readily moved, opened and closed during inspection to insure proper closing of the containers at all times with a minimum of delay in shipment and final storage. Containers customarily employed for the shipment of goods of this character are not adapted to this end and much unnecessary time and handling is required in connection with inspection of the same. Furthermore, containers formerly employed have been of such character that tools and additional materials (such as binding strips, adhesive material or nails, etc.,) must be employed in opening and closing the same during the inspection thereof.

One of the objects of my invention is to provide a simple inexpensive, strong, durable and light-weight paper-board box adapted for the packing, shipping and storing of goods under refrigerated and other conditions and which may be readily and quickly opened and closed without the use of tools and additional materials and with minimum labor and effort.

Another object is to provide a moisture-proof box from a single blank which may be readily folded to box form and which may be used for shipping and storage over long periods of time in contact with damp surfaces or in damp environments without weakening of the box, or softening of the material thereof, or other injurious effects.

A further object is to provide a box of this character which may be readily ventilated and which has a continuous-walled cavity adapted to contain and retain liquids therein and to prevent passage of liquids thereinto, the side and end walls of the box being integrally joined by folding sections to accomplish this and which serves to additionally strengthen the box walls.

Still another object is to provide the box with an integral cover part which carries locking devices engageable with flexible locking devices on one of the box walls and which is supported and strengthened in its closed position in such a way that the boxes may be readily stacked without injury or distortion.

Other objects and advantages will become apparent as this description progresses and by references to the drawings wherein:—

Figure 1 is a plan view of a blank from which a box embodying my invention is formed;

Fig. 2 is a perspective view of the box, partially set up from the blank of Fig. 1, and showing the manner of folding the end parts of the box.

Fig. 3 is a side elevation of the box with the cover in its closed and locked position.

Fig. 4 is an enlarged view of a portion of one of the walls of the box and a portion of the cover showing the cover fastening devices in cover locking position.

Fig. 5 is a section taken on line 5—5 of Fig. 4.

Fig. 6 is a plan view of one end of a modified form of blank from which a box embodying my invention may be formed.

Referring to the drawings, the blank (Fig. 1) which I, preferably, employ is formed of cardboard or other heavy paper-board material which is waterproofed in any desired manner to render the same impervious to moisture. This waterproofing may be accomplished by subjecting the paper-board surfaces to a wax or paraffin treatment or by giving the same an asphalt covering.

In forming the box, embodying my invention from the blank of Fig. 1, the blank is

first cut to the shape shown, the entire blank surface forming one integral piece. The blank is creased along fold lines to form a bottom 10, side walls 11 and 12 and end walls 13 and 14, each of such walls being connected to the bottom 10 by the respective fold lines 11′, 12′, 13′ and 14′. Each end wall 14, at its opposite side, is connected to an L-shaped end piece 15 along the fold line 15′ and these end pieces are also connected to the adjacent ends of the respective side walls along the creased fold lines 16. Each of the end pieces 15 are creased diagonally as at 17 to form a fold line whereby these end pieces may be, preferably, collapsed inwardly on the line 17 to a triangular-like shape and folded against the respective end walls as clearly shown in Fig. 2. However, it is to be understood that these end pieces 15 may be folded inwardly against the adjacent side walls; or they may be collapsed outwardly and then folded back against either the adjacent end or side walls without departing from my invention.

The side wall 11 is connected along the fold line 18 to a cover 19 which, in turn, is connected to a fastening flap 20 along the fold line 20′. The side wall 12 and each of the end walls 13 and 14, are provided with projecting flaps 21, 22 and 23 connected thereto along the respective fold lines 21′, 22′ and 23′. These flaps serve to support and reinforce the cover in its closed position so that it will not readily become distorted or injured during shipment and when the boxes are stacked one upon the other.

To set up the box as shown in Figs. 1 to 5 inclusive, the side and end walls 11, 12, 13 and 14 may be first folded upwardly from the bottom wall about the creased lines 11′, 12′, 13′ and 14′, at which time the end pieces 15 are collapsed inwardly about the fold lines 17, as illustrated in Fig. 2. The end pieces 15 are folded back against the inner face of the end walls in the manner and to the position illustrated in Fig. 2, and are secured in this position by any suitable fastening means, preferably, by the staples 24. In addition to forming a closed water-tight cavity, these end pieces serve to strengthen the end walls of the box and the box as a whole and boxes of this character may be stacked without injury or distortion. The extension flaps 21, 22, and 23 on the side and end walls are folded inwardly about their respective fold lines to a horizontal position. The fastening flap 20 of the cover 19 is folded at right angles to the cover to a position for securing the cover in place when it is desired to close the box as will be described more fully hereafter.

One of the important features of my invention is the provision of means for securely locking the cover in its closed position in such a manner that it may be readily and quickly opened and closed as often as desired with the cover always assuming its proper closing position when locked; and the opening and closing operations may be accomplished without tools and additional material whereby packing, inspection, shipment and storage are greatly facilitated. To accomplish the foregoing, I employ a plurality (preferably, but not necessarily, three) of flexible metal latch members 25, each attached to the fastening flap 20 of the cover 19 by the sharp projections 25′ struck from the members 25 and clinched over on the inner face of the cover. Each of these latch devices has an outwardly projecting lip 26 for a purpose to be described later. The side wall 12 is provided with flexible strips 27 corresponding in number to the latches 25, and which are secured on the outer surface of the wall by the sharp clinched projections 27′ struck therefrom. The distance between the projections 27′ at the opposite ends of these strips is slightly greater than the width of the latches 25 so as to readily permit the latches 25 to pass therebetween (Fig. 4). To close and securely fasten the cover to the box, it is folded about the fold line 18 with the flap 20 extending down from the side wall 12 and the latches 25 are forced between the strips 27 and the outer surface of the wall 12. The strips 27 are sufficiently flexible to spring outwardly the desired extent to permit these latches with the projecting lips 26 to freely pass therebetween. As the lips 26 pass beneath the lower edge of the strips 27, the latches 25 spring outwardly and the cover is securely locked in place. The latches can be readily and quickly disengaged and the cover opened by applying pressure to the bottom thereof to disengage the lips 26 and by applying upward pressure to the same.

With the shipping and storing of certain commodities, such as meats, it is desirable that the box be ventilated. This is readily taken care of by the provision of ventilating openings 28 at the desired height in the side or end walls of the box. The height to which the box cavity will hold and exclude liquids is obviously determined by the height of the ventilating openings, when they are used, and by the extent to which the outer corners of the end pieces 15 are cut away.

In Fig. 6 I have shown a modified form of blank wherein the end pieces 15ª, corresponding to the end pieces 15 of Fig. 1, are cut away only to a very slight extent and no ventilating openings are provided so that the box will have a water-tight cavity substantially throughout its height. Otherwise, the blank of Fig. 6 is the same as that of Fig. 1.

Although I have shown and described only two embodiments of my invention, it is to be understood that various changes may be made therein without departing from the spirit and scope of my invention as defined in the claims which follow.

I claim:

1. In a paper-board packing or shipping

box of a character comprising a plurality of walls, one of which walls is a cover hinged to another of said walls; metal latching devices mounted on said cover, and metal latching devices on an adjacent one of said walls, said latter devices being adapted to be engaged by said first-mentioned devices and securely interlocked therewith by and upon the swinging movement of one edge of said cover toward said adjacent wall, said devices being so constructed and arranged that in so interlocking the same the said latter devices and their supporting wall surfaces yield together in opposite directions to receive said first-mentioned devices, and the interlocking may be carried out without individual manual manipulation.

2. A packing or shipping box comprising a bottom, side, and end walls hinged to said bottom, end pieces each having one edge hinged throughout to the end of a side wall and another side hinged throughout to an edge of the adjacent end wall, said end pieces being creased diagonally to collapse upon one of said walls, a cover hinged to one side wall, flaps hinged to the other of said side walls and said end walls and adapted to extend horizontally inward of the box, a flap on said cover extending at substantially right angle thereto, separate latching means mounted on said cover flap adjacent the central and end portions of the box, and flexible means on said other side wall adapted to be yieldably engaged separately by each said latching means for locking said cover in closed position, as said cover is moved to its closed position.

3. Cover fastening means for a paperboard packing or shipping box having a plurality of side walls, a cover and a cover flap, which comprises a plurality of substantially spaced metal latch members carried by said flap, each member having an outwardly extending rigid projecting lip, resilient, flat metal retaining members mounted transversely to said latch members and attached at their ends flat upon one of said side walls so as to provide a free spring-like mid-portion, said metal latch members being adapted to pass between said retaining members and their supporting side wall surface when said cover is moved to its closed position, whereby said lips spring said retaining member outwardly and the adjacent paper-board surface inwardly to permit passage of the latch members past said retaining members, and said latch members being adapted to flex when said lips have passed beyond said retaining members so that said lips overhang said retaining members to prevent separation of the latch member therefrom and to hold the cover in its closed position.

4. The combination with a paperboard box having bottom, side and end walls, and a cover hinged to one of said side walls; of a thin metal latch strip secured at one end to said cover and having at its other end a small, outwardly-extending projection, a thin flexible metal strip secured to the side wall opposite the one supporting said cover, said latter strip being fastened at its ends only flat upon its supporting wall, both said paperboard side wall material and side wall strip being yieldable to permit said cover latch strip to expand them when its projection-carrying end is inserted therebetween to pass said projection beneath said side wall strip to engage under it and self-latch said cover thereto.

5. In a paper packing or shipping box, side walls, a cover hinged to one side wall and having a substantially right-angled flap, a thin, flat metal fastener on said flap having a snap projection on its outer face, a thin flat metal strip mounted on the side wall opposite that carrying said cover in such a manner that said strip provides with its attaching wall a normally closed yieldable-walled space through which said metal fastener and projection are adapted to be forced to snap said projection beneath the lower edge of said metal strip to self-secure the cover in its closed position.

6. Cover fastening means for a paperboard shipping box which has a plurality of walls, which comprises a thin, flat snap-latching member mounted on one of said walls; a flat, resilient retaining member mounted flat upon another of said walls which is adjacent said one wall, said retaining member and its supporting paper-board wall surface being adapted to be yieldingly engaged by said snap-latching member, and said snap-latching member having means for securely interlocking said snap-latching member and retaining member together by the movement of said walls together to securely hold said walls fastened together.

In testimony whereof, I have subscribed my name.

EARL C. POTTER.