

Aug. 21, 1934.

N. OTTINGER

1,971,197

BOX CONSTRUCTION

Filed Feb. 2, 1932

4 Sheets-Sheet 1

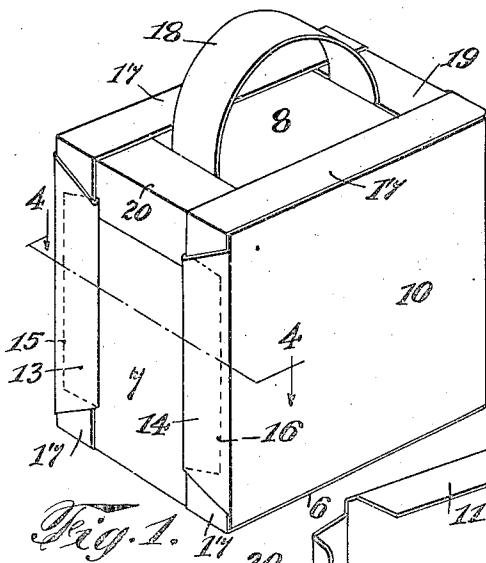


Fig. 1.

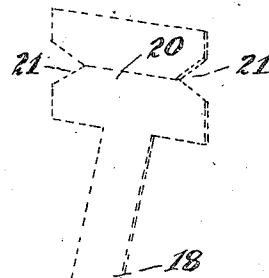


Fig. 2.

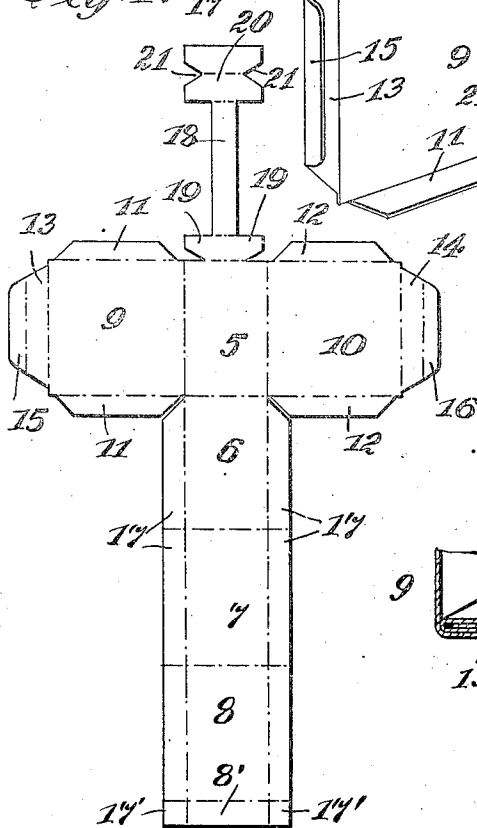


Fig. 3.

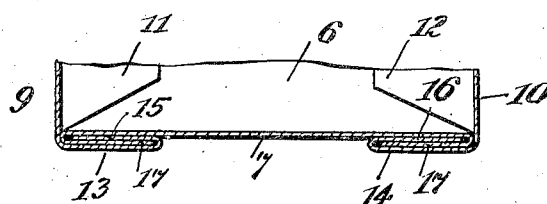


Fig. 4.

INVENTOR
Nathan Ottinger
BY *C. P. Seppel*
his ATTORNEY

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N. OTTINGER

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4 Sheets-Sheet 2

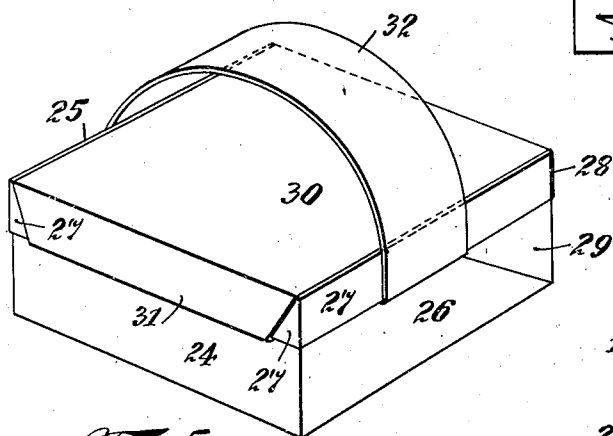


Fig. 5.

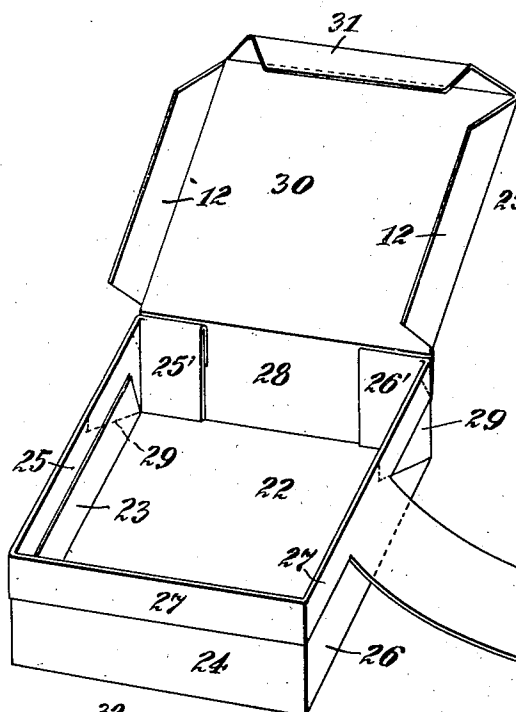


Fig. 6.

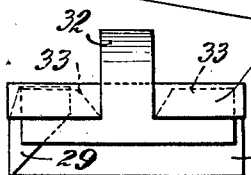


Fig. 5a.

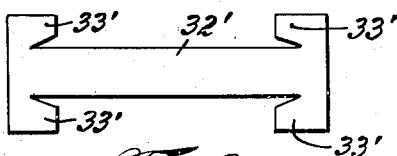


Fig. 8.

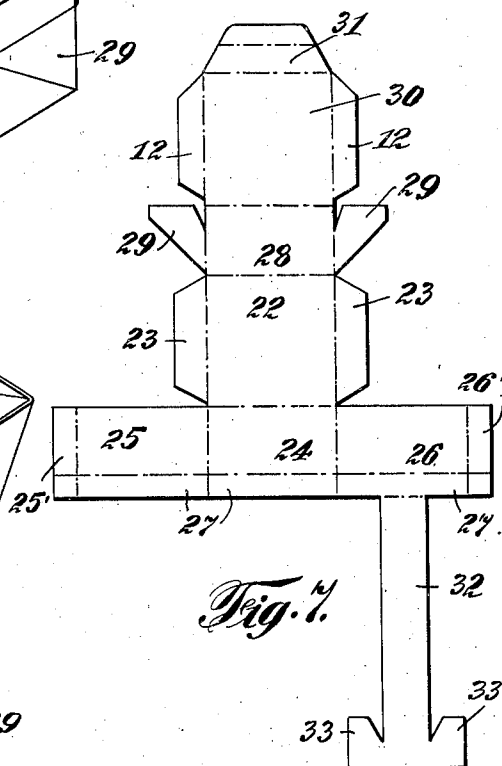


Fig. 7.

INVENTOR
Nathan Ottinger
BY *C. P. Seffel*
his ATTORNEY

Aug. 21, 1934.

N. OTTINGER

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4 Sheets-Sheet 3

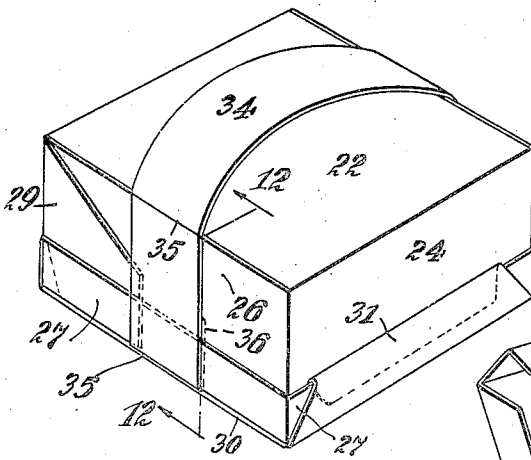


Fig. 9.

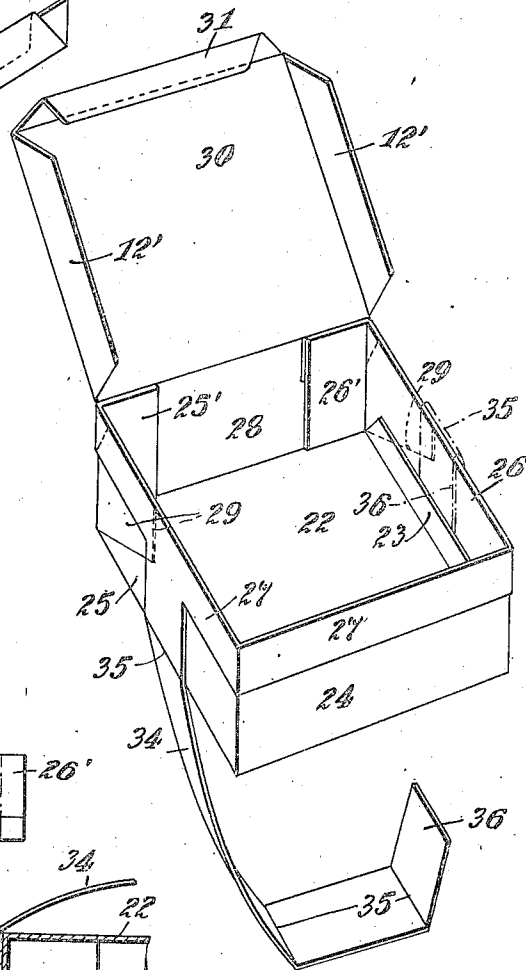


Fig. 10.

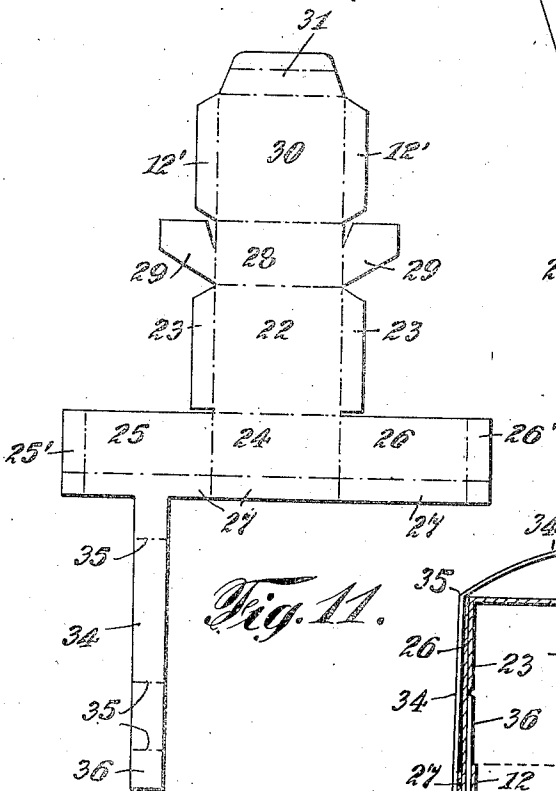


Fig. 11.

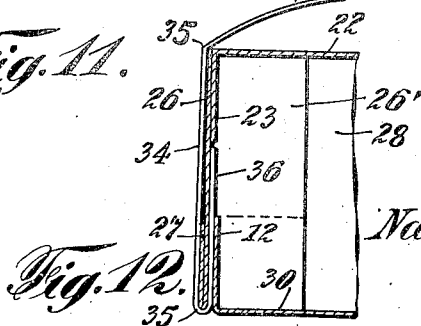


Fig. 12.

INVENTOR
Nathan Ottinger
BY C. P. Zepel
his ATTORNEY

Aug. 21, 1934.

N. OTTINGER
BOX CONSTRUCTION

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4 Sheets-Sheet 4

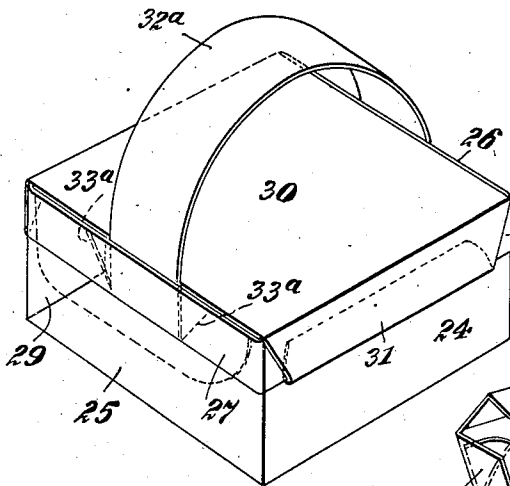


Fig. 13.

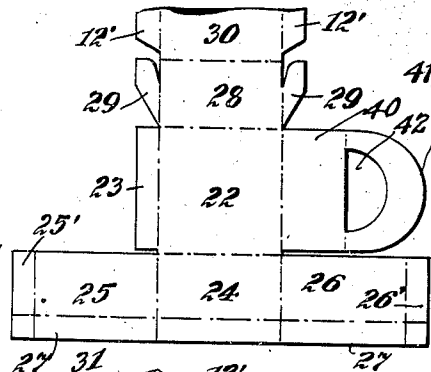


Fig. 17.

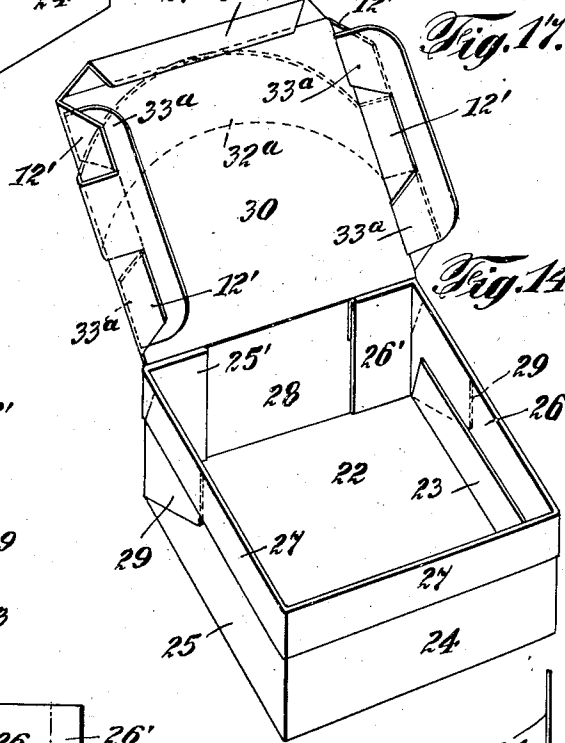


Fig. 14.

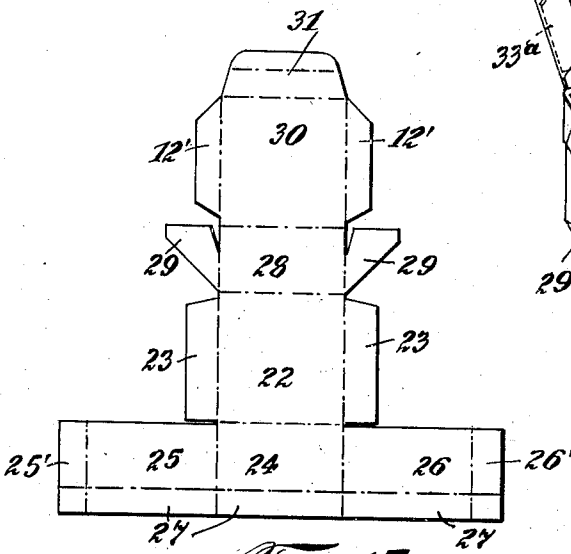


Fig. 15.

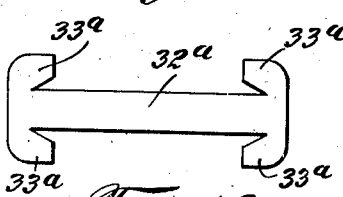


Fig. 16.

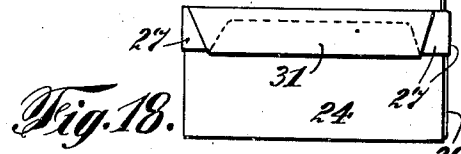


Fig. 18.

INVENTOR
Nathan Ottinger
BY C. P. Lefel
his ATTORNEY

UNITED STATES PATENT OFFICE

1,971,197

BOX CONSTRUCTION

Nathan Ottinger, New York, N. Y.

Application February 2, 1932, Serial No. 590,358

7 Claims. (Cl. 229—52)

This invention relates to box constructions, and more particularly to paper board boxes of that type in which the several relatively foldable parts of the box structure are die stamped or cut from a single blank.

The invention has for its primary object and purpose to provide a carrying handle for such boxes having means whereby the handle may be securely locked and held in connected relation with the spaced walls of the box structure, so that the box and its contents may be conveniently carried without danger of the opening of the box or loss or injury to such contents thereof.

The invention particularly relates to the provision of a carrying handle for paper board boxes of the general construction shown and described in my co-pending application Serial No. 585,829, filed January 11, 1932, and in which certain of the box walls along marginal edges thereof are provided with outwardly turned folds. In one embodiment of my present improvements, the handle may be formed as an integral extension of one of the box parts and provided with relatively flexing means at the free end thereof, which may be readily inserted between certain of the box walls and the exterior folds thereon, and whereby said end of the handle extension is securely held in connection with the box structure.

In another embodiment of the invention, I provide a separately formed handle member also cut from paper board, and having means at its opposite ends which may be interlocked with flaps provided on opposite edges of the box cover and insertable therewith into the open top of the box.

It is also a further general object of the invention to provide a box construction of the above character which is relatively simple and wherein the several parts of the box blank may be readily set up and properly connected and the handle then readily attached in such manner as to insure the safe carrying of the box without liability of the same accidentally opening under the weight of the box contents.

With the above and other objects in view, the invention consists in the improved box construction, and in the form, construction and relative arrangement of its several parts, as may be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claims.

In the drawings wherein I have disclosed several simple and practical embodiments of the

invention, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a perspective view of the box construction and handle therefor, illustrating one embodiment of my present improvements.

Fig. 2 is a similar view showing the box open and illustrating the handle member in dotted lines before final attachment;

Fig. 3 is a plan view of the blank from which the box structure and its handle are formed;

Fig. 4 is a detail sectional view taken substantially on the line 4—4 of Fig. 1;

Fig. 5 is a perspective view illustrating another embodiment of the device;

Fig. 5—a is a side elevation illustrating the connection between the free end of the handle and the side wall of the box;

Fig. 6 is a perspective view showing the box open;

Fig. 7 is a plan view of the blank from which the box illustrated in Fig. 5 is formed;

Fig. 8 is a plan view of the handle as formed separately from the box blank;

Fig. 9 is a perspective view showing another alternative embodiment of the invention;

Fig. 10 is a similar view showing the box open;

Fig. 11 is a plan view of the blank from which the box in Fig. 10 is formed;

Fig. 12 is a detail sectional view taken on the line 12—12 of Fig. 9;

Figs. 13 and 14 are views similar to Figs. 9 and 10 illustrating another modification of the invention;

Figs. 15 and 16 are plan views of the blanks of the box body and the carrying handle respectively.

Fig. 17 is a plan view of the blank showing another alternative form of the device; and

Fig. 18 is a front elevation of the box formed from the blank shown in Fig. 17.

Referring in detail to the drawings, and for the present more particularly to Fig. 3 thereof, the blank from which the box is produced, is die stamped or cut from paper board of suitable weight and thickness, and is properly scored on one side thereof to provide the relatively foldable sections 5, 6, 7 and 8 respectively, constituting the four marginal walls of the rectangular body structure of the box. There is integrally connected with the opposite edges of the wall 5, the cover or closure sections 9 and 10, respectively adapted to close the opposite sides of the box, each of said sections having angularly foldable flaps 11 and 12 respectively

extending along its opposite side edges. At its free end, each cover section 9 and 10 is also provided with the foldable flap or extension 13, 14 respectively having a relatively folding tab 15, 16, the purpose of which will be presently explained.

The sections 6, 7 and 8 are also suitably scored in spaced relation to their opposite longitudinal edges to provide the integrally connected foldable portions 17 thereon, which are adapted to form external folds extending along the opposite longitudinal edges of the three marginal walls of the box. At its free end, the section 8 has the short relatively foldable part 8', which is also provided with the external folds 17'.

The section 5, at its free end, is provided with an integral extension foldable relative thereto and having a narrow handle strap portion 18 connected with the section 5 by relatively wide portion forming wings 19 at each side of said handle strap. At its other end, the strap 18 has a widened section foldable along the central score line 20 and provided in line with said score at its opposite ends with the V-shaped notches 21.

In erecting the box from the blank shown in Fig. 3, the parts 17, 17' are first outwardly folded and the sections 5, 6, 7 and 8 then relatively folded or positioned to form the four marginal walls of the box, the narrow terminal parts 8' and 17' at the free end of the section 8 being folded to extend upon the inner surface of the section 5. The handle strap extension of this section 5 is then folded inwardly and the wings 19 thereof are flexed sufficiently so that they may be inserted between the folds 17 on the section 8 and the outer surface of said wall section, as clearly seen in Figs. 1 and 2 of the drawings.

The handle strap 18 is then bent into curved or looped form and the end part thereof folded on the score line 20, so that the portions of this folded end of the handle strap at opposite sides of recesses 21 may be readily inserted between the folds 17 on the box walls or sections 7 and 8 and the outer surfaces of said box walls. Thus, as indicated in Fig. 1 of the drawings, this free end of the handle strap or extension will be securely interlocked with the marginal walls of the box. The two cover sections 9 and 10 are then moved to their closed positions relative to the marginal wall section 5, the flaps 11 and 12 thereof fitting against the inner sides of the wall sections 6 and 8 respectively. The flaps 13 and 14 of these cover sections are then folded upon the outer sides of the folds 17 on the wall section 7 of the box and the flaps 15 and 16 inserted between the outer surface of said wall section and the said folds 17 which form flap-receiving pockets extending across said wall section. In this manner, the two cover members for the box are very securely fixed and held in closed position without the use of adhesives or other supplementary fastening means therefor. It will thus be apparent that the construction above described provides a simple and inexpensive one-piece blank box construction in which the several parts may be very easily and quickly set up in position to form the complete box, together with a suitable handle whereby the said box with its contents may be conveniently carried by the purchaser.

In Figs. 5 to 7 of the drawings, I show another box construction in which the blank shown in Fig. 7 is cut to provide the bottom

section 22 for the box having foldable flaps 23 along its opposite side edges, one end of said bottom being integral with the front marginal wall 24 of the box at opposite ends of which the side marginal walls 25 and 26 are integrally connected along suitably formed score lines. These marginal walls or sections 25 and 26 at their free ends have relatively short extensions 25' and 26' respectively, and said sections together with the wall section 24 are provided along one longitudinal edge with the continuous outwardly foldable parts 27 which form the external pocket-forming folds on the upper edges of said wall sections when the same are disposed in erect position relative to the bottom section 22. The other or rear marginal wall 28 of the box which is integral with the rear edge of the bottom 22 is provided at opposite ends with the foldable wings or extensions 29. This rear wall 28 is also integrally connected with the top or cover section 30 for the box, which is of substantially the same construction as the box covers previously described, being provided with the foldable interlocking flap 31, adapted for engagement with the pocket-forming fold 27 on the front wall section 24 of the box.

As shown in Fig. 7, the side wall section 26 of the box blank is provided with a handle strap 32. As herein shown, this strap may be integrally connected with the fold 27 on said wall 26, and at its free end is provided with the tabs or fingers 33 at each side of said strap. After the marginal walls of the box blank have been arranged in erect position relative to the bottom wall 22, the cover 30 is then closed and the interlocking flap thereof connected with the top fold 27 on the front wall 24. The handle strap 32 is then bent or bowed over the closed cover of the box and the fingers or tabs 33 on the free end thereof are relatively flexed and interlocked under the fold 27 on the opposite side wall 25 of the box, the wings or extensions 29 on the rear wall 28 being bent inwardly against the outer sides of the box walls 25 and 26 and inserted between said walls and the external folds 27 thereon, as shown in Fig. 6 of the drawings, securely retaining the opposite side walls in their erect positions relative to the bottom and rear end wall of the box. The handle strap being connected to the folds 27 of these side walls, further serves to hold the same against relative outward displacement, while at the same time providing a very secure connection, holding the handle against separation at its free end under the weight of the box contents. However, it will be obvious that this free end of the handle can be easily disconnected from the side wall of the box when it is desired to raise the box cover to open position in order to obtain access to the contents of the box.

In Fig. 8 of the drawings, I have shown the carrying handle formed as a separate and independent part, and in which case the strap 32' is provided at each end thereof with the relatively flexing fingers or tabs 33', which are adapted for interlocking connection with the external folds 27 on the opposite side walls or sections 25 and 26 respectively of the box. The construction illustrated in Figs. 9 to 12 inclusive embodies a box blank and handle strap generally similar to that shown in Fig. 7, except that the handle strap which is integrally formed with an external fold on the upper edge of one side wall of the box is not provided with the widened

free end forming the interlocking fingers or tabs. As shown, this handle strap 34 is of uniform width throughout its length and is scored on spaced transverse lines indicated at 35. Thus, after the sections of the box blank have been relatively folded to erect positions, and before closing the cover, the handle strap 34 is bent around and across the bottom wall of the box and its free end brought upwardly along one side wall of the box and the terminal portion 36 thereof, then folded inwardly and downwardly over the upper edge of this side wall. The box blank is scored so that the cover section thereof extends across substantially the full width of the box, and when this cover is closed, one of the side edges thereof will bear with tight frictional pressure against the fold connection between the part 36 and the body of the handle strap 34, while the side flap 12' on said edge of the cover which extends into the box will also, by its tendency to spring outwardly, exert a frictional pressure against the face of the strap terminal 36. Thus in this case it will be understood that the closed box is carried in an inverted position as indicated in Fig. 9 of the drawings. The interlocking flap connection between this cover and the external fold on the edge of the front wall of the box will, however, effectually prevent opening of the box cover under the weight of the contents, and the folded extremity of the strap cooperating with the flap 12' on the box cover will effectively serve to maintain the end of the flap extension in secure connection with the box wall.

In Figs. 13 to 16 inclusive, the blank from which the box is formed is also of substantially the same construction as that shown in Fig. 7, without the integral handle strap extension 32. In this case, I provide a separate handle strap 32—a similar to that shown in Fig. 8, and having the pairs of fingers or tabs 33—a at the opposite ends thereof. As seen in Fig. 14 of the drawings, instead of interlocking these fingers or tabs with the external folds on the opposite side walls of the box, I may arrange the separate handle strap across the outer side of the top or cover section of the box before closing the latter with the ends thereof bent inwardly over the side flaps 11', 12' of said cover, and then bend or flex the fingers 33—a of the handle strap so as to position the same over the inner surfaces of these side flaps. Thus, when the box cover is closed, and the ends of the handle strap together with flaps 11', 12' inserted into the open top of the box adjacent its opposite side walls, it will be evident that the ends of the handle strap are securely held against possible detachment under the weight of the box contents. The strain will tend to force the ends of the handle strap outwardly and into close frictional contact with the side walls of the box structure. Thus, in this construction, the box may be used for carrying relatively heavy loads, without liability of accidental detachment of the carrying handle therefrom.

In Figs. 17 and 18 of the drawings, I have illustrated another somewhat different construction, in which the box blank is in general similar to that shown in Fig. 13 with the exception that in place of the flap 23 along one edge of the bottom section 22, I provide a relatively wide section 40 substantially equal in width to the side wall section 26 and adapted when the box is folded to extend along the inner side of said

wall, thus providing in effect a side wall of double thickness. The section 40 is formed with a handle extension 41 as an integral part thereof forming finger receiving opening 42. As shown in Fig. 18 of the drawings, when the several box sections are folded to their relatively assembled positions, and the box cover or lid is closed and secured in closed position by the flap 31 interlocking with the pocket forming fold 27, the handle extension 41 projects upwardly at one side of the box. While, of course, the load within the box will be in unbalanced relation to the handle, such a construction will be practical for boxes or receptacles, containing small and light articles of wearing apparel, fruits, cakes and other commodities. Of course, when the box is carried with the fingers engaged through the opening 42 of the handle extension, said handle extension will be flexed or bent relative to the section 40 of the box blank and at the edge of the side wall 26 thereof.

From the foregoing description considered in connection with the accompanying drawings, the construction, manner of operation and several advantages of each of the illustrated embodiments of the invention will be readily understood. It will be evident that any one of the illustrated box constructions may be very inexpensively manufactured on a quantity production basis, and that the several parts or sections thereof can be easily and quickly folded to erect positions and in properly connected and assembled relation with each other, so as to provide a box of this kind which is neat in appearance and possesses maximum resistance to both internal and external pressures tending to cause the collapse of the box structure. It will, of course, be understood that my improved carrying handle as above described may also be utilized in connection with boxes of various other sizes and shapes than those indicated in the drawings, to be employed for a wide variety of different purposes. It is, therefore, to be understood that while I have herein suggested several desirable and practical constructions, nevertheless the essential features of my present disclosure might also be incorporated in numerous other alternative structural forms, and I therefore reserve the privilege of resorting to all such legitimate changes therein as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:

1. In a combination with a paper board box, having body walls provided with external folds along one edge thereof, a flexible handle strap for the box integral at one of its ends with the fold on one of the box walls, said handle strap at its other free end having a relatively flexing part adapted to be turned inwardly over the edge of the opposite wall of the box to extend upon the inner face thereof, and said box including a cover section with closure means therefor, said cover section having a part cooperating with said flexing part of the handle strap to retain the latter in operatively attached relation to the box structure.

2. In a box construction of flexible material having enclosing walls, the combination of a flap bent from the marginal edge of a wall of the box with the free edge of the flap arranged substantially parallel with the line of fold and providing with a wall of the box a sheath disposed parallel with the line of fold of the flap, and a carrying handle for the box having a flap

end engaged by the wall flap and engaging within the sheath, and the flap end of the handle contacting in surface contact with a wall of the box and with said wall flap.

- 5 3. In a box construction of flexible material having enclosing walls, the combination of a flap bent from the marginal edge of a wall of the box with the free edge of the flap arranged parallel with the line of fold and providing
- 10 with a wall of the box a sheath disposed parallel with said free edge of the flap, and a carrying handle for the box having a flap end engaged by the wall flap and engaging within the sheath, the flap end of the handle contacting in surface
- 15 contact with a wall of the box and with said wall flap, and the free edge of the handle flap being in substantial proximity to the line of fold of the wall flap.

4. In a box construction of flexible material having enclosing walls, the combination of a sheath flap overturned outwardly from the marginal edges of adjacent walls of the box and held flat against said walls when the box is set up to provide a sheath between the flap and the adjacent box wall, and a carrying handle
- 20 for the box having a flap at its end with a projecting portion engaging within the sheath between the sheath flap and the adjacent wall.

5. In a box construction of flexible material having an annular wall portion and opposed closure wall portions, the combination of a flap portion bent from the annular wall portion having a free edge disposed parallel with the line of fold, said bent over flap portion being
- 30 contiguous to and parallel with a part of the box to form a sheath therewith arranged parallel with the line of fold, and a carrying handle for the box having a bent over flap engaged by the flap portion and engaging within the sheath,

the bent over handle flap contacting in surface contact with the wall of the box and with the flap portion, and the free edge of the bent over handle flap being in substantial proximity to the line of fold of the flap portion, and the line of fold of the bent over handle flap contacting with a wall of the box, the free edge of the bent over handle flap contacting with a wall of the box.

6. In a box construction of flexible material having enclosing walls, the combination of flaps bent from the opposite marginal edges of a wall of the box with the free edges of the flaps arranged substantially parallel with the lines of fold and providing with walls of the box sheaths disposed parallel with the lines of fold of the flaps, a flexible handle strap for the box having at its opposite ends flaps engaged by the wall flaps and engaging within the sheaths, the handle flaps contacting in surface contact with the walls of the box and with said wall flaps.

7. In a box construction of flexible material having enclosing walls, the combination of a flap bent from the marginal edge of a wall of the box with the free edge of the flap arranged substantially parallel with the line of fold and said flap adapted to be inserted into the box against the inner side of an adjacent wall to provide therewith a sheath disposed parallel with the line of fold of the flap, and a flexible handle strap for the box provided at its end with spaced relatively flexing parts adapted for interlocking engagement with the flap to extend upon the inner face thereof and insertable into said sheath for detachably retaining the handle in connected relation with said flap.

NATHAN OTTINGER.

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45	120
50	125
55	130
60	135
65	140
70	145
75	150