May 12, 1936. M. C. USINGER 2,040,224

BOX

Filed Sept. 18, 1935 2 Sheets-Sheet 1

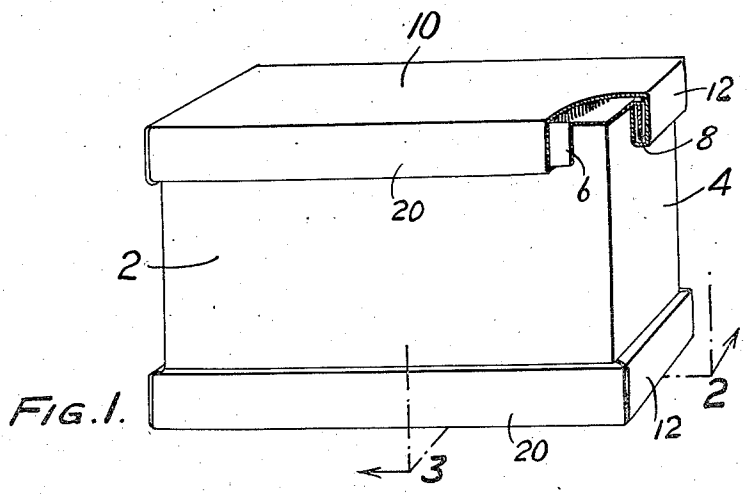


FIG. 1.

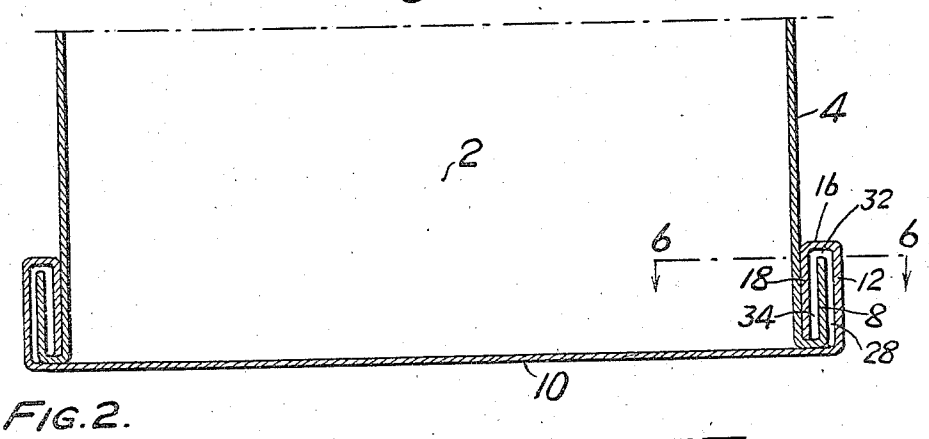


FIG. 2.

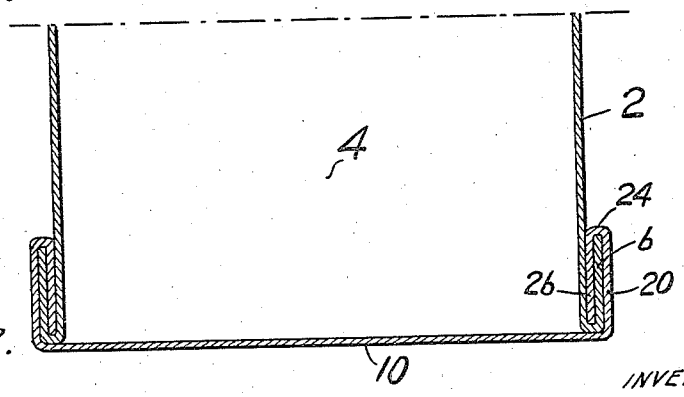


FIG. 3.

INVENTOR

Matthias C. Usinger

BY

Busser & Harding

ATTORNEYS.

WITNESS:

Robt. R. Kitchel

May 12, 1936. M. C. USINGER 2,040,224

BOX

Filed Sept. 18, 1935 2 Sheets-Sheet 2

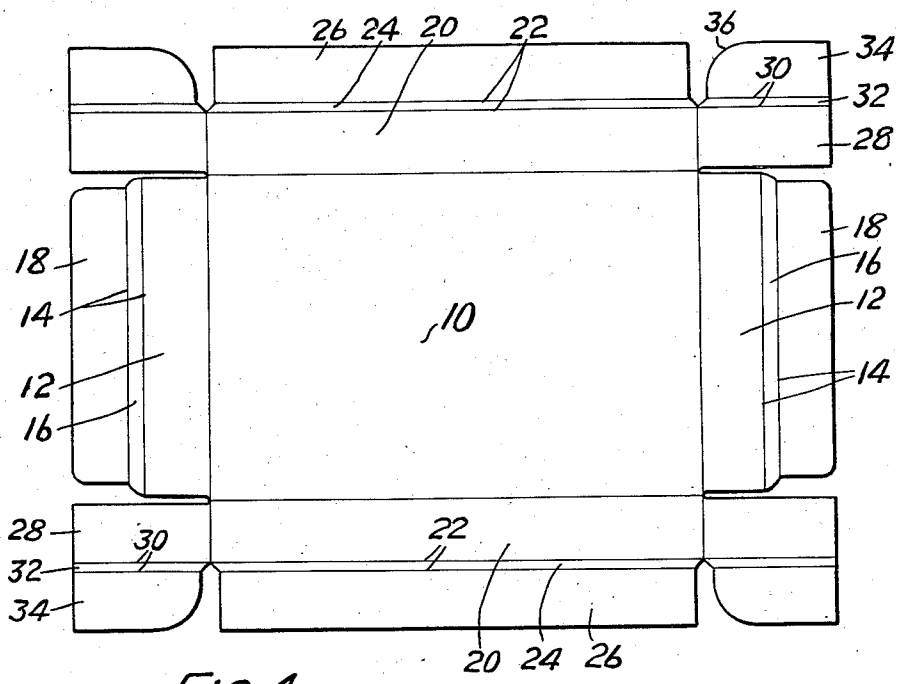


FIG. 4.

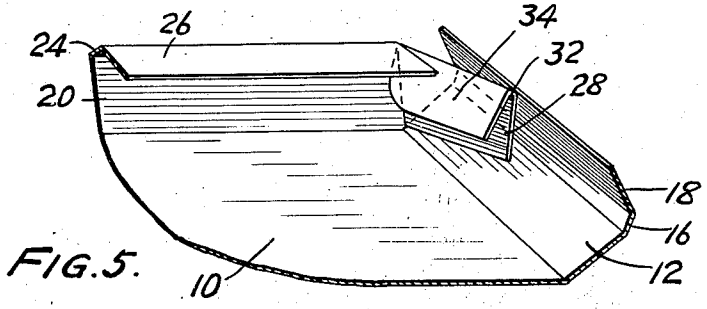


FIG. 5.

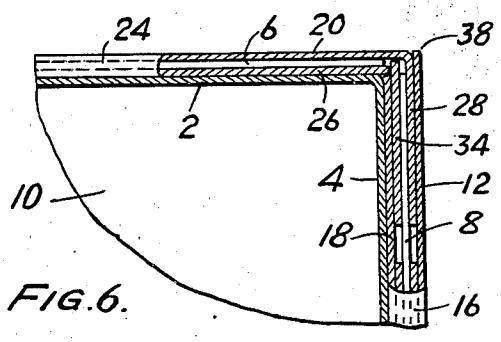


FIG. 6.

INVENTOR

Matthias C. Usinger

BY

Busser & Harding

ATTORNEYS.

WITNESS:

Patented May 12, 1936 2,040,224

UNITED STATES PATENT OFFICE

2,040,224

BOX

Matthias C. Usinger, Media, Pa., assignor to Federal Container Company, Philadelphia, Pa., a corporation of Pennsylvania

Application September 18, 1935, Serial No. 41,035

3 Claims. (Cl. 229—23)

This invention relates to a box and particularly to a type to be used for shipping which is, as a consequence, made of heavy material capable of withstanding considerable abuse. Shipping boxes are generally of a rather unhandy character in that they present no projecting portions offering handholds, or, if they do, such projecting portions are so weak that the boxes cannot be safely lifted thereby. As a consequence, when filled with heavy materials such boxes can only be handled by placing the hands underneath the same, the necessity for which creates difficulties in both picking up the boxes and laying them down.

Boxes of the shipping type also generally require elaborate sealing by adhesive paper or the like and the joints thus formed in closing them are usually the weakest portions of the box. It is the broad object of the present invention to provide a closure which may be either top or bottom, or both, for a shipping box which is not only readily located in closed position without the necessity for elaborate sealing, but which also furnishes a secure handhold whereby the box may be conveniently carried. Briefly stated, the invention comprises a box provided with flanges about one or more open sides, with which flanges there lock inturned flanges carried by a closure. The flanges are so arranged that closure may be readily effected and likewise opening, though the opening is made sufficiently difficult that there is no danger of the closure being removed accidentally. Furthermore, there is offered no ease of removal which would suggest the unwarranted opening. If secure sealing with adhesive is desired, the flanges may be secured together by adhesive, whereupon the box can be opened only by destruction.

The broad objects indicated above, together with specific objects of the invention relating to advantageous details of construction, will be apparent from the following description read in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view partially broken away showing a preferred modification of the invention in which the improved closures are applied to both the top and bottom of a box;

Fig. 2 is a vertical section taken on the plane indicated at 2 in Fig. 1;

Fig. 3 is a vertical section taken on the plane indicated at 3 in Fig. 1;

Fig. 4 is a developed plan view of one of the closures, the top and bottom closures being in the present instance identical;

Fig. 5 is a fragmentary view of a partially locked closure illustrating cooperations of the various parts; and

Fig. 6 is a horizontal section taken on the plane indicated at 6—6 in Fig. 2.

It will be understood that the type of closure herein specifically described and forming a preferred embodiment of the invention may be used for the top or bottom of a box, or both; in the present instance it is applied to both the top and bottom. The box accordingly consists of side walls 2 and end walls 4 providing upper and lower rectangular openings. The two openings are arranged to be closed by identical closure members. The upper and lower edges of each of the side walls 2 are provided with outwardly directed integral locking flaps 6, while the end walls 4 are provided with similar locking flaps 8. These locking flaps are designed to extend substantially parallel with their integral walls. Since all of the parts of the box are made of heavy cardboard which may, for example, be of a laminated character having a corrugated intermediate ply to promote strength, the various flaps already mentioned and those hereafter described may be conveniently delineated by scored lines, as is well known in this art. The presence of such scored lines provides for the ready bending of flaps in the proper fashion for use.

As most clearly indicated in Fig. 4, each of the closure members comprises a central rectangular portion having dimensions exceeding the outside dimensions of an open end of the box. At the ends of the portion 10 are located end closure flaps 12 connected by intermediate portions 16 with integral outer extensions 18. These portions are defined from each other by scored lines along which folding may take place. The extensions 18, as indicated in Fig. 4, are shorter than the flaps 12. The necessity of this will be obvious hereafter upon consideration of the mode of use of the closure. Similar flaps 20 and intermediate portions and extensions 24 and 28 are integrally carried by the longitudinal edges of the central part 10 of the closure. Scored lines 22 similar to the scored lines 14 define these parts. At the ends of the longitudinally extending flaps 20 there are two-section end extensions comprising the sections 28 and 34, connected by an intermediate portion 32, defined from each other by scored lines 30. The outermost section of each end extension has a rounded edge, as indicated at 36, to facilitate assembly.

In assembling the improved closure, the cen-

tral portion 18 is located over the rectangular opening of the box as indicated in Fig. 1. The longitudinally extending flanges 20 are then folded over the locking flaps 6 and their outer extensions are tucked under the flap 6 as indicated in Fig. 3. Following this the end extensions 28 are folded inwardly, embracing the ends of the locking flaps 8, and then the flaps 12 are folded downwardly over the locking flaps 8 and the end extensions 28 and their outer extensions forced between the portions 34 of the end extensions and the walls 4. The placing of each closure in position is preferably effected so that the opposite flaps are manipulated simultaneously. When this is done closure of the box is merely a matter of a few seconds.

If, however, cardboard is used such as the corrugated intermediate ply type in common use, the stiffness of the various flaps is such that a quite secure closure is attained which may be opened only with substantial difficulty considerably greater than that required to effect closure. This is by reason of the fact that the inturned outer extensions of the flaps are not readily pulled outwardly and can be engaged only frictionally by the fingers. In case complete locking is desired so that the box cannot be opened unless it is destroyed, the various extensions, before being tucked into place, may be coated with adhesive which, upon drying, effectively prevents their removal from their inturned positions.

From Figs. 1 and 2 it will be obvious that there are provided, by reason of the use of thick material, quite secure handholds of very substantial strength by which the boxes may be lifted. To a lesser extent, the side flaps provide the same, although, in the construction described herein, the width of a side projecting part is less than the width of an end projecting part.

While the outer extensions 18 and 26 of the flaps are necessarily somewhat shortened in order that they may be received properly inside the flaps 6 and 8, the inner portions 12 and 20 of the flaps may correspond to the outer dimensions of the box so as to meet at the corners. This feature, together with the provision of the double end extensions 28—34, insures a considerable thickness of material at the corners, as will be evident from Fig. 6. The corners of the box are thereby very much reinforced so as to withstand dropping or general rough handling.

If desired, particularly where the box is not likely to be subjected to as rough handling, the preferred construction which has been illustrated may be simplified, for example, by the elimination of the one section 34 of the end extension 28.

What I claim and desire to protect by Letters Patent is:

1. A box formed of pasteboard or the like comprising side and end walls having free edges defining a rectangular opening, and a rectangular closure for the opening, at least two opposite walls having integral locking flaps extending outwardly from their free edges, said closure having at its four edges integral closure flaps free from each other at their adjacent ends, at least two of said closure flaps, which correspond to said locking flaps, having integral outer extensions, and each of the other closure flaps having a pair of two-section end extensions, said parts being constructed and arranged so that, when the closure is in place, it covers said rectangular opening, with the locking flaps located substantially parallel to their carrying walls and covered by the corresponding closure flaps, the outer extensions of the last named closure flaps being located between the respective locking flaps and their walls, and the two-section end extensions of the other closure flaps being embraced between the first mentioned closure flaps and their outer extensions, one of the sections of each end extension being outside the corresponding locking flap and the other being inside such locking flap.

2. A box formed of pasteboard or the like comprising side and end walls having free edges defining a rectangular opening, and a rectangular closure for the opening, said walls having integral locking flaps extending outwardly from their four free edges, said closure having at its four edges integral closure flaps free from each other at their adjacent ends, all of said closure flaps having integral outer extensions, and each of two of the closure flaps having a pair of end extensions, said parts being constructed and arranged so that, when the closure is in place, it covers said rectangular opening, with the locking flaps located substantially parallel to their carrying walls and covered by the corresponding closure flaps, the outer extensions of the closure flaps being located between the respective locking flaps and their walls, and the end extensions being embraced between the closure flaps which do not carry them and their outer extensions.

3. A box formed of pasteboard or the like comprising side and end walls having free edges defining a rectangular opening, and a rectangular closure for the opening, said walls having integral locking flaps extending outwardly from their free edges, said closure having at its four edges integral closure flaps free from each other at their adjacent ends, said closure flaps having integral outer extensions, and each of two of the closure flaps having a pair of two-section end extensions, said parts being constructed and arranged so that, when the closure is in place, it covers said rectangular opening, with the locking flaps located substantially parallel to their carrying walls and covered by the corresponding closure flaps, the outer extensions of the closure flaps being located between the respective locking flaps and their walls, and the two-section end extensions being embraced between the closure flaps which do not carry them and their outer extensions, one of the sections of each end extension being outside the locking flap with which it contacts and the other being inside said locking flap.

MATTHIAS C. USINGER.