

Oct. 3, 1939.

W. N. COMLEY

2,174,687

FOLDABLE BOX

Filed June 18, 1938

2 Sheets-Sheet 1

Fig. 1.

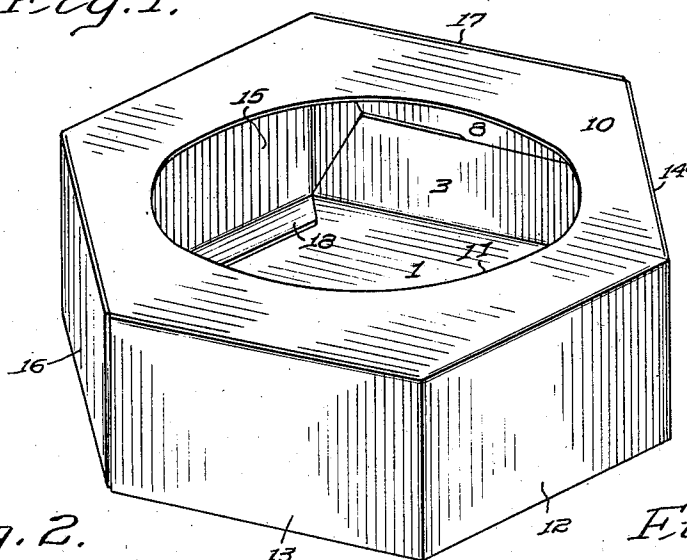


Fig. 2.

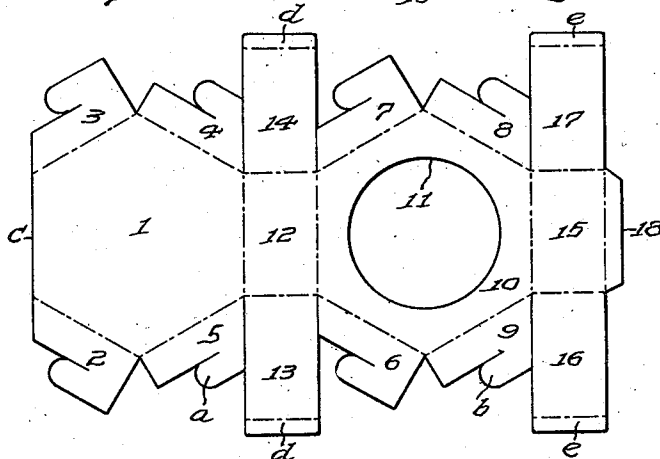


Fig. 3.

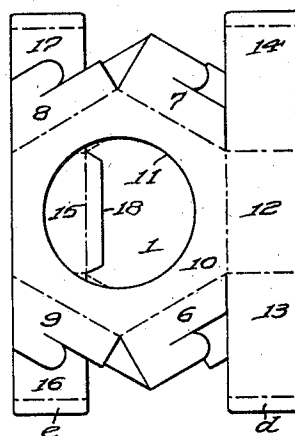
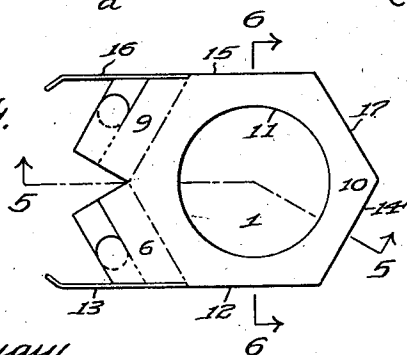


Fig. 4.



WITNESS
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2 Sheets-Sheet 2

Fig. 5.

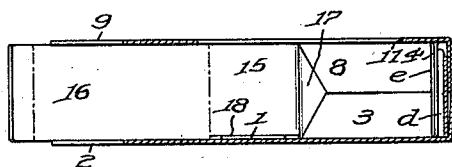


Fig. 6.

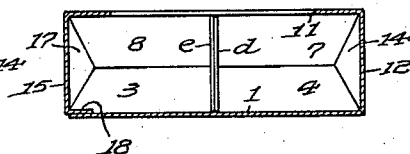


Fig. 7.

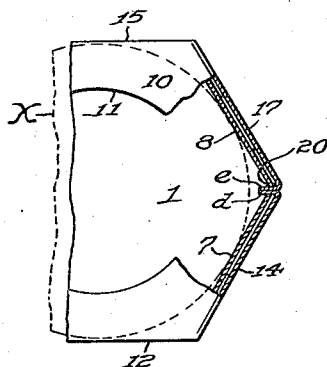


Fig. 8.

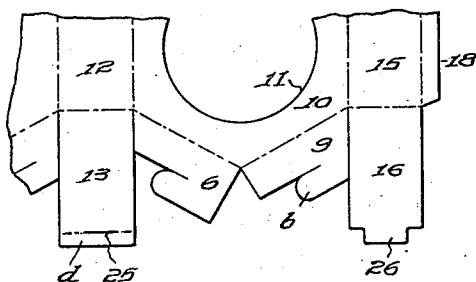


Fig. 9.

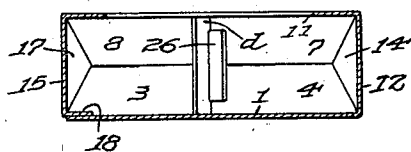


Fig. 11.

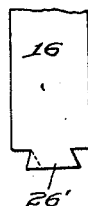
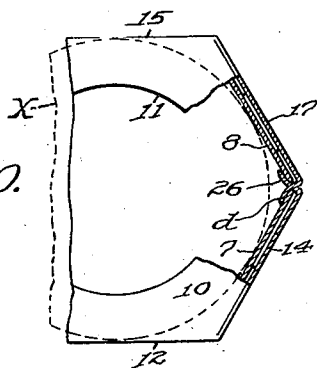


Fig. 10.



WITNESS

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2,174,687

FOLDABLE BOX

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a corporation of Pennsylvania

Application June 18, 1938, Serial No. 214,411

4 Claims. (Cl. 229—16)

The principal object of my invention is to provide a box adapted to contain a round cake or generally similar article which is so constructed it may be cut from a single rectangular sheet of cardboard or other stock with a minimum of waste and then partially assembled by the maker preparatory to shipment in knock-down, substantially flat condition to the baker by whom it can be readily formed-up preparatory to the introduction of the cake and then closed to adequately protect the latter.

A further object is the provision of a box of the character aforesaid which can be readily opened by the ultimate purchaser of the cake contained therein to facilitate its withdrawal from the box and which can be as readily closed after the cake or a portion thereof has been returned to it, thus permitting the box to be used as a convenient receptacle for the cake as it is being progressively consumed.

A still further object is the provision of a box for the reception of a generally round article which may be so constructed as to afford a possible purchaser a partial view of the article contained in it when the box is on display on a counter or the like.

Additional objects are the provision of a box which requires but a single gluing operation on the part of the manufacturer to place the blank in condition for shipment to the maker of the article to be enclosed in the box; which may be set up preparatory to the introduction of the article in a minimum of time without the use of glue, staples or any other fastening means, and which, when so set up, is of attractive appearance, strong and rigid and thus capable of affording adequate protection to the contents.

Other objects, advantages and novel features of design, construction and arrangement comprehended by the invention are hereafter more particularly pointed out or will be apparent from the following description of a box constructed in accordance therewith, as well of certain modifications, as illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of the box after it has been formed-up;

Fig. 2, on a smaller scale, is a top plan view of the blank from which the box shown in Fig. 1 is made;

Fig. 3 is a top plan view of the blank after it has been glued by the manufacturer and thus placed in condition for shipment;

Fig. 4 is a top plan view of the box after it has been partially formed-up from the glued blank

and placed in condition to receive its contents preparatory to the final closing operation which is performed after the contents have been inserted;

Fig. 5 is a vertical staggered section on line 5—5 in Fig. 4;

Fig. 6 is a vertical transverse section on the line 6—6 in Fig. 4;

Fig. 7 is a fragmentary top plan view of the box partially broken away into horizontal section after the introduction of the contents, for example a round cake, which is indicated in dotted lines in this figure.

Fig. 8, corresponding to Fig. 2, is a fragmentary top plan view of another blank embodying a slightly modified construction;

Fig. 9, generally corresponding to Fig. 6, is a vertical section of the box constructed from the blank of Fig. 8;

Fig. 10, generally corresponding to Fig. 7, is a top plan view of the same box; and

Fig. 11 is a fragmentary detail view of a portion of still another blank illustrating a further modification.

Throughout the drawings the same characters of reference are used to designate corresponding parts, broken lines are used to indicate score lines in the blanks upon which the latter are designed to be folded, and to facilitate illustration the scale of Figs. 5-7, 9 and 10 is larger than that of Figs. 2-4, 8 and 11.

Referring first to Figs. 1-7 inclusive, it will be observed that the finished box is polygonal in planary outline and has a top and bottom lying in vertically spaced planes. It is thus well adapted to contain a single round article such as a cake which, as hereinafter explained, is slid into the box through an opening formed by leaving two of the adjacent sides unclosed after the box has been partially erected and which are then closed by suitably bringing various parts into final position. To enable a portion of the article within the box to be observed without opening it, the top of the box may be provided with a cut-out as shown so as to expose the top of the article which, in accordance with the usual practice in packaging cake and the like, is frequently wrapped in a suitable transparent material before introduction to the box.

With this general description of the completed box in mind I shall now refer more particularly to the blank from which it is made and the various operations incident to transforming it into the finished box.

As shown in Fig. 2, the blank of cardboard or

other suitable material is cut and scored to define a preferably hexagonal bottom 1 from four respectively oppositely disposed sides of which extend wall flaps 2, 3, 4, 5, each desirably cut to form a tab *a* for interlocking engagement with a similar tab *b* on one of the flaps 6, 7, 8, 9 which project from that part of the blank 10 which forms the top of the box and, of course, is also hexagonal in shape and of the same size as bottom 1. If desired, it may be provided with a circular or other suitably shaped cut-out 11 for the purpose heretofore mentioned. The bottom 1 and top 10 are spaced apart a distance equal to the height of the box and connected by a wall panel 12 interposed between adjacent scores defining one side of the bottom and the adjacent side of the top; that side of the bottom opposite this panel is defined by an edge *c* while the flaps 2, 3, 4, 5 project from the other edges of the bottom and the flaps 6, 7, 8 and 9 from the corresponding edges of the top. The wall panel 12 has laterally projecting extensions at its ends which form other wall panels 13, 14; these panels respectively correspond in size to the panel 12 and like that panel form outer walls in the finished box. The blank is cut through in prolongation of the sides of panel 12 so as to separate panels 13 and 14 from the respectively adjacent flaps 5 and 6 and 4 and 7, and in the form of the invention now being described each panel has a tucking tab *d* at its outer end. In a generally similar way beyond that edge of the top 10 opposite panel 12 is another wall panel 15 corresponding in size thereto from which project lateral extensions forming still other wall panels 16 and 17 corresponding to panels 13 and 14 and provided at their outer ends with tucking flaps *e*, while beyond panel 15 is a narrow glue flap 18.

It will be appreciated that the blank may be cut out and scored in single or in successive operations and that owing to its general configuration there is comparatively little waste when it is made from a rectangular sheet just large enough to accommodate its overall dimensions, which of course is of advantage in reducing cost of manufacture.

After the blank has been cut and scored it is folded on itself so as to bring the glue flap 18 adjacent the edge *c* of the bottom 1 as shown in Fig. 3, and the flap is then permanently glued thereto; the top 10 thus overlies a part of the bottom and the blank is now in condition for shipment flat to the maker of the cake or other article which is to be packed in the box. Thus as each blank after the gluing operation is at no point of greater than double the thickness of the cardboard or other stock of which it is made, a very considerable number of blanks can be piled one on the other and stored in a minimum of space.

When it is desired to erect the box, the glued blank is so manipulated by simply lifting the top and its attached parts away from the bottom as to bring the top 10 into substantial vertical registry with the latter, the bottom being conveniently rested on a flat surface during this operation, and this results in bringing the wall panels 12 and 15 into approximately vertical position and correspondingly spacing apart the bottom and top. The flaps at one end of the box, for example flaps 3, 4 and 7, 8, are then respectively brought to substantially vertical position and each adjacent pair of flaps interengaged by hooking their respective tabs together, flap 3 interlocking

with flap 8 and flap 4 with flap 7. The top and bottom of the box are thus held together and prevented from separating vertically while a narrow slot 20 (see Fig. 7) is left between the adjacent vertical edges of each interlocked pair of flaps. In order to provide this slot, especially in cases in which the stock is very heavy, those edges of the flaps which are designed to lie proximate thereto may be cut when the blank is formed on a slight angle to the top and bottom edges of the flaps instead of normal thereto as shown in the drawings or the said edges may be slightly inwardly offset. However, in most instances there is sufficient give in the cardboard to render this unnecessary.

The wall panels 14, 17 are next brought around against the respectively interlocked pairs of flaps and the tabs *d* and *e* at their extremities bent over at right-angles and pushed through slot 20, an operation which can be most readily accomplished by inserting both free ends of the tabs into the slot at the same time and then pushing inwardly so as to "spring" them into place. The tabs now project through the slot into the interior of the box as best shown in Fig. 7 but as they are preferably made short enough not to intersect a circle tangent to the sides of the bottom, they in no way interfere with the packaging of the cake or other round article in the box.

The latter is now in the condition shown in Fig. 4 and ready to receive its contents which can be readily slid into it through its opposite or open end between the adjacent wall flaps and panels which have not yet been folded to final position. In other words, assuming that flaps 3-8, 4-7 have been interlocked and panels 14-17 brought into position and locked therein by their tucking tabs *d*, *e* as just described, flaps 2-5 and 6-9 still extend outwardly substantially in the respective planes of the bottom and top while panels 13-16 lie more or less in prolongation of walls 12-15 as shown in Fig. 4, thus leaving open the adjacent portion of the box. After the cake has been slid into place through this opening flaps 2-5 and 6-9 are respectively turned to vertical position and interlocked and panels 13-16 then bent around against them and their respective tabs *d*, *e* forced through the adjacent slot 20 so as to lock the panels in place and complete the box in which the cake *X* or other article is now enclosed.

When it is desired to remove the contents of the box a substantially similar series of operations are performed in reverse order, that is, the panels 13-16 or 14-17 are pulled outwardly from the body of the box so as to withdraw their respective tabs from the adjacent slot 20 and the wall flaps proximate thereto are then disengaged from each other so as to return the box substantially to the condition shown in Fig. 4 and permit the cake to be readily slid out of it. In like manner the cake or any portion thereof may be returned to and re-enclosed in the box and again removed therefrom as often as may be desired, and the box thus forms a convenient, readily opened and closed receptacle for holding it until it is entirely consumed. In this respect the box presents a distinct advantage over boxes designed for holding cakes and other round articles which have to be mutilated or entirely destroyed to enable the contents to be withdrawn and which consequently cannot be satisfactorily utilized for re-enclosing the cake after a portion of it has been consumed.

Instead of providing the several wall panels

with the tucking tabs *d* and *e* to which reference has been made, I may utilize a tongue and slot construction at the extremities of the panels, as shown in Figs. 8 and 9, in which one of each pair of cooperating panels, for example panel 13, embodies a slot 25 and the other panel 16 of that pair a tongue 26 of suitable size to be entered in the slot when the panels are respectively brought against the adjacent wall flaps, the other pair of panels (not shown) being of course provided with a similar slot and tongue. The slot is preferably placed at substantially the same distance from the outer end of the panel as the score defining the tucking tab *d* in the form of the invention previously described and the panel scored from the ends of the slot to its side edges so that after it is brought to final position its extremity may be readily bent along the scores and tucked through slot 20 and tongue 26 then forced through slot 25 into the interior of the box so the parts will occupy substantially the position shown in Fig. 9, thus locking the panels in place. If desired in place of using a rectangular tongue 26, I may employ, as shown in Fig. 11, a tongue 26' having outwardly flaring side edges and embodying a score 27 extending across one of its corners as described and claimed in Patent 1,615,200, granted January 18, 1927, to William R. Shrum. With such a construction the corner of the tongue is bent back on itself along score 27 when the tongue is inserted in slot 25 and then allowed to spring back into place after it is passed through the slot, thus affording a very efficient and secure locking of the parts. However, with this construction it is practically impossible for the consumer to open the box to remove the contents without destroying it.

In the various forms of the invention to which I have referred all the wall flaps extending from the bottom are arranged to interlock with the corresponding flaps extending from the top as I consider this construction generally preferable as it very securely holds the top and bottom in proper relation and generally tends to stiffen the box as a whole. It will be appreciated however that in certain cases it may be deemed sufficient to utilize but two pairs of interlocking flaps instead of four in which case tabs *a* and *b* or equivalent interlocking means may be omitted from those flaps which it is considered unnecessary to lock together.

Moreover, while I have herein described certain embodiments of my invention with considerable particularity I do not thereby desire or intend to restrict or confine myself thereto as various changes and modifications may be made in the form, construction, arrangement and method of assembly of the various parts if desired without departing from the spirit and scope of the invention as defined in the appended claims.

Having thus described my invention, I claim and desire to protect by Letters Patent of the United States:

1. A foldable box formed from a single unitary blank and comprising a polygonal top and bottom, wall flaps respectively extending from corresponding edges thereof and lying in overlapped relation, wall panels extending between the top and bottom from diametrically opposed edges thereof, other wall panels hingedly connected with the first-mentioned panels and extending adjacent the outer faces of the flaps, and interlocking means comprising slotted tabs and tongues cooperative therewith respectively car-

ried by the last-mentioned panels and projecting into the box between the proximate edges of the adjacent flaps for holding said panels in position.

2. A foldable box formed from a single unitary blank and comprising a hexagonal bottom, a hexagonal top, wall panels extending between diametrically opposed edges of the top and corresponding edges of the bottom, wall flaps hinged to other edges of the top, wall flaps hinged to the corresponding edges of the bottom, the flaps in each aligned pair lying adjacent each other, end panels respectively hinged to the ends of the first-mentioned panels and overlying the adjacent flaps, and means associated with the free ends of each last-mentioned pair of panels projecting into the box between the ends of adjacent flaps to hold said panels against the latter, said means comprising a tongue at the outer end of one panel and a slotted tongue-receiving tab at the outer end of the other panel of each said last-mentioned pair.

3. A foldable box formed from a single unitary blank and comprising a hexagonal bottom, a hexagonal top, wall panels extending between diametrically opposed edges of the top and corresponding edges of the bottom, wall flaps hinged to other edges of the top, wall flaps hinged to the corresponding edges of the bottom, the flaps in each aligned pair lying adjacent each other, end panels respectively hinged to the ends of the first-mentioned panels and overlying the adjacent flaps, one of each pair of said last-mentioned panels having a slot near its end and extension therebeyond and the other of said pair a tongue on its extremity, said extension projecting into the box between the edges of the adjacent side flaps and the tongue being inserted through the slot and into the box to thereby lock said side panels together.

4. A cut and scored blank adapted for erection into a hexagonal box and comprising a hexagonal portion for forming the bottom of the box having an edge terminating at one end of the blank and its other edges defined therein by scored lines, a hexagonal portion adapted to form the top of the box spaced from the bottom portion and having all its edges defined by scored lines, a side panel interposed between the proximate edges of the bottom and top, extensions adapted to form other side panels projecting oppositely from said panel and defined therefrom by scored lines, a corresponding side panel extending from that edge of the top opposite that adjacent said side panel, a glue flap projecting from said second-mentioned panel and terminating at the opposite end of the blank, extensions projecting oppositely from the ends of said second-mentioned panel adapted to form other side panels, side flaps hinged to other edges of the top, side flaps hinged to corresponding edges of the bottom adapted for interlocking engagement with the top flaps, and means adjacent the outer end of each pair of extensions adapted to project into the box and hold the extensions in place against the respectively adjacent flaps when the box is completely formed up, said means including a tongue projecting from the free end of one extension in each pair and tabs projecting from the free ends of the other extensions providing slots respectively adapted to receive said tongues.

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