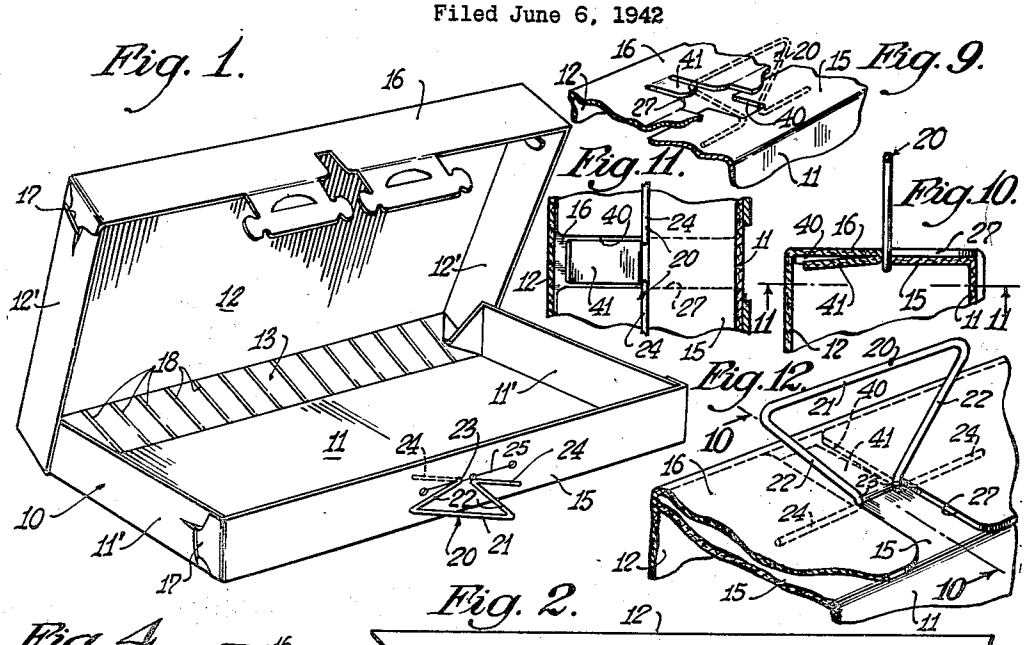
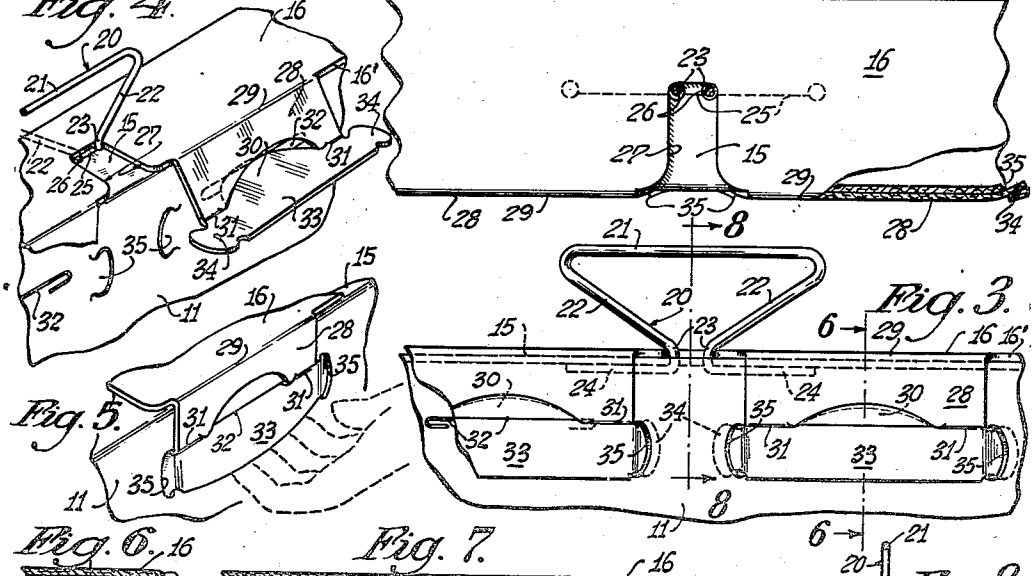
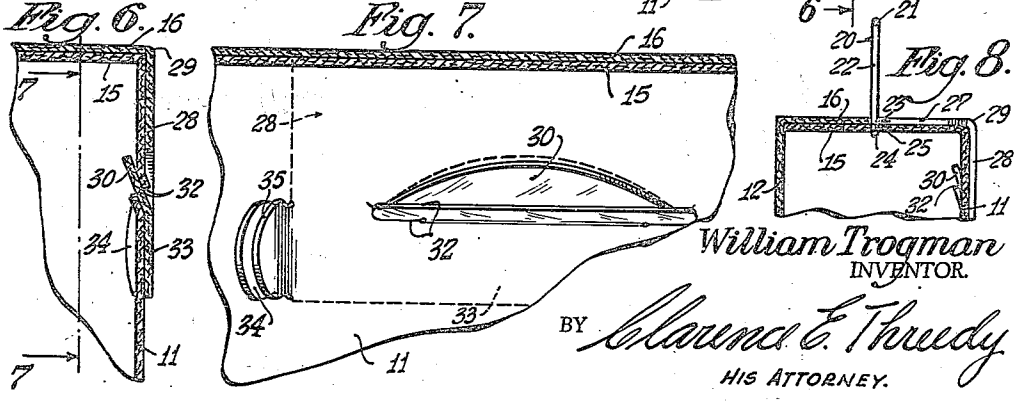
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BOX STRUCTURE

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William Trogman
INVENTOR.

BY Clarence E. Thredy
HIS ATTORNEY.

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BOX STRUCTURE

William Trogman, Chicago, Ill.

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3 Claims. (Cl. 229—52)

This invention relates to boxes and more particularly to certain novel improvements in box construction and has as its principal object the provision of a simple structure which will be economical in manufacture and highly efficient in use.

Another object of my invention is to provide in a box an improved handle and latch which coact to strengthen that portion of the box where the handle load is concentrated.

A still further object of this invention is the provision of an improved handle structure for boxes, which handle is so formed as to be held in hand receiving condition when associated with the box.

Other advantages and novel aspects of the invention will appear more readily in the description read in the light of the drawing, in which:

Fig. 1 is a perspective view of my new box in opened position;

Fig. 2 is a fragmentary top plan view of the central portion of the box shown in Fig. 1, in closed condition;

Fig. 3 is a fragmentary side elevational view of that portion of the box seen in Fig. 2;

Fig. 4 is a fragmentary perspective view of that portion of the box shown in Figs. 2 and 3 in the course of being assembled into latched condition;

Fig. 5 is a fragmentary perspective view illustrating the latch tab forming a part of my new box structure;

Fig. 6 is a fragmentary section through the box as seen along line 6—6 in Fig. 3;

Fig. 7 is a fragmentary inside elevation of the box, partly in section, as seen from line 7—7 in Fig. 6;

Fig. 8 is a fragmentary vertical section taken along line 8—8 in Fig. 3;

Figs. 9 to 12, inclusive, are illustrative of a modified form of handle engaging structure for my new box in which:

Fig. 9 is a fragmentary perspective view illustrating the assembly of the modified form;

Fig. 10 is a fragmentary vertical section taken along line 10—10 in Fig. 12;

Fig. 11 is a fragmentary bottom plan view of my modified form as seen from line 11—11 in Fig. 10; and

Fig. 12 is a fragmentary perspective view of my modified form of handle engaging structure with a handle associated therewith.

The box illustrated in the drawing is the conventional suit-box which is formed preferably from cardboard or the like by arranging crease lines at various points to facilitate folding. The box is generally indicated at 10 and comprises an article receiving portion 11 and a cover portion 12 therefor, each of which is formed of the same piece of stock and hence joined at one edge by an edge wall portion 13 which for purpose of clarity shall be referred to as the bottom edge. Each of the portions 11 and 12 are provided with upstanding wall portions 11' and 12' respectively, along each end thereof, the joining ends of the wall 11' of the box 11 and the wall 12' of the cover 12 being creased in a manner well known in the art to permit the box and cover to be swung toward each other. The edges of the portions 11 and 12 opposite the integral bottom wall 13 are each provided with like wall portions 15 and 16 respectively, which portions will be referred to individually as top edges. These top edges 15 and 16 are suitably joined to their adjacent end walls 11' and 12' by a corner joint 17 well known in the art of box making.

A novel handle arrangement is provided for carrying the box, and this handle arrangement is novel in its specific relation to the interfitting top edges of the box together with box locking tabs associated with the complementary members 11 and 12 forming the receptacle and cover of the box.

The handle 20 proper consists of a single length of wire with its medial portion providing a hand grip 21, the two ends of the wire being bent back upon the hand grip at an oblique angle to provide a pair of hanger members 22 which appear to converge but rather are again bent back as at 23 in a direction opposite to the direction of the first mentioned bend until the remaining portions 24 of the wire are disposed parallel to the hand grip 21 and in axial alignment with each other. An elongated slot 25 is cut into the top edge 15 of the box and a pair of annular eyelets 26 are formed at the centermost area thereof with these eyelets 26 spaced a distance along the slot 25 equal to the distance between the bends 23 on the handle 20. One end 24 of the handle 20 is inserted into and through one eyelet 26 (see Fig. 1), and the opposite end 24 is pressed through the elongated slot 25 so that both of the aligned portions 24 are disposed on the underside of the top edge 15 with the bends 23 of the handle passing through the corresponding eyelets 26 (see Fig. 2). It will be noted that the slot 25 is formed substantially tangential with respect to the eyelets 26 so that the portions 24 of the handle bear against a substantial portion of the edge 15 and not against the slot 25.

The top edge 16 of the cover portion 12 has a U shaped slot 27 formed in its medial section and this U shaped slot 27 is relatively narrow in width but sufficiently wide to permit the bends 23 of the handle to be disposed therein. This relatively narrow slot 27 is adapted to slide into position with the handle when the box is closed as seen in Figs. 2, 3, 4 and 8 and to maintain the handle in hand gripping condition at all times.

Lifting action upon the handle 23 causes the portions 24 thereof to bear upwardly upon the two interfitting edge portions 15 and 16 and normally would urge the free edge 16' of the top wall 16 away from the top wall 15 disposed beneath it. However, the box structure is provided with a latching means in the form of a pair of three-way latch members 28 formed closely adjacent the U-shaped slot 27 and as a part of the top wall 16 itself. These members 28 extend from the free edge 16' and are creased as at 29 so as to fold downwardly along the body of the receptacle portion 11 of the box.

The three-way latch member is adapted to be interlocked with the portion 11 by an upper tab 30 arcuately cut in the member 28 and adapted to be flexed out of alignment with the balance of the member 28 along a pair of crease lines 31 flanking the arcuate tab 30 (see Fig. 4). A tab receiving slot 32 is formed in the portion 11 of the box and it is into this slot 32 that the tab 30 is inserted. The remaining relatively narrow portion 33 of the member 28 provides a grip whereby the locking member may be manipulated, and formed at each end of this portion 33 is a tab 34. An arcuate slot 35 is cut into the wall of the portion 11 adjacent each end of the tab receiving slot 32, and these arcuate slots 35 are adapted to receive the corresponding tabs 34 to hold the grip portions 33 down flush with the body of receptacle portion 11 and also to latchingly hold the cover portion 12 securely in locked relation with the receptacle 11.

It will be noted that the arcuate tab 30 when engaged in the slot 32 keeps the two top edges 15 and 16 in close relation and that both of these members therefore bear equally the load caused by the upward force of the aligned end portions 24 of the handle 20. This is accomplished mainly because of the close proximity of the latch members with respect to the bends 23 of the handle 20, brought about by the particular triangular shaped handle 20 with its hanger members extending toward a point of convergence. As is shown in the drawing, the latch tabs 30 and the centermost tabs 34 are in a region of the handle where the load created by the upward force of the aligned end portions 24 is concentrated and hence the tabs are at hand to take up some of the strain upon the box.

The latch members 28 are relatively small and do not extend far beyond the edge 16' of the blank from which the box is cut. This makes for economy in material. By reason of the simplicity of structure, these tabs may be used numerous times without becoming ragged and torn, it being a simple matter to bow the grip portion 33 as seen in Fig. 5 in order to remove the end tabs 34 from the slots 35, the arcuate tab 30 sliding gracefully from its slot 32 without distortion of either slot or tab.

The arrangement of the handle on the box may be modified as shown in Figs. 9 to 12, inclusive. By this form the elongated slot 25 may be done away with by forming a U-shaped slot 40 in the top edge 15 similar to the slot 27 formed in the upper edge 16. This permits the closely disposed bends 23 of the handle to be slid into position as the cover is being brought into position over the receptacle 11 (see Fig. 9). Additional strength is given the handle arrangement by permitting a portion of the material 41 to remain connected to the bight portion of the slot 27 with two narrow slots running all the way down to the bight. In assembly then this portion 41 is bent down along the bight line of the slot 27 so that it projects into the slot 40 formed in the lowermost one of the top edges 15. This construction strengthens the bight portion of the upper slot 27, which is most likely to be strained under the load of the handle and also provides an interlock between upper and lower top edges 15 and 16 respectively.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a box of cardboard including a receptacle portion and a cover portion with overlapping edge portions, a load carrying means for said box including a wire handle with connected hanger arms extending in a direction to converge with each other and provided with bends in a direction from said point of convergence to provide aligned end portions, an elongated slot with closely disposed eyelets formed in one of said overlapping edge portions and adapted to receive said aligned end portions of said handle with the bends thereof disposed in said eyelets, and a relatively narrow slot formation in the other one of said overlapping edge portions to permit closure of said cover and receptacle portion.

2. In a box of cardboard including a receptacle portion and a cover portion with overlapping edge portions, a load carrying means for said box including a wire handle with connected hanger arms extending in a direction to converge with each other and provided with bends in a direction from said point of convergence to provide aligned end portions, a transverse slot formed in the lowermost of said overlapping edge portions and adapted to receive said handle in the region of the said bends, and a corresponding slot formed in the other one of said overlapping edge portions with said last named slot facing in a direction normal to said first named slot and adapted to slide into assembled relation with the bends of said handle so as to cooperate with the companion slot to flank the bends of said handle and maintain the latter in load carrying relation with respect to said box.

3. A handle arrangement for a box including complementary box members in the form of a container and cover therefor, said handle arrangement including the provision of interfitting edge portions on said complementary box members, a handle in the form of a wire bail having a grip portion and two obliquely disposed hanger arms extending therefrom in a direction toward convergence with each other, said arms having bends formed adjacent said point of convergence to dispose the ends of said bail arms in axial alignment, means in one of said edge portions permitting passage of said ends of said bail therebeneath with the bends of the arms extending through the said edge portion, means formed in the opposite one of said edge portions and adapted to pass about said bends in the arms to permit the complementary members to assume closed relation with respect to each other.

WILLIAM TROGMAN.