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2,833,459

SET-UP BOX AND BLANK FOR FORMING THE SAME

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Fig. 1.

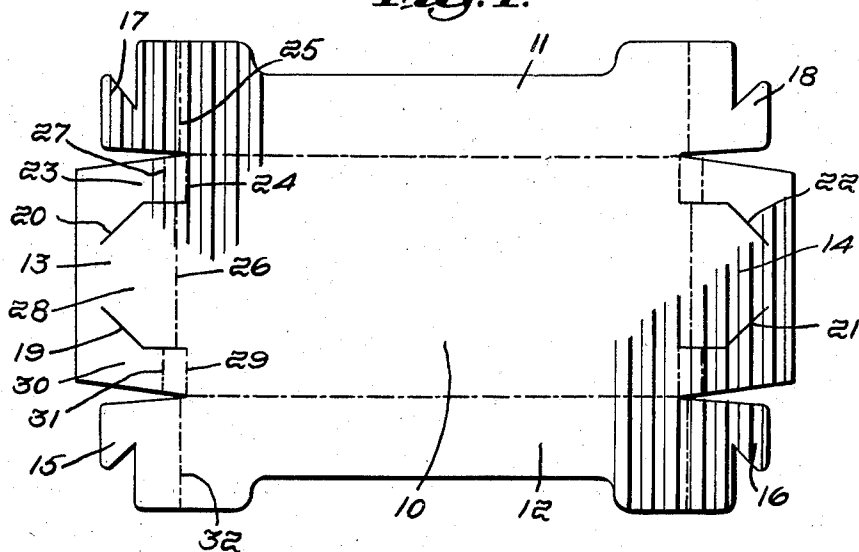


Fig. 2.

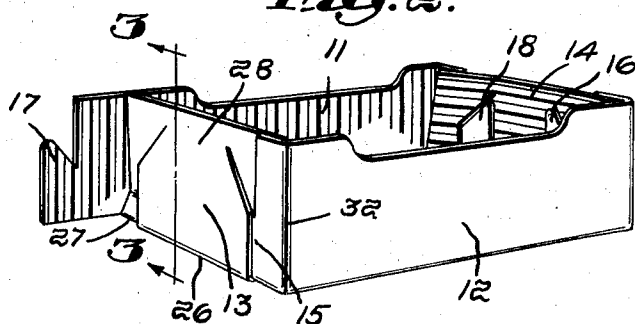
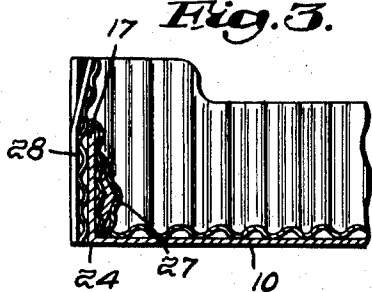


Fig. 3.



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SET-UP BOX AND BLANK FOR FORMING THE SAME

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2 Claims. (Cl. 229—35)

This invention relates to boxes and blanks for forming boxes, and pertains more particularly to the type of box in which one pair of walls has tabs locking in slits in the other pair of walls.

A box of the interlocking tab type, which is normally formed without glue or other fastening, may be set up either by hand or by machine. In order to thrust the tabs into the slits it is necessary to spring the parts of the slitted wall on either side of the slit to provide clearance for inserting the tab. The invention here disclosed makes insertion of the tabs considerably easier than it is on the ordinary box blank and, although providing advantages in setting the box up by hand, is particularly advantageous for setting up the blank on a suitable machine, for example that shown in Pat. No. 2,626,545 to Samsing. The blank construction here shown is especially advantageous for boxes made of relatively thick stock and particularly those having a corrugated liner.

The chief object of the invention is to provide a construction of the slitted wall in which the portions of the wall lying between the slits and the corners will automatically spring inward when the wall is folded up, thus opening the slits and facilitating insertion of the adjacent corner tabs. Another object is to provide sufficient clearance for the tabs so that the tabs and the central portion of the slitted wall tend to lie straight when the box is formed. Other advantages and novel features of the invention will be apparent from the following description.

In the drawings illustrating the invention:

Fig. 1 is a plan view of a box blank formed in accordance with the invention;

Fig. 2 is a perspective view of a box set up from the blank in Fig. 1; and

Fig. 3 is an enlarged cross-section of one of the corners of the set-up box taken, for example, along line 3—3 of Fig. 2.

The blank as shown in Fig. 1, consists of a bottom portion 10, side walls 11 and 12, and end flaps 13 and 14. Each of the side walls has tabs connected at either end, tabs 15 and 16 being connected to wall 12 and tabs 17 and 18 to wall 11. End flap 13 has slits 19 and 20, respectively, extending outward from the bottom portion 10, and end flap 14 has slits 21 and 22. The portion 23 of end flap 13, which lies between the slit 20 and the edge of the end flap, has a first score line 24 running across its junction with the bottom portion 10, and a second score line 27 parallel to line 24 but spaced outward from the bottom portion. The portion 30 of the end flap lying between the slit 19 and the other edge of the flap has a similar first score line 29 and a second score line 31. Score line 24 is aligned with line 29 and score line 27 with line 31. The central portion 28 of the end flap has a score line 26 running across its junction with the bottom portion. Line 26 lies intermediate lines 24 and 27, and is preferably spaced outward from line 24 by about twice the thickness of the stock from which the blank is made. Tabs 15 and 17 have score lines 32

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and 25, respectively, which define the folds forming the corners of the box. These fold lines are preferably offset from score lines 29 and 24 in the outward direction by a distance about equal to the thickness of the stock.

When the blank is set up the central portion 28 is folded along line 26 and the two side portions 23 and 30 of the end flap fold up along lines 24 and 29. The side portions of the end flap tend to fold along lines 27 and 31 in a direction reverse to the fold along lines 24 and 29. These portions will, therefore, spring inward, as shown in Figs. 2 and 3, opening the slits 19 and 20 so that tabs 15 and 17 can be readily inserted. This action is particularly advantageous in setting up the blanks on a forming die, such as that shown in the aforesaid Samsing patent, because of the fact that the blanks are formed very rapidly and the inward spring of the side portions of the end flap ensures that the tabs will lock correctly.

The fact that the bottom of the portions 23 and 30 is offset inward from the bottom fold 26 of the central portion 28, allows a space in which the tabs 15 and 17 may lie. With this construction the entire end wall assembly tends to lie straight. The hinge action of the double scored edge portions also tends to level the top of the end wall so that the walls will line up correctly at the corners of the box. As previously stated, the score lines 24 and 29 are preferably spaced from line 26 by about twice the thickness of the stock, and the score lines 32 and 25 are offset from lines 24 and 29 by about the thickness of the stock. The tabs will, therefore, naturally tend to lie along a line between the bottom folds of the side portions and the bottom fold of the intermediate portion.

The hinge action of the side portions of the end flaps, as well as the clearance allowed for the tabs, is particularly advantageous in setting up blanks of the type shown which have a corrugated liner. These blanks are particularly troublesome to form by machine because of the fact that the corrugations tend to catch and make it difficult to insert the locking tabs. This blank construction, however, is advantageous for any type of box formed from relatively thick stock. The box here shown is an open-topped tray type but it is understood that a hinge cover may be connected to either of the side walls 11 and 12.

What is claimed is:

1. A box blank of sheet material comprising a central panel, a first pair of panels connected thereto and adapted to be folded up to form side walls, a second pair of panels having bases connected to the central panel and adapted to be folded up to form end walls, each of said side wall forming panels having a pair of tabs and each of said end wall forming panels having a pair of slits adapted to receive the adjacent side wall tabs, the slits dividing each end wall forming panel into a central portion and side portions, said slits having inner and outer ends, the former being disposed on the base of the panel, each of said side portions having a first scored line running along its base to the inner end of the adjacent slit and a second scored line parallel to and spaced from the first line and disposed intermediate the inner and outer end of the adjacent slit and each of said central portions being scored along a line spaced from its base by approximately twice the thickness of the material from which the blank is formed and disposed parallel to and intermediate the first and second scored lines of the adjacent side portions, each of said tabs having scored lines disposed parallel to and intermediate the first and second scored lines of the adjacent side portions and spaced from said first lines by approximately the thickness of said material.

2. A set-up box of sheet material comprising a bottom wall, side walls and end walls, each side wall having end

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fold lines and a pair of tabs projecting from said end fold lines substantially parallel to said end walls, and each of the end walls having a pair of upright slits in which the adjacent tabs of the side walls are received, the slits dividing each end wall into a central portion and two side portions and having upper and lower ends, said lower ends being disposed at the level of the bottom wall, each central portion having a bottom fold and each side portion having a bottom fold, all the bottom folds being parallel, the bottom fold of each side portion being spaced in the direction of the interior of the box from the bottom fold of the adjoining central portion by approximately twice the thickness of the material from which the box is made, and each side wall also having a fold line disposed intermediate the upper and lower ends of the

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adjacent slit, and the corner fold lines of the side walls being spaced outwardly in the endwise direction of the box from the bottom fold of the adjacent side portion by approximately the thickness of the material.

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