Oct. 31, 1950 J. D. CRARY ET AL 2,527,705

PAPERBOARD BOX

Filed May 27, 1946 2 Sheets-Sheet 1

Fig. 1

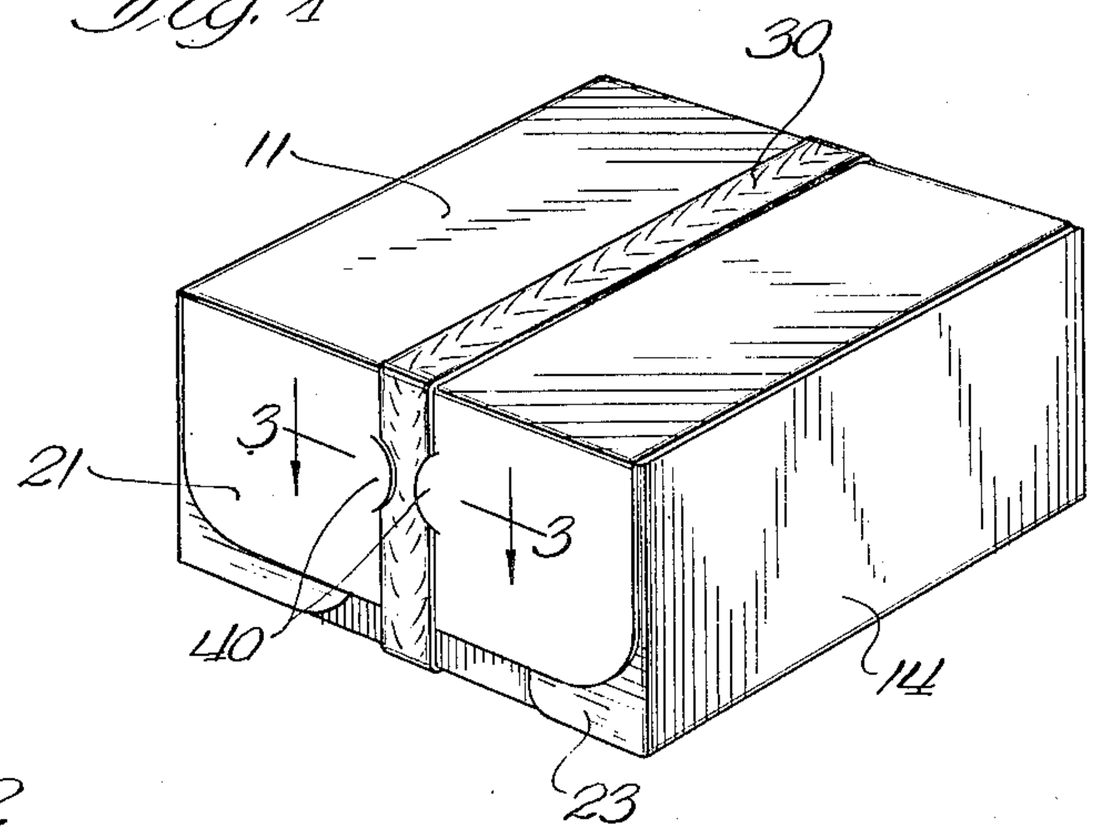

Fig. 2

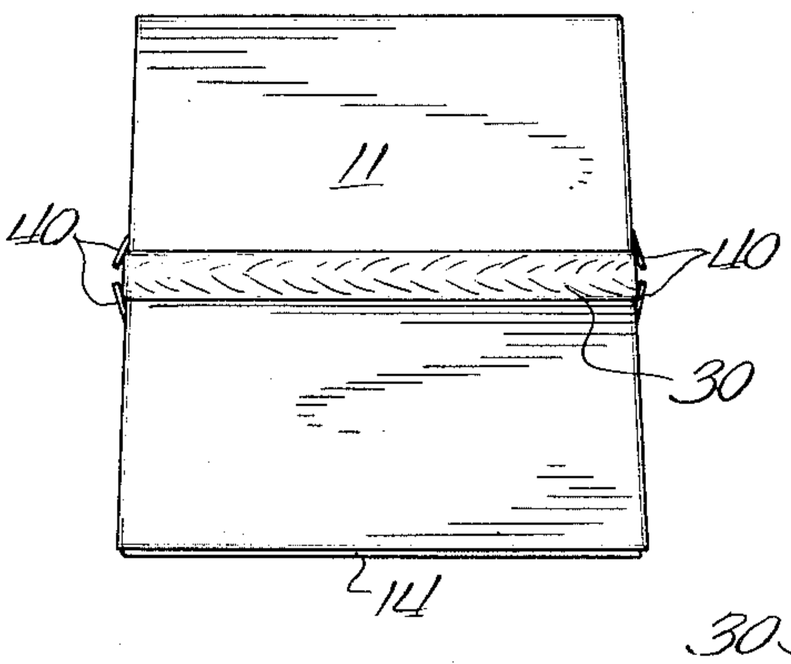

Fig. 3

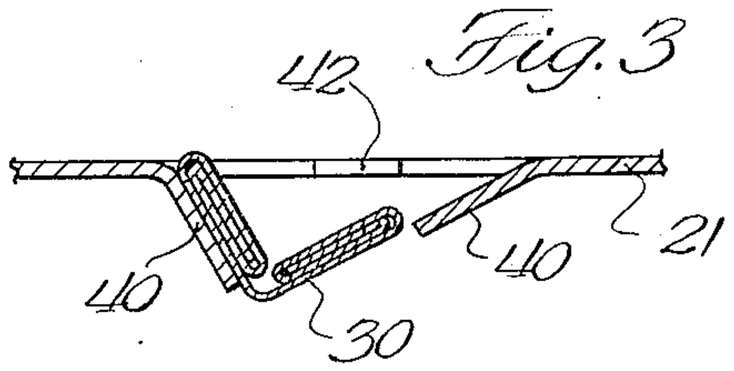

Fig. 5

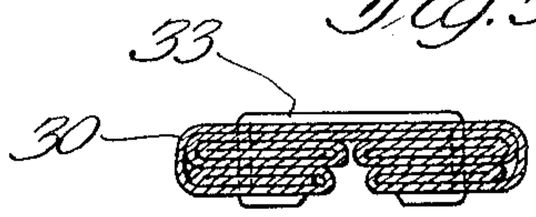

Fig. 4

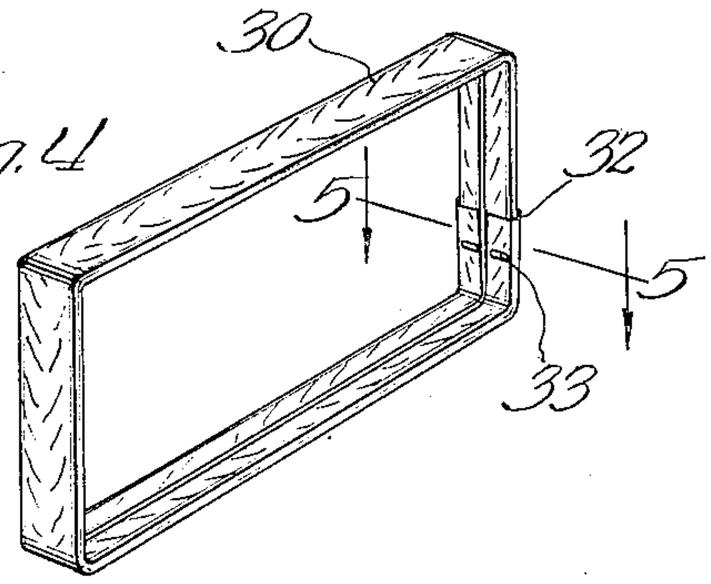

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Fig. 6

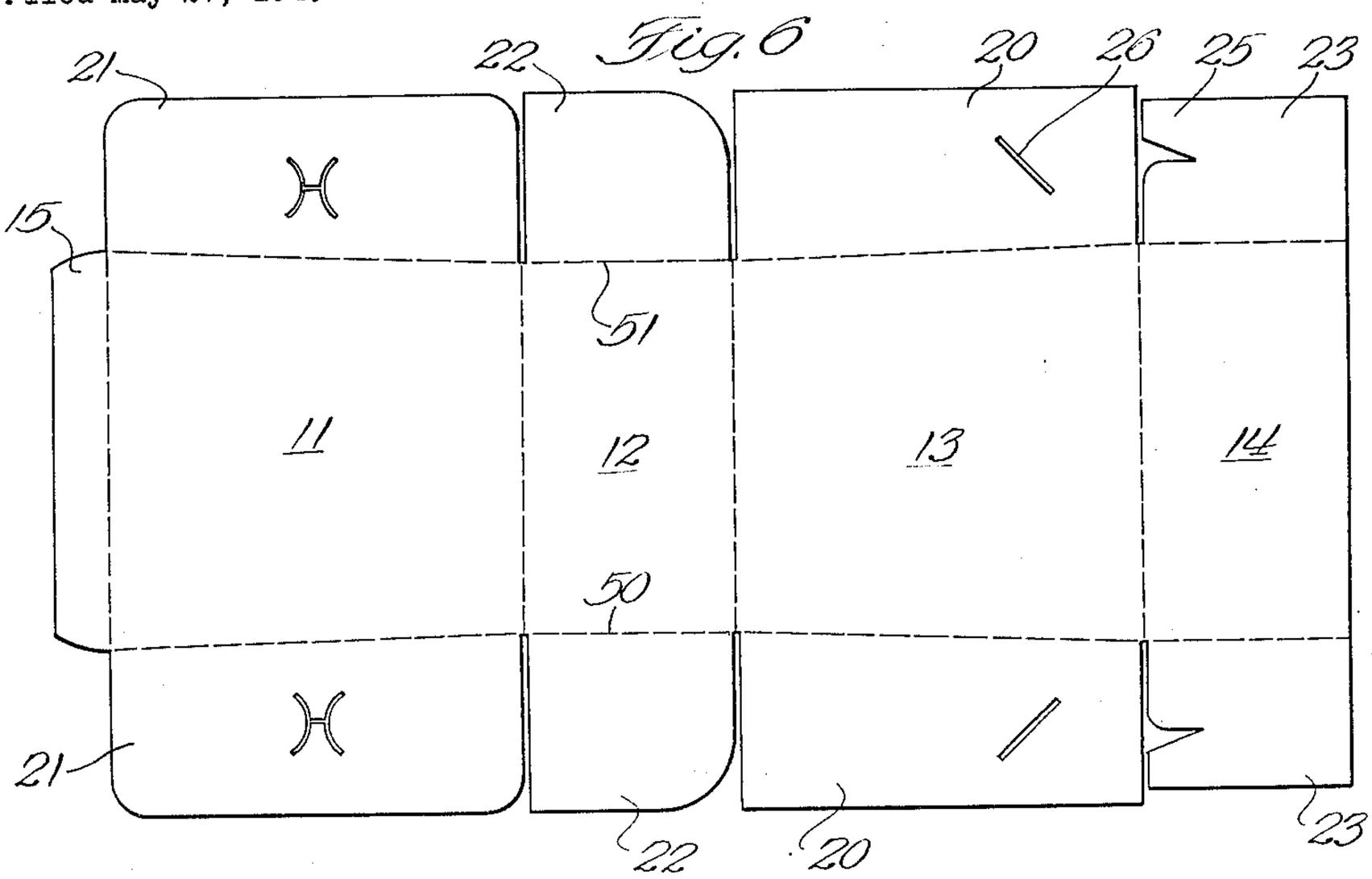
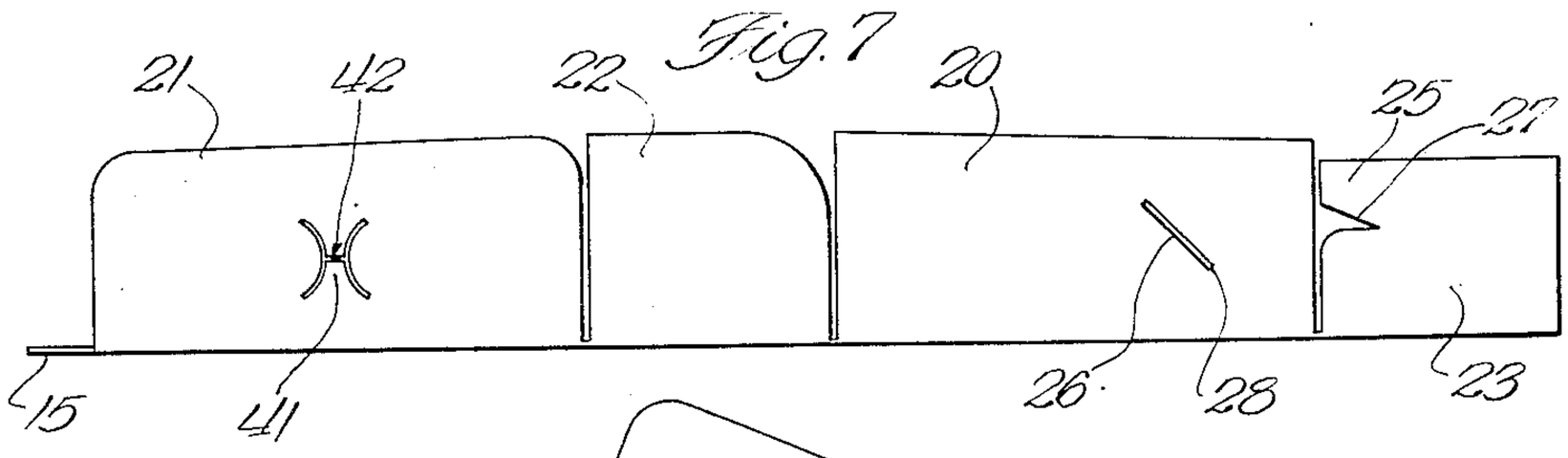


Fig. 7



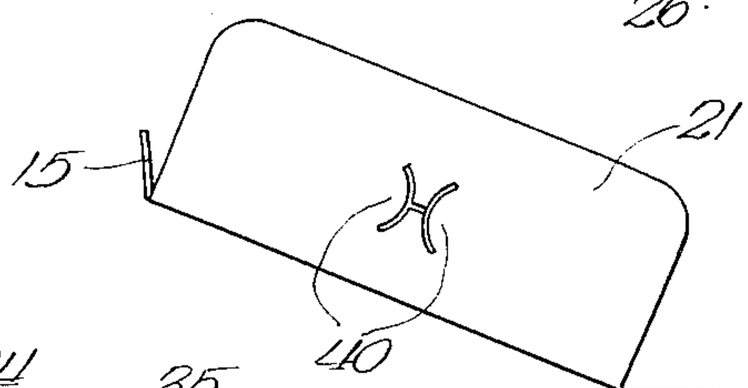


Fig. 8

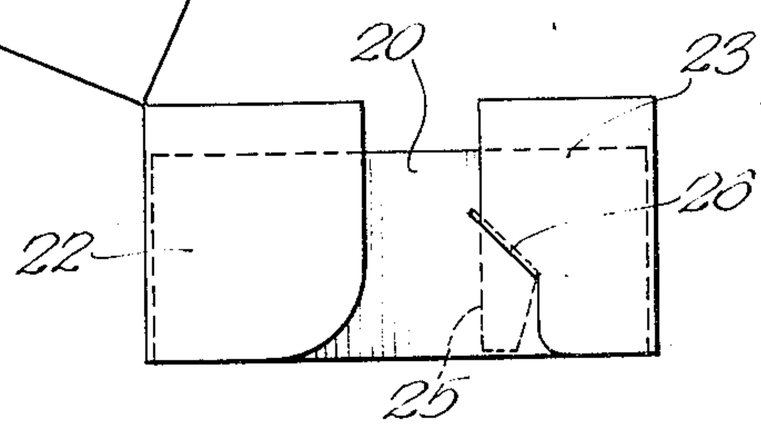
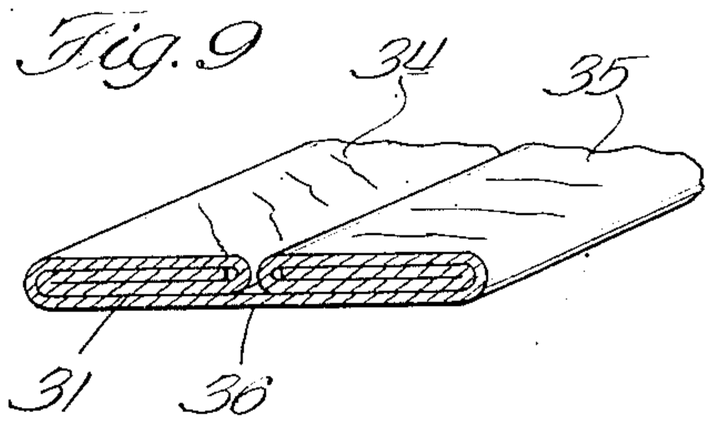


Fig. 9



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Patented Oct. 31, 1950 2,527,705

UNITED STATES PATENT OFFICE

2,527,705

PAPERBOARD BOX

Jay D. Crary and Harry M. Mathers, Portland, Oreg., assignors, by direct and mesne assignments, to Paper Strap Inc., Portland, Oreg., a corporation of Oregon

Application May 27, 1946, Serial No. 672,360

1 Claim. (Cl. 229—45)

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The present invention relates to paper board boxes and is more particularly concerned with boxes for cakes, pies and similar bakery products.

Various boxes of the type with which the present invention is concerned are known, such boxes being characterized by the fact that they are designed to be furnished in a knocked down or flattened state to be assembled as required by the user. In general the boxes now on the market for such purposes are of rather complicated structure and require a relatively large number of operations in setting them up. Many of the products include as essential parts thereof flaps or tabs including hook shaped portions designed to engage in locking relationship the edges of slots cooperatively positioned in other portions of the boxes. Such boxes cannot readily be returned to the flattened state from the set up position without disengaging such hooked tabs and are in fact not designed for such purposes. It is therefore a primary object of the present invention to provide a box of the class described which is easy to manipulate and which can be both set up and knocked down with the minimum number of operations or steps.

A further object of the invention is to provide a paper board box which can be folded and unfolded a number of times without damage to any of the parts thereof.

Another object of the invention is to provide a box of the class described which for the same cubic capacity requires less stock than boxes now on the market.

A still further object of the invention is to provide a new and improved box including a fastener and handle therefor. Still another object of the invention is to provide in combination a paper board box of simple and inexpensive construction and including a closure securing and carrying means and means on the box for receiving and holding the closure means.

In accordance with the illustrated embodiment, the invention comprises a box formed from a single piece of fibrous sheet material divided by score lines into a plurality of panels forming the top, rear, bottom and front walls of the box and having end flaps hinged to each side of each of these panels, which flaps cooperate to form the respective ends of the structure. By making all of the end flaps including those connected to the top and bottom walls of a length somewhat less than the height of the box a substantial saving in stock is accomplished, the spacing and supporting of the side edges of the top and bottom walls being obtained by making the end flaps connected to

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the front and rear walls which are of the same width or height as these walls. The box is so designed that the various end flaps need not be directly connected or fastened together although to stabilize the end walls and to prevent the end flaps forming the lower portion of the box from collapsing inwardly, there are provided means for frictionally connecting the front wall end flaps to the bottom wall end flaps when the box is in the set up form. An added feature of the invention comprises a novel closure and handle arrangement comprising a loop of edge-folded paper strap adapted to be slipped over the box and means integral with the end flaps of the box for holding the arrangement in operative position on the box. To facilitate the sliding of the handle arrangement onto the box, the blank from which the box is made is preferably so scored that the rear wall has a cross sectional area slightly less than the cross sectional area of the front wall.

For a consideration of what is believed novel and inventive, attention is directed to the following description of the invention, while the features of novelty will be specifically pointed out in the appended claims.

While not limited thereto the invention will be particularly described with reference to a pastry box, specifically a cake box, constructed in accordance with the preferred embodiment of the invention.

In the drawing Fig. 1 is a perspective view of one embodiment of the box including the closure member therefor; Fig. 2 is a top or plan view of the box of Fig. 1; Fig. 3 is a fragmentary cross sectional view taken along line 3—3 of Fig. 1; Fig. 4 is a perspective view of the closure element of Fig. 1; Fig. 5 is a cross sectional view taken along line 5—5 of Fig. 4; Fig. 6 is a plan view of the box blank; Fig. 7 is a view of the blank with the edge portions folded upwardly; Fig. 8 is a view of the assembled box in an open, set up form; and Fig. 9 is a cross sectional view of a paper strap suitable for use in making the closure member shown in Fig. 4.

In the illustrated embodiment of the invention, the box is formed from a single blank having suitable score or fold lines dividing the blank into a plurality of panels forming a top wall 11, a back or rear wall 12, a bottom wall 13, and a front wall 14 extending in the order named from one end to the other of the blank. In the set up condition the top wall 11 and bottom wall 13 of the box are in part held in spaced parallel relationship by back wall 12 and front wall 14. An extension 15 hingedly connected to the forward end of the top

wall 11 forms a front flap adapted to be inserted behind the front wall 14 when the box is set up in the closed position. A plurality of flaps are hingedly attached to the sides or ends of the bottom, top, rear and front walls and cooperatively form the side or end walls of the box. The end flaps 20 hingedly secured to the bottom wall 13 and the end flaps 21 hingedly secured to the top wall 11 and extending the full length of these walls overlap one another when the box is in the closed state and are somewhat shorter than the height of the rear wall 12 or front wall 14 of the box. By making the top and bottom wall end flaps 20 and 21 shorter than the height of the box and making the end flaps 22 hinged to the rear wall 12 and the end flaps 23 similarly connected to the front wall 14 of the same length, a substantial saving in the amount of stock required in making the blanks is obtained without sacrificing the strength or rigidity of the box structure. In the set up form, end flaps 22 and 23 are of the same height as the respective walls to which they are connected and cooperate with walls 12 and 14 to space the bottom and top portions of the box and to add strength and rigidity thereto.

The only connections between the various portions of the illustrated box other than those represented by the fold or score lines are between the end flaps 23 connected to the front wall 14 and the side flaps 20 hinged to the bottom wall 13. As is indicated in Figs. 6, 7, and 8 end flaps 23 are notched adjacent the rear ends thereof to form tongues 25 adapted to be cooperatively received by diagonally extending slots 26 provided adjacent the forward edges of the end flaps 20. The slots 26 are inclined toward the forward edge of the end flaps 20 while the edge 27 of tongue 25 defined by the notch provided in the end flaps 23 slants towards the rear of the box at such an angle that it frictionally engages the lower forward ends 28 of slots 26 when the ends of tongues 25 are inserted into slots 26 and the front wall 14 folded upwardly to bring the ends of the tongues in contact with the bottom wall 13 of the box.

In setting up the box the various end flaps 20, 21, 22 and 23 are folded upwardly after which the forward end wall 14 is folded about its hinged connection with the bottom 13 until it extends perpendicular to the bottom wall 13, tongues 25 being at the same time inserted into the slots 26. In this form the box is ready for use. A cake, for example, is placed therein on the bottom wall 13 after which the rear wall 12 is folded upwardly along the fold line defining the connection between this wall and the bottom 13 so that the box takes the form shown in Fig. 8 with the end flaps 22 outside of the flaps 20. The top 11 is then brought forwardly and downwardly with the end flaps 21 arranged on the outside of end flaps 22 and 23 after which the front flap 15 may be inserted behind the front wall 14. It will be noted that in setting up the box the only operations required are those of folding the end portions, folding the front wall and inserting the tongues 25 into the slots 26 and finally bringing the rear wall 12 and top wall 11 into the box closing position with the end flaps 22 sandwiched between end flaps 20 and 21. Due to the simple construction of the box, these operations are obvious to even the most inexperienced operators.

A closure and handle means 30 for the box is provided in the form of a loop of fibrous material adapted to be slipped over the rear or back

portion of the box and slid forwardly to the central portion thereof thus doing away with the necessity of following the usual and time consuming practice of wrapping three or four turns of twine about the filled box in two directions to secure the top portion in place. The preferred closure and handle means 30 comprises a length of edge-folded paper strap 31 the opposite ends of the strap being telescoped as indicated at 32 and the overlapping portions secured by means of a staple 33 to form a loop having a length not substantially exceeding the circumference of the box adjacent its midsection.

To hold the closure means 30 in place adjacent the mid portion of the box there are provided in each of the end flaps 21 a pair of opposed tabs or tongues 40 with their base portions spaced apart a distance substantially equal to the width of the closure means and adapted to engage the opposite edges thereof.

The strap used in making the loop preferably comprises an elongated strip of relatively thin tough paper, such as kraft paper which has its opposite marginal edge portions folded over upon itself a plurality of times throughout its entire length, such strap being more fully described and specifically claimed in the co-pending application of Jay D. Crary, Serial No. 647,168 filed February 12, 1946, now Patent Serial No. 2,499,463. The folded edge portions 34 and 35 of the strap are arranged on the same side of the strap and are each about one-half the width of the finished product so that the two folded edge portions will lie flat in substantially touching but nonoverlapping relation against the connecting back portion 36 extending therebetween. As the back portion 36 is of only a single thickness of paper while the edge portions are composed of at least four or more thicknesses of paper, the application of pressure to the opposite edges of the folded strap tends to fold the strap along its center line while the edge portions remain relatively rigid or unyielding.

After the loop 30 is slipped over the rear of the box and brought forwardly to a point opposite tongues 40, the portions of the strap adjacent tongues 40 are pinched so that one edge thereof can be readily slipped beneath one of the tongues 40 as shown in Fig. 3, after which the other edge is inserted beneath the other of these tongues so that the closure means 30 is held securely in place by the tongues while the portion thereof extending over the top of the box serves as a handle for the box. To prevent the strip 41 of material between the opposed ends of tongues 40 from interfering with the placing of the loop, it may be cut as at 42 so that the two sections thereof can be pressed inwardly if necessary, during the insertion of the loop behind the tongues 40. Also by this arrangement, unnecessary creasing or folding of the tongues along their base portions and a resultant weakening thereof is prevented.

In the preferred embodiment of the invention the score lines 50 and 51 defining the point of fold between the top and bottom walls and the end flaps 20 and 21 converge slightly towards the panel forming rear wall 12 as is shown on a somewhat exaggerated scale in Fig. 6 so that the set up box is slightly narrower adjacent the rear wall 12 thereof than adjacent the forward wall 14. While the difference in width is relatively small and is in fact not readily noticeable in the finished product, it is sufficient to permit the closure means to be readily slipped onto the box.

When the box is so shaped, the closure means **30** is preferably of a circumference approximately equal to the circumference of the box at any point between the middle and front wall portions.

From the above description it will be seen that there has been provided in accordance with the present invention a one-piece box of simple and sturdy construction so formed and designed as to require a minimum of stock sheet. The box can be easily and quickly set up by inexperienced persons and all of the steps necessary for that operation can be performed after the cake, for example, has been placed on the bottom panel of the knocked down box. As the only interconnections between the various parts of the box are along fold lines or depend solely on the frictional engagement of tongues **25** with slots **26**, the box can be returned wholly or partly to the flattened state without damage thereto. Also these operations can be repeated any number of times by the purchaser who thereby realizes the advantages resulting from the fact that the contents need not be lifted from the box but become accessible merely upon folding the lid and rear walls back to a point where the contents can be slid out over the flattened rear wall, or, if desired, by the added operation of folding the front wall forwardly so that the bottom wall side flaps will fold outwardly leaving the contents resting on the bottom wall and completely exposed on all sides. Since the setting up of the box is a simple procedure, the purchaser, who is frequently somewhat baffled by the relatively complicated structures of many boxes of this type, can again set up the box about the unused portion of the contents, and secure the whole by means of the loop closure means, which can be slipped over or onto the box without tilting the latter or upsetting or damaging the contents thereof.

Having described the invention in what are considered to be certain preferred embodiments thereof, it is desired that it be understood that the specific details shown and described herein

are merely illustrative and that this invention may be carried out by other means.

What we claim is:

An article of the class described comprising in combination a box including spaced top and bottom walls, said walls having forward and rear ends, side wall defining flap portions integral with the opposite side edges of said top wall, said side wall flap portions being each provided with a pair of adjacent slits defining a pair of adjacent tongues extending toward each other, said slits and the tongues formed thereby being symmetrically and substantially centrally disposed in said flap portions midway between the forward and rear ends of said box, a loop strap of fibrous material adapted to be slipped over the rear end portion of said box, said loop being an edge folded paper strap readily foldable along the center line thereof and having a length corresponding substantially to the peripheral distance around said box in the closed position thereof midway between the front and rear ends thereof, said tongues being spaced at their bases a distance substantially equal to the width of said strap and being adapted to engage with each of the opposite side edges of said loop for retaining said loop in the adjusted position midway between the front and rear ends of said box.

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