

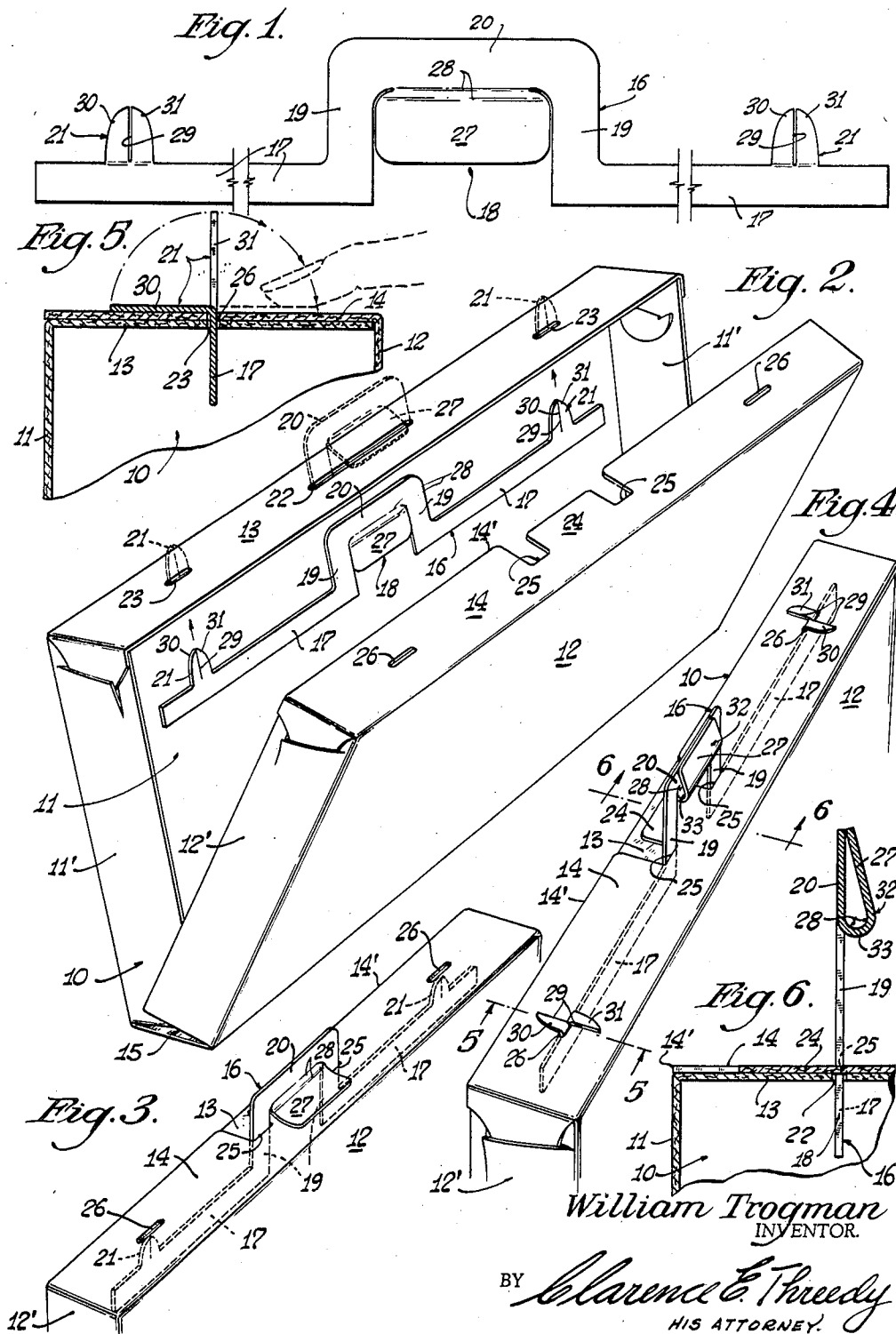
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BOX HANDLE AND LATCH

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BOX HANDLE AND LATCH

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6 Claims. (Cl. 229—52)

This invention relates to boxes and more particularly to a box handle and latch of an improved construction having as its principal object the provision of a unitary handle and latch which will be simple in structure, economical in manufacture and highly efficient in use.

Another object of this invention is the provision in one-piece folding boxes of a handle for holding overlapping portions of the box in register with each other and a novel latch for holding the handle in gripping position and simultaneously latching the overlapping portions of the box in registry with each other.

A further object of my invention is the provision of a handle and latch which will coact with the portion of a box to be associated therewith as to rigidify that portion of the box in the course of the function as a handle and latch therefor.

Other advantages and novel aspects of the invention reside in certain details of construction which will become more apparent as the description proceeds in the light of the drawing, in which:

Fig. 1 is a side elevational view of the handle and latch comprising my invention;

Fig. 2 is a perspective view of a one-piece folding box showing the handle and latch comprising my invention about to be assembled therewith;

Fig. 3 is a fragmentary perspective view of the box seen in Fig. 2 showing a step in the assembly of the handle and latch therewith;

Fig. 4 is a fragmentary perspective view of the box of Fig. 2 in assembled relation with the handle in gripping position and the latch in locking position with respect thereto;

Fig. 5 is a fragmentary cross sectional detail taken along line 5—5 in Fig. 4 and showing the latch in the course of being disposed in locking position with respect to the box; and

Fig. 6 is a fragmentary cross sectional detail taken along line 6—6 in Fig. 4 and showing the handle in readiness for gripping.

As shown in the drawing, my invention is adapted for use in one-piece folding boxes generally indicated at 10 and comprising a receptacle portion 11 having a cover 12 therefor integrally formed therewith and adapted to swing into closed relation with respect to the receptacle 11. Each of the portions 11 and 12 are provided with end walls 11' and 12' respectively and with top walls 13 and 14 respectively, which walls, when the box 10 is closed, are disposed in overlapping relation with respect to each other. In

the form of box shown, the receptacle and cover have a common bottom wall 15 which may be two overlapping walls joined by staples or the like in a manner well known in the art, the main object being that the cover 12 be hingedly connected to the box so as to swing with respect thereto.

Heretofore in the boxmaking art, it has been the custom to apply a handle means to the box for the purpose of carrying the latter. It has also been the custom to provide separate latch tabs for locking the cover and box together by forming such tabs integrally along the free edge of the top wall of the cover for interlocking relation with slots formed in the body of the opposite or receptacle portion. Such former construction is well illustrated in U. S. Patent No. 2,102,497 issued to William Trogman on the 14th day of December 1937.

The present invention contemplates the provision of an improved combined handle and latch requiring less material and providing a more unitary construction which will lend rigidity to the box assembly as well as provide a more simple box carrying and locking means.

In carrying out my improvement I provide a unitary handle and latch means generally indicated as member 16. The handle and latch is formed from a single piece of bendable or pliable material, preferably a light gauge metal. In structure it comprises a main rib 17 having a looped mid section 18 to provide upstanding arms 19 with a central or handle portion 20 extending therebetween. The rib 17 extends substantially the length of the box with which it is to be associated and is provided, a substantial distance inward of its ends, with upwardly extending lugs 21 formed integrally with the rib 17.

The box 10 is made to conform to the purposes and intent of my new handle construction. This is done by providing in the central area of the top wall 13 of the receptacle 11 an elongated slot 22 through which may be extended the handle portion 20 of the member 16. Also formed in the top wall 13 are a pair of latching slots 23 and these slots are in axial alignment with the longitudinal axis of the elongated slot 22 and are spaced therefrom a distance commensurate with the distance between the handle 20 and the lugs 21 of the member 16 so that the lugs 21 will fit into and through the slots 23.

The top wall 14 of the cover portion 12 of the box is likewise formed to be adapted to the new handle and latch member 16. To this end the central area of the wall 14 is formed to provide

a central tongue 24 flanked by two recesses 25 extending from the free edge 14' of the wall 14 (left edge as seen in drawing) a distance sufficient to expose the slot 22 when the wall 14 is in overlapping relation with respect to the wall 13. A pair of latching slots 26 are formed in the wall 14 in axial alignment with the base of the recesses 25 and are spaced therefrom so as to register with the latching slots 23 when the wall 14 is in overlapping relation with respect to the wall 13 (see Figs. 3 and 5).

When it is desired to associate the combined handle and latch with the box, the handle portion 20 is first inserted through the slot 22 from the underside of the wall 13 (Fig. 2). This done, a flap 27 which is integrally formed on the handle 20 is bent out of normal alignment with the upstanding arms 19, the flap 27 being suitably scored as at 28 to facilitate such bending in the desired place. The handle 20 may then be released and will be prevented from dropping through the slot 22 by reason of the lateral projection of the flap 27. In this condition the handle and latch member 16 will be suspended from the top wall 13 with the lugs 21 beneath said wall. The cover 12 is then swung into closing relation with respect to the receptacle portion 11 of the box (Fig. 3), the tongue 24 being slid beneath the flap 27 while the recesses 25 embrace the upstanding arms 19 of the handle.

With the box in this condition the next step is accomplished by grasping the handle 20 and drawing the latter upward so that the lugs 21 adjacent the ends of the rib 17 will extend through the aligned or registering latching slots 23-26 (Fig. 5). Each of the lugs 21, in order to provide a two-way locking prong, is split down its vertical axis as at 29 from the tip to the base of the lug, thus providing a pair of prongs 30 and 31. The lugs 21 have their base connection with the rib 17 scored so as to facilitate bending of the prongs 30-31 and each of the latter are bent as seen in Figs. 4 and 5, in opposite directions with respect to each other.

By this arrangement of two-way locking prongs at each end of the member 16, the handle proper is held in normal hand-receiving condition at all times and simultaneously the cover 12 and receptacle 11 are locked with respect to each other in a single unitary operation. The flap 27 is finished by bending it back upon the handle portion 20 so as to provide a rounded grip 32 to relieve cutting action upon the fingers of the person carrying the box.

A further function of the bent-back flap 27 is to provide a bead 33 along the crease lines 28 whereby to rigidify the handle portion 20 and render the latter less susceptible to bending or buckling under a load. This arrangement maintains rigidity in the entire handle and latch member 16 and assures the axial alignment of the rib 17 at all times so as to hold the latter in uniform bearing relation with the bottom of the top wall 13.

It will be noted that my improved construction, in addition to providing a combined handle and latch, also reinforces the joined top walls 13 and 14 of the box by reason of the ridge pole effect of the rib 17 tending to distribute the load concentrated at the handle 20 uniformly along the entire top wall of the box. This renders the box more durable and prevents unsightly bulges along the top wall which otherwise, after constant flexing by reason of the stride of the person carrying the box, would weaken and finally break down

the fibre structure in the most vital part of the box (around the handle).

Having thus described my invention and its relation to the specific type of box shown I do not desire to be restricted to the precise details recited but desire to avail myself of all variations and modifications of the invention coming within the scope of the appended claims.

What I claim is:

1. A combined handle and latch for folding box structures having a pair of overlapping top walls, said handle and latch comprising in combination elongated slots formed in each of the top walls of said box and a pair of latching slots axially aligned with said elongated slot on the top walls and in spaced relation therefrom, each of said slots being disposed to register with each other when the top walls are in overlapping relation, a member including a main rib having a looped midsection providing a handle portion, a pair of two-way latching prongs formed on the upper edge of said rib adjacent its end, said handle portion extending through said elongated slots and said latching prongs extending through their respective latching slots with said rib bearing against the underside of said overlapping walls, and means facilitating the bending of said latching prongs in opposite directions over the latching slots whereby to simultaneously hold the handle in said elongated slots and to lock said overlapping top walls with respect to each other.

2. In a device of the class described for use in a one piece folding box having a pair of top walls arranged in overlapping relation when the box is closed, the provision of an elongated slot formed in the central area of each of the top walls and disposed in register with each other, latching slots formed in said top walls and spaced a predetermined distance from said elongated slots and in axial alignment therewith with the latching slots in one of said top walls adapted to register with the corresponding latching slots in the other one of said walls, and handle and latch means for said box and comprising an elongated rib substantially equal to the length of said top walls and bearing upwardly against the underside of the latter, an inverted U shaped midsection on said rib and extending through said elongated slot to provide a handle, a pair of split prongs formed integrally along the upper edge of said rib a predetermined distance from said U shaped midsection and extending through said latching slots and adapted to be bent over upon said overlapping top walls to maintain the said handle and latch means in the position aforesaid and to lock said overlapping top walls with respect to each other.

3. In a folding box comprising a receptacle and a cover therefor joined along their bottom wall for swinging movement relative to each other and each having side and top flanges adapted to be disposed in overlapping relation when the receptacle and cover are in closed condition and each of said top flanges having a slot formation in its midsection and a latching slot formed adjacent its ends with said slots all in axial alignment with respect to each other and the corresponding slots of the respective flanges adapted to register with each other, means providing a handle and latch for said folding box and comprising, in combination, a ridge pole formed of sheet material and providing an upwardly extending inverted U section and a pair of upwardly extending lug formations adjacent its ends and in vertical alignment with said latch-

ing slots, said ridge pole being disposed beneath said overlapping top flanges and bearing firmly thereagainst, said inverted U portion extending through said elongated slots to provide a central hand hold and said lug formations extending through said latching slots to provide a means for simultaneously locking said box and for maintaining said ridge pole in the aforementioned relation to said top flanges.

4. In a folding box comprising a receptacle and a cover therefor joined along their bottom wall for swinging movement relative to each other and each having side and top flanges adapted to be disposed in overlapping relation when the receptacle and cover are in closed condition and each of said top flanges having a slot formation in its midsection and a latching slot formed adjacent its ends with said slots all in axial alignment with respect to each other and the corresponding slots of the respective flanges adapted to register with each other, means providing a handle and latch for said folding box and comprising in combination a ridge pole formed of sheet material and providing an upwardly extending inverted U portion at its midsection and a pair of upwardly extending lug formations adjacent its end and in vertical alignment with said latching slots, said ridge pole being disposed beneath said overlapping top flanges and bearing firmly thereagainst, said inverted U portion extending through said elongated slots to provide a central hand hold and said lug formations extending through said latching slots to provide a means for simultaneously locking said box and for maintaining said ridge pole in the aforementioned relation to said top flanges, said last named means comprising a

vertical slit in said lug formation providing two-way locking prongs and scoring along the base of said lugs whereby to facilitate a disposal of said two-way locking prongs to alternately overlap said top flanges of said box.

5. In a combined handle and latch for folding box structures and comprising a load bearing rib adapted to be disposed within the box, an upwardly extending offset central portion on said rib and adapted to extend through a central opening in said box and latching means formed adjacent the ends of said rib, said latching means each comprising an upwardly extending split lug adapted to extend through aligned openings in said box and having crease lines along their base to facilitate right-angular bends of said split lugs for holding said central portion in extended condition relative to said central opening.

6. In a combined handle and latch for folding box structures and comprising a load bearing rib adapted to be disposed within the box, an upwardly extending offset central portion on said rib and adapted to extend through an opening formed in a wall of said box and latching means formed adjacent the ends of said rib, said latching means each comprising an upwardly extending split lug adapted to extend through aligned openings in said box and having crease lines along their base to facilitate right-angular bends of said split lugs for securing said load bearing rib against the underside of said wall of said box, and a flap formation on said offset central portion and adapted to be bent back upon the latter to rigidify the same and provide a smooth finger-receiving portion for said handle.

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