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Patented Aug. 27, 1901.

W. P. BIRNIE & C. W. CAY.

SET-UP AND SECURED COLLAPSIBLE OR KNOCKDOWN BOX.

(Application filed May 14, 1900.)

(No Model.)

Fig. 1.

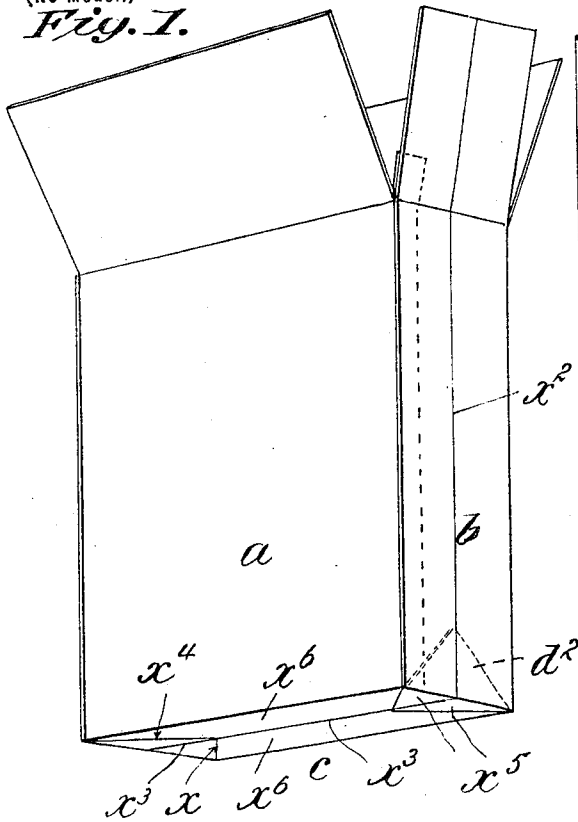


Fig. 2.

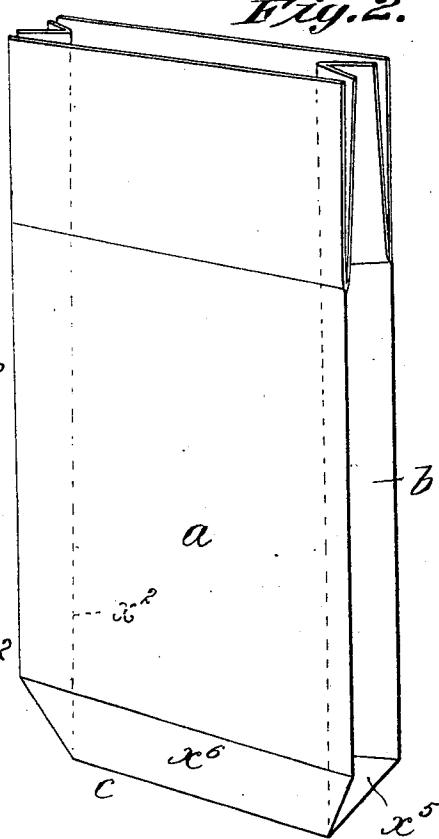
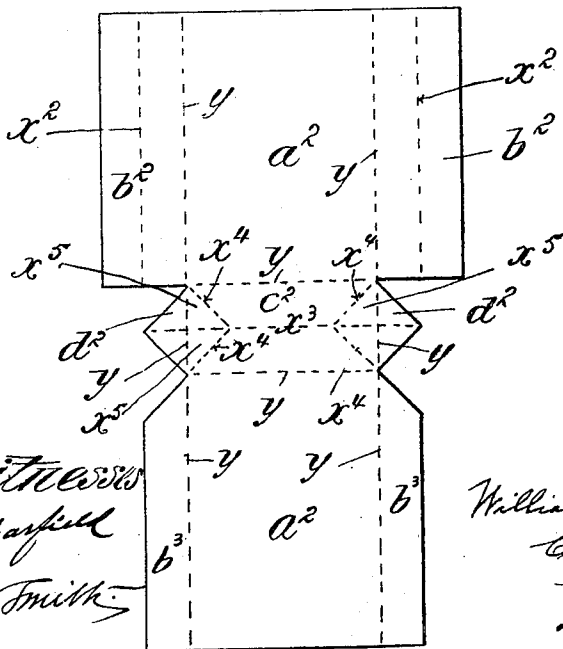


Fig. 3.



Witnesses
J. M. Fairfield
A. W. Smith

Inventors:
William P. Birnie and
Chauncey W. Cay,
by W. H. Bellows,
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM P. BIRNIE, OF SPRINGFIELD, AND CHAUNCEY W. GAY, OF WEST SPRINGFIELD, MASSACHUSETTS, ASSIGNORS TO UNITED STATES AUTOMATIC BOX MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS.

SET-UP AND SECURED COLLAPSIBLE OR KNOCKDOWN BOX.

SPECIFICATION forming part of Letters Patent No. 681,472, dated August 27, 1901.

Application filed May 14, 1900. Serial No. 16,657. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM P. BIRNIE, a resident of Springfield, and CHAUNCEY W. GAY, a resident of West Springfield, in the
5 county of Hampden and State of Massachusetts, citizens of the United States of America, have invented certain new and useful Improvements in Set-Up and Secured Collapsible or Knockdown Boxes, of which the following is a full, clear, and exact description.

This invention relates to an improved set-up and stuck paper or pasteboard box which has creases or folds therein, whereby the same may be knocked down and rendered
15 into flat form to occupy but little space for packing and transportation, the box being, however, readily available to be distended into its rectangular form in readiness for the reception of its contents.

The present improvements are especially available and valuable for comparatively deep and entirely-closed boxes, such as necessary for use for containing granulated and powdered substances, such as cereals, coffee,
25 and the like.

The invention consists in the single piece or blank of cardboard or similar stock peculiarly shaped and formed with creasing or folding lines, whereby the especial one-piece
30 box may be completed and set up and thereafter collapsed or knocked down.

The improved box is fully illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the improved box shown as set up. Fig. 2 is a perspective view of the same shown as partially collapsed or knocked down and making apparent in what manner the same may be rendered further contracted. Fig. 3 is a plan
40 view of the blank of which the improved box may be made.

In the drawings, a a represent the sides of the box, b the ends or edges of the box, and c the bottom.

Fig. 3 shows the blank from which the box is made, a^2 a^2 indicating the sections at the opposite ends of the blank which constitute the opposite sides. c^2 represents the bottom-constituting section, which is intermediate
50 between the said sections a^2 a^2 , while b^2 b^2 represent

the sections which constitute the ends or edges of the box, b^3 b^3 indicating the stay-sections. d^2 d^2 represent stay-sections or tongues at the ends of the bottom section c^2 and adapted to make a close joint when the
55 box is set up and stuck where the side walls or edges of the box join the bottom. y y represent the creases or folding-lines on which the blank is bent for the purposes of making the rectangular box of ordinary form, it being understood that the opposite sides are set
60 up at right angles to the bottom and the portions b^2 b^2 bent at right angles to the sections a^2 , as also are the stay-sections b^3 b^3 , which are stuck to the sections b^2 , and the bottom
65 stay-sections d^2 are also stuck to the parts constituting the ends or edges b of the box. x x represent the folding or creasing lines which render the box capable of being collapsed after the same has been completed.
70 These folding-lines are arranged as follows: The end or edge walls b b have the folding-lines x^2 midway between the corners of the box, said folding-lines extending longitudinally and being continued in the creasing-
75 line x^3 from end to end of the bottom c of the box. x^4 x^4 represent creases or folding-lines extending from the corners of the box inwardly on the bottom at angles of forty-five degrees, the apex of the angle meeting at the
80 creases or folding-line x^3 . The tongue or stay-section d^2 , outwardly projected, is preferably and advantageously the counterpart of the portion or section between the end of the bottom section c^2 and the creasing-lines
85 x^4 x^4 , and the median line x^3 on the bottom is continued through the stay-sections d^2 d^2 . As the box is preferably made the stay-sections b^3 b^3 are in any event no more than one-half of the width of the end or edge walls b^2 ,
90 whereby they would not overlap and stiffen the creasing-lines x^2 .

After the box has been completed and set up and it is desired to collapse the same or knock it down the box is simply squeezed between its opposite sides, the longitudinal median creases x^2 permitting the edges of the box to collapse inwardly, and the triangular sections or gusset-like parts x^5 x^5 , while collapsing inwardly or folding closely together,
95 100

are endwise distended, together with the trapezium-shaped sections x^6 x^6 , which have as their boundaries the lines of the corners of the box, the intermediate median line x^3 , and the angularly-intersecting lines x^1 x^4 . The 5 tongues or stay-sections d^2 , which when the box is set up are as parts of the edge walls thereof, are, because of the creasing or folding line x^3 , continued across these stay-sections, rendered as continuations of the folding-lines x^2 for the box edges. 10

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is--

15 A blank from which to produce a set-up and stuck rectangular box capable of being knocked down, consisting of opposite side sections a^2 , a^2 , intermediate rectangular bottom section c^2 having at the ends the tongues 20 or stay-sections d^2 , d^2 , and the edge-forming sections b^2 , b^2 formed as sidewise extensions of the one side section a^2 , and the stay-sections b^3 , b^3 formed as sidewise extensions of the other side section, and having the folding-lines y on which to bend the blank to constitute the rectangular box, and said blank having the special creases as follows: the creases x^2 , x^2 extending longitudinally along the middle of the side sections b^2 , the crease x^3 extending longitudinally and midway of the bottom and of the said stay-sections d^2 , d^2 , and the creases x^4 , x^4 extending from the corners of the bottom section inwardly within the area of the unrecessed bottom section at angles of forty-five degrees to, and meeting, 35 the creasing-line x^3 , substantially as and for the purposes described.

Signed by us at Springfield, Massachusetts, in presence of two subscribing witnesses. 25

WILLIAM P. BIRNIE.
CHAUNCEY W. GAY.

Witnesses:

WM. S. BELLOWS,
M. A. CAMPBELL.