Sept. 29, 1936. A. BERMAN 2,056,032

REDUCING BOX

Filed Dec. 4, 1935

FIG. 1.

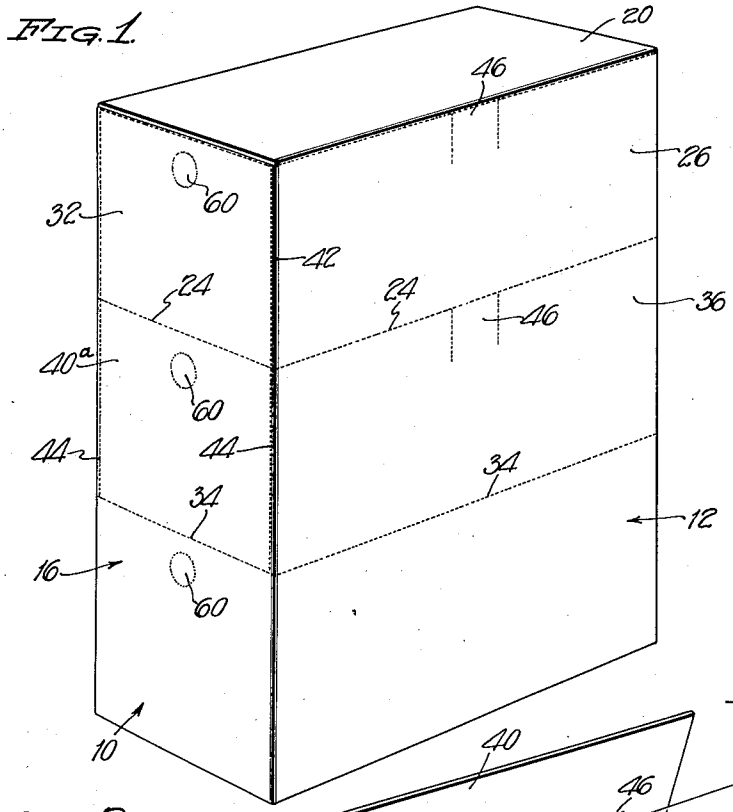


FIG. 2.

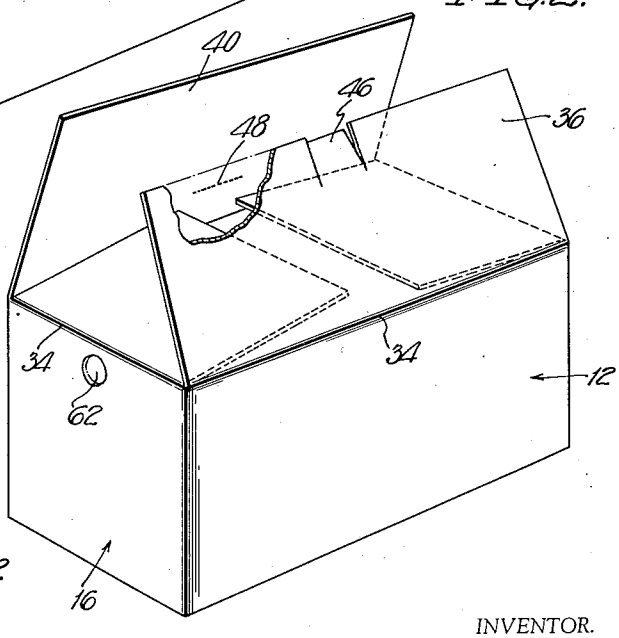
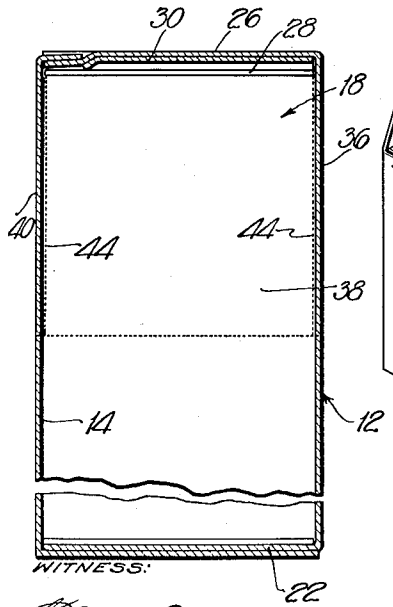


FIG. 3.



WITNESS:

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REDUCING BOX

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11 Claims. (Cl. 229—6)

This invention relates to boxes, and more particularly it pertains to the type of box in which commodities such for example as cereals, soap powders and such merchandise are offered for sale.

Such commodities are generally stored in their original packages by the housewife until the contents are completely consumed, after which the box is disposed of.

It frequently happens, and this is particularly true if the contents of a box are such as are infrequently used, that the supply becomes entirely exhausted before the housewife is aware of the fact. Furthermore, such boxes are generally of comparatively large size and occupy considerable storage space which, in many instances, is limited.

It is the object of the present invention to improve the construction of all such boxes in which the contents are stored until consumed and so to construct such boxes that the contents will at all times be protected against deleterious foreign elements and all of this in a new and novel manner which will not impart any disadvantages to the manufacture or use of the box.

A feature of the invention resides in a novel construction whereby the box may be reduced in size from time to time as its contents are consumed.

Another feature of the invention resides in a novel construction whereby even though the box is reduced in size by the removal of portions thereof, a closure for the box will at all times be provided.

A further feature of the invention resides in a novel construction whereby the closure aforementioned is formed by parts which are integral with the body portion of the box instead of being a separate element.

Still a further feature of the invention resides in the provision of means for securing or retaining the closure in its closed position.

Other features of the invention relate to certain novel and improved constructions, arrangements and combinations of parts hereinafter described and particularly pointed out in the claims, the advantages of which will be readily understood and appreciated by those skilled in the art.

The invention will be clearly understood from the accompanying drawing illustrating the invention in its preferred form and the following detailed description of the constructions therein shown.

In the drawing:

Figure 1 is a perspective view of a complete box constructed in accordance with the present invention, the box being illustrated in its original closed form,

Figure 2 is a perspective view of the box shown in Figure 1, after it has been partially reduced in size, the box being shown in a partially open position, and

Figure 3 is a longitudinal sectional view partly broken away illustrating the several parts in the position which they occupy when the parts are folded to form a closure.

Referring to the drawing by reference character and particularly to Figure 1, the numeral 10 designates the box proper. The box illustrated is of rectangular form but may, if desired, be of any other shape although I prefer to make it of angular conformation. The reference numeral 12 designates the front wall and 14 designates the rear wall. The reference numeral 16 designates one end wall of the box, the reference numeral 18 designating the opposed end wall of the box. The top wall of the box is designated 20, the bottom wall thereof being designated 22.

Extending entirely around the box at a point below the defining edge of the top wall 20 thereof, there is a crease or score line 24. The location of this score line with reference to the defining edges of the top wall 20 is important for a reason which will now be specifically explained. This score or crease line 24 forms a panel 26 in the upper portion of the front wall 12; a panel 28 in the upper portion of the side wall 18; a panel 30 in the upper portion of the rear wall 14; and a panel 32 in the upper portion of the side wall 16, see Figure 1. These panels 26, 28, 30, and 32 are adapted to fold inwardly of the box to form a closure therefor and in order that this may be accomplished, the width of these panels, that is, their dimension from top to bottom should not be greater than the thickness herein referred to, being the distance between the front and rear walls thereof.

Below the score or crease line 24 there is a second score or crease line 34 which, like the score or crease line 24, extends entirely around the box. This score or crease line 34 forms in conjunction with the score or crease line 24 a second series of panels, as will now be pointed out; a panel 36 in the front wall 12 of the box; a panel 38 in the side wall 18 of the box; a panel 40 in the rear wall 14 of the box; and a panel 40a in the side wall 16 of the box. These panels are similar to the panels 26—32 in that they are of a width which does not exceed the thickness

of the box as heretofore explained. In the present embodiment of the invention I have shown but two sets of panels which are adapted to form closures for the box, but it is obvious that where occasion would permit, as in the case of large boxes, any desired number of sets of panels may be employed without departing from the spirit of the invention.

While the box may be severed along the lines of fold which form the corners 42 of the box to separate the several panels of each set from one another and to thereby permit of their folding into overlapping relation to one another to form a closure for the box, I prefer to provide separate lines of severance for this purpose. The lines of severance just mentioned may be score lines or lines of perforations, as may also the score or crease lines 24 and 34 for that matter. The lines of severance by means of which the several panels may be separated from one another are designated 44, and it will be noted that they are formed in the end walls of the box, closely adjacent the corner folds thereof and extending parallel with said corner folds. Such a construction and arrangement provides, when the panels of any one set are separated from one another, end panels which are of a length which will conveniently fold inwardly without bulging or otherwise distorting the shape of the box. In speaking of the length of the end panels, it will be understood that I mean their dimension in the direction of from front to rear of the box.

I will now describe the manner in which a box constructed in accordance with the present invention is adapted to operate.

Starting with a full box which is closed, as illustrated in Figure 1, the box is opened in any desired manner to permit of the removal of a portion of its contents. The box is used in this state until the level of its contents is at, or slightly below the score or crease line 24. When this condition is obtained, the top wall 20 is preferably entirely removed and the upper panels 26, 28, 30 and 32 are severed from one another along the lines of severance designated 44. With the panels thus separated, they are folded inwardly of the box into overlapping relation, the end panels being preferably folded in first, said inwardly folded panels forming a closure which replaces the end wall 20 which has been removed.

While it may not be necessary, I prefer to provide means for securing the inwardly folded panels in their closure-forming position. In the accompanying drawing, I have illustrated one such means as consisting of a tongue 46 formed preferably as an integral part of the front panel of each series, which tongue is adapted for reception in an opening 48 in the corresponding rear panel of each series, these openings being herein illustrated as a slit.

When the above described operation has been carried out it will be apparent that the box will have been reduced in length equal to the width of the panels 26 and 30 in the upper series of panels, thus reducing the size of the box, and accordingly requiring less storage space therefor. When the contents of the box have been reduced to a point below the lower score or crease line, which in the present embodiment of the invention is designated 34, the above operation is repeated, the several panels 36, 38, 40, and 42 then constituting the closure for the box.

In its finally reduced state, the box will be of such reduced size that the housewife will have a visual indication to the effect that the commodity contained in such reduced box is at a low point and should be replenished, which is important where a particular commodity forms a part of a diet which must be strictly adhered to.

Where the box is used as a package for granular material, such for example as salt or sugar, I provide a plurality of scored or perforated sections 60 which may, as the box is reduced in size, be removed to provide pouring openings 62 as illustrated in Figure 2.

Thus it will be apparent that the present invention provides a box in which the objects of the invention are fully realized, and while the invention has been herein illustrated in a preferred form, it is to be understood that it is not to be limited to the specific construction illustrated and that it may be practiced in forms other than that shown without departing from the spirit thereof.

Having thus described the invention, what is claimed as new, is:

1. A box of the type described comprising a main body portion, and a plurality of spaced horizontal and vertical lines of demarcation dividing the body portion thereof into a plurality of panels, said panels being severable along one group of lines and foldable along the other group of lines to provide flaps foldable upon one another to form a closure for the box.

2. A box of the type described comprising a main body portion, and a plurality of spaced horizontal and vertical lines of demarcation dividing the body portion thereof into a plurality of panels, said panels being severable along one group of lines and foldable along the other group of lines to provide flaps foldable upon one another to form a closure for the box, said panels being bodily removable as the contents of the box is disposed of.

3. A box of the type described comprising a main body portion, and a plurality of crease or score lines arranged in spaced groups extending around the box in a substantially horizontal plane, the groups of crease or score lines being spaced from one another a distance slightly less than the thickness of the box and lines of severance extending angularly from and cooperating with said first-named lines to form a plurality of flaps adapted to be folded one upon another to form a closure for the box.

4. A box of the type described comprising a main body portion, a plurality of spaced crease or score lines extending around the box in a substantially horizontal plane, vertical lines of severance extending angularly from the first-named lines and cooperating therewith to form a plurality of flaps adapted for folding one upon another to form a closure for the box, and means for securing said flaps in closure-forming position.

5. A box of the type described comprising a main body portion, a plurality of crease or score lines extending around the box in a substantially horizontal plane, the crease or score lines being spaced from one another a distance slightly less than the thickness of the box to provide a plurality of panels, vertical lines of severance dividing the panels into a plurality of flaps adapted to be folded one upon another to form a closure for the box, and means for securing said flaps in closure-forming position.

6. A box of the type described comprising a main body portion, a plurality of score or crease

lines extending around the box between its ends, said crease or score lines dividing the side walls of the box into a plurality of panels, lines of severance extending angularly from said first-named lines and dividing the panels into a plurality of flaps adapted to fold one upon another to form a closure for the box and cooperating means carried by two opposed flaps for securing said panels in their closure-forming position.

7. A box of the type described comprising a main body portion weakened along a line parallel with and adjacent to each of its corners and scored or creased to divide the side walls into a plurality of panels adapted to be partly separated to form flaps foldable one upon another to provide a closure for the box, said panels being further adapted for removal from the box as the contents thereof are disposed of.

8. A box of the type described comprising a main body portion, score lines forming severing lines extending parallel with the corners of the box and formed in the end walls thereof to provide inwardly folding panels of a width less than the thickness of the box, score or crease lines extending horizontally around the box and dividing the body portion thereof into a plurality of inwardly folding panels, said score or crease lines being spaced a distance less than the thickness of the box to provide inwardly foldable panels of a width less than the thickness of the box, said panels being bodily removable along their attached sides as the contents of the box are disposed of.

9. A box of the type described comprising a main body portion, score lines forming severing lines extending parallel with the corners of the box and formed in the end walls thereof to provide inwardly folding panels of a width less than the thickness of the box, score or crease lines extending horizontally around the box and dividing the body portion thereof into a plurality of inwardly folding panels, said score or crease lines being spaced a distance less than the thickness of the box to provide inwardly foldable panels of a width less than the thickness of the box, said panels being bodily removable along their attached sides as the contents of the box are disposed of, and means for securing said panels in their inwardly folded position.

10. A box of the type described comprising a main body portion, score lines forming severing lines extending parallel with the corners of the box and formed in the end walls thereof to provide inwardly folding panels of a width less than the thickness of the box, score or crease lines extending horizontally around the box and dividing the body portion thereof into a plurality of inwardly folding panels, said score or crease lines being spaced a distance less than the thickness of the box to provide inwardly foldable panels of a width less than the thickness of the box, said panels being bodily removable along their attached sides as the contents of the box are disposed of, and means for securing said panels in their inwardly folded position, said last mentioned means comprising interlocking means carried by two opposed panels and adapted for interlocking engagement when the panels are folded inwardly as described.

11. A box of the type described comprising a main body portion, score lines forming severing lines extending parallel with the corners of the box and formed in the end walls thereof to provide inwardly folding panels of a width less than the thickness of the box, score or crease lines extending horizontally around the box and dividing the body portion thereof into a plurality of inwardly folding panels, said score or crease lines being spaced a distance less than the thickness of the box to provide inwardly foldable panels of a width less than the thickness of the box, said panels being bodily removable along their attached sides as the contents of the box are disposed of, and means for securing said panels in their inwardly folded position, said last mentioned means comprising a tongue on one of said panels and a slot provided in an opposed panel, said slot being adapted to receive said tongue when the panels are folded inwardly.

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