

Dec. 15, 1925.

H. B. WALTER

1,565,765

BOX

Filed March 31, 1923

FIG. 1.

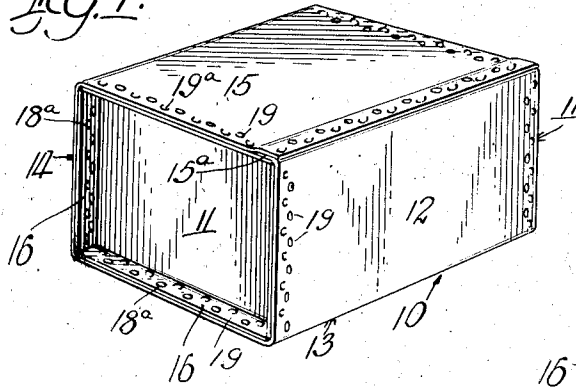


FIG. 2.

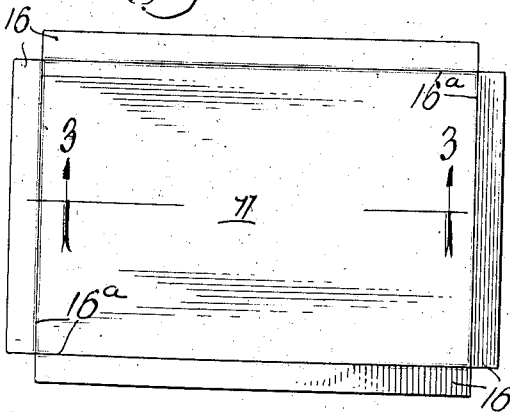


FIG. 4.

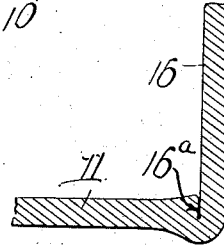


FIG. 5.

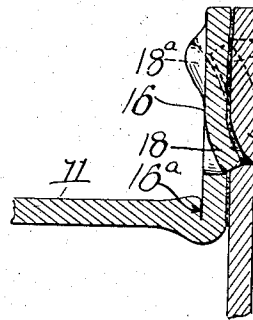


FIG. 3.



FIG. 7.

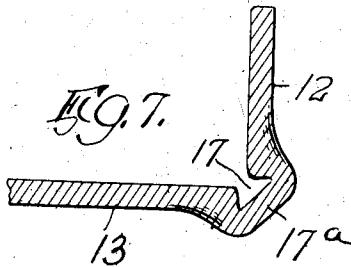
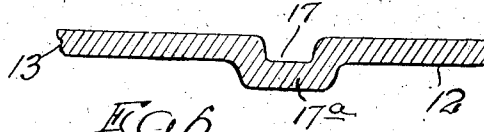


FIG. 6.



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BOX.

Application filed March 31, 1923. Serial No. 829,093.

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, in the 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.

This invention relates more particularly to the type of box shown in Letters-Patent No. 1,055,243, dated March 4, 1913, and No. 1,125,782, dated January 19, 1915, heretofore granted to me, said box comprising a tubular body and recessed heads or ends, each made from a blank with flap extensions at its four sides, folded at right angles and attached inside the end of the tubular body.

The tubular body of a box of the kind is made preferably from a single blank which is of a width equal to the total outside length of the box and which is creased transversely at spaced intervals to provide four sides of the box, with a flap extension at one end of the blank to be attached to the part at the other end of the blank which makes with said flap the fourth side of the box.

A box of the kind is usually designed and intended for use as an "end loader," in which case the flap extension last mentioned and the part to which it is to be attached to form the fourth side of the box, are secured together, before the box is shipped to the packer. It may also manifestly be designed and used as a "top loader" in which case the parts forming the fourth side will be used as top closure flaps to be attached to the flap extensions of the heads after the box is loaded.

The object of the present invention is to produce a box of the kind which is of greatly increased strength at the ends or heads of the box and in which the heads not only present great rigidity to resist blows or jars tending to distort or crush the box transversely but in which said heads are

more efficiently attached and sealed within the ends of the box.

The many advantages of the improved box will appear more fully as I proceed with my specification.

In the drawings:—

Figure 1 is a perspective view showing the improved box as it appears when loaded and closed.

Figure 2 is a plan view on an enlarged scale of a blank for making one of the heads or ends of the box.

Figure 3 represents on a still further enlarged scale a section through the blank shown in Figure 2 in a plane indicated by the line 3—3 of Figure 2.

Figure 4 represents a detail sectional view of one of the heads or ends of the box adjacent the flap extension which is shown in folded right angular relation to the main part of the blank.

Figure 5 is a like section showing said flap extension attached to one of the side walls of the tubular body of the box.

Figures 6 and 7 represent detail, transverse sections of the blank which forms the tubular body and of the tubular body itself.

Referring now to that embodiment of the invention illustrated in the drawings:—10 indicates the tubular body of the box and 11, 11 indicate the heads or ends of the box. 12, 13, 14 and 15 indicate the four sides of the tubular body 11. The tubular body is made as shown from a single blank, creased transversely along parallel, spaced lines adapted to define sections of the blank corresponding to the four sides of the body, as thus enumerated, with a flap extension 15^a at one end of the blank adapted to underlie the section corresponding to the side 15 and to be attached thereto to complete the tubular body. The relative widths of the parts 15 and 15^a may be varied as desired, the part 15 being generally and preferably made of the complete width of the side of the body it is designed for, particularly in the case of an "end loading box".

The heads or ends 11, 11 are each made of a blank which has a main body equal to the area of the end of the box and flap extensions 16 at its four sides which are folded at right angles to said main body, and are attached within the ends of the tubular body against the sides of said body.

In creasing the blank which forms the tubular body 10, the old well known method of creasing fibre or paper board is employed. That is to say, the blank is subjected to the action of dies or other tools which form a groove 17 on the face of the board, which faces inwardly when the blank is folded, and a corresponding rib 17^a on the opposite face of the board, namely the one which faces outwardly. (See Figs. 6 and 7.)

In creasing the end blanks so that the flap extensions 16 may be folded at right angles, a different method is used. In this case, after the end blank has been cut, it is subjected to the action of dies or other pressure devices by means of which the flap extensions 16 are forced into and set in a plane which is offset somewhat from the plane of the main blank as shown in Figure 3. And the plane into which said flap extensions are offset is on that side of the plane of the main blank which is opposite to the direction in which the flap extensions are designed to be bent when applying the ends to the tubular body 10.

The offsetting of the flap extensions 16 in the manner described produces shoulders 16^b which define the four sides of the main body of the end blank and which about the several flap extensions 16 (see Fig. 4) when they are folded at right angles to the body of the blank 11 and resist further bending or folding movement of said extensions. Thus it will be manifest that when the ends or heads 11 are inserted in the tubular ends of the body, a substantially rigid, right angular flange about the end or head will be presented to efficiently resist transverse blows or jars tending to deform or break the box at its ends.

It will also be noted that with end or head blanks creased to permit the bending or folding of the flaps 16 as described, there is no shoulder or rib on the face of the flap extension, which is in contact with the wall of the tubular end of the body to which it is attached, so that an absolutely flat contact between said parts is made possible. (See Figure 5.)

With flat engagement of the kind described, it is possible to use a cement or other adhesive to attach the flap extensions of the head within the tubular body, thus securing the desirable advantages of a close tight joint which is to be attained by a cement joint. I prefer, however, to provide a joint between the flap extensions 16 of the heads 11 and the tubular ends of the box, which consists of cement or adhesive and of tongues cut or otherwise formed and forced with the cement between beyond the planes of the board parts from which they are cut. This produces a strong efficient joint, by means of which the fibre bodies of the two boards are so connected at the points

in the vicinity of the said tongues, that it may be well called a "fibre lock" or "fibre joint".

Referring more particularly to Figure 5, 18 indicates the tongues cut from the flap extensions 16 and 19 indicates the tongues cut or partially cut from the adjacent side of the tubular body. Preferably there are two rows of such pairs of tongues,—one set, namely those indicated at 18 and 19, being bent in one direction with reference to the plane of the flap extension and the adjacent body wall and the other set 18^a, 19^a being bent in the opposite direction. The rows of tongues and the several tongues cut from the board are spaced distances apart sufficient to prevent undue weakening of the board. The cement used in making the joint extends not only over the undeformed or uncut contacting faces comprising the joint, but also over the contacting faces of the tongues; and to bring this about, the tools or devices employed to cut or deform the tongues are preferably applied after the contacting faces of the parts forming the joints have been treated with the adhesive cement and at the time pressure is applied to bring the parts comprising the joint into close joining relation.

The use of aforesaid joint or lock connecting the flap extensions of the heads or ends of the box to the tubular body, is made feasible because of the fact that when the flap extensions are folded by the method described there is no tendency to separate the laminae of the flap extensions, when they are folded to position, as is generally the case when the creases for the flap extensions are made as heretofore and as illustrated in Figures 6 and 7. Thus the board of each of the flap extensions is a solid body from which efficient locking tongues to produce the said joint may be cut from said flap extensions, which would not be the case if the creases were formed as, for example, in the way in which they are made to provide the creases in the blank for the tubular body.

Whereas in describing my invention I have referred to certain details of construction and arrangement it is to be understood that the invention is not limited thereto except as may be pointed out in the appended claims.

I claim as my invention:

1. A box comprising a tubular body and an end secured within said body, said end consisting of a blank of the area of the end of the box with flap extensions at the four sides thereof, said flap extensions being offset from the plane of the end and being then bent at right angles with one face against the shoulder formed in thus offsetting, and means for attaching said flap ex-

tensions in flat engagement against the proximate flat faces of the tubular body comprising a body of cement and a plurality of tongues cut from the two engaged parts and depressed with the body of cement between them beyond the planes of the board parts.

2. A box comprising a tubular body and ends secured within said body, each end consisting of a blank of the area of the end of the box, said blank having shoulders extending about and defining its sides and having flap extensions which are bent at right angles to the end with one face against

said shoulders, the other face of said flap extensions being flat, and means for attaching said flap extension in flat engagement against the proximate flat faces of the tubular body comprising a body of cement and a plurality of tongues cut from the two engaged board parts and depressed with the body of cement between them beyond the planes of said board parts.

In testimony that I claim the foregoing as my invention, I affix my signature this 27th day of March, 1923.

HARRISON B. WALTER.