

Sept. 28, 1943.

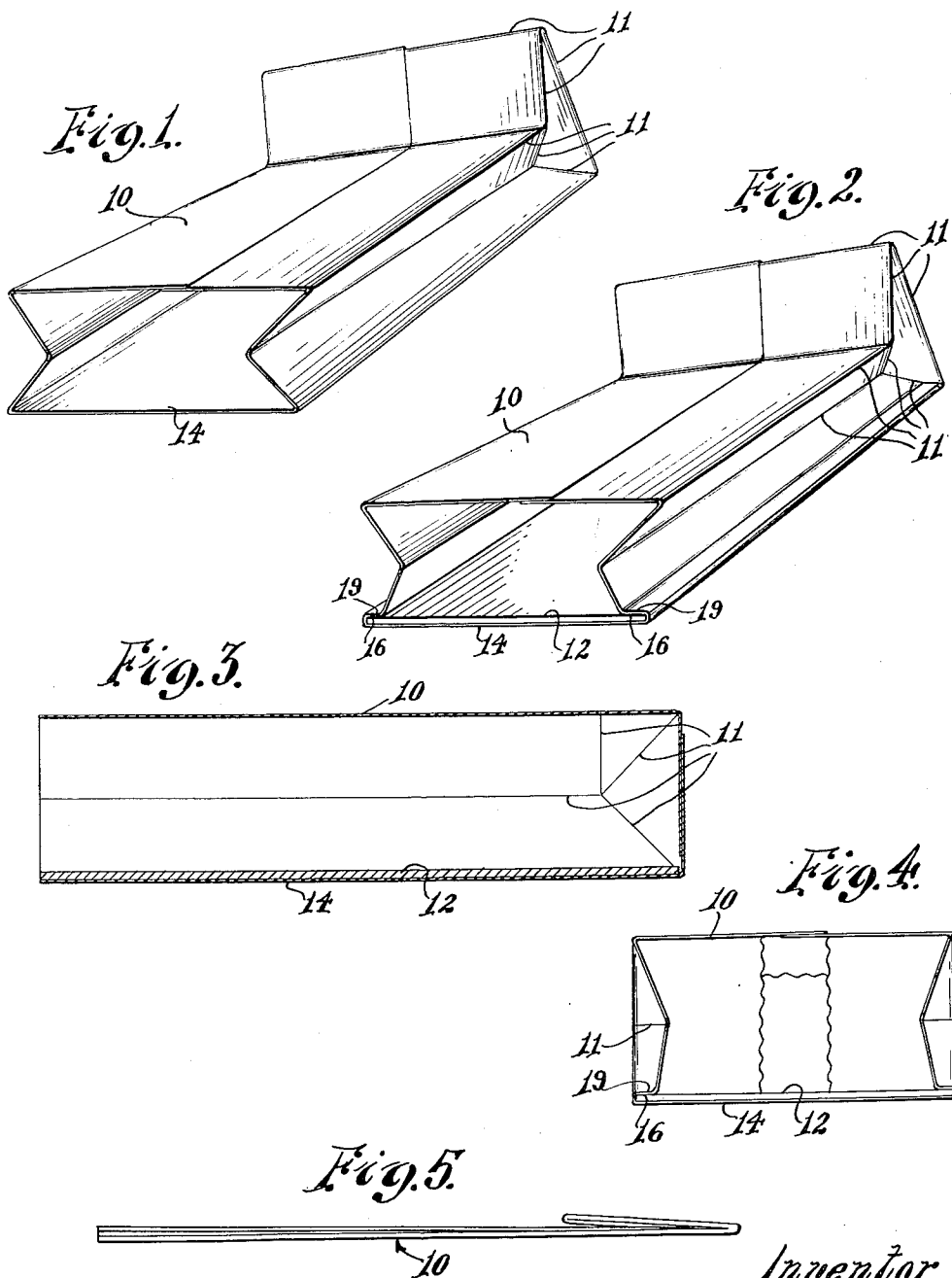
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2,330,311

COLLAPSIBLE CONTAINERS AND METHOD OF PRODUCING THEM

Filed June 16, 1941

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6.

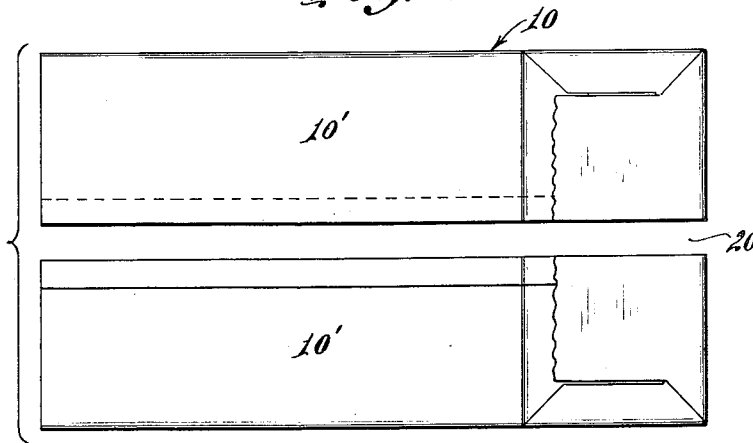


Fig. 7.

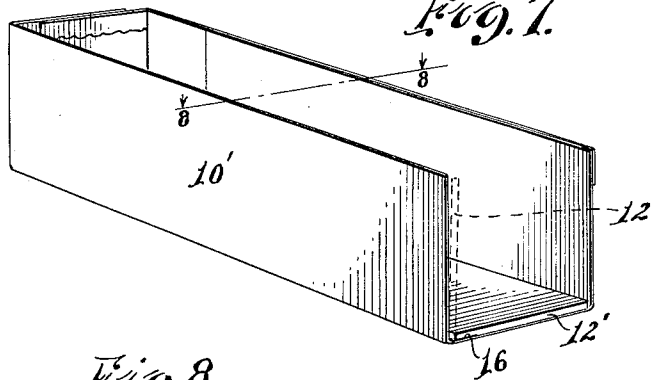
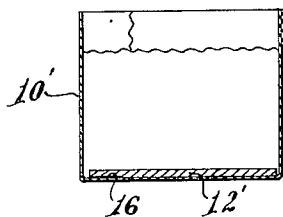


Fig. 8.



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UNITED STATES PATENT OFFICE

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COLLAPSIBLE CONTAINER AND METHOD OF PRODUCING IT

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5 Claims. (Cl. 93—1)

This invention relates to improvements in collapsible containers and methods of producing them.

More especially it relates to tray-form containers made of paper stock, or of comparable readily foldable sheet materials such as Cellophane and plastic sheets and films. The trays are useful for holding food, confectionary, pastry, etc., and may serve in an assembly line for holding small machine parts, or as protective holders for delicate materials in process of manufacture, such as women's shoes, and other products or materials which may become soiled by handling.

However, the invention is expected to have a principal utility as a food holder, especially as a holder for frankfurter sandwiches and the like, and will be described herein in this particular connection.

It has been proposed heretofore to make tray-form sandwich holders of cardboard. But the blanks for these have had to be made by a special process which involves considerable expense for labor and material; and the blanks, having suitable scored lines, have had to be folded to tray form and secured at the closed end by the clerk, or by someone else preliminarily to their being made available for use. This, besides the inconvenience, consumes valuable time.

In cases where containers may come to the retailer in tray form, they usually are nested together, taking up large space for shipment and storage.

It is an object of the invention to greatly simplify the method of producing such containers, and the structure of the containers themselves.

Another object is to economize, both in labor and material, by producing collapsed units, each of which may be severed to provide either one or two of my improved containers.

A feature resides in the said collapsible characteristic whereby quantities of my improved containers, in flat condition, may be stacked together compactly in piles, in a relatively small space, and may be quickly and conveniently spread open by a clerk at the moment of need.

It is, moreover, an important feature that the invention contemplates the provision of units which may be produced in conventional paper-bag-making machines, and each of which preferably will provide two identical containers by a severing of the unit during or after its manufacture in the machine; and the individual containers, initially collapsed to flatness, can be opened quickly and conveniently by a clerk or

other person as a part of the procedure of serving a customer.

The mentioned objects and results may be attained by employing the structure of a conventional paper bag, of suitable size and material, which may be produced in an usual paper-bag-making machine. According to the invention, one side wall of the bag is supplemented by a stiffening sheet of stiff paper or cardboard, or other suitable material, inserted in the bag so as to overlie a side wall of the bag, and adhered along each side margin to the adjacent wall of the bag.

The bag, with its side wall stiffener, then may be folded and pressed to flatness in a manner well known and characteristic of paper bags. And while thus flat, it may be perforated, irregularly cut or severed longitudinally of its side walls, the cut severing the stiffener as well as the bag.

Preferably the bag will be of size to produce two containers, so that, when severed centrally, each section produced by the cutting may be spread open to narrow tray shape, open at its top and one end. Each will then contain one-half of the stiffener, secured along only one edge, which may be swung about that edge securement, from its position beside a side wall of the tray, to overlie the bottom wall of the tray as a platform or floor.

Each half of a severed bag thus may constitute a food receptacle. And each, in its flat, collapsed condition, may be stacked conveniently and compactly with others for conservation of space.

However, a bag may be severed so as to produce but a single container; or so as to produce two containers of differing dimensions.

It is intended that the patent shall cover, by suitable expression in the appended claims, whatever features of patentable novelty exist in the invention disclosed.

In the accompanying drawings:

Figure 1 is a perspective of an ordinary paper bag, partially open, suitable for use in practicing my invention;

Figure 2 is a similar view in which a stiffener is shown secured interiorly in relation overlying one side wall of the bag, in accordance with my invention;

Figure 3 is an elevation, in medial vertical section longitudinally of the bag, showing the bag fully open, and the stiffener in place;

Figure 4 is an elevation looking at the mouth end of the bag as seen in Figure 3;

Figure 5 is an edge elevation of the bag of Figures 2-4, collapsed to flatness;

Figure 6 is a plan of the bag in its flat condi-

tion of Figure 5, but showing it in sections as severed longitudinally;

Figure 7 is a perspective of one of the severed sections, opened and ready to receive a sandwich or the like; and

Figure 8 is an elevation in section on 8-8 of Figure 7.

Referring to the drawings, the bag 10 may be considered as representative of bags having the general form and the foldable characteristics of conventional paper bags, although the invention extends to include various materials in addition to paper which are now or may be found to be suitable for use in the practice of my invention.

Such a bag 10, of suitable size and material, conveniently and economically may be manufactured in bag-making machinery as now available, so as to have the usual crease lines 11 facilitating collapsing of the bag to flatness.

According to the invention, a stiffener 12, of stiff paper, cardboard or other suitable material, is cut to a size to fit within the bag 10, in overlying coextensive relation to the wall 14 of the bag. Side margins of the stiffener, on its side which is removed from wall 14, preferably will be coated with adhesive, as at 16, prior to its insertion in the bag, so that, after its insertion, portions 19, 19 of walls of the bag which are adjacent to its side edges may be pressed into adhesive securement with the stiffener, thereby securing it in place. The stiffener is otherwise free from securement to the bag.

The stiffener 12 may be inserted and secured while the bag continues in the bag-making machine, or may be inserted as a subsequent operation. Also the adhesive for securing the stiffener may be applied to the portions 19, 19 of bag walls, rather than to the stiffener, if desired.

In any case, the bag with stiffener 12 therein, and while in a collapsed condition as in Figure 5, next may be severed longitudinally as at 20 in Figure 6, to provide two sections 10', 10', each of which may be opened to the tray-container form of Figure 7. It will be noted that the severing at 20 cuts the stiffener 12 in half, as well as the bag, and the half 12' of stiffener which is in each section, secured along one side edge, may be swung about that edge from its original dotted position (Figure 7) to its full line position (Figures 7, 8), where it constitutes a stiffener platform for the food receptacle 10'.

Obviously, if desired, the severing of the bag may be at locations other than along its centre, to produce a single tray-form container, or two containers having different dimensions.

Also the method of the invention is not limited to containers in which a stiffener reinforces a wall. The foldable sheet material employed for the bag or other rectangular unit which is to be severed longitudinally, may be such as to require no stiffener. Ordinary paper bags without any inserted stiffener may be severed according to the invention to provide tray-form containers suitable for a variety of purposes.

It will be obvious that the invention provides a method and structure having definite practical advantages over prior proposals, effecting large savings in labor, material, storage space, etc., while providing an effective and efficient tray-container for the purposes described. Also the

containers conveniently may be decorated by any of the well known processes.

I claim as my invention:

1. The method of producing collapsible containers which comprises making a bag in the form and having the characteristics of a conventional paper bag having a bottom and four side walls, foldable to flatness; inserting in the bag a stiffener sheet so that it overlies and is coextensive with one side wall of the bag, and securing the stiffener, along two of its opposite side edges, to adjacent walls of the bag; collapsing the bag to flatness, and severing it longitudinally and centrally of the stiffened wall; followed by opening of a severed section to tray-container form, and swinging the portion of the stiffener which is in that section so that it overlies the wall of bag at the bottom of the tray-container.

2. The method of producing collapsible containers which comprises making a rectangular unit having a bottom and four side walls of flexible sheet material; folding said unit to flatness with two opposite side walls full-spread and superimposed one upon the other; inserting a stiffener sheet in the unit in overlying, coextensive relation to one of said full-spread side walls, and securing the stiffener, along two of its opposite side edges, to adjacent walls of the unit; followed by a severing of the unit, while it is collapsed to flatness, longitudinally of the stiffened wall, and then opening a severed section to tray-container form, and swinging the portion of the stiffener which is in that section so that it overlies the wall at the bottom of the tray-container.

3. A collapsible container, comprising a rectangular tray-container having only a bottom wall, two side walls and one end wall, of flexible sheet material, and having fold lines on which the bottom wall and the end wall and one side wall are foldable upon the other side wall to collapse the container to flatness, each side wall and the bottom wall being approximately equal in area; combined with a stiffener sheet within the container having area approximately equal to the area of a said side wall and also approximately equal to the area of said bottom wall secured along one side edge to an adjacent wall of the container; said stiffener being swingable about its said edge securement for overlying the said side wall upon which the other walls are folded when the container is collapsed, and for overlying the bottom wall when the container is opened to tray form.

4. A collapsible container as in claim 3 wherein the stiffener sheet is secured in the container by adhesion along one edge margin to the bottom wall of the container.

5. A collapsible container, comprising a rectangular tray-container having only a bottom wall, two side walls and one end wall, of foldable sheet material, and having fold lines in one side wall and the bottom wall and at margins of those walls and of the end wall, whereby said one side wall, the bottom wall and the end wall may be folded to flatness upon the full-spread other side wall with the collapsed whole having area approximately the same as the area of said full-spread other side wall.

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