Jan. 15, 1929.

1,699,008

C. C. MILLER

BOX

Filed Aug. 16, 1926

Fig. 1.

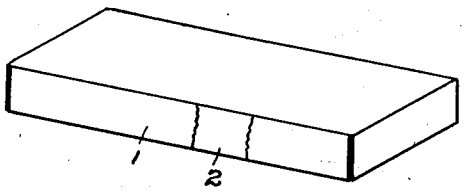


Fig. 5.

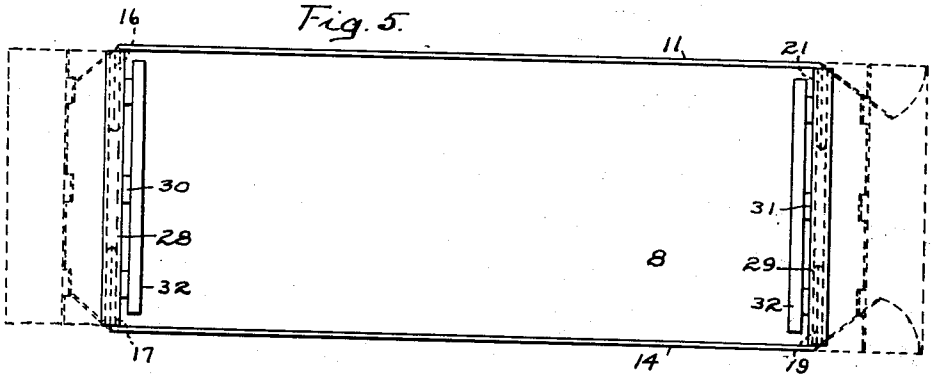
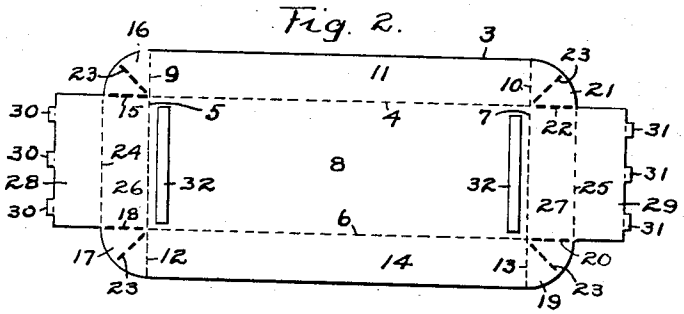


Fig. 2.



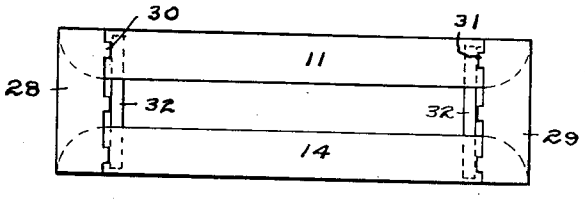


Fig. 3.

Fig. 6.

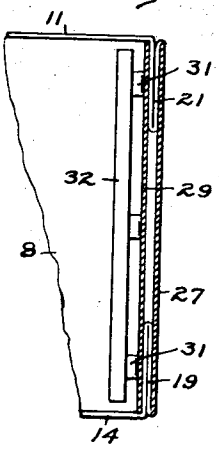
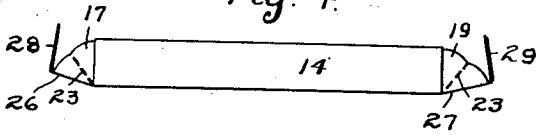


Fig. 4.



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UNITED STATES PATENT OFFICE.

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BOX.

Application filed August 16, 1926. Serial No. 129,851.

The invention relates to boxes and particularly to the two piece collapsible type formed of paperboard.

In the two piece paperboard box generally in use at the present time, each part is received by the user in collapsed form and he must set it up before using. The setting up process is relatively a slow one since, as a general rule, the sides and ends of each part must be turned up and the locking tongues on the ends must be engaged in slots in the sides or vice versa.

The object of the present invention is to provide a novel collapsible paperboard box in which the parts may be set up with great rapidity and with little effort, and providing maximum strength.

An embodiment of the invention is illustrated in the accompanying drawings, in which

Figure 1 is a perspective view of the box in closed condition; Fig. 2 a plan view of one of the fully collapsed parts of a two-piece box; Fig. 3 a plan view of the same in partially collapsed condition for shipping or storage; Fig. 4 a side elevation of the part in condition for setting up; Fig. 5 an enlarged plan view of the part fully set up and Fig. 6 is a fractional plan view of the part set up, the locking means being shown in horizontal section.

In the illustrative embodiment of the invention, the box consists of two pieces, preferably similar in construction and adapted to form a container section or part 1 and a cover section or part 2. The two parts being similar it is only necessary to describe one of them.

The blank 3, from which either the receptacle portion or cover portion of the box is formed, consists of a sheet of suitable material, preferably paperboard, that is scored at 4, 5, 6 and 7 to form a lateral wall 8, which forms the bottom of the container or top of the cover. Scorings 9 and 10 cooperate with the scoring 4 to form a side wall 11 and the scorings 12 and 13 cooperate with the scoring 6 to form a side wall 14. The board is scored and perforated at opposite ends of each scoring 4 and 6, the line of perforations and scoring 15 cooperating with the scoring 9 to form a corner section 16, corner section 17 being defined by the scoring 12 and the line of perforations and scoring 18, corner section 19 being defined by the scoring 13 and the line of perforations and scoring 20 and the corner section 21 being defined by the scoring 10 and the line of perforations and scoring 22. Each corner section is scored along a diagonal line and perforated in said scoring as shown at 23, upon which diagonal perforated scoring each corner section will collapse or fold.

The material is also transversely scored at 24 and 25 parallel to the scorings 5 and 7 respectively to form the end wall sections 26 and 27, and to form the extensions or flaps 28 and 29. Tabs 30 and 31 are formed along the outer edge of the extensions or flaps respectively. Suitable abutments are formed on or secured to the section 8 adjacent to the scorings 5 and 7, such as strips 32 that are secured to said section. Any form of abutment that will project from the surface of the section 8 will suffice.

The side walls 11 and 14 are turned over onto the section 8, the corner sections folding onto the end sections 26 and 27 simultaneously therewith. The flaps 28 and 29 are then turned over onto the corner sections and the end sections as shown in Fig. 3. In this condition the parts are packed in bundles and shipped to customers or stored. When one of the parts is released from a bundle or pile the side walls rise, the corner sections expand somewhat as shown in Fig. 4 and in dotted outline in Fig. 5, and the flaps rest against the edges of the corner sections. The perforated scorings 15, 18 20 and 22 break down the resistance of the board and permit the corner sections to remain folded more or less inwardly. With the part in the condition shown in Fig. 4, the user places his hands under the end sections 26 and 27 and raises the entire part. This movement swings the end sections upwardly, the corner sections readily collapse and the flaps 28 and 29 fold over the collapsed corner sections and the tabs engage behind the abutments 32, the simple movement of the end sections to a vertical position causing the closing of the ends of the part and the locking of the walls to the transverse wall—the bottom or top of the part.

In other words, the user sets up the box by merely raising the ends of each part to a vertical position, this being accomplished with great rapidity and ease. The perforated scoring at the coterminal line of each corner sec-

tion and the adjacent wall section, together with the diagonal perforated scoring in each corner section and the rounded edge of the latter section, permit the said corner sections to freely collapse or fold inwardly as the end sections are moved upwardly, and said corner sections, being relatively stiffly connected to the side walls, cause the latter walls to move to a vertical position as the end sections are moved upwardly so that the flaps on the end walls swing over the collapsed corner sections to a vertical position within the part, the lower edge of each preferably engaging the bottom or top of the part, as the case may be, and the tabs bending horizontally into engagement with the abutments. A slight outward pressure on the flaps after they are disposed within the part assures their frictional engagement with the said top or bottom and with the abutments.

What I claim is:

1. A flat, unfolded blank for folding boxes consisting of a single sheet of foldable material having a rectangular body portion, rectangular side wall portions defined from the body portion by weakened portions constituting fold lines, rectangular end wall portions defined from the body portion by weakened portions constituting fold lines, and corner sections connecting the respective side and end wall portions and defined therefrom by weakened portions constituting fold lines and each having a diagonally extending weakened portion extending outwardly from the respective corner of the body portion and constituting a fold line, each diagonal fold line and fold line between the end wall portion and corner section being primarily weakened to a greater extent than the fold lines between the corner sections and side wall portions.

2. A flat, unfolded blank for folding boxes consisting of a single sheet of foldable material having a rectangular body portion, rectangular side wall portions defined from the body portion by weakened portions constituting fold lines, rectangular end wall portions defined from the body portion by weakened portions constituting fold lines, corner sections connecting the respective side and end wall portions and defined therefrom by weakened portions constituting fold lines and each having a diagonally extending weakened portion extending outwardly from the respective corner of the body portion and constituting a fold line, each diagonal fold line and fold line between the end wall portion and corner section being primarily weakened to a greater extent than the fold lines between the corner sections and side wall portions, and end flaps extending from the free longitudinal edges of the end wall portions and defined therefrom by weakened fold lines.

3. A flat, unfolded blank for folding boxes consisting of a single sheet of foldable material having a rectangular body portion, rectangular side wall portions defined from the body portion by weakened portions constituting fold lines, rectangular end wall portions defined from the body portion by weakened portions constituting fold lines, corner sections connecting the respective side and end wall portions and defined therefrom by weakened portions constituting fold lines and each having a diagonally extending weakened portion extending outwardly from the respective corner of the body portion and constituting a fold line, each diagonal fold line and fold line between the end wall portion and corner section being primarily weakened to a greater extent than the fold lines between the corner sections and side wall portions, and end flaps extending from the free longitudinal edges of the end wall portions and defined therefrom by weakened fold lines, said end flaps having a width sufficient to engage the interior surface of the body portion upon folding of the box.

4. A flat, unfolded blank for folding boxes consisting of a single sheet of foldable material having a rectangular body portion, rectangular side wall portions defined from the body portion by weakened portions constituting fold lines, rectangular end wall portions defined from the body portion by weakened portions constituting fold lines, corner sections connecting the respective side and end wall portions and defined therefrom by weakened portions constituting fold lines and each having a diagonally extending weakened portion extending outwardly from the respective corner of the body portion and constituting a fold line, each diagonal fold line and fold line between the end wall portion and corner section being primarily weakened to a greater extent than the fold lines between the corner sections and side wall portions, and end flaps extending from the free longitudinal edges of the end wall portions and defined therefrom by weakened fold lines, said end flaps having a width sufficient to engage the interior surface of the body portion upon folding of the box, said body having its interior surface provided with raised portions closely adjacent and parallel to its end edges to secure the end flaps against accidental unfolding.

5. In a flat, unfolded box blank, a corner member having side and end wall portions, said corner member connecting the side and end portions and defined therefrom by weakened fold lines with the fold line between the corner member and end wall portion of greater initial weakness than the remaining fold line, said corner member further having a weakened fold line extending diagonally from the junction of the remaining fold lines and of substantially the same weakness as the fold line between the corner member and end wall portion.

6. In a flat, unfolded box blank, a corner

member having side and end wall portions, said corner member connecting the side and end portions and defined therefrom by weakened fold lines with the fold line between the corner member and end wall portion of greater initial weakness than the remaining fold line, said corner member further having a weakened fold line extending diagonally from the junction of the remaining fold lines, the fold line between the corner member and end wall and the diagonal fold line being perforated to render the same equally weak.

In witness whereof I have hereunto signed my name this 12th day of August, 1926.

CHARLES C. MILLER.