(No Model.)

F. P. BIRLEY.

PAPER BOX.

No. 536,065. Patented Mar. 19, 1895.

Fig 1.

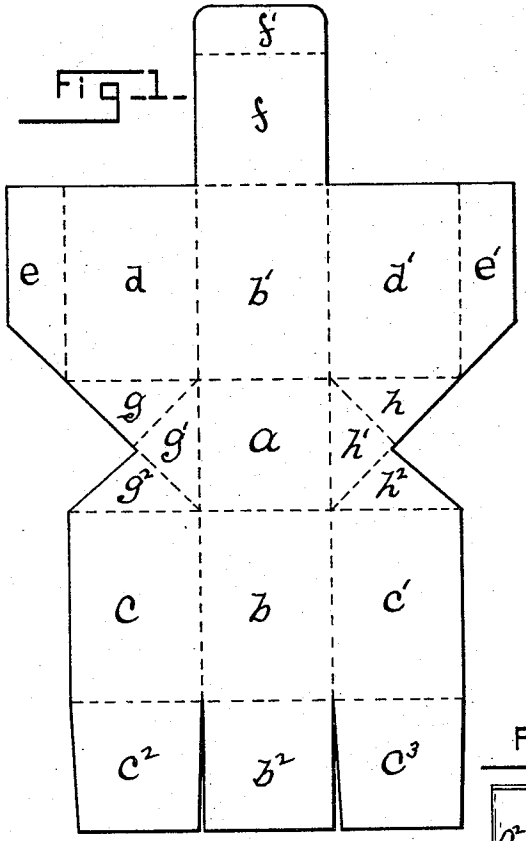


Fig 2.

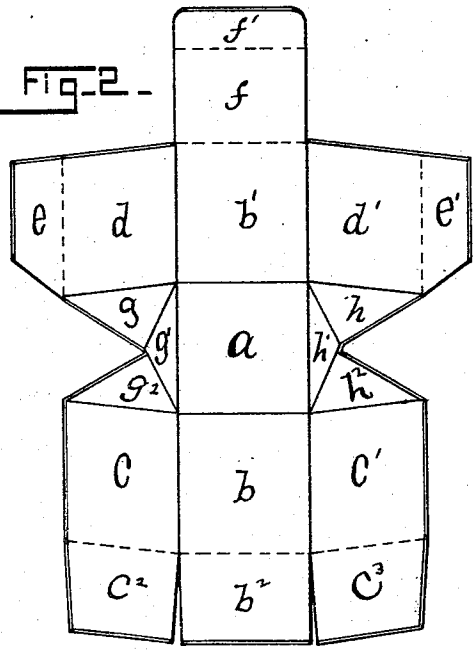


Fig 3.

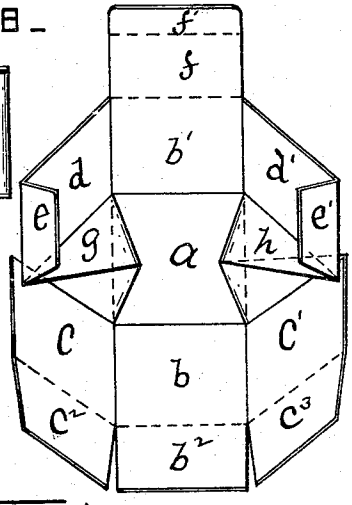


Fig 8.

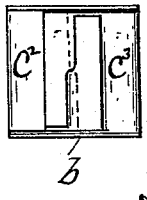


Fig 7.

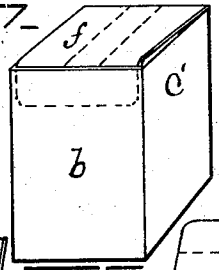


Fig 6.

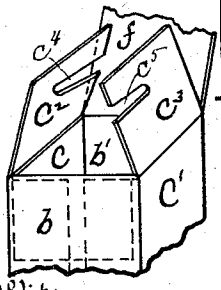


Fig 5.

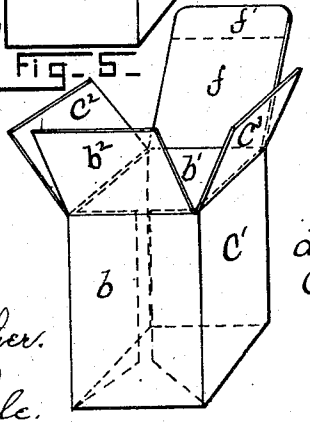
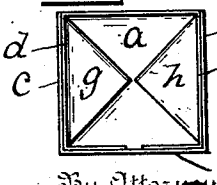


Fig 4.



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UNITED STATES PATENT OFFICE.

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PAPER BOX.

SPECIFICATION forming part of Letters Patent No. 536,065, dated March 19, 1895.

Application filed December 3, 1894. Serial No. 530,656. (No model.)

To all whom it may concern:

Be it known that I, FRANK P. BIRLEY, a subject of the Queen of Great Britain, residing in the city of Toronto, Province of Ontario, Canada, have invented certain new and useful Improvements in Paper Boxes, which improvements are fully set forth and described in the following specification, reference being had to the accompanying sheet of drawings.

This invention has particular relation to folding boxes of the class commonly used for marketing tack-nails, screws, rivets and the like articles. The blanks from which such boxes are formed are usually packed, and shipped to the user, flat; that is to say in the exact form in which said blanks are delivered by the cutting and scoring dies, thus reducing freight charges to a minimum and making it possible to pack a great number of such blanks in the same space required for a few folded or "set up" boxes of the same class. It is particularly desirable in such boxes that economy of cardboard stock shall be considered, also that the box, when folded or "set up," shall combine great strength with a pleasing outward appearance and these desiderata I have had specially in mind when producing the present invention. I have also in this invention provided a box blank which, without the aid of glue, wire stays, eyelets or other forms of fastening devices, makes, when folded, or "set up," a box that is quite as strong and serviceable as boxes embodying such fastenings.

To aid in explaining my invention I have provided the annexed sheet of drawings, in which—

Figure 1 is a plan view of the blank from which the box may be formed by suitably folding said blank. Figs. 2 and 3 illustrate, in plan, positions which the several sides or flaps of said blank assume during the folding or "setting up" operation. Fig. 4 is a plan view of a finished box, ready to be closed. Fig. 5 is a perspective view of a box as it appears when ready to be filled with tacks or other articles of merchandise. Fig. 6 is a similar view of the top portion of such a box, showing particularly certain slots in the side flaps by means of which said flaps may be locked together. Fig. 8 is a top view of a box showing the side flaps thus locked together and Fig. 7 is a perspective view of a finished box.

In the drawings the letter a indicates that portion of the blank which, when the latter is folded, forms the bottom of the box and b—b' indicate those portions of said blank that are to form, respectively, the front and rear sides of the box. Section b has lateral extensions c—c' adapted to be folded at right angles to b, to aid in forming opposite sides of the box, and section b' has similar extensions d—d' which are overlapped by the sections c—c' when the box is set up. Sections d—d' are formed with narrow wings or extensions e—e' that are fully described hereinafter. Sections tions b, c and c' have respectively a flap or extension c^3, b^2 and c^3 that may be turned inward, to aid in locking or closing the box and section b' has a similar extension f that forms the cover of the box and this cover has a narrow flap f' that may be "tucked" to retain said cover in its closed position, as I shall explain more fully. The various sections are separated from each other by lines of scoring that permit the cardboard to be easily bent on said score lines. Sections a, f, b^2, c^2 and c^3 are of about the same size as the cross section of the finished box, and sections b—b', c—c' and d—d' are of about the same width as the last described sections, but are equal in length to the height of the finished box.

Between the side sections c—d is a strengthening portion of board formed, by diagonal lines of scoring, into three triangular pieces g—g'—g^2 the effect being much the same as if a square of board should be divided by lines of cross scoring, reaching from corner to corner of said square, and then one of the triangles removed entirely by cutting away a part of the board, leaving the three triangular portions, as described. Between the ends of the side sections c'—d' are three similar triangular strengthening pieces h—h'—h^2. During the operation of folding the blank these triangular pieces break inward, on the lines of scoring, overlapping each other, and finally fold down upon the bottom a, serving a very important purpose in stiffening the box and also in making a tight bottom.

When it is desired to fold the blank, to make a box, the side wings e—e' are bent upward at right angles to the side sections d—d' to

which they are connected. Said sides d—d' are then folded toward each other while at the same time the blank is bent on the line of scoring that separates b' from the bottom a. This results in breaking inward the lines of scoring that separate the described triangular strengthening pieces, as seen in Fig. 2. The sides c—c' are then bent upward (toward each other) and b is simultaneously bent on the line of scoring that divides it from the bottom a. As the breaking up continues the sides d and d' enter between the sides c—c' (see Fig. 3) the triangular strengthening pieces meanwhile overlapping each other and folding down upon the bottom a as best understood by reference to Figs. 3 and 4 of the drawings. This brings the wings e—e' in contact with the inner face of the side section b (see Fig. 4 and also dotted lines in Figs. 5 and 6). Flap b^2 is then folded down within the box, and over the wings e—e', as in dotted lines Fig. 6, thus holding said wings in contact with the side section b and preventing the several folded portions from separating. After the box thus set up has been filled the side flaps c^2—c^3 are folded down upon each other, the top section f is, in turn, folded down upon said side flaps and the flap f' is tucked between the edges of the side flaps and the inner face of the locking flap b^2, providing a strong and serviceable box as seen in Fig. 7 and without the aid of glue or other like fastening.

When such boxes are to be used for marketing hardware, and the like heavy goods, the side flaps c^2—c^3 may each be slitted from opposite sides as at c^4—c^5 and said slits may be interlocked as in Fig. 8, to prevent all possibility of accidental spreading of the box, but such provision is not necessary in boxes used for marketing light articles.

The blank from which my described box is formed is of such shape that very little stock is wasted in producing it and the box, when set up, is of great strength.

Having described my invention, I claim—

1. A blank for boxes comprising a bottom portion substantially in the center thereof having a creased and notched portion upon two of its opposite sides, a side portion on each of the other two sides of the bottom, one of said sides having three flaps and the other one having a wing upon each of its edges, and a top portion projecting from the central portion of said last mentioned side, and an extension upon the end of the top, substantially as set forth.

2. A box formed from a single piece of material, the bottom portion of which is provided with triangular infolded sections, and the sides comprising two overlapping portions, one of which is provided with wings which rest against the opposite side of the box, one of the sides being provided with two over-lapping and one locking flap, the locking flap being folded down over the top end of the wings, and the other side being provided with a top section and an extension, the extension being tucked between the edges of the side flaps and the inner face of the locking flap, substantially as set forth.

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