Jan. 15, 1957 S. CONESCU 2,777,628

CARDBOARD FOLDING BOX CONSTRUCTION

Filed Nov. 2, 1954

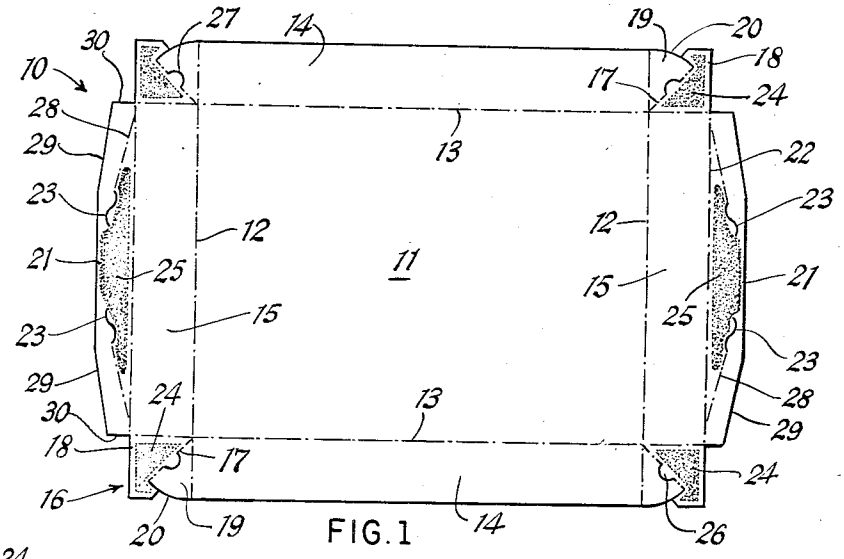


FIG. 1

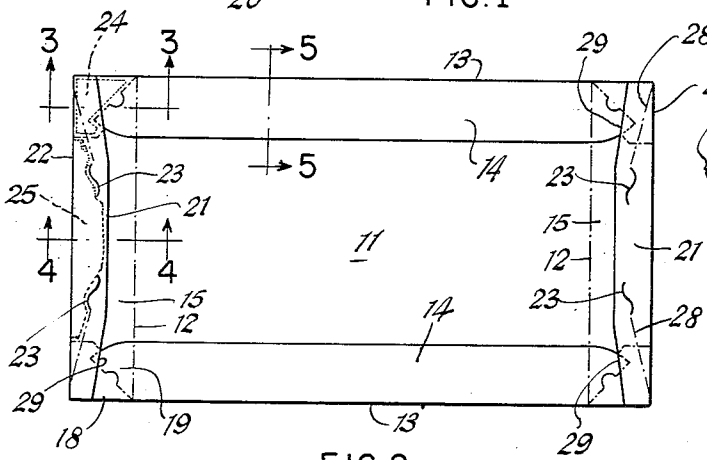


FIG. 2

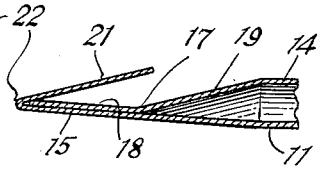


FIG. 3

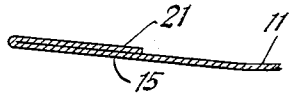


FIG. 4



FIG. 5

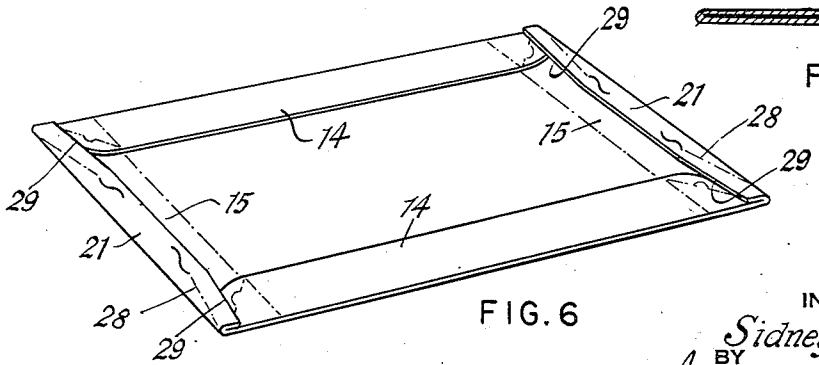


FIG. 6

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CARDBOARD FOLDING BOX CONSTRUCTION

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2 Claims. (Cl. 229—31)

This invention relates to a cardboard folding box construction and is an improvement on my United States Letters Patent No. 2,414,854.

I have found, after actual use during the time that boxes made under my aforesaid patent have been in commercial use, that in numerous instances (*a*) the boxes "broke" irregularly at and adjacent the gluing area; (*b*) that the glue tended to tear away and once it began to tear, it continued; (*c*) that the "setting up" of the boxes was too slow, and (*d*) certain difficulties were encountered at the extreme opposed ends in the "setting up" process.

It, therefore, became necessary to provide a folding box to correct such defects which was accomplished by (1) scoring the box end angularly adjacent the S-shaped incisions so that the box "broke" exactly at the same place every time, (2) by enlarging the gluing area, bringing it to the scoring line to control the bending and to increase the strength of the glued parts of the box, (3) by cutting the ends angularly of the portion folded over, and (4) by shortening the length of the opposed end of the portion to be folded over to avoid difficulties in the setting up process, respectively, as stated in the preceding paragraph.

For a fuller understanding of the nature and objects of the invention, reference is had to the following detailed description, in connection with the accompanying drawings, in which:

Fig. 1 is a plan view of a blank for my improved folding paper box tray member;

Fig. 2 is a plan view showing the blank with the panels in folded condition lying flat;

Fig. 3 is a fragmentary section taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary section taken on the line 4—4 of Fig. 2;

Fig. 5 is a fragmentary section taken on the line 5—5 of Fig. 2; and

Fig. 6 is a perspective view of the tray member of my folding box, in the flat condition.

Referring to the drawings, **10** is a blank from which the body member **11** is formed. Crease lines **12, 12** and **13, 13** outline side panels **14, 14** and the end panels **15, 15**, leaving corner webs **16** outlined by the diagonal crease line **17** and the semi-circular extension **26**, to define web segments **18** and **19**. The segment **19** is arcuately shaped at **20** and semi-circular slit at **27**, leaving the remnant of polygonal outline unaltered, for purposes which will appear more clearly hereinafter. From the end panels **15, 15** there are extended flaps **21, 21** defined by the crease line **22**. With this construction I form generally S-shaped incisions **23**, whose axial line is angularly directed to diverge toward the crease line **22**, and on a line from the edge of the flap along crease line **28** which extends angularly from the inner end of the S-shaped incision **23** to intersect the crease line **22** a short distance from the corner or end of the extending flaps **21**. The extending flaps **21** have their opposed edges angularly cut, as shown at **29** so that the extreme opposed ends **30** are shorter than the width of the central portion for the purpose as will be hereinafter described.

The blank **10** thus provided may be fed through a folding machine, during which operation applicators apply a film of adhesive **24** to the web segments **18**, and remnant above described, and then the blank is fed through a folding contrivance to hinge the panels **14, 14** about the crease lines **13, 13** to bring the adhesive **24** in contact with the panels **15, 15**.

At this stage, the blank is run at right angles through a folding contrivance, and as an incident thereof an applicator applies an adhesive film **25** to practically the entire central portion of the flap **21** between the incisions **23** and between crease line **22** and crease line **28** and just short of the web segments **18** when folded inwardly, as shown in Fig. 2. Thereupon, the flaps **21** are folded about the crease line **22**, to bring the flap **21** over the panels **15**, and connect the flap **21** at its medial portion and between the S-shaped incisions **23**, part of the crease line **28** and the crease line **22** by engagement of the adhesive film **25** with the body of the panel **15**. While glue is preferred, other fastening means may be employed.

It should be noted that the area of adhesive film **25** in this application extends to the crease line **28** and is a larger area than that shown on the box of my Patent No. 2,414,854 so that there is a definite "break" at the crease line **28** on every box, thus definitely controlling the bending and also increasing the strength of the glued parts of the box at this portion. The incisions **23** serve the same purpose as set forth in my previous aforesaid patent.

When films **24** and **25** have dried, the tray-like segment may be set up by lifting up the edges of the panels **14** while simultaneously lifting the angularly cut edges **29** and folding the ends **30** of the flaps **21** inwardly over the corner web **19**. The semi-circular slit **27** facilitates the breaking of the crease line **17** while the extension **26** increases the strength of the glued parts at this point. Since the extreme ends **30** are shorter than the extreme ends of the flaps of the box of my Patent No. 2,414,854, it is possible to set up the box more rapidly and with less difficulty than the box of my previous patent. There is ample frictional action to temporarily wedge the free ends of the flap **21** in a deflected condition to facilitate directing the free edges over the corner web **19**. The arcuate edges **20** combine to direct the flap **21** into locking engagement over the segment **19** to bring the segment **19** into engagement with the segment **18**.

The hinge cuts or incisions **23** and crease lines **28** of divergent character, minimizes the spreading of the flap ends **30** thereby also minimizing the stress on the medially connected portion of the flap **21**. This enables me successfully to use glue for connecting the flap **21** to the panel **15**.

The reason for the employment of the hinging cuts in the form of S-shaped incisions and their location and the stresses incident to the various parts is fully set forth in my previous aforesaid patent as well as certain definitions and other advantages which need not be herein reiterated.

Having thus described my invention, what I claim to be new and desire to secure by Letters Patent is:

1. In a folding box having hinged side and end panels which are edgewise connected to each other by a diagonally folding web arranged to lie in the set up condition of the box against one of the panels, said last mentioned panel having a locking flap defined by a fold, the combination wherein said flap is provided with diagonally inwardly directed S-shaped hinging cuts and diagonal crease lines extending from a point located a short distance in-

wardly from the extreme end of said flap and intersecting said fold and extending to the outer end of said S-shaped hinging cuts, said cuts and crease lines provided to each side of said locking flap, said flap having a substantial medial portion thereof and the portion between said hinging cuts and part of said crease line and said fold connected to said panel to leave the ends free for spreading over said web, said cuts having a portion thereof contoured to provide an outwardly projecting portion which frictionally contacts the said panel to hold the bent flap braced when the flap is spread for setting up the box.

2. The box in accordance with claim 1 wherein the outer edges of said locking flap are diverging angularly

from the medial portion and the extreme ends of said locking flap are shorter than its width.

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