June 17, 1924. 1,497,704

H. B. WALTER

BOX

Filed July 17, 1922

Fig. 1.

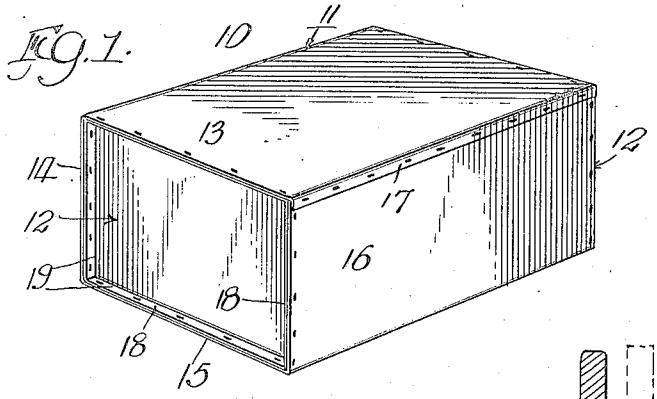


Fig. 2.

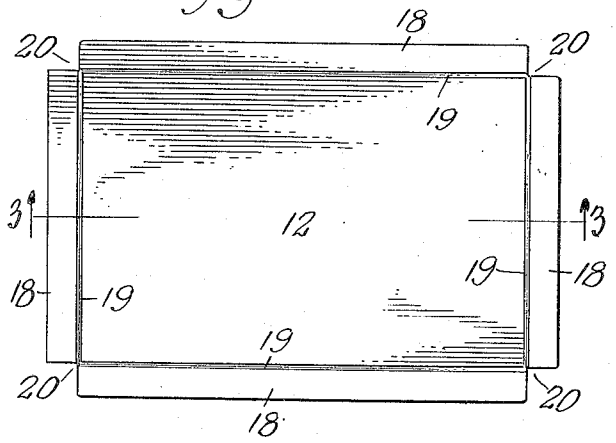


Fig. 4.

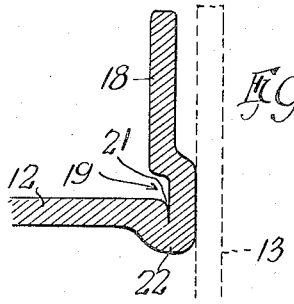


Fig. 5.

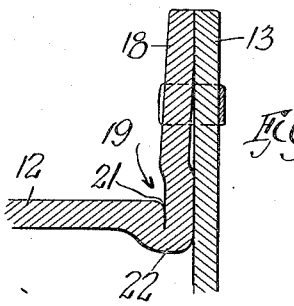


Fig. 3.

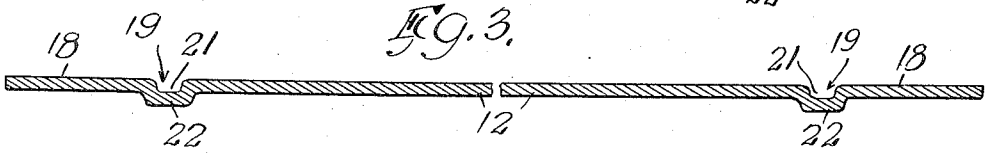
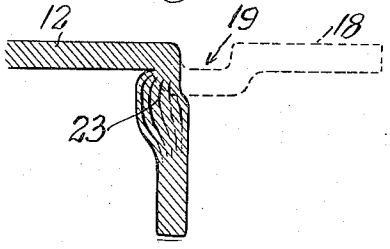


Fig. 6.



Inventor
Harrison B. Walter
by Clarence E. Middlekoff
Atty.

Patented June 17, 1924. 1,497,704

UNITED STATES PATENT OFFICE.

HARRISON B. WALTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHICAGO MILL AND LUMBER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BOX.

Application filed July 17, 1922. Serial No. 575,683.

To all whom it may concern:

Be it known that I, HARRISON B. WALTER, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Boxes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in boxes made of fibre or paper board and consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The invention relates more particularly to the type of box shown in Letters-Patent No. 1,055,243 granted to me on March 4th, 1913, which consists of a body made from a blank cut and creased to fold into tubular form and of ends or heads made from blanks, each cut and creased to provide the head and foldable flaps at the sides of the head, which are adapted to be attached to the sides of the body with the head parts recessed within the tubular ends of the body.

The object of the invention is to improve and strengthen a box of the kind and in particular to so form the heads that the rigidity of the box at or in the neighborhood of its heads or ends will be greatly increased as compared to prior boxes of the kind.

This and other advantages of the invention will appear more fully as I proceed with my specification.

In the drawings:—

Fig. 1 is a view representing the improved box in perspective.

Fig. 2. is a plan view of the blank for forming a head of the box.

Fig. 3 is a view representing on an enlarged scale an elongated section through the head blank in a plane indicated by the line 3—3 of Fig. 2.

Fig. 4 is a detailed sectional view on a still larger scale in a plane parallel to one side of the box, showing the head and the flap at one edge thereof folded up in the position it occupies when the head is inserted in the end of the box.

Fig. 5 is a similar section showing the same parts as they appear when the flap has been attached to the adjacent side of the box.

Fig. 6 is a detailed sectional view showing the result of folding the flap in the wrong way.

Referring now to that embodiment of the invention illustrated in the drawings:—10 indicates the box which comprises a tubular body 11 and recessed heads 12—12. The tubular body is made from an elongated blank cut and creased to fold into tubular form and provide the four sides 13, 14, 15 and 16 of the box and, as shown, an extension 17 on one of the sides which is adapted to be folded over upon and to be secured to the side 16 when forming and closing the tube.

Each head 12 is made from a blank cut and creased to provide the main body of the blank and flap extensions 18 at all sides of the blank—said flap extensions being defined by the creases 19 which outline the sides of the main part of the blank. Right angle notches 20 are cut at the four corners of the blank so that the flaps 18 may be turned up into planes at right angles to the plane of the head with the ends of the flaps in lines parallel to the corners of the tubular box body.

In forming the creases in the blanks, to permit the folding as described, male and female die members are used which produce a deep comparatively wide groove 21, as shown in Fig. 3. The material of the blank is correspondingly upset on the opposite side in the form of a rib 22.

In constructions of boxes of the kind heretofore, it has been customary, particularly in the case of the head blank, to fold the flaps at the edges of the head blank in such manner as to open the groove 21 wider so as to present the base of the groove outwardly at the corner of the fold, crowding the material in the rib 22 upon itself,—as shown in Fig. 6. It has been found, however, that this folding of the flap tends to greatly weaken the head adjacent the flap and in particular that the stock in the rib was opened up and spread apart into a plurality of spaced layers of stock as indicated at 23 in Fig. 6.

Again it has been found that in folding the flap in this manner, there was no definite and sure location of the line which would form the axis upon which the flap

would swing, when folding it into the desired position so that the depth of the flap could never be definitely and accurately determined, even though the crease lines were always definitely located at the same distance from the outer edge of the flaps. Thus, the depth of the recess at the head ends of the box could not be accurately predetermined.

In making a box according to the present invention the flaps are folded with the rib 22 presented outwardly and with the groove 21 presented inwardly, as shown in Figs. 4 and 5. A number of advantages will result from thus folding the flap.

In the first place, the flap may always be folded along the edge of the rib farthest from the edge of the flap (as shown in the view referred to), with the result that the depth of the flap will always be the same and the depth of the recess may be accurately predetermined in all cases. Thus, the net inner length of the tubular body of the box is always the same and may be made to accord with specifications. The objectionable distortion and separation into layers of the stock in the neighborhood of the rib as shown in Fig. 6 and the resultant weakening of the flap at this point is done away with. And in addition, the flap is in effect folded up against a shoulder extending along the edge of the box head as the result of collapsing the groove 21 upon itself in folding the flap, so that a very strong and rigid head construction is produced when the flap is secured to the adjacent side wall of the box, as shown in Fig. 5.

While in describing and illustrating the invention I have shown it as applied to a form of box which is known as an end loader, as distinguished from a top loader, it will be manifest that the invention is in no way limited to a box of the kind, since the body of the box may be set up in any familiar manner and the flap 17 and the side 16, to which it is attached, may be relatively proportioned so as to overlap in any desired way and may be attached together in the beginning as in the case of an end loader or may be attached together and to the flaps of the heads, after the box is loaded,—the other sides having been attached to the flaps of the heads before loading; as may be desired or as may meet the particular purpose for which the box is designed.

Again the construction, though designed as shown herein for a single piece or solid head box, is capable of use in any box where the head consists in whole or in part of a blank cut and creased to provide a head or head part and a flap adapted to be folded at right angles thereto and to be attached to the side wall of the box.

I claim as my invention:

1. In a box made of fibre or paper board, having a tubular body and a head closing an end of said body, said head including a blank cut and creased to provide a head part and a flap part, the crease presenting a groove on one side of the blank and a rib below the crease on the other side of the blank, the flap being folded at right angles to the plane of the head, with the groove in the inner angle of the fold and having its bottom surface engaged with that side of the groove remote from said flap part, the rib being located at the outer angle of the fold and the flap being attached flat against the adjacent side of the tubular body.

2. In a box made of fibre or paper board, having a tubular body and a recessed head closing an end of said body, said head including a blank cut and creased to provide a head part and a flap part, the crease presenting a groove on one side of the blank and a rib below the crease on the other side of the blank, the flap being folded at right angles to the plane of the head, with the groove in the inner angle of the fold and having its bottom surface engaged with that side of the groove remote from said flap part, the rib being located at the outer angle of the fold, and the flap attached flat against the adjacent side of the tubular body.

3. In a box made of fibre or paper board, in combination with a tubular body, a head for an end of said body, said head being made from a blank cut and creased to provide a head part and flap parts at the four sides of said head part, the creases presenting grooves on one side of the blank and ribs below the creases on the other side of the blank, each flap being folded at right angles to the plane of the head, with the groove in the inner angle of the fold and having its bottom surface engaged with that side of the groove remote from said flap part, the rib being located at the outer angle of the fold, and each flap being attached flat against the adjacent side of the tubular body.

4. In a box made of fibre or paper board, in combination with a tubular body, a recessed head for an end of said body, said head being made from a blank cut and creased to provide a head part and flap parts at the four sides of said head part, the creases presenting grooves on one side of the blank and ribs below the creases on the other side of the blank, each flap being folded at right angles to the plane of the head, with the groove in the inner angle of the fold and having its bottom surface engaged with that side of the groove remote from said flap part, the rib being located at the outer angle of the fold, and each flap being attached flat against the adjacent side of the tubular body.

5. In a box made of fibre or paper board,

in combination with a tubular body, a head for an end of said body, said head being made from a blank cut and creased to provide a head part and flap parts at the four sides of said head part, the creases presenting grooves on one side of the blank and ribs below the creases on the other side of the blank, each flap being folded at right angles to the plane of the head, with the groove in the inner angle of the fold and having its bottom surface engaged with that side of the groove remote from said flap part, the rib being located at the outer angle of the fold, and each flap being attached flat against the adjacent side of the tubular body, and the head part abutting at its edges against the flap parts.

In testimony that I claim the foregoing as my invention, I affix my signature in the presence of two witnesses, this 13th day of July, A. D. 1922.

HARRISON B. WALTER.

Witnesses:
NELLIE SULLIVAN,
T. H. ALFREDS.