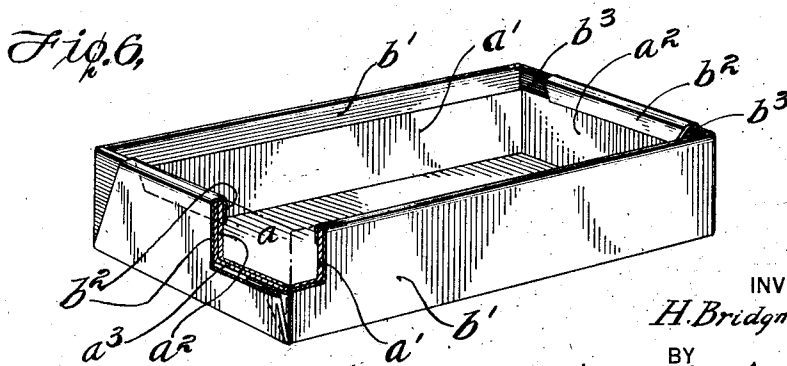
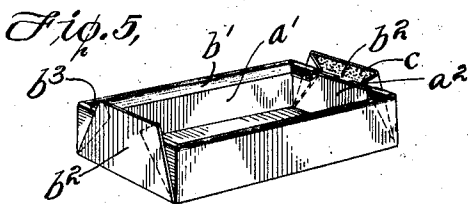
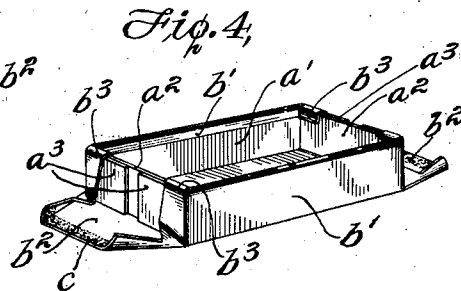
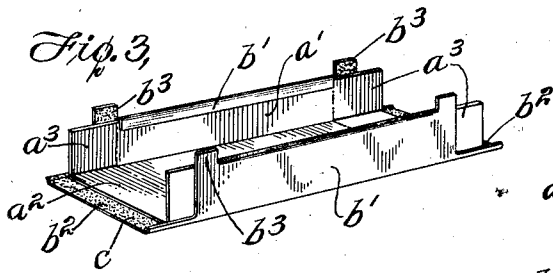
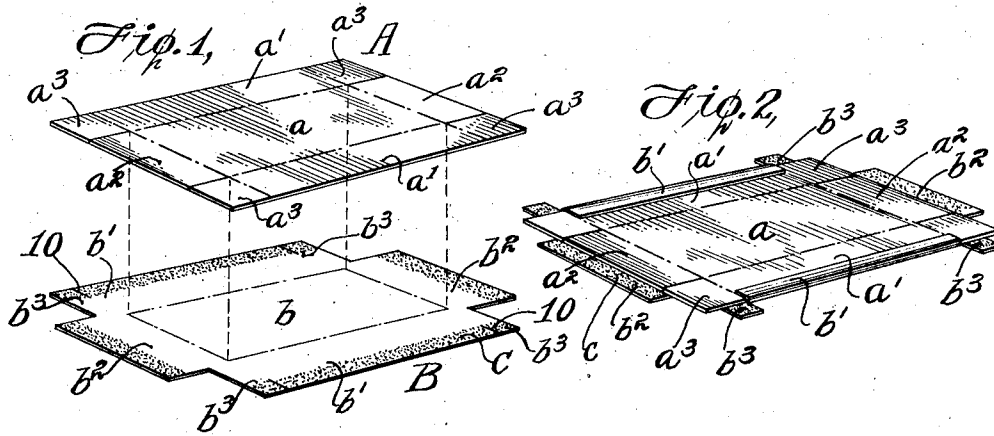


H. B. SMITH.
PAPER BOX CONSTRUCTION.

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1,364,898.

Patented Jan. 11, 1921.



INVENTOR
H. Bridgman Smith
BY
Meyers, Cushman & Lea
ATTORNEYS

UNITED STATES PATENT OFFICE.

HARRY BRIDGMAN SMITH, OF BROOKLYN, NEW YORK.

PAPER-BOX CONSTRUCTION.

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Specification of Letters Patent. Patented Jan. 11, 1921.

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To all whom it may concern:

Be it known that I, HARRY BRIDGMAN SMITH, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Paper-Box Construction, of which the following is a specification.

This invention relates to improvements in paper box construction, and pertains more particularly to covered paper box shells formed from box blanks adapted to produce multi-ply end formations.

The present invention pertains more particularly to box shells of this type in which the inner ply of the end formation is continuous and equal in length to the width of the interior of the box, thus giving to such interior an unbroken appearance somewhat similar to the interior of a box shell of a single ply end wall type, this being provided by utilizing the end wings of the box blank as the inner ply while the side flaps of the blank form the outer ply of the end formation.

The covering blank employed in connection with the box blank of this type is adapted to produce a "loose wrap" effect, and in the application of the covering blank certain difficulties appear which are met by the use of a covering blank of a specific type, the assembly of the two blanks in the production of the box being greatly facilitated, thus enabling the box to be manufactured more efficiently and at a decreased cost.

To these and other ends, the nature of which will be readily understood as the invention is hereinafter disclosed, said invention consists in the improved construction and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the accompanying drawings, in which similar reference characters indicate similar parts in each of the views:—

Figure 1 is a view showing preferred forms of box and covering blanks, the blanks being shown in perspective.

Figs. 2 to 5 inclusive are perspective views showing different stages in the production of a box shell.

Fig. 6 is a perspective view of a com-

pleted shell, a portion thereof being broken away to illustrate details of construction.

In the drawings, A designates the box blank and B the cover blank. As will be seen from Fig. 1, the box blank comprises a body portion a , side wings a' , end wings a^2 and side flaps a^3 . As shown for instance in Fig. 4, this blank, when folded, has the end wings a^2 forming the inner ply of the multi-ply end formation of this blank, the outer ply being formed by opposing side flaps a^3 which are folded into overlying relation to the upstanding end wings a^2 . In Fig. 4, the side flaps a^3 are shown as of a length less than half the width of the box, so that these flaps are spaced from each other, but this is more or less dependent upon the particular form of the blank, it being understood that the arrangement may be such that these flaps may be arranged so as to have their opposing edges located closer or farther apart and may even pass into contact.

The covering blank B is also provided with a body portion b , side wings b' and end wings b^2 . As shown, wings b' are slitted, as at 10, to form laps b^3 , the slits extending in directions transverse to the direction of length of the wings, and are spaced apart a distance substantially equal to the length of wings a' .

As shown in Fig. 1, the covering blank has its wings and laps provided with zones of adhesive, indicated at c .

In assembling the blanks into the box shell formation, a preferred method is to provide the initial step of the assembly while both blanks are in flat form, the box blank being superposed upon the covering blank in such position that the side wings a' will approximately register with the slits of side wings b' , the marginal edge portions of the side wings b' between the slits then being folded over on to the marginal edge portions of side wings a' , thus covering the latter. This is the formation shown in Fig. 2 and, as will be seen, the laps b^3 are not returned but remain in flap form as do the end wings b^2 . When, therefore, the assembly is folded to provide the upstanding side walls, as in Fig. 3, laps b^3 will project upwardly above the top plane of the side walls.

End wings a^2 are then raised to upstanding position—end wings b^2 remaining flat—

after which side flaps a^3 are folded to overlie the upstanding end wings a^2 , as in Fig. 4, this folding of the side flaps a^3 carrying marginal laps b^3 on to the ends of the box in position where they can be inturned to overlie the two plies of the box blank end formation, as shown in Fig. 4, thus locating these laps in overlying relation to the top marginal edge portions of the two-ply end formations, and tending to produce a gusset-fold effect at the bottom of these end formations, owing to the fact that the end wings b^2 are still in the flat. The fold thus commenced is then completed to the marginal edge portions of end wings b^2 , after which the latter are raised, as in Fig. 5, and then turned over on to the inner face of the ply formation, producing the finished structure of Fig. 6.

As will be seen, laps b^3 preferably—although not essentially—have a width less than the length of flaps a^3 , the width, however, being sufficient to provide for covering the portions of the end formation adjacent the side walls so as to provide for a continuous covering of the marginal edge portions of these end formations and at the same time provide a strength factor in connection with the end formation.

As will be readily understood, slitting of the covering blank to produce the side wing and lap structure is of particular advantage, in that it not only permits of an assembly of the blanks in the flat, a feature of material advantage in the assembly operations, but in addition, eliminates a difficulty which is inherently present in attempting to provide the folding of an unslitted wrapper on to adjacent walls which extend at right angles to each other, it being understood that to provide infolding under such conditions practically requires the formation of a fold in the marginal portions in order that these portions may pass the horizontal, and there is therefore a constant tendency to produce a puckering or other effect in providing this infolding action. This tendency is materially increased where the end formation of the box blank is of multi-ply character, thus necessitating an attempt to apply the marginal edge portions of the covering blank to walls of materially different thickness. By the particular arrangement shown, this difficulty is obviated, since the infolding action on these marginal edge portions is individual in connection with the wall over which it is being folded.

While I have herein referred to a preferred method of assembly, it will be understood that the box construction is not limited in this respect, the method referred to being claimed in a separate reserved invention.

As will be seen, the finished appearance of the box shell is equal to that of the type

heretofore provided with a single ply end formation, any space which may be present between the opposed flap a^3 at the ends, being covered by the end wings of the covering blank. The box shell, however, has the material advantage of the multi-ply end formation—thus greatly strengthening the shell and providing for superior results in this respect and, in addition, dispenses with preliminary staying or wing-affixing operations in providing the shell, factors which provide a material decrease in the cost of production of the box shell.

As will be readily understood, accurate registry of the two blanks in the assembly is not required, it being understood that an approximate registration is had between the ends of wings a' and slits 10, accuracy in the lateral direction not being essentially required excepting that sufficient marginal edge portions of the covering wrapper should be exposed to practically insure that portions thereof may be inturned onto the inner face of the side walls of the shell.

While I have herein shown and described a preferred construction and arrangement of parts, it will be readily understood that changes or modifications therein may be found desirable or necessary in meeting the exigencies of use, and I desire to be understood as reserving the right to make any and all such changes or modifications therein as may be found desirable or essential in so far as the same may fall within the spirit and scope of the invention as expressed in the accompanying claims when broadly construed.

What I claim is:—

1. A covered paper box shell comprising a box blank foldable to produce a multi-ply end formation, and a covering blank having a marginal portion of a length greater than the length of a side wing of the box blank, said portion being slitted transverse to such length at points spaced apart substantially equal to said side wing length to produce marginal laps foldable over the folded end formation of the box blank.

2. A covered paper box shell comprising a box blank having end wings and flaps foldable to produce a multi-ply end formation with a wing forming an inner wall of the formation, and a covering blank having a side wing of a length greater than the length of the complementary side wing of the box blank, said covering blank side wing carrying marginal laps spaced a distance substantially equal to such box blank side wing length, said laps being folded over said multi-ply end formations.

3. A covered paper box shell comprising a box blank having end wings and flaps foldable to produce a multi-ply end formation with a wing forming an inner wall of

the formation, and a covering blank having a side wing of a length greater than the length of the complemental side wing of the box blank, said covering blank side wing being slitted transverse to such length at points spaced apart substantially equal to the length of the box blank side wing to produce a wing marginal portion foldable over the marginal edge of the box blank side wing and marginal laps foldable over the multi-ply end formations.

4. A covered paper box shell comprising a box blank having end wings and flaps foldable to produce a multi-ply end formation with a wing forming an inner wall of the formation, and a covering blank having a side wing of a length greater than the length of the complemental side wing of the box blank, said covering blank side wing being slitted transverse to such length at points spaced apart substantially equal to the length of the box blank side wing to

produce a wing marginal portion foldable over the marginal edge of the box blank side wing and marginal laps foldable over the multi-ply end formations, said covering blank also having an end wing having a marginal edge portion foldable over the end formation and in overlying relation to marginal lap portions.

5. A covered paper box shell formed from a flat assembly consisting of a box blank and a cover blank, each having side and end wings, the said cover blank also having free laps, the said assembly being folded into box shell form with the said free laps folded over the marginal edges of the box shell end walls adjacent the box corners, and the end wings of the cover blank overlying portions of said free laps and adhesively attached to the inner face of the box wall ends.

In testimony whereof I have hereunto set my hand.

HARRY BRIDGMAN SMITH.