(No Model.)

W. B. HOWE.

PAPER BOX.

No. 482,480. Patented Sept. 13, 1892.

Fig. 1.

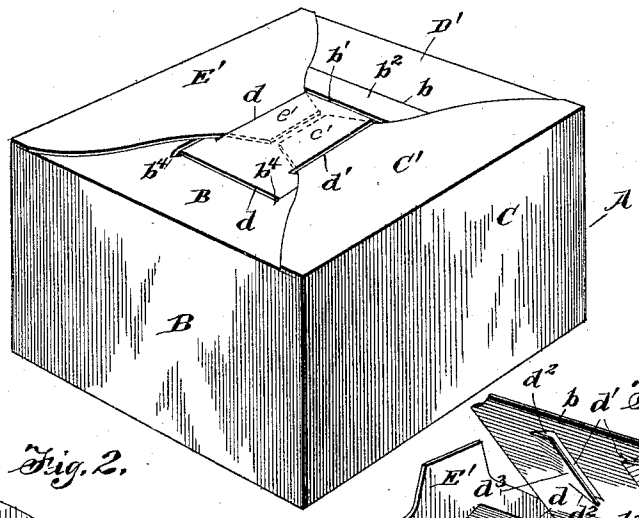


Fig. 2.

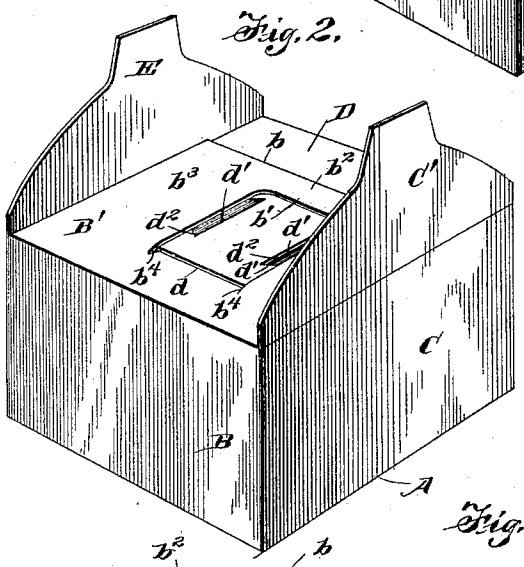


Fig. 3.

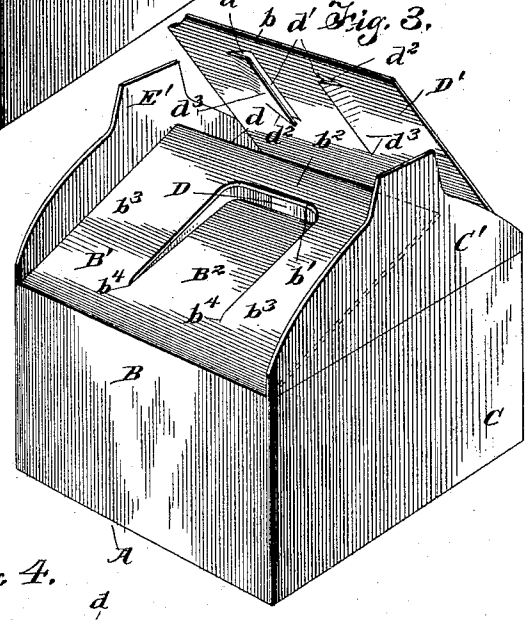
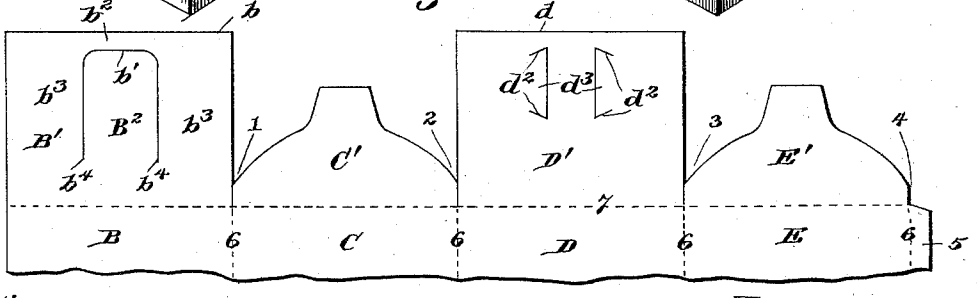


Fig. 4.



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PAPER BOX.

SPECIFICATION forming part of Letters Patent No. 482,480, dated September 13, 1892.

Application filed November 7, 1891. Serial No. 411,132. (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 and figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of boxes, packages, or cartons having connected side walls, from one or both ends of which project flaps adapted to be folded together and interlocked to form the end wall or walls of the box, and more particularly to improvements in the construction of said flaps and in the method of folding the same to form said end wall or walls.

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

In the accompanying drawings, Figure 1 is a perspective view of a box having its end wall formed of flaps constructed and arranged in accordance with my invention. Fig. 2 is a similar view, two of the opposite flaps being shown as folded and interlocked and the other two as unfolded. Fig. 3 is a similar view, all of the flaps being shown as disengaged from each other. Fig. 4 is a plan of one edge of a blank for a paper box, said blank being provided with flaps constructed and arranged in accordance with my invention.

Referring to Figs. 1, 2, and 3 of the drawings, A indicates a rectangular box consisting of four connected side walls B, C, D, and E and flaps B′, C′, D′, and E′, connected with the edges of the side walls and adapted to be folded to form the end wall or walls of the box.

The flaps B′ and D′, which are connected with the two opposite side walls B and D of the box, are of rectangular form and overlap and interlock with each other when folded, and the flaps C′ and E′, connected with the opposite sides C and E of the box, are intended to overlap the flaps B′ and D′ and are made tapered or narrowed at their free edges to interlock with notches or slots in the flaps B′ and D′. The flaps B′ and D′ are made of such length that their free edges b and d overlap each other a considerable distance when the flaps are folded down against each other and said free edges are continuous or unbroken.

The flap B′ is provided with a U-shaped slit or cut, the transverse part b' of which is somewhat distant from the free edge b of the said flap and substantially parallel therewith, thus leaving a bridge or strap b^2 to maintain the continuous or unbroken free edge upon said flap, while the longitudinal parts b^3 b^3 of said slits extend from the transverse part b' toward the inner or hinged end of the flap, and thereby constitute a tongue B^2, the free edge of which is adjacent to the free edge of the flap and between which and the body of the flap the edge d of the opposite flap D′ may be inserted in the act of folding the flaps together. The ends b^4 b^4 of the longitudinal parts of the said slit terminate at such points that the edge d of the flap D′ when the flaps are folded together will rest within or against the said ends b^4 b^4 of this slit, said flaps being thus interlocked and affording support for each other to resist pressure exerted inwardly on the side walls B and D.

The flap D′ is provided with two parallel slits d', arranged at right angles to the edge d thereof and at a distance apart somewhat less than the width of the tongue B^2, so that they will lie over the said tongue and parallel with its side edges when the flaps B′ and D′ are folded together. The opposite ends of said slits d' d' terminate at equal distances from the side walls B and D of the box, and their inner ends are within and adjacent to the inner edge of the strap b^2 of the flap B′, as clearly shown in Fig. 2. Owing to this arrangement it will be seen that the flaps B′ and D′ will support each other, when folded in the manner described, against pressure exerted upon them in either an inward or outward direction, the flap D′ being supported against inward thrust by the tongue B^2 and the flap D′ affording a like support for the flap B′. Moreover, as the edge d of flap D′ is seated snugly against the ends b^4 b^4 of the U-shaped slit in flap B′ said flaps afford a mutual support to resist any pressure brought against the side walls B and D of the box tending to press said walls inward or toward each other.

The flaps C′ and E′, which are connected

with the opposite side walls C and E of the box, are somewhat shorter than the flaps B′ and D′, being only of such length that their free edges will meet or nearly meet at the center of the box when folded. The reduced or narrowed outer or free ends c' and e' of these flaps C′ and E′ are preferably tapered in curved lines, as shown; but they may be otherwise shaped to adapt them to enter or pass through the slits d' d' in the flap D′, as seen in Fig. 1. The slits d' of the flap D′ bear such relation to the U-shaped slit of flap B′ that when these flaps B′ and D′ are folded and interlocked and the narrow ends c' and e' of the flaps C′ and E′ are inserted in said slits d' said narrow ends c' and e' will pass through the opening formed by the U-shaped slit in flap B′ and be confined between the outer ends of the slits d' in the flap D′ and the strap b^2 at the outer end of the U-shaped slit of the flap B′, thus interlocking with the flaps B′ and D′ and confining the latter in such manner that they cannot be separated or drawn apart, the separation or pulling apart of the flaps being prevented by the contact of the inner edge of the strap b^2 with the sides of the flap C′ E′. This feature is of importance, as it not only prevents the accidental disengagement of the flaps forming the end wall of the box, but gives great rigidity to said end wall and prevents the inner walls B and D from being spread apart by the internal pressure of the contents of the box.

To afford greater ease of manipulation in inserting the tapered ends c' and e' of the flaps C′ and E′ in the slits d' of the flap D′, short converging slits d^2 are shown as formed in said flap D′, extending outward from the ends of the slits d' and converging toward their outer ends. Short tongues d^3 are thus formed at the outer sides of the parallel slits d', which tongues may be depressed or thrust inward, thus providing a wider opening for the reception of the tapered ends c' and e' of the flaps C′ and E′. This arrangement also provides for the additional interlocking of the flaps B′ and D′, as the tongue B^2 in the operation of folding may be inserted between said tongues d^3 and the under side of the flap D′, thus affording greater strength or rigidity in the end wall and a smooth finish inside the box.

In Fig. 4 is shown a blank from which the box herein described may be made. This blank is generally rectangular in form and is provided with transverse slits 1, 2, 3, and 4 on one or both edges, according as it is desired to form a box which may be closed at one or both ends. The blank is provided at one end with a short central flap 5, which is secured to the opposite end of the blank to give a tubular form to the same, and the blank is further provided with transverse bends or creases 6 in the lines of the slits 1, 2, 3, and 4 to define the bends forming the corners of the box and with a longitudinal crease or creases 7 at the inner ends of the slits 1, 2, 3, and 4 to define the lines on which the flaps will be bent to form the end of the box.

It will of course be understood that after the blank is cut to shape and made into tubular form, with the flaps unfolded, the ends of the box may be flattened together, so that the box may be shipped or stored in "knock-down" shape, as is common with this class of boxes. It is also apparent that as far as the construction of the flaps themselves is concerned the box may be constructed in any manner found convenient and of any suitable material, as the use of a single blank, as illustrated, is not essential. Furthermore, I do not confine myself to the use of paper or straw board in constructing the interlocking flaps described, as many other materials may be successfully employed—such, for instance, as wood veneer, &c.

What I claim is—

1. A box having flaps connected with its opposite side walls, the free ends of said flaps having continuous edges and one of said flaps being provided with a U-shaped slit forming a tongue, between which and the body of the flap the free edge of the opposite flap is inserted in folding, the end portions of said slit being located at a distance apart less than the width of the free end of the opposite flap and being arranged transversely to the free edge of said opposite flap, and the said free edge of said opposite flap being adapted to engage the ends of the slit when the box is closed, whereby the side walls to which the flaps are attached are supported against inward pressure, substantially as described.

2. A box having flaps connected with its opposite side walls, the edges of the free ends of said flaps being continuous and one of said flaps being provided with a U-shaped slit forming a tongue, between which and the body of the flap the free edge of the opposite flap is inserted in folding, said opposite flap being provided with lateral tongues, between which and the under side of said flap the tongue of the first-named flap may be inserted, substantially as described.

3. A box each of the side walls of which is provided with a flap, one of said flaps having a U-shaped slit forming a tongue, the base of which slit is adjacent to the free end of the flap, an opposite flap adapted to be inserted between the first-named flap and its tongue and provided with parallel slits which lie over said tongue, and two remaining opposite flaps narrowed at their free ends to pass through the U-shaped slit of the first-named flap and enter the slits of the second-named flap, 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:
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