(No Model.) 3 Sheets—Sheet 1.

W. B. HOWE.

PAPER BOX.

No. 384,038. Patented June 5, 1888.

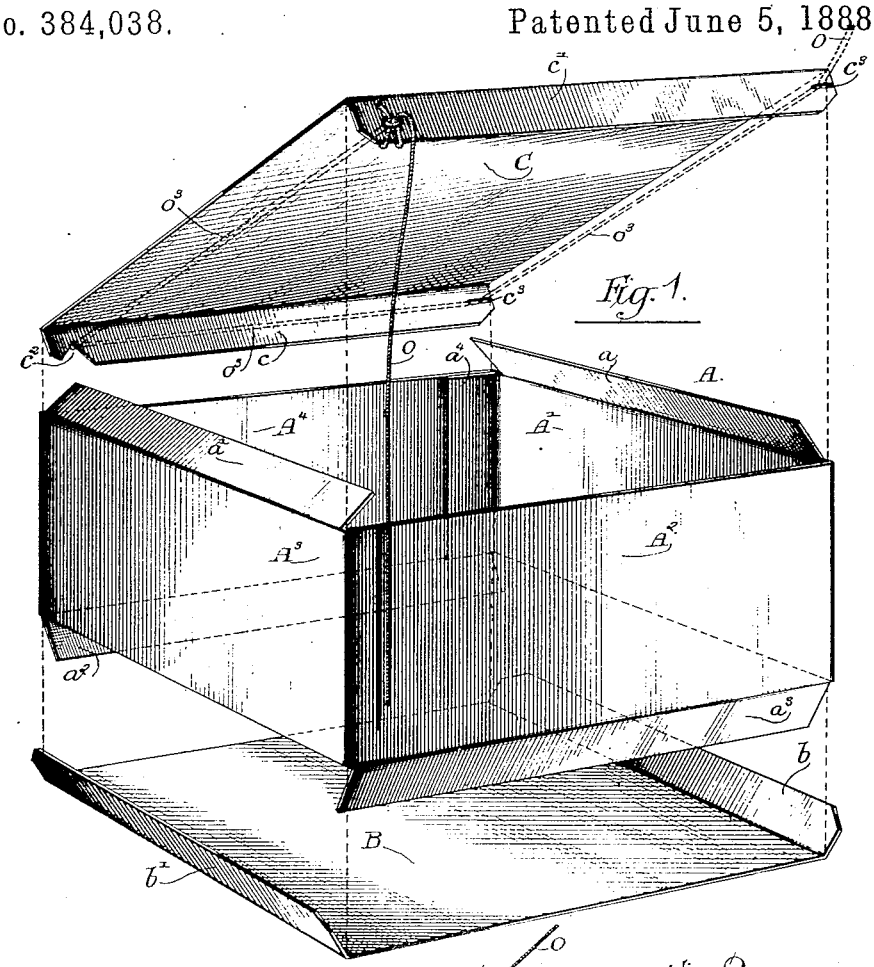


Fig. 1.

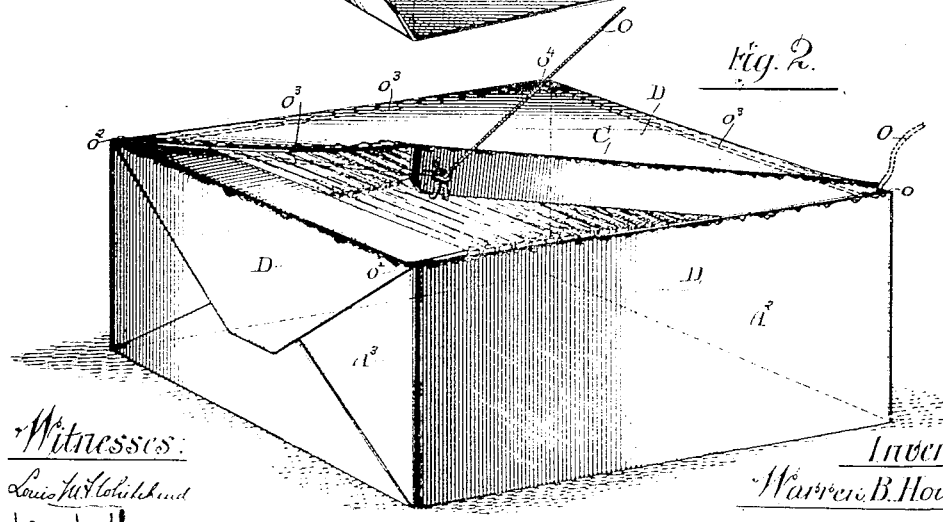


Fig. 2.

Witnesses:
Louis Jul. Goldsmith
Wm. H. Fleming.

Inventor:
Warren B. Howe.
by: Dayton & Poole.
Attorneys.

(No Model.) 3 Sheets—Sheet 2.

W. B. HOWE.

PAPER BOX.

No. 384,038. Patented June 5, 1888.

Fig. 3.

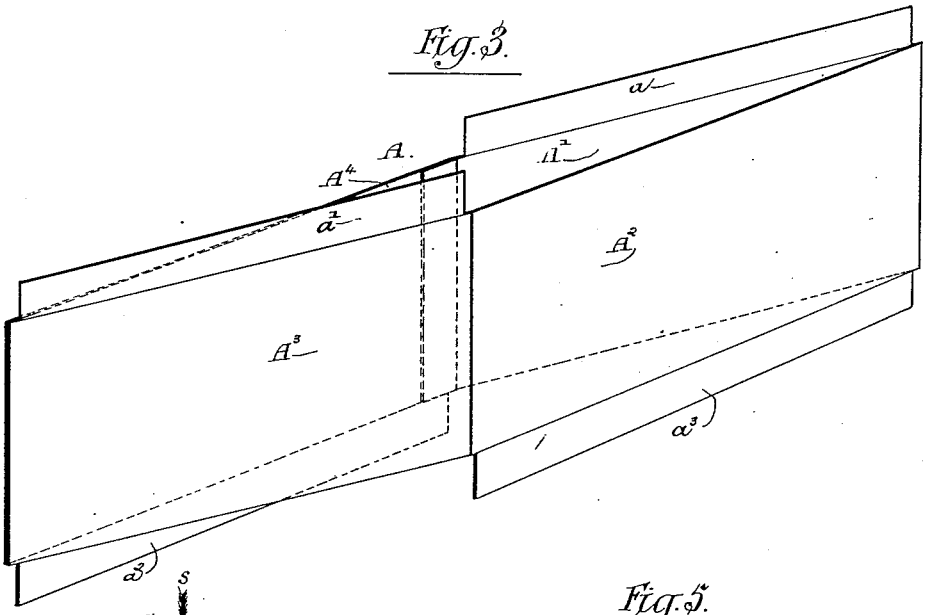


Fig. 4.

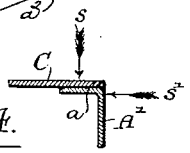
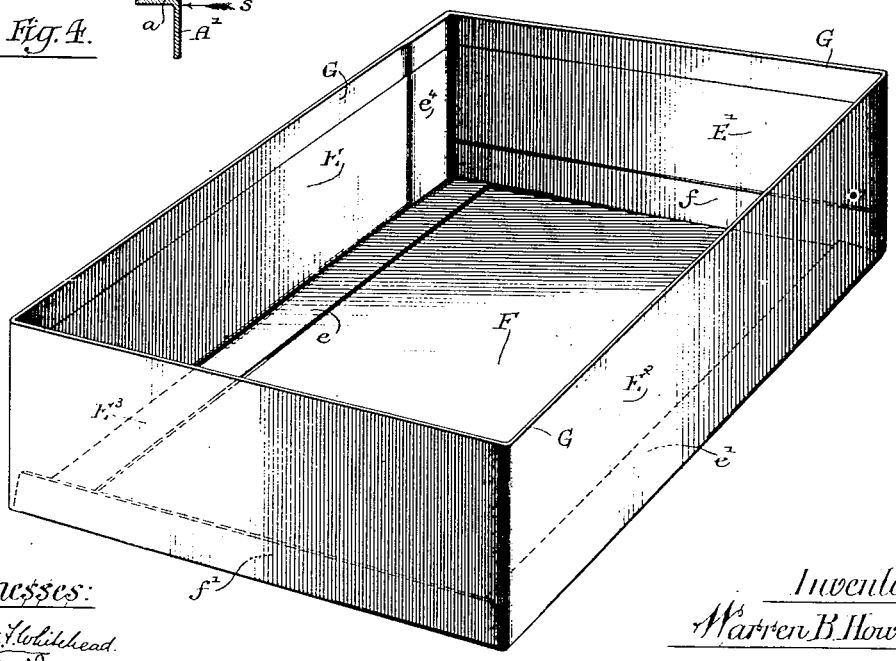


Fig. 5.



Witnesses:
Louis M. Whitehead.
Wm. L. Fleming.

Inventor:
Warren B. Howe.
by: Dayton & Poole
Attorneys.

(No Model.) 3 Sheets—Sheet 3.

W. B. HOWE.

PAPER BOX.

No. 384,038. Patented June 5, 1888.

Fig. 8.

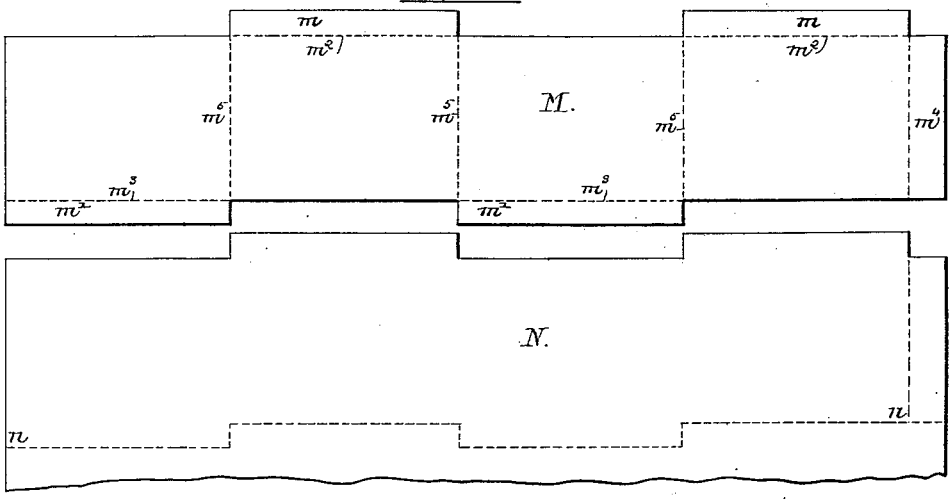


Fig. 6.

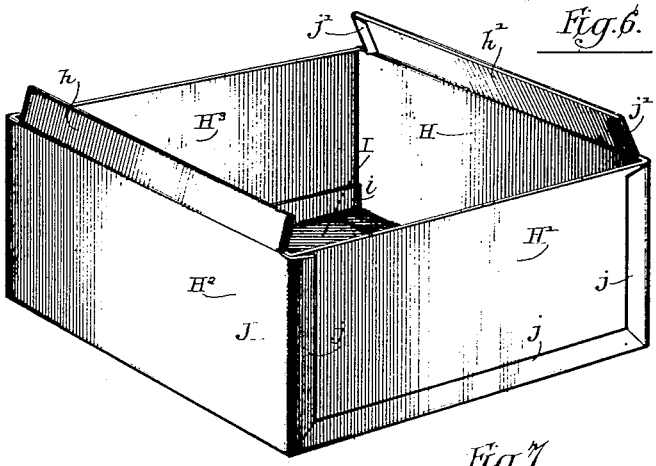
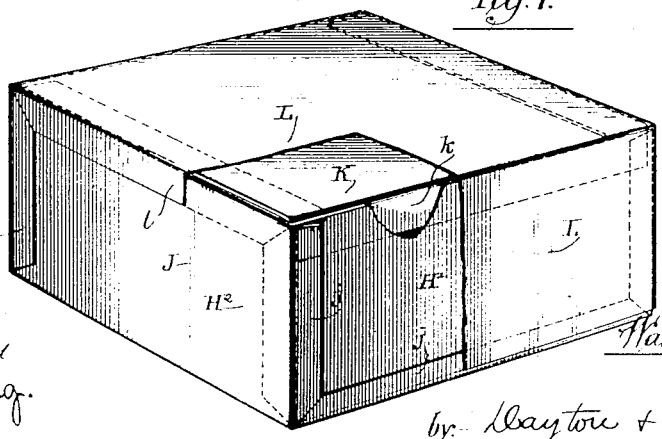


Fig. 7.



Witnesses:
Louis H. Y. Whitehead
Wm. L. Fleming.

Inventor:
Warren B. Howe.
by Clayton & Poole
Attorneys.

UNITED STATES PATENT OFFICE.

WARREN B. HOWE, OF CHICAGO, ILLINOIS.

PAPER BOX.

SPECIFICATION forming part of Letters Patent No. 384,038, dated June 5, 1888.

Application filed September 17, 1887. Serial No. 250,005. (No model.)

To all whom it may concern:

Be it known that I, WARREN B. HOWE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Paper 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 paper or straw-board boxes, cartons, receptacles, or packages for merchandise.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the box or package herein illustrated as embodying the main feature of my invention the inner or stiff foundation or shell is provided at one or more of its corners with meeting edges so arranged that one margin of the adjacent side walls at the corner is flush with the outer surface of the adjacent wall, while the said adjacent wall is provided with an inwardly-bent flap extending beneath the wall having the flush edge. By this construction the parts of the walls adjacent to the corners are stiffened or secured from being bent inwardly by external pressure applied against either wall. In case of the wall provided with the inwardly-turned flap pressure upon the marginal part of such wall will come edgewise upon the flap, which will sustain the wall connected therewith by its resistance to edgewise flexure. The marginal part of the wall, which rests against the said flap, will at the same time be sustained from being bent inwardly by its contact with the flap and the bent edge of the wall to which said flap is attached.

The feature of improvement above generally set forth is applicable to several kinds or classes of boxes or packages commonly made—as, for instance, it may be applied to that class of packages embracing what is known as a "sawed-in" shell, consisting of an inner stiff portion or "shell" having connected side walls provided with end flaps, which give forms of the package, but which are held in place solely by an exterior wrapping of paper. Said improvement is also applicable to that class of boxes in which the pieces composing the paper or straw-board foundation are covered with, and secured together at their meeting edges by a layer of paper permanently glued or pasted thereon.

The invention also embraces a novel package for merchandise, consisting of an inner stiff part or shell having unattached end walls and covering sheets of paper secured over the said shell, so as to hold the said ends in place, together with a novel blank for forming the body or main part of a shell or box foundation.

The invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the inner stiff part or shell of a box or receptacle constructed in accordance with my invention. Fig. 2 is a perspective view of a box or package constructed with a shell like that shown in Fig. 1, and provided with a paper wrapper or covering, said Fig. 2 illustrating the process of opening the box. Fig. 3 is a view showing the four connected side walls of the shell in their collapsed or knockdown position. Fig. 4 is a detail sectional view of the meeting edges of the box-foundation shown in Figs. 1 and 2. Fig. 5 is a view of the body of an open-topped box of that kind which is provided with a permanent paper cover pasted to the side walls of the box. Fig. 6 illustrates a package for merchandise constructed of a shell made like that shown in Fig. 1, and having the bottom and sides connected by a paper covering-sheet. Fig. 7 shows the package illustrated in Fig. 6 after the top cover has been placed thereon and secured by a second covering-sheet. Fig. 8 shows the form of a blank for making the connected side walls shown in Figs. 1 and 3.

The main part or body A of the shell or box foundation illustrated in Fig. 1 consists of four connected walls, $A' A^2 A^3 A^4$, a bottom, B, and a top, C. The said body A is provided at the upper margin of two of its opposite side walls with flaps $a\ a'$, which are bent or turned inwardly, while at its bottom margin it is provided with two similar flaps, $a^2\ a^3$. For the purpose of economizing stock in the construction of the body A, the flaps $a\ a'$ at the top of the body are arranged to alternate with the flaps $a^2\ a^3$ at the bottom of the body; or, in other words, the flaps $a\ a'$ are formed upon

two opposite walls A' A^3, while the lower flaps, a^2 a^3, are formed upon the intermediate side walls A^2 A^4. As far as the general construction of the shell or foundation is concerned, however, the flaps may be located otherwise, as may be desired or preferred.

The bottom B is provided at two of its opposite sides or margins with inwardly-turned flaps *b b'*, and the top C is provided with similar flaps, *c c'*. The flaps *b b'* and *c c'* are located at such distance apart that they will, when folded at right angles to the said bottom and top B and C, enter within and fit closely against the side walls A' A^3 and A^2 A^4 of the body A. In placing the parts together the flaps *a a'* and a^2 a^3 belonging to the body are bent inwardly at right angles with the walls to which they are attached, and the flaps *b b' c c'* belonging to the bottom and top are then thrust into the body at the sides of the latter, which are without any flaps. In placing the bottom and top upon the box in this manner inward motion thereof past the planes of the top and bottom of the box will be resisted by contact of the side margins of the bottom and top with the flaps *a a'* a^2 a^3 of the shell, which flaps serve to rigidly support the top and bottom and prevent the margins thereof from being thrust farther into the shell.

I have herein shown the four walls A' A^2 A^3 A^4 of the body A as formed by a single piece or sheet of stiff paper or straw-board bent at right angles at the corners of the shell and connected at its free ends by a flap, a^4, upon the side wall A', which flap is glued, pasted, or otherwise secured against the inner surface of the adjacent side wall A^4. The said body, formed by four connected walls, may, however, consist of two or more pieces connected with each other by pasting or otherwise without departure from my invention.

One convenient means of holding or securing together the body A, bottom B, and top C of a shell made as shown in Fig. 1 is illustrated in Fig. 2. As shown in said Fig. 2, D is a paper wrapping or covering placed over or around the shell after the latter has been filled with merchandise, and secured by folding or pasting the folded parts of the wrapper at opposite ends of the package, as clearly shown in said figure.

A stiff paper or straw-board shell, made as shown in Figs. 1 and 2, has the important advantage that it may be taken apart and folded flat, so that it may be shipped in a compact or knockdown form, while at the same time it may be quickly set up or put together. In Fig. 3, for instance, I have shown the body A as being folded in a flat shape by having its flaps *a a'* a^2 a^3 unbent or left in the same plane with the walls of the body and the body bent upon itself or flattened by flexing two opposite corners thereof and straightening out the intermediate corners. By bending the body back into square form, turning the flaps inwardly, and then bending inwardly the flaps upon the bottom and top B and C, which flaps are also left flat for shipment in knockdown form, the shell made as above described may be quickly and readily put together. For packing crackers, confectionery, or similar articles of merchandise, the bottom will first be inserted, the shell filled, the flaps *a a'* then bent inwardly, the cover put in place, and the package completed by the application of an outer covering or layer of paper.

In Fig. 4 I have shown in sectional view the joints of the corners of the shell after the cover has been placed thereon. In this view it will be seen that flap *a* of the wall A' is bent inwardly at right angles to said wall, and that the marginal part of the cover C rests against the outer surface of said flap and extends outwardly flush with the external face of the wall A'. The corner of the shell thus constructed is very rigid and capable of sustaining considerable pressure, such as may occur in placing or pasting the external wrapper or cover upon the package or in the transportation or use of the same—as, for instance, if the marginal part of the cover C is pressed inwardly in the direction indicated by the arrow *s*, Fig. 4, any inward deflection or thrusting of the edge of the cover past the upper margin of the wall A' will be prevented by the flap *a*, which forms a ledge sustaining said cover. Any pressure upon the wall A' tending to thrust said wall inwardly in the direction of the arrow *s'*, Fig. 4, will obviously be resisted by the flap *a*, which, by reason of its position at right angles with the said wall A', will be incapable of flexure except under such pressure as will break away or tear the paper or board. It follows from the facts stated that a very strong and stable union between the top and sides of the shell may be made in the manner described when there is no gluing or pasting of the joints at such point, and even when the shell is covered by a loose wrapping or covering of paper only.

It will of course be understood that the joints at all four margins of the top and bottom of the box will be equally strong by reason of the presence of the flaps upon the body A at the two opposite sides and upon the cover B and C and at the other two sides both at the top and bottom of the box.

In Fig. 5 I have shown a straw-board box of that kind which is covered by a layer of paper pasted over the exterior of the box wherein the rigid or straw-board body or foundation is made, substantially as before described, in connection with the straw-board shell shown in Figs. 1, 2, and 3. In this instance the body or foundation of the box consists of four connected walls, E E' E^2 E^3, consisting, as shown, of a single piece of straw-board or stiff paper united by a flap, e^4, at one corner of the box. The two opposite walls are provided at their lower margins with inwardly-turned flaps *e e'*.

F is the bottom of the box, consisting of a piece of straw-board or stiff paper the same width as the box, and provided at its ends with

upwardly or inwardly turned flaps *f f'*. These flaps are adapted to enter between and rest against the walls E' E³, so as to allow the bottom F to come to bearing against the flaps *e e'*.

A straw-board or stiff-paper foundation made as above described may be covered by a paper sheet, G, pasted over the sides and overlapping the bottom F, and a box thus made will be of sufficient strength for all ordinary purposes without any other means of securing the bottom F to the sides. It is entirely obvious, for instance, that the bottom cannot be thrust or pushed inwardly without tearing or breaking the flaps *e e'* or the flaps *f f'* of the bottom. In boxes of the kind illustrated as heretofore made it has been common to employ an extra strip of cloth or heavy paper to make the joints at all corners, excepting those where the paper or card-board is bent. By the employment of the construction in the sides and bottom above described and shown, however, a box having a superior degree of strength and rigidity may be produced without the use of any additional strips for strengthening the joints.

It is of course obvious that the bottom F of the box shown in Fig. 5 is held from being thrust downwardly or outwardly by the weight of the contents of the box by the paper covering alone, so that in a box carrying any considerable weight it may be found necessary to secure by paste, glue, or otherwise outer surfaces of the flaps *e e'* and *f f'* to the bottom F and sides E' E³, respectively; or the usual binding-strips of cloth or strong paper may be used. For boxes containing crackers or other large articles, however, the inwardly-turned flaps *e e'* will form ledges which will take a considerable part of the weight of the contents of the box, and for such uses the latter will be amply strong without fastening the flaps or binding in the manner described.

It will of course be understood that the box shown in Fig. 5 may be provided with an ordinary cover.

In Figs. 6 and 7 is shown a package for merchandise, which consists of a shell like that shown in Figs. 1 and 2, together with an outer paper covering or sheet pasted thereon. As illustrated in said Figs. 6 and 7, the main part or body of the shell consists of four connected walls, H H' H² H³, provided with flaps at their upper and lower margins, of which only the upper ones, *h h'*, appear in the drawings.

I is the bottom of the shell, provided with opposite flaps at two of its sides, one of which appears at *i*, Fig. 6. After the bottom I has been inserted in the body of the shell in the manner before described in connection with Fig. 1, a paper covering, J, is pasted upon or over the exterior of the shell in such manner as to extend around the shell from the flap *h* to the flap *h'*, and to cover the side wall H², the bottom I, and the side H, said cover being preferably extended over the exterior faces of said flaps *h h'*. At its side margins the cover J is preferably extended over and folded upon the side walls H' H³, as indicated at *j j j*. The cover J, when thus applied, securely holds the bottom in place with relation to the four walls of the body. The extension of the said cover J over the flaps *h h'* renders the joint between the flaps and the side walls as much stronger and more rigid than they otherwise would be, and thus enables said flaps to more strongly support the adjacent side margins of the cover. When the said covering sheet is extended over the flaps in the manner described, its ends are desirably folded around and against the inner face of the flap, as clearly shown at *j' j'* in the drawings. The folding of the paper covering around the end of the flaps in this manner may be quickly and economically performed, and does not require the employment of any implement for cutting the same, inasmuch as the paper will be smoothly torn or cut by pressing it inwardly against and over the adjacent marginal part of the walls of the shell in a manner readily understood by an inspection of the drawings. After the cover J has been secured to the shell in the manner described the box will appear as shown in Fig. 6, and will be ready for the insertion of the contents. After the box has been filled the flaps *h h'* will be folded down and the cover K, Fig. 7, will be placed thereon, the flaps *k* of said cover being inserted inside of the side walls H' H³ in the manner before described, and clearly shown in Fig. 7. After the cover is in place a second covering-sheet of paper, L, is pasted around the package in such manner as to cover the walls H' H³ and the said cover K, and to overlap the walls H H², which were previously covered by the sheet J in the manner indicated at *l l*, Fig. 7. The paper sheets or coverings J L, applied in the manner shown and above described, serve to cover all six sides of the box and to give a smooth and neat appearance thereto, while at the same time said sheets may be easily and quickly applied in a manner to allow the convenient insertion of the contents of the box after the bottom has been secured in place, and to firmly secure the top after the box has been filled and closed.

It has been hereinbefore stated that, for the purpose of economy in cutting of the stock, the flaps upon the connected side walls of the shell or stiff foundation of the box may be desirably formed upon the said side walls in alternation. The particular utility of this construction may be more readily seen by an examination of Fig. 8, which illustrates the form of blank which I prefer to employ and the method used by me in cutting the blanks. At the upper part of said Fig. 8, M is a blank which is shaped to constitute four connected side walls of the shell, together with the flaps thereon. At the lower part of said Fig. 8 is shown a paper strip, N, across which extends a dotted line, *n n*, indicating a cut by which another and subsequent blank will be separated therefrom. *m m*, Fig. 8, are projecting pieces forming two flaps. *m' m'* are projections upon the opposite side of the blank M, to form flaps

at the opposite side of the blank. The dotted lines m^2 m^2 m^3 m^3 indicate the line of the folds along which the flaps are bent inwardly. The blank will preferably be scored along these lines, to allow the flaps to be readily bent or folded. m^4 is the flap at the end of the blank, by which the opposite ends of the latter are connected together, the blank being bent along the dotted lines m^5 m^5, to give a rectangular form to the body of the box. The blank will also be preferably scored along said lines m^5 m^5.

In a blank made in the manner described a space or notch obviously comes opposite a flap, m m or m' m', at each side margin of the blank, and it follows that a series of such blanks may be cut from a long strip of paper practically without waste, inasmuch as the cutting of the paper along a line to form the projections or flaps, as m' m', of one blank will also form the depressions or notches of the next blank. This construction is clearly shown in Fig. 8, wherein the cutting of the blank M from the strip N has left the end surface thereof in proper shape to form the flaps of a succeeding blank. Blanks will be cut from a strip of paper by a suitable tool or cutter shaped to conform to the margin of the blank, such tool or cutter obviously forming a means whereby a great number of blanks exactly like each other in shape may be cut from a strip or sheet of paper or straw-board. Inasmuch as a blank for forming four connected sides of a box constructed of a single sheet provided with flaps arranged upon opposite sides of the blank in the manner described is novel and has great advantage in point of economy of material, such blank is herein claimed as part of my invention.

The main feature of novelty, as far as the construction of a box or package is concerned, embraced in my invention, consists in a stiff paper or straw-board shell or body comprising four connected walls provided at one or both ends or margins with two flaps attached to opposite sides of the shell or body, combined with a separate cover or covers, also provided with two opposite flaps and adapted to be placed upon or engaged with the shell or body in the manner described. This construction is herein broadly claimed, as is also a similar construction combined with an exterior wrapping or covering of paper. The particular form of paper covering shown in Figs. 6 and 7 is also herein specifically claimed as part of my invention.

I do not desire to limit my invention as set forth in the appended second claim to a stiff paper or card-board shell or body provided with a paper wrapper or covering, inasmuch as a complete and substantial box may be formed by the box-body provided with flaps, and covers also provided with flaps, placed together in the manner described, when the said flaps are secured to the sides and top and bottom or ends of the box by the direct application of paste or glue to the parts, or by the application of cloth or paper binding-strips along the joints of the box.

The box herein shown in Figs. 1 and 2 is provided with a novel device to facilitate the opening of the package when the latter is covered by a paper wrapper.

O, Figs. 1 and 2, is a string attached to the flap c' near one end of the latter. Said string is commonly made somewhat longer than one side of the box, and when the cover is placed upon the box is inserted or laid in the space between the said flap c' and the side wall A^2 of the box, or is placed along the adjacent corner of the box in such manner that its free end extends beyond or outside of the said box and through the external paper covering or wrapper, whatever may be the form of the latter. The end of the string O is arranged to extend outside of the wrapper, or is covered by a thin part of the same, allowing it to be readily seen and grasped, or by a label holding the end in place in such manner that it may be easily torn out or released from confinement. By grasping the end of the string, which projects from the corner of the box at a point indicated at o, Fig. 2, the string may be drawn upwardly and outwardly, so as to tear the paper along the corner of the package from the point o to the point o', after which, by pulling forcibly upward on the string, the flap and the adjacent side of the cover C may be drawn out, and thus allow the easy removal of the entire cover. In lifting the corner of the cover by the string O the paper will of course be torn along the edge from o' to o^2, as clearly shown in Fig. 2. The employment of a string attached to the flap or cover is obviously very desirable in a package of the character shown in Fig. 2, inasmuch as it enables the user to ascertain which is the removable side or cover, and thereby open the box without difficulty. The string O, attached to one corner of the cover C in the manner described, may be disposed about the corner of the package and beneath the paper sheet in such manner as to tear open two or more corners of the package—as, for instance, it may be disposed along three sides or corners of the package, as indicated in dotted lines o^3 o^3 o^3 of Figs. 1 and 2, in which case by pulling outwardly upon the string the paper covering will first be torn from o to o^4, then along the corner from o^4 to o^2, after which by pulling upwardly upon the cover it will tear along the box-corner from o^2 to o', and the cover will remain connected with the package at one side only.

When the arrangement of the opening-string last referred to is used, the flap c at the end of the latter opposite the point at which the string O is attached to the flap c' will be provided with a notch, c^2, Fig. 1, with which said string engages. The said notch serves to hold the string in place when the cover is being torn from the corner o^4 to the corner o^2, Fig. 2, and also enables the flap c to be drawn or pulled outwardly in opening the cover in the

same manner as is the flap c' by the use of the string when used as shown in full lines in Fig. 2. The flap c is also shown in Fig. 1 as provided with a notch, c^3, which serves to confine the string at the corner c^4 in placing the cover on the box.

It is obviously not essential that the opening-string should be tied or permanently secured to the cover-flap, inasmuch as it may be caught in a notch like that shown at c^3 in Fig. 1, for instance, with practically the same result.

I claim as my invention—

1. The combination, with a paper or board body consisting of four connected walls and provided with two oppositely-arranged inwardly-bent flaps, of an end wall or cover provided at two opposite margins with inwardly-bent flaps inserted within the shell or body, substantially as described.

2. The combination, with a paper or board body consisting of four connected walls and provided with two oppositely-arranged inwardly-bent flaps, of an end wall or cover provided with inwardly-bent flaps upon two of its opposite edges inserted within the said body, and a paper wrapper or covering applied over the exterior of the said body and end walls or covers, substantially as described.

3. The combination, with a paper or board body consisting of four connected walls provided with oppositely-arranged inwardly-bent flaps, of end walls or covers, also provided with flaps at their opposite side margins, and a paper covering for the same, consisting of a sheet, J, extending around three sides of the box or package, and a second sheet or covering, L, extending around the other three sides of the box or package, substantially as described.

4. The combination, with a paper or board body consisting of four connected walls having two oppositely-arranged inwardly-bent flaps, and a cover or end wall, also provided with flaps at two of its opposite side margins, of an opening-string engaged with one corner of the cover or end wall, and a paper wrapper or exterior covering, substantially as described.

5. The combination, with a paper or board box-body consisting of four connected walls having two oppositely-arranged inwardly-bent flaps, and a cover or end wall, also provided with flaps at two of its opposite side margins, of an opening-string engaged with the flap at one corner of the cover or end wall, the flap at the opposite side of the cover or end wall being notched to receive said string, substantially as described.

6. A blank for box bodies or shells, consisting of a strip having parallel side edges and provided with two flaps upon each side margin, the flaps upon one side margin being located at intermediate points with relation to the flaps upon the other side margin, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

WARREN B. HOWE.

Witnesses:

C. CLARENCE POOLE,

O. N. WILLIS.