Oct. 9, 1934. H. V. MARSH 1,975,963

BOX

Filed June 25, 1932

Fig. 1

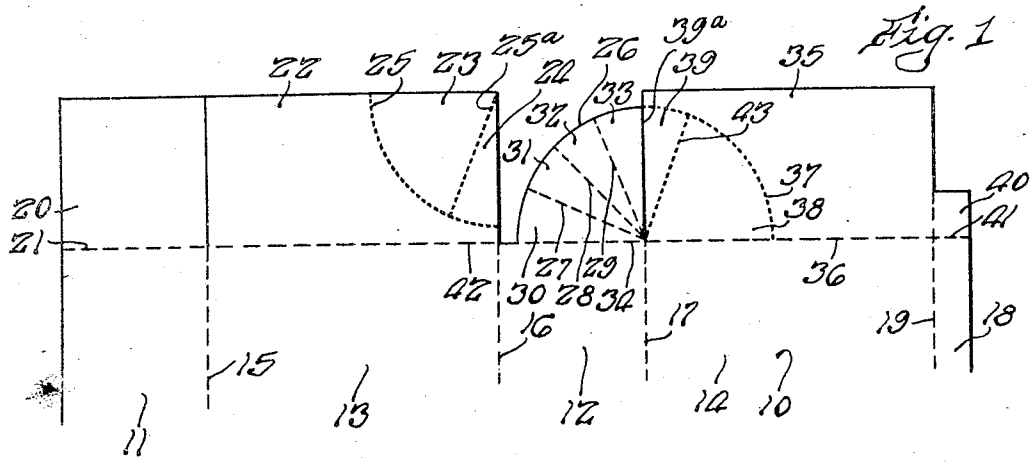


Fig. 2

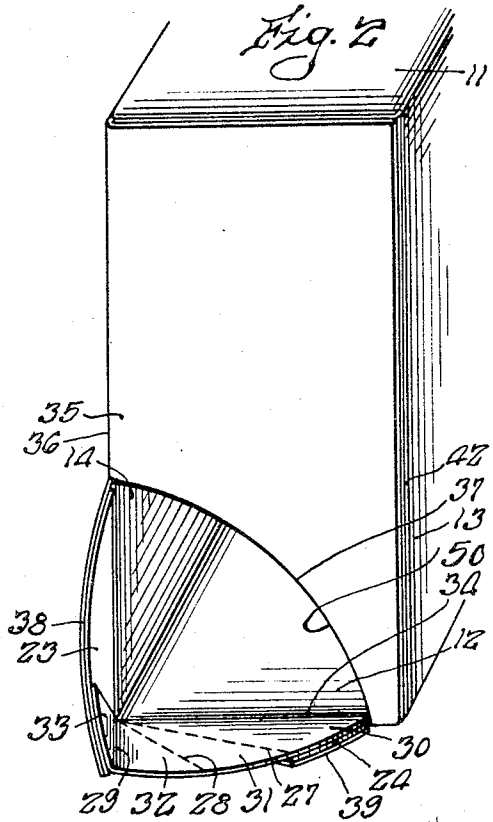


Fig. 4

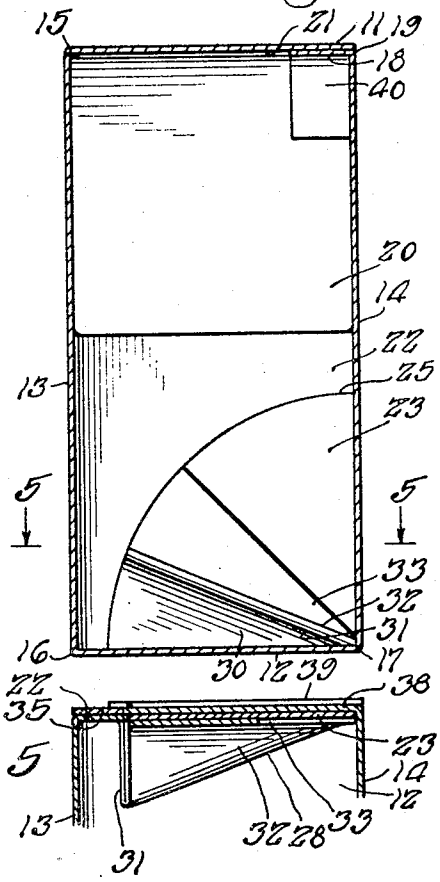


Fig. 5

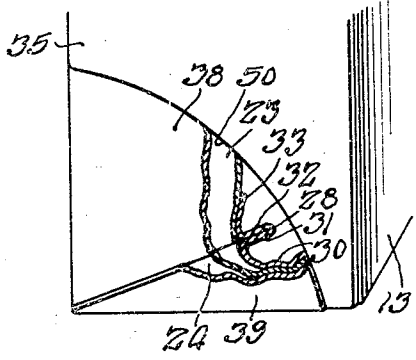


Fig. 3

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BOX

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8 Claims. (Cl. 229—17)

This invention relates to a box formed of a single blank of sheet material and has to do particularly with a spout for a box of cardboard or the like.

The object of the present invention is to provide a simple and inexpensive spout in a cardboard box which may be fabricated into the folds of the cover for the box, thereby rendering the contents of the container readily accessible and providing convenient means for the pouring of such contents therefrom, the box being particularly suitable for materials in a powdered or granulated form.

A further object of the invention is to provide such a box as has been described and which may be used on conventional box filling machines without serious modification or interference with the rapid and efficient operation of such machines.

With other desirable objects in view which objects will later be made apparent, the invention is hereinafter set forth with reference to the accompanying drawing hereby made a part of the specification and in which

Figure 1 is a fragmentary plan view of a blank of sheet material for forming the end of a box embodying the invention;

Figure 2 is a view in perspective of the top of a box made from the blank shown in Figure 1 and with the spout therefor extended for use;

Figure 3 is a similar view of the box top with the spout retracted;

Figure 4 is a transverse sectional view of a box illustrating the invention as seen from below; and

Figure 5 is a cross-section taken along the line 5—5 of Figure 4.

Like reference characters are used to designate similar parts in the drawing and in the following description of one form of the invention.

The reference character 10 designates a fragmentary portion of a flat piece of stock material producing a blank from which a box embodying the invention is formed. The material of the blank is preferably of a tough and tenacious nature such as cardboard.

Sections 11 and 12 of the blank form the opposed narrow sides of a conventional box and sections 13 and 14 form the intermediate broad sides or front and back of the box. Separating the respective sides are scores 15, 16 and 17, the scores being coincident with the corners of the box. A short section 18 separated from the section 14 by the score 19 is treated with an adhesive material and thus secured to section 11 for holding the blank into an assembled position so far as its vertical walls are concerned.

Extending upwardly from the section 11 is a section 20 defined from the section 11 by a score 21. Similarly, a section forming a flap 22 extends upwardly from the side section 13.

In the upper right-hand corner of the section 22, as seen in Figure 1, are two sector areas 23 and 24, defined from the section 22 by the arcuate score or line 25 formed by perforations. The score 25a is also laid out by perforating the blank.

Projecting upwardly from the side section 12 is a flap 26 divided by fold lines 27, 28 and 29 diverging from a common point at a corner of section 12 to form sector-like sections 30, 31, 32 and 33. A fold line 34 separates the flap 26 from the section 12.

There is a fourth flap 35 extending from the upper edge of the blank 10 adjacent to section 14 and at the fold line 36. An arcuate perforated score 37 generated about the point of intersection of the fold lines 17 and 36 divides areas 38 and 39 from the section 35. There is an incision 39a between the section 39 and the section 33. Between areas 38 and 39 is a score in the form of a perforated line 43. A short flap 40 enjoins the section 18 along the fold line 41. The opposite end of the sheet 10 configures flaps which are not unlike that of the ordinary box of this type.

In assembling the box the four sides are brought together in a manner shown in Figure 2, flap 18 being disposed adjacent the inner and extended edge of the section 11. Flap 20 is then bent inwardly along the line 21. Simultaneously the short flap 40, which has been placed in a position contiguous to the inner side of the flap 20, is bent inwardly along the fold line 41.

Next the flap 26 is bent along the fold lines therein to bring the lines 27 and 29 into an adjacent position, displacing the sections 31 and 32 and the fold line 28 inwardly of the box. Thus the sections 31 and 32 are brought flatly together. This being done, the flap 26 is bent inwardly along the fold line 34 to be held in its deformed condition by an assembly block (not shown) positioned within the box. Flap 22 is then brought over and upon the inwardly disposed flap 26 by bending along the fold line 42. The perforated line 25 is generated at such a radius about the corner of the flap 22 as to coincide with the arcuate edge of flap 26. The

perforated line 25a falls upon the fold lines 27 and 29 which are in contiguous parallelism. An adhesive material is applied between the area 24 and section 30, and the area 23 and section 33.

A subsequent displacement of the flap 35 and areas 38 and 39 inwardly about the fold line 36 brings said flap and areas to lay upon the top of the flap 22 and the areas 23 and 24. The perforated score 37 is of like curvature to the score 25 and is carried to a position thereabove. Similarly the score 43 is brought in registry with the score 25a.

An adhesive substance is applied to the entire inner surface of the flap 35 and areas 38 and 39 so that a permanent connection is formed between those parts and the flap 22 and the areas 23 and 24 respectively. With the flaps and areas so sealed, the top of the box is fully enclosed and appears from above as shown in Figure 3. The form is then removed from the box in order that the packaging contents may be placed therein from the opposite end, the box then being closed at said opposite end in the conventional manner.

Access to the contents of the container is had by loosening the heretofore described flaps and sections at the top of the box in the following manner. A sharp instrument may be used for severing the top of the box at the edge of an opening 50 along the scores 25 and 37. If no instrument is at hand, the material may be separated at the scores 25 and 37 by pressing upon the top of the box adjacent to the said scores as with the finger tips to break the narrow ligatures extending between the perforations. Usually pressure is then had upon the flap 35 adjacent the edge of the opening 50 to depress that part of the top in order that the edge of the areas 38 and 23 may be engaged to lift them from the opening. In pulling the parts 23 and 38 from the opening, the flap 26 is also pulled therefrom and the sections 31 and 32 are pulled apart by breaking apart the areas 38 and 39, and areas 23 and 24, at the lines 43 and 25a. When said areas and sections are pulled from the opening and opened out, a spout is coformed thereby as shown in Figure 2.

After the desired contents have been emptied from the box the spout is returned to the opening in the box as a closure therefor by displacing the fold line 28 inwardly to collapse the flap 26 by bringing the sections 31 and 32 together as the edges of the parts 23 and 38 and of the areas 24 and 39 are brought confrontingly together within the plane of the opening. Sections 31 and 32 then extend normally to the rest of the sections and flaps forming the closure and into the box. Since, however, the two sections 31 and 32 are held closely together, no appreciable space within the box is occupied by them. When the arcuate edge of the opening 50 is formed by withdrawing the spout therefrom, areas 23 and 24 are removed from the flap 22 and serve as a means of re-enforcing area 38 and the section 30 respectively as parts of the spout. Also the scores 25a and 43 are ripped apart by the spreading of the folding lines 27 and 29 pursuant to extending the spout.

The present sections for forming the spout within the closure for the box permit of the flaps being cut substantially to the shape of conventional parts for closing the end of a box, and do not have narrow projecting parts therefrom to catch upon folding machinery. It is after the box has been filled and folded and is ready for use that the sections of the flaps are removed.

In a box of the construction illustrated and described, it is possible to add parts to a standard box folding machine whereby the flaps are folded in the manner herein set out, thus making it possible to use the conventional box folding machine with but very slight alteration and to maintain the speed of such machine when the present form of box is being formed thereon.

Having thus described the invention, what is claimed as new and is desired to be secured by Letters Patent of the United States is:

1. In a box having walls of sheet material, a wall having sections thereof bounded by intersecting lines of perforations, one of such lines being between said sections and permitting separation of said sections from said wall to provide an opening in the latter, said sections when opened comprising extensions from adjacent walls of said box and when closed meeting away from the sides of said box to form a closure for said opening.

2. In a box having walls of sheet material, a wall having sections thereof bounded by intersecting lines of perforations, one of such lines being between said sections and away from the adjacent walls of said box, thereby permitting of separation of said sections from said wall to provide an opening in said first referred-to wall, and folded flaps joined to said sections to form a spout when said sections are separated from said first referred-to wall.

3. In a box having walls of sheet material intersecting at an angle, a wall intersecting said walls to form a corner, sections of said wall being bounded by lines of perforations permitting separation of said sections from said wall on a line away from the adjacent walls to form an opening in said wall, and flaps enclosed within said box by said sections before separation and folded radially from the point of intersection of said walls and joined to said sections to form a spout when said sections are separated, said flaps being re-enclosed within said box when said sections are reapproximated, said sections when approximated meeting away from the adjacent side of said box to form a closure for said opening.

4. In a box having walls of sheet material intersecting at an angle, a wall intersecting said walls to form a corner, sections of said wall being bounded by intersecting lines of perforations permitting separation of said sections to form an opening, one of such lines extending radially from such corner and away from adjacent sides of said box, and flaps folded radially from such corner and joined to said sections to be enclosed therebeneath when said sections are not separated from said wall and to form a spout when said sections are separated from said wall and spread apart.

5. A box having a plurality of walls formed of a single sheet of material, one of said walls having sections bounded by lines of perforations permitting separation of said sections from said wall on a line away from adjacent walls to provide an opening in said wall, other sections of said box material separated from each other and from said first sections by scores for creasing, said latter sections being enclosed within said box by said first sections before the separation thereof from said wall and cooperating with said first sections to form a spout after the sep-

aration of said first sections from said wall to form an opening.

6. A box having a plurality of walls formed of a single sheet of material, one of said walls having lines of perforations permitting the separation of sections thereof from said wall on a line away from adjacent walls to form an opening in said wall, said sections being extensions of said adjacent walls, and a flap comprising an extension of an adjacent wall, continuous with said sections and cooperating therewith when said sections are opened outward, to form a spout about said opening.

7. A box having corners and comprising a plurality of walls formed of a single sheet of material, one wall thereof having lines of perforations therein permitting the separation of sections thereof on a line extending radially from a corner of said box and away from adjacent walls thereof to form an opening in said first referred to wall, said wall enclosing thereto beneath an extension of an adjacent wall scored radially from said corner for creasing and joined to said sections and cooperating therewith to form a spout when said sections are separated and opened outward from said first referred to wall.

8. In a box having walls of sheet material intersecting at a point, a wall having sections thereof bounded by intersecting lines of perforations permitting separation of said sections from said wall to form an opening therein, one of said lines being away from the adjacent walls and extending radially from the point of intersection of said walls, and flaps folded radially from the point of intersection of said walls and joined to said sections to form a spout when said sections are separated from said wall, said sections meeting on such radial line when approximated to form a closure for said opening.

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