

May 3, 1938.

E. C. MULNIX

2,115,782

BOX

Filed Dec. 12, 1936

2 Sheets-Sheet 1

Fig. 1

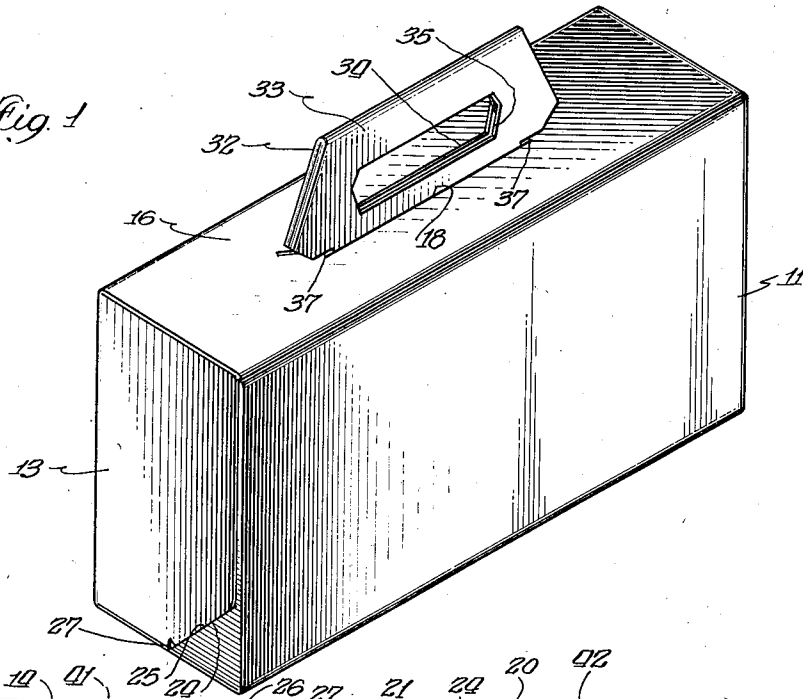
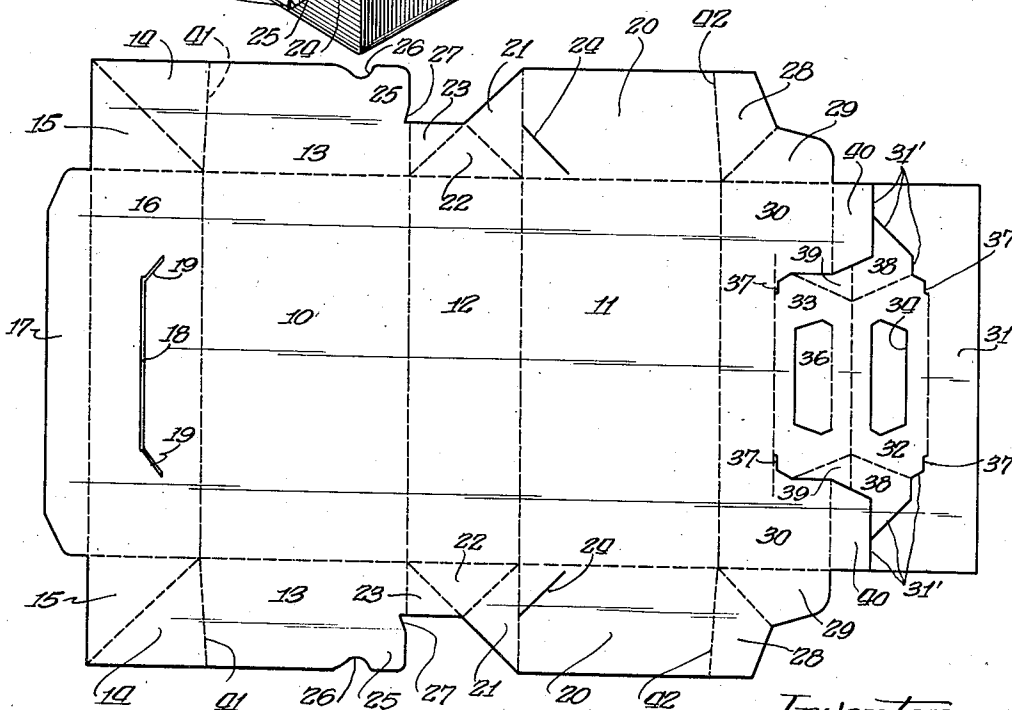


Fig. 2

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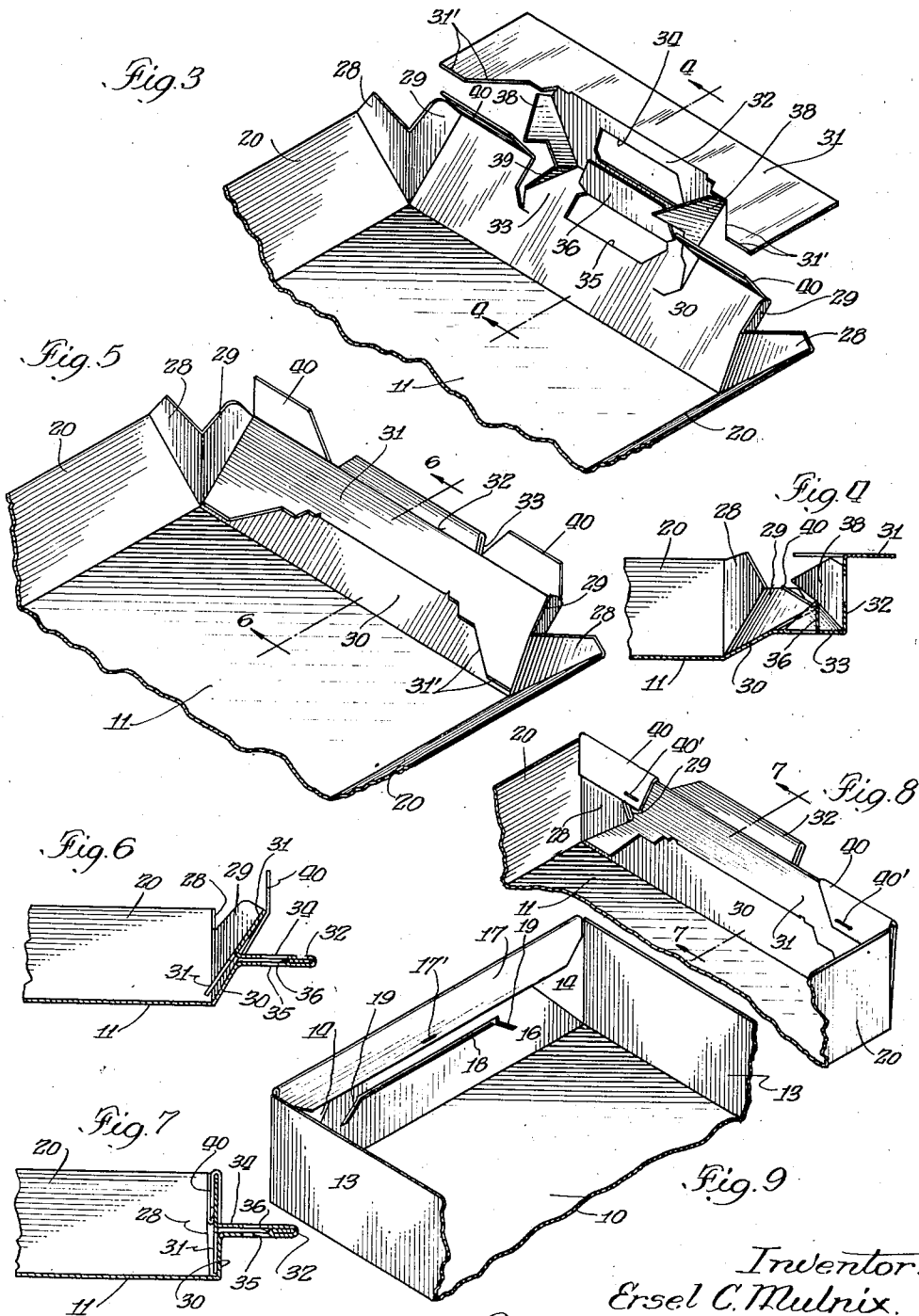
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UNITED STATES PATENT OFFICE

2,115,782

BOX

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Application December 12, 1936, Serial No. 115,551

11 Claims. (Cl. 229-41)

The invention relates to improvements in boxes made of flexible material such as boxboard, paper or the like and has for its primary object the provision of a box construction of the character indicated having an improved handle member formed integrally therewith.

Another object of the invention is the provision of an improved construction of the character indicated having a special provision therein for reinforcing said handle member.

Another object of the invention is the provision of an improved construction of the character indicated having special provision therein for utilizing the handle for locking the box in closed condition.

Other objects will appear hereinafter.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification and in which

Fig. 1 is a perspective view of a foldable box embodying the invention;

Fig. 2 a plan view of the blank from which the box is formed;

Fig. 3 a perspective view of one end of the blank shown in an early stage of manipulation at the factory for forming that end of the box;

Fig. 4 a section taken substantially on line 4-4 of Fig. 3;

Fig. 5 a view similar to Fig. 3 but showing the same end of the box in a stage of procedure just prior to the completion of that end of the box for actual use.

Fig. 6 a section taken substantially on line 6-6 of Fig. 5;

Fig. 7 a sectional view taken substantially on line 7-7 of Fig. 8;

Fig. 8 a perspective view of the same end of the box in completed form; and

Fig. 9 a perspective view of the other end of the box shown in completed assembled form.

The embodiment of the invention illustrated in the drawings comprises an integral blank made of boxboard, paper or the like having one interior portion 10 set off by scoring or creases as shown to constitute the top or cover portion of an outer box member. The top portion 10 is connected as indicated with a corresponding portion 11 by a common wall member 12 which serves as a swinging connection between the outer and inner box members. The top portion 10 is provided with side walls 13 connected by triangular flaps 14 and 15 with the end wall 16. In assembling the box, the side walls 13 are first folded inwardly onto the top portion 10 and the end wall 16. The end wall 16 is provided with a

securing flap 17 which is folded inwardly onto the flap 15 and secured to the wall 16 by means of a central staple or wire stitch 17', as best shown in Fig. 9. The securing flap 17 thus constitutes an ordinary and well-known form of securing flaps co-operating with the corner flaps 14 and 15 for securing that end of the outer box member in distended form as depicted in Fig. 9.

The end wall 16 is provided with a transverse slit 18 having downwardly and outwardly diverging ends 19 for a purpose to be presently described.

The bottom portion 11 is provided with end walls 20 connected by triangular foldable flaps 21, 22, and 23 with the ends of the side walls 13 as best shown in Fig. 2. The adjacent corners of the side walls 13 are formed into locking tongues 25 by means of notches 26 and 27, said locking tongues being adapted and arranged to be inserted in the diagonal slits 24 in the end walls 20 when the triangular flaps 21, 22, and 23 are properly folded for the purpose thereby serving to secure this edge of each of the side walls 13 in place when the box is formed as indicated in Fig. 1. The edge of the notch 27 being inclined as shown serves to interlock with the end of the corresponding slit 24 thereby drawing the parts tightly together.

The walls 20 are connected, as best indicated in Fig. 2, with the ends of the end wall 30 for the inner box member, by folding flaps 28 and 29 which serve the same function here as the flaps 14 and 15 but are cut off at their outer corners to facilitate the more complicated folding manipulation.

A handle flap 31 is formed at the top of the end wall 30, the sides of said flap being freed from said wall along the tortuous lines 31'. The inner central portion 32 of the flap 31 and the outer central portion 33 of the wall 30 are properly freed and scored as indicated so that they may be doubled upon each other to form a handle member and bring the upper portion of the flap against the inner face of the wall to close the gap therein caused by the removal of the material for said handle member. The portion 32 is provided with a central slot 34 and the portion 33 with a central slot 35 which are so arranged as to be brought into registry with each other when said parts are doubled upon each other as above described. The material removed to form the slot 35 is formed into a flap 36 which is folded between the upper portions of the handle member as best indicated in Figs. 3 and 4. By this arrangement a suitable

reinforced handle member will be formed having a central slot and handhold, the edge of which is rounded in part by the fold for flap 36. At its lower side edges the portion 33 is provided with notches 37 for a purpose to be presently described. The irregular shaped foldable reinforcing flaps 38 and 39 are formed as shown to connect the edges of the handle-forming portions and are folded therebetween to reinforce the same and present smooth exterior edges at these points. Securing flaps 40 are provided as shown at the outside top edges of the end wall 30 being folded inwardly and secured thereto by means of wire stitches or staples 40'. Scored lines 41 and 42 at the ends of the side walls 13 and 20, as best shown in Fig. 2, are inwardly inclined to cause a better fit of the parts when the box is made up into the condition shown in Fig. 1.

20 In manufacturing the box, a blank in the form illustrated in Fig. 2 is first formed. The securing flap 17 is folded inwardly onto the face of the end wall 16 and secured thereto by means of a central wire stitch or staple 17'.

25 At the other end of the blank the walls and parts are first folded as indicated in Fig. 3 to double the handle-forming portions 32-33 upon each other and bring the upper portion of the flap 31 against the inner face of the wall 30, at the same time folding the side walls 20 and flaps 28 and 29 inwardly against the bottom portion 11, the flaps 36, 38, and 39 being folded between the portions 32 and 33 as indicated. After this fold is made the securing flaps 40 are folded inwardly as shown in Fig. 5 and secured over the flaps 29 by the wire stitch or staples 40' said staples passing through flaps 40, 31, and end wall 30. In this condition the work at the factory is completed and the box in condition for shipping in flat folded condition. In making up the box for use, the end wall 16 is formed into the condition illustrated in Fig. 9 in the usual way. Then the side walls 20 are brought up and secured in place by the securing flaps 40 as will be readily understood. The desired contents is then inserted in the box and the outer member folded over the inner member with the handle portion 32-33 protruding through the slot 18, and the securing tongues 25 inserted in the slits 24 as shown in Fig. 1 thus completing the box and providing a suitable reinforced handle for carrying the same. It will be noted that as the handle member 32-33 is thus extended through the slot 18 the divergent ends 19 of said slot will co-operate with the notches 37 at the base of the handle member to interlock, as indicated in Fig. 1, to securely lock the handle member in place.

By this arrangement a handled box is provided in which the handle is an integral part and parcel of the end wall; in which all of the available material in the end wall is utilized in forming a reinforced handle member; in which the handle has a wide and therefore strong hinged base or connection with the end wall; in which the handle member is relatively high and large; in which the outer end of the handle flap covers the gap in the end wall formed by the removal of the material for the handle and exposes the exterior side thereof; and in which the handle automatically and securely locks itself in position by mere assembling of the parts.

While I have illustrated and described the preferred form of construction for carrying the 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 disclosed but desire to avail myself of such variations and modifications as fall within the scope of the appended claims.

I claim:

1. A box made from a single sheet of flexible material formed into an outer and an inner box member foldably connected by a common wall to fold to cause said outer member to fit over said inner member, the wall at the freely swinging end of said outer member being transversely slotted for the passage of a handle member; a handle flap at the top of the wall at the freely swinging end of the inner member, the outer ends of said flap being freed from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member; and securing flaps at the top of the wall under the ends of the handle flap and folded downwardly and secured at their inner ends against the inner face of the box wall leaving its ends free for use in forming the box member.

2. A box made from a single sheet of flexible material formed into an outer and an inner box member foldably connected by a common wall to fold to cause said outer member to fit over said inner member, the wall at the freely swinging end of said outer member being transversely slotted for the passage of a handle member; a handle flap at the top of the wall at the freely swinging end of the inner member, the outer ends of said flap being freed from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member, the central portion of said handle member parts having registering slots; and securing flaps at the top of the wall under the ends of the handle flap and folded downwardly and secured at their inner ends against the inner face of the box wall leaving its ends free for use in forming the box member.

3. A box made from a single sheet of flexible material formed into an outer and an inner box member foldably connected by a common wall to fold to cause said outer member to fit over said inner member, the wall at the freely swinging end of said outer member being transversely slotted for the passage of a handle member; a handle flap at the top of the wall at the freely swinging end of the inner member, the outer ends of said flap being freed from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member, the central portion of said handle member parts having registering slots and the material removed to form one of the handle slots being folded between the upper portions of the corresponding handle portions; and securing flaps at the top of the wall under the ends of the handle flap and folded downwardly and secured at their inner ends against the inner face of the box wall

leaving its ends free for use in forming the box member.

4. A box made from a single sheet of flexible material formed into an outer and an inner box member foldably connected by a common wall to fold to cause said outer member to fit over said inner member, the wall at the freely swinging end of said outer member being transversely slotted for the passage of a handle member, the ends of said slot diverging downwardly; a handle flap at the top of the wall at the freely swinging end of the inner member, the outer ends of said flap being freed from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member; and securing flaps at the top of the wall under the ends of the handle flap and folded downwardly and secured at their inner ends against the inner face of the box wall leaving its ends free for use in forming the box member.

5. A box made from a single sheet of flexible material formed into an outer and an inner box member foldably connected by a common wall to fold to cause said outer member to fit over said inner member, the wall at the freely swinging end of said outer member being transversely slotted for the passage of a handle member, the ends of said slot diverging downwardly; a handle flap at the top of the wall at the freely swinging end of the inner member, the outer ends of said flap being freed from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member, the central portion of said handle member parts having registering slots; and securing flaps at the top of the wall under the ends of the handle flap and folded downwardly and secured at their inner ends against the inner face of the box wall leaving its ends free for use in forming the box member.

6. A box made from a single sheet of flexible material formed into an outer and an inner box member foldably connected by a common wall to fold to cause said outer member to fit over said inner member, the wall at the freely swinging end of said outer member being transversely slotted for the passage of a handle member, the ends of said slot diverging downwardly; a handle flap at the top of the wall at the freely swinging end of the inner member, the outer ends of said flap being freed from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member, the central portion of said handle member parts having registering slots and the material removed to form one of the handle slots being folded between the upper portions of the corresponding handle portions; and securing flaps at the top of the wall under the ends of the handle flap and folded downwardly and secured at their inner ends against the inner face of the box wall leaving its ends free for use in forming the box member.

7. A box made from a single sheet of flexible material formed into an outer and an inner box member foldably connected by a common wall to fold to cause said outer member to fit over said inner member, the wall at the freely swinging end of said outer member being transversely slotted for the passage of a handle member; a handle flap at the top of the wall at the freely swinging end of the inner member, the outer ends of said flap being freed from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member; flaps connecting the edges of said handle-forming portions and folded between them; and securing flaps at the top of the wall under the ends of the handle flap and folded downwardly and secured at their inner ends against the inner face of the box wall leaving its ends free for use in forming the box member.

8. A box made from a single sheet of flexible material formed into an outer and an inner box member foldably connected by a common wall to fold to cause said outer member to fit over said inner member, the wall at the freely swinging end of said outer member being transversely slotted for the passage of a handle member, the ends of said slot diverging downwardly; a handle flap at the top of the wall at the freely swinging end of the inner member, the outer ends of said flap being freed from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member, the central portion of said handle member parts having registering slots and the material removed to form one of the handle slots being folded between the upper portions of the corresponding handle portions; flaps connecting the edges of said handle-forming portions and folded between them; and securing flaps at the top of the wall under the ends of the handle flap and folded downwardly and secured at their inner ends against the inner face of the box wall leaving its ends free for use in forming the box member.

9. A handle member for a box comprising a handle flap at the top of one wall of the box, the outer ends of said flap being free from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member.

10. A handle member for a box comprising a handle flap at the top of one wall of the box, the outer ends of said flap being free from said wall and the upper central portions of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member, the central portions of said handle member parts having registering slots and the material removed to form one of the handle slots being folded between the upper portions of the corresponding handle portions.

11. A handle member for a box comprising a handle flap at the top of one side wall of the box, the outer ends of said flap being free from said wall and the upper central portion of the wall and the lower central portion of said flap being doubled upon each other to form a handle member and bring the upper portion of said flap against the inner face of the wall to close the gap therein caused by the removal of the material for the handle member, the central portions of said handle member parts having registering slots and the material removed to form one of the handle slots being folded between the upper portions of the corresponding handle portion; and flaps connecting the edges of said handle-forming portions and folded between them.

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