H. LEIMAN.

BOX.

APPLICATION FILED FEB. 14, 1916.

1,254,515.

Patented Jan. 22, 1918.

2 SHEETS—SHEET 1.

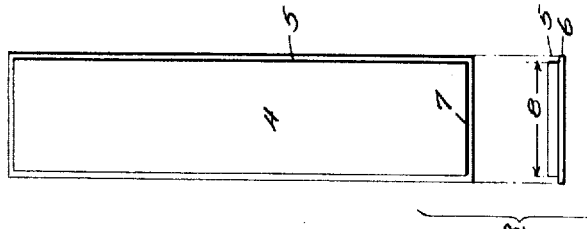


FIG. 3.

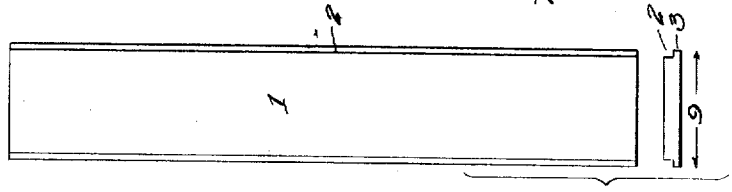


FIG. 4.

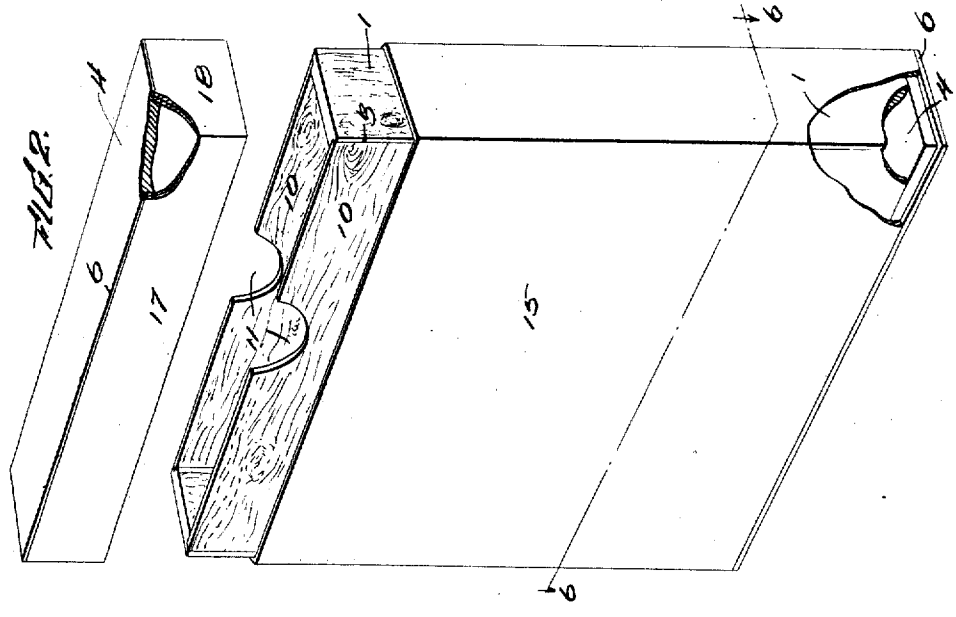


FIG. 2.

FIG. 1.

Inventor

Henry Leiman.

By Mason Fenwick & Lawrence,

Attorneys

H. LEIMAN.

BOX.

APPLICATION FILED FEB. 14, 1916.

1,254,515.

Patented Jan. 22, 1918.

2 SHEETS—SHEET 2.

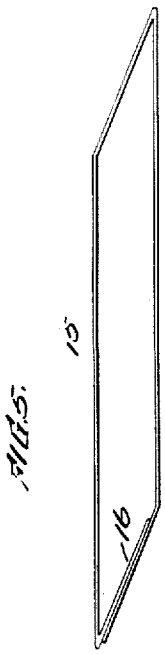


FIG. 5.

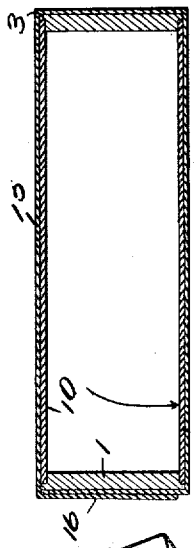


FIG. 6.

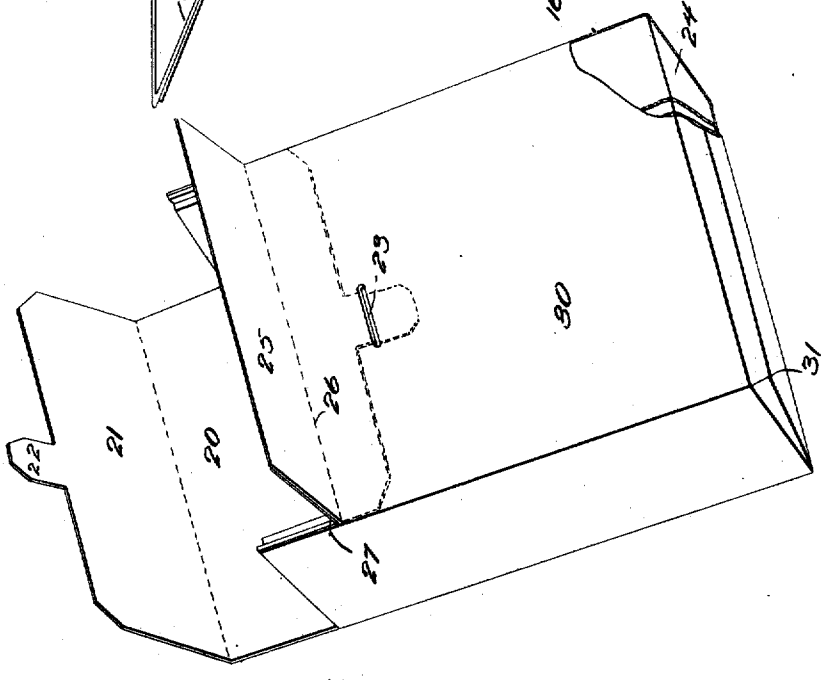


FIG. 7.

Inventor

Henry Leiman.

By Wilson Fenwick & Lawrence,

Attorneys

UNITED STATES PATENT OFFICE.

HENRY LEIMAN, OF TAMPA, FLORIDA.

BOX.

1,254,515. Specification of Letters Patent. Patented Jan. 22, 1918.

Application filed February 14, 1916. Serial No. 78,223.

To all whom it may concern:

Be it known that I, HENRY LEIMAN, a citizen of the United States, residing at Tampa, in the county of Hillsborough and State of Florida, have invented certain new and useful Improvements in Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to wooden boxes, and more especially to those of the knockdown type made in sections or parts adapted to be shipped flat or in separated condition and set up by the receiver; and the object of the same is to construct a rectangular box suitable for containing any commodity requiring a small, substantial, and light package or container that will stand rough handling in the mail and express.

To this end I make the box in sections, its inner section being pieces of wood and as thin and light as possible, and yet interengaged when they are set up so that they will resist pressure from the exterior, and its outer section being a carton of heavy paper or light cardboard and of a size and shape to receive and hold the parts of the inner section in place, with or without glue or cement. Further details will be found in the following specification, reference being had to the drawings wherein:

Figure 1 is a perspective view of one type of this box and Fig. 2 of its cover, one corner of each being broken away and in section.

Figs. 3 and 4 are plan views of one end and one top panel, constituting parts of the inner section or member, and Fig. 5 is an end view of the body portion of the carton or outer member.

Fig. 6 is a sectional view on the line 6—6 of Fig. 1.

Fig. 7 is a perspective view of another type of this box, here shown as provided with a different form of cover made as an integral part of the carton and shown as open, this view also illustrating a front flap which may be provided and showing the same as nearly wide open.

The inner section or member of this composite knockdown box is by preference made of wood, not only because it is preferable to have wood next to certain commodities, but also because a box or package made entirely of cardboard does not well resist external pressure as when passing through the mails or even within the pocket. Yet for sake of cheapness and lightness I make the wood as light as possible and I cut the parts from stock of as few standard sizes and shapes as may be. Each end piece or panel of the box is made of a strip 1 of wood as seen in Fig. 3, rabbeted along both its inner corners as at 2 so as to leave narrow flanges along its outer corners as at 3. It is obvious that when the machine is set for making this strip it can be turned out in lengths limited only by the condition of the lumber from which it is cut, and these long strips can afterward be sawed into end pieces 1 as seen in Fig. 3. In similar manner the top and bottom panels or pieces are formed from a strip of wood and then cut into proper lengths as shown at 4 in Fig. 4, each rabbeted along its inner corners as at 5 and leaving thin flanges along its outer corners as at 6, but this part is also rabbeted across its ends as at 7. The stock from which this part is cut can be formed on the same machine excepting that the latter must be set to a little different gage, because the width of its body from one rabbet 5 to the other as indicated at 8, is by preference the same as the width of the end piece 1 from the outer edge of one flange 3 to that of the other flange as indicated at 9.

The sides of the inner section or member are formed from very thin wood like veneer, into two like panels 10 whose grain is transverse to the height or depth of the box as indicated at the upper portion of Fig. 1, and these panels may have thumb notches or cut-outs as shown at 11 in the same view. Their thickness should be sufficient to fill out the rabbets 2 and rest against the flanges 3 when the parts are in place as seen in Fig. 6. Duplicate end panels are provided and stand upright in the finished box. Duplicate side panels are also provided and also stand upright with their edges lying in the rabbets of the end panels as shown, and a single bottom panel 4 completes the body of the box while the other panel 4 makes up part of the top as seen in Fig. 2. The top panel is omitted in the construction shown in Fig. 7, and the bottom panel may be used or not as desired.

The outer section or member of this box may be called a covering or sheath 15. If made of paper it is possible that it could

be applied from the sheet and its edges pasted together when it is applied, but I preferably make it of very heavy paper or light cardboard, cut first into a strip and then bent into rectangular shape as seen in Fig. 1, with its edges overlapping and pasted to each other as at 16 in Fig. 5. This view shows how such a sheath may be collapsed or flattened out for storage or transfer. In length the sheath may be slightly less than the height of the wooden parts 1 and 10, so that the latter rise above it as seen in Fig. 1 for the reception of the cover, but the sheath is adapted in size to the interior member around which it fits very snugly.

In making up a box body from the members described, a sheath 15 is opened from its flat to its rectangular condition, and a panel 4 inserted into its lower end so that the latter rests in the rabbets 5 and 7, within which it is preferably held by glue. Two of the end panels 1 are then slipped down into the ends of the sheath until they rest on the bottom, to which they may be glued if desired, although this is not necessary; and finally two of the side panels 10 are slipped down into the sheath with their side edges in and accurately filling the side rabbets 2 of the end panels, and these also may or may not be glued to the bottom. As their grain is transverse, it is the end of the grain which rests in the rabbets and the side panels therefore resist pressure on the sides of the box, as of course the end panels resist pressure on the ends of the box and the bottom panel strengthens its bottom.

The closure for the upper end may be such as desired. The wooden panels described may project above the sheath as shown in Fig. 1, or these panels may terminate flush with the sheath, but that construction is perhaps best illustrated in Fig. 7 yet to be described. With the box shown in Fig. 1 I may well use the cover shown in Fig. 2. This is made up of one of the wooden members 4, and a skirt 17 which is a strip of the same piece of light cardboard as that composing the sheath, the strip being carried around and glued into the rabbets 5 and 7 and its ends lapped and glued together at 18. Obviously this skirt then forms a rectangle which is of the same size and shape as the body of the sheath, and the panel 4 holds it in this shape: therefore when such cover is brought into position it can be slipped over the protruding upper ends of the wooden members, and the box may be neatly closed thereby. When the cover is removed, the thumb and finger can be passed through the notches 11 (if they are employed) to grasp the contents and withdraw them. Although not so illustrated, it is quite possible that the box and its cover may have an additional wrapper as of paper, and this wrapper could well cross the line between the meeting edges of the skirt and sheath so that if it were pasted on both it would serve as a cover fastener. Or the wrapper may inclose the entire box and its cover and be folded in or otherwise fastened without being glued to any part. No claim is made herein for the cover fastener.

In the construction shown in Fig. 7 the same upright wooden panels are employed in making up the inner members and with the closure therein shown these panels are cut off flush with the top of the sheath. They are made from the same stock, and they are cheap and light while yet being serviceable to resist pressure and protect the contents. So also the same sheath is employed, and the parts are assembled in the same manner excepting that the bottom panel may be omitted and the cover panel is omitted if a cover is used as shown in this view. Such a cover I prefer because it is even cheaper than that above described, but the omission of the top and bottom wooden panels obviously removes the protection which they would afford at the top and bottom of the box, although I find that not always necessary. One side panel of the sheath is herein shown as carried upward in a cover 20 which is a rectangular panel of proper size to overlie the top of the box body. This cover is carried upward in another panel which we may call the cover flap 21 which may be about the size of the cover 20, and it is quite possible to provide the outer edge of the cover flap with a tongue 22 capable of entering a slit 23 for holding the closure in place, although this detail may be omitted. The cover is united to the sheath body by a score line and to the cover flap by another score line so that the parts may be folded over to close the box in a manner which is obvious, and the closure may be fastened by any suitable means as by passing the tongue 22 into the slit 23. Part of the lower corner of Fig. 7 has been broken away to show that one panel of the sheath is continued downward into a flap 24 which, in the finishing of the box, is brought up against the lower ends of the upright wooden members and possibly glued thereto. Finally a wrapper paper (preferably of fanciful design) is applied to the outside of the sheath and perhaps carried over its cover, and this wrapper is indicated broadly at 30. It is carried around the sheath and its edges pasted over upon each other, and at the lower end of the box it is turned in and pasted onto itself as indicated at 31. The purpose of the wrapper is to make a neat covering, and perhaps it may be printed or engraved in imitation of wood; and whether the bottom flap 24 is glued to the upright panels or not, the folding in of the wrapper as at 31 will hold

said flap in place. Fig. 7 also shows how the front of the box might be provided with a flap 25 by scoring the sheath and its wrapper across the line 26 and cutting the wooden side panel on a corresponding transverse line 27; but this is only one of many expedients which may be resorted to in order to give the consumer access to the contents so that he may withdraw the latter without injury to the box or the contents. I do not wish to be limited to the use of a wrapper at all, whether applied loosely or pasted around the box and its cover as described with respect to Figs. 1 and 2, or whether applied permanently and utilized to hold in the bottom as described with respect to Fig. 7, but if the wrapper be employed it has its function of advantage as well as that of ornamentation. The size and proportion of parts are obviously matters of no moment.

Besides the bracing effect which the internal or wooden member has on the external member or sheath when the parts are assembled, the invention possesses an advantage in its knockdown feature. That is to say, all parts of the inner member are cut from quite thin strips of light wood, and may be shipped or stored in small compass; and the sheath and its skirt, as well as the wrapper paper if it is used, will of course flatten out and may also be shipped and stored in small compass. Therefore these boxes may be sent by the manufacturer to the user in quantities, and by the latter set up according to directions which will accompany the package, and as the parts are all light the cost of transportation will be small. This element of lightness also has the same advantage if the user is engaged in shipping commodities by sending the box through the mail, and yet the finished box has sufficient strength to stand the rough usage in transit.

What I claim is:

1. In a box structure, an inner sectional lining including two opposite and relatively thick end panels whose side or longitudinal corners are recessed to produce flanges along their outer corners and marginal seats, and two relatively thin, opposite panels whose side edges lie within and fill said seats to the outer edges of said flanges; the said panels being disconnected from each other, an outer flexible and collapsible tubular sheath adapted to inclose all panels and holding them in engagement with each other, a bottom section having recessed corners in one plane to snugly fit up into said sheath and thereby sustain the same in such position, and a closure for the other end thereof.

2. A knock-down box comprising two upright end panels whose edges are rabbeted along their inner corners to produce flanges, and two upright side panels whose edges lie within said rabbets and rest against the flanges and flush with the outer edges thereof; and an external and relatively pliable, collapsible tubular sheath adapted to telescopically receive all said panels, a bottom member snugly fitting into and trussing said sheath, and having a marginal flange co-extensive with the bottom edge of the sheath.

3. A composite knock-down box structure consisting of a flexible tubular, laterally collapsible shell or sheath open at each end, a bottom piece, the corners of one face of which are continuously rabbeted sufficiently to form a seat, the outer edge of which is flush with the sides of the sheath when mounted thereon, opposite lining side pieces of slightly less length than the inside surface of the side walls of the sheath, key or end panels having their longitudinal edges rabbeted along one face a depth equal to the thickness of said side pieces, and, with the sides of the sheath, forming guideways to receive and support the ends of the respective lining pieces, which latter and the end panels at their bottom edges abut the inner face of the bottom piece, which shapes and braces the box, and a closure for the opposite end of the box thus formed.

4. A composite box structure consisting of a tubular, pliable transversely collapsible and distensible sheath open at both ends, a bottom piece rabbeted entirely around its corners at one face forming a panel adapted to snugly fit up into one end of the sheath to support the same in distended position, the flange formed by the rabbet abutting against the rim of the sheath, end pieces of a width to snugly fit transversely across the sheath and rabbeted longitudinally at the corners to form channels in the sheath corners, thin sheets forming side linings whose edges snugly fit the channels, all glued at contacting faces, and a closure for the top end of the box.

In testimony whereof I affix my signature.

HENRY LEIMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."