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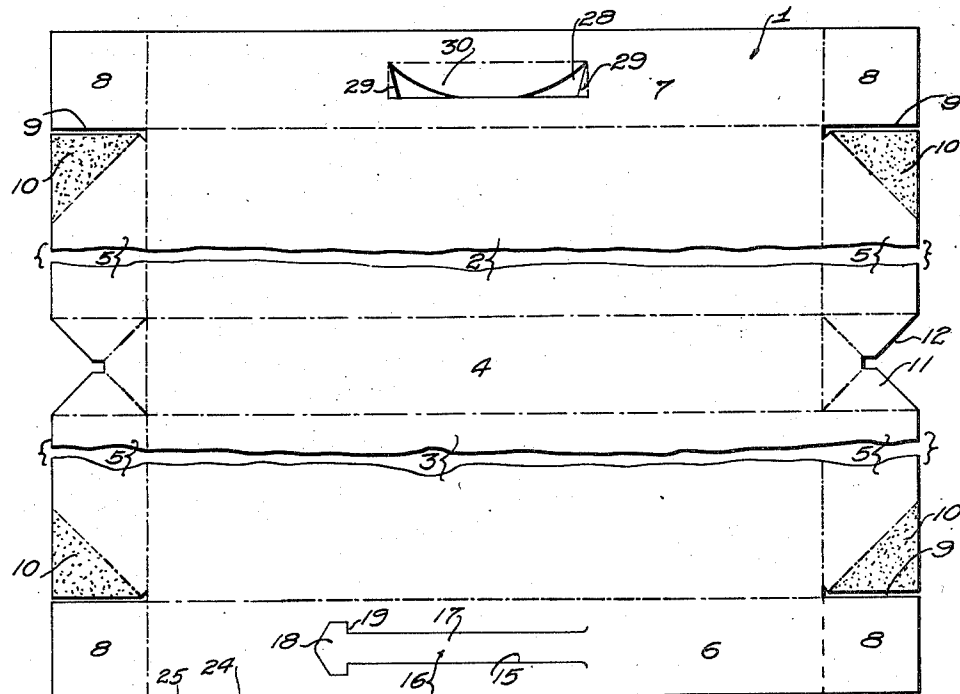
I. CASTER ET AL

2,802,616

CARTON WITH CARRYING HANDLE

Filed Aug. 2, 1954

2 Sheets-Sheet 1



INVENTORS
IRVING CASTER
IRVING FELDMAN
BY *Lyon Lyon*
ATTORNEYS

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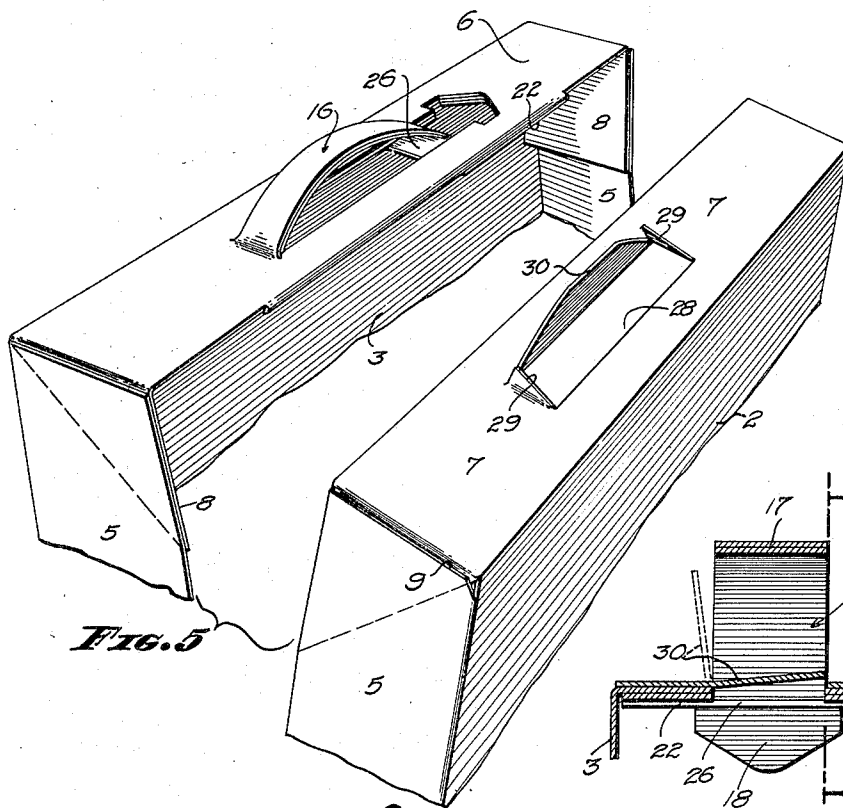


FIG. 5

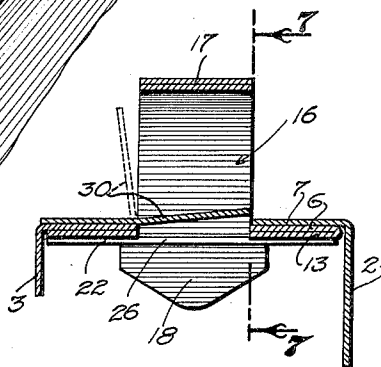


FIG. 6

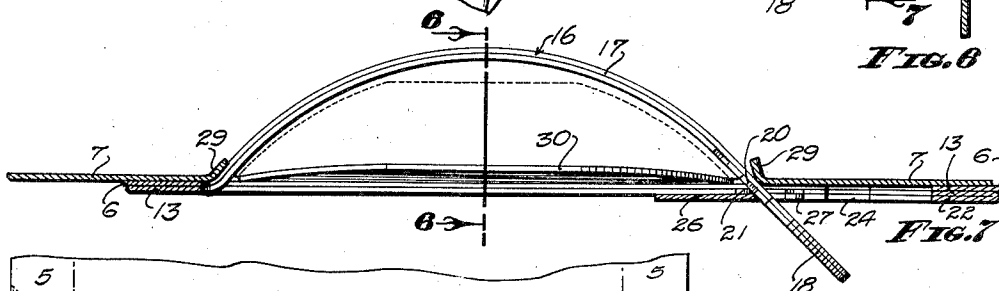


FIG. 7

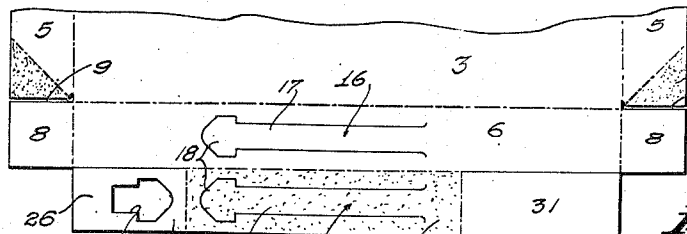


FIG. 8

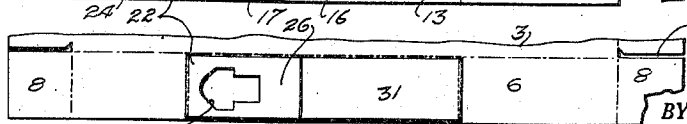


FIG. 9

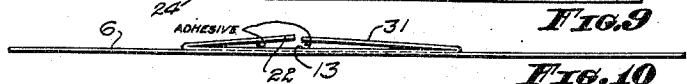


FIG. 10

INVENTORS
IRVING CASTER
IRVING FELDMAN

BY
Lyon & Lyon
ATTORNEYS

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CARTON WITH CARRYING HANDLE

Irving Caster, San Mateo, and Irving Feldman,
Hollywood, Calif.

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8 Claims. (Cl. 229—52)

Our invention relates to cartons with carrying handles, and the objects of our invention are:

First, to provide a carton with carrying handle which is so arranged as to provide an extremely strong, dependable handle, permitting its use in conjunction with boxes or packages of substantial size or intended to carry articles of substantial weight.

Second, to provide a carton of this type which is partially inexpensive of manufacture and easily adapted to conventional box or carton manufacturing machinery.

Third, to provide a carton construction of this type which incorporates a novel handle formed of two plies of material, permitting the carrying of a greater load in the package, and is disposed so as to be supported by the hand flatwise rather than edgewise for greater comfort.

Fourth, to provide a carton construction of this type which incorporates a novel locking means cooperating with the handle to prevent accidental opening of the package.

With the above and other objects in view, as may appear hereinafter, reference is directed to the accompanying drawings, in which:

Figure 1 is a fragmentary developed view of a carton blank incorporating our invention;

Fig. 2 is a fragmentary view of the carton blank with the handle reinforcing and retainer flaps folded into position;

Fig. 3 is an edge view of the carton blank shown in Fig. 2;

Fig. 4 is a fragmentary view of the carton blank after the top panel and end panels have been folded into position for shipment, portions being broken away or in section to facilitate the illustration;

Fig. 5 is a perspective view of a carton in a partially open position, showing the carrying handle and cooperating slot in the overlying side panel;

Fig. 6 is a fragmentary, transverse sectional view through 6—6 of Fig. 7, showing the carton in its closed position;

Fig. 7 is a fragmentary, longitudinally sectional view, taken along the plane 7—7 of Fig. 6;

Fig. 8 is a fragmentary developed view, similar to Fig. 1, showing a modified form of our carton blank;

Fig. 9 is a fragmentary view, similar to Fig. 2, showing the reinforcing flap, retainer flap, and cover flap in position; and

Fig. 10 is an edge view thereof, showing the reinforcing flap in position, and the retainer flap and cover flap in approximately their folded positions.

Our carton is formed from a single-piece carton blank 1. The blank includes a front panel 2, a back panel 3, a bottom panel 4, end panels 5, and top panels 6 and 7. These panels are foldably connected in the usual manner by score lines, indicated in the drawings by broken lines, to form a pair of attached box members, one of which telescopes over the other.

The top panels 6 and 7 are provided at their extremities with end tabs 8, separated from the adjacent end

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panels 5 by slits 9. The adjacent extremities of the end panels 5 are provided with foldable triangular sections 10 coated with adhesive for attachment to the end tabs 8. At the ends of the bottom panel 4, between corresponding end panels 5, are cross folded sections 11 having V-notches 12 so that the sections thus formed will fold together as the two parts of the carton are brought into position. The carton so far described may, for the purposes of the present invention, be considered conventional.

Foldably connected to the top panel 6 is a reinforcing flap 13 which is coated with adhesive 14 and is adapted to be folded over the back or inner side of the top panel. It should be observed that in Figs. 1 to 4 the carton is shown with the side destined to become the inside of the carton facing upward. Normally this is the unglazed or unfinished side of the cardboard comprising the carton. The opposite side destined to become the outside of the carton is calendered or the surface otherwise finished. Thus it is the unfinished side of the reinforcing flap 13 which is coated with adhesive and adhered to the unfinished side of the top panel 6 when the reinforcing flap is folded thereover. When the reinforcing flap 13 is folded and secured to the top panel a rectangular two-ply reinforced section is provided. The term "two-ply" is herein used to designate the two thicknesses of the cardboard even though the cardboard itself might be formed of more than one ply.

Cut into the top panel 6 and reinforcing flap 13 are similar handle elements or cutouts 15. These cutouts register with each other to form a handle member 16. The handle member includes a stem 17 and head 18. The two plies comprising the handle are attached integrally with the top panel 6 and reinforcing flap 13, respectively, while the opposite or head end of the handle is cut free thereof, that is, is capable of being pressed from the top panel and reinforcing flap.

The head 18 forms with the stem 17 laterally directed shoulders 19. The handle cutout 15 in the reinforcing flap 13 may be provided with side lugs 20 adjacent the head 18, and at a slightly greater spacing from the head 18 there may be provided side recesses forming projections 21 in the sides of the slot from which the stem is cut. While the side lugs 20 and side projections 21 are shown only in the handle element formed in the reinforcing flap 13, they may occur in both handle elements. The purpose and function of the side lugs 20 and side projections 21 will be brought out hereinafter in more detail.

Foldably attached to the end of the reinforcing flap 13, adjacent the head 18 of the handle cutout 15, is a handle retainer flap 22. The flap 22 is provided with an aperture 23 having a laterally enlarged end to form a head-registering portion 24 and is reduced at its other end to form a short stem-registering portion 25. Between the aperture 23 and the extended end of the handle retainer flap 22 there is formed a web 26. The stem-registering portion 25 may be provided with side lugs 27.

The handle retainer flap 22 is adapted to be folded over the reinforcing flap 13, as viewed in Figs. 1, 2, and 3, after the reinforcing flap is in position. Thus the handle retainer flap 22 is placed with its finished or calendered side facing the finished or calendered side of the reinforcing flap 13. The handle retainer flap 22 need not be adhesively attached, as this flap may be brought into position when the carton is prepared for use. However, if desired, it may be adhesively secured initially.

In the preparation of the carton blank, the reinforcing flap 13 is cemented in position and the handle retainer flap 22 either folded and secured or left free. The end panels 5 are folded over the back and front panels 3 and 2, and the top panels 6 and 7 are likewise folded

over the back and front panels, respectively, with the end tabs 8 tucked under by reason of their connection with the triangular sections 10 of the end panels. In so doing, the reinforcing flap 13 and handle retainer flap 22 are disposed under the top panel 6, as shown in Fig. 4.

The top panel 7 is adapted to overlie the top panel 6 and is provided with a slot 28 having dimensions to receive the stem 17 of the handle member 16. The ends of the slot 28 are provided with foldable end sleeves 29, and one side of the slot is provided with a locking flap 30.

The carton is prepared for use as follows, reference being made to Figs. 5, 6, and 7.

If the handle retainer flap 22 has not been previously cemented to the under side of the reinforcing flap 13, as viewed in Fig. 7, the handle retainer flap is folded into such position. The head 18 of the handle member 16 is pressed downwardly through the aperture 23 and the stem 17 is arched upwardly. The head 18 is so manipulated as to slide into the slot formed in the top panel 6 and reinforcing flap 13 by removal of the stem 17 therefrom. Also the head portion 18 passes under the stem-registering portion 25 so that at this point three plies of material are provided to retain the head 18 under the handle retainer flap 22. The web 26 limits movement of the head. The side lugs 20 tend to prevent excessive travel of the head 18 into the carton. The side lugs 27 tend to prevent back travel of the head 18 into the cutout portion from which it was removed, and the side projections 21 formed in the slot from which the stem was removed tend to reinforce the web 26. It should be understood that the side lugs 20 and 27 do not prevent movement if the handle member is deliberately forced past them.

After the handle has been partially arched, the top panel 7 is lifted thereover until the slot 28 is in registry therewith. The stem 17 of the handle member 16 is drawn upwardly through the slot 28. The profile of the locking flap 30 is such that the flap may pass under the arched stem, as shown by dotted lines in Figs. 6 and 7, and may then be returned to its coplanar relation with the top panel. End leaves 29 bear against the exposed extremities of the stem 17 and provide additional reinforcement.

It will be observed that the construction illustrated and described provides an extremely sturdy carrying handle, thoroughly reinforced at the points of greatest strain, so that even though formed of relatively fragile material, such as cardboard, the handle and carton may be depended upon to carry a substantial load without the handle giving way.

It will be also observed that the transverse surface of the stem 17 is flat with respect to the top panel of the carton rather than edgewise, so that the handle is comfortable even though the goods carried by the carton are heavy.

Reference is now directed to Figs. 8, 9, and 10. This construction is substantially identical to the previously described structure except that there has been added a closure flap 31. The closure flap 31 is foldably attached to the end of the reinforcing flap 13 opposite from the handle retainer flap 22. Both the handle retainer flap 22 and closure flap 31 are adapted to be folded over the reinforcing flap 13, as viewed in Figs. 9 and 10. Their extremities abut each other so that the opening formed by the handle member 16 is entirely closed except for the aperture 23.

When the carton is in operating position, the handle retainer flap 22 and closure flap 31 underlie the reinforcing flap 13. Furthermore, the calendered or finished side is uppermost so that as viewed from the exterior of the carton only the finished side of the cardboard is exposed. It should be noted that this is true of the first described structure in regard to the web 26.

Having fully described our invention, it is to be understood that we do not wish to be limited to the details herein set forth, but our invention is of the full scope of the appended claims.

We claim:

1. A carton, comprising: a side panel; a reinforcing flap underlying and adhered to said side panel to form a member of two-ply thickness; a retainer flap underlying said reinforcing flap; a two-ply handle cutout formed in said panel and underlying reinforcing flap, said handle including a stem attached integrally at one end to said panel and reinforcing flap, and having a laterally enlarged head at its other end; said retainer flap having an aperture adapted to register with the head and adjacent portion of the stem of said handle and terminating in a margin adapted to traverse the stem of said handle; the stem of said handle adapted to be arched upwardly from said panel, and said head adapted to be thrust downwardly through said retainer flap and moved along the opening formed by said stem until restrained by said margin.

2. A carton as set forth in claim 1, wherein: said retainer flap is adhesively attached to the under side of said reinforcing flap.

3. A carton as set forth in claim 1, wherein: said retainer flap is foldably connected to one end of said reinforcing flap and is adhesively attached to the under side of said reinforcing flap; and a closure flap is foldably connected to the opposite end of said reinforcing flap and foldable thereunder and adhesively attached thereto to cover the under side of said stem cutout, said closure flap terminating adjacent said retainer flap.

4. A carton as set forth in claim 1, wherein: the aperture in said retainer flap and the sides of said stem adjacent said head have interengaging projections tending to limit downward movement of said head.

5. A carton, comprising: an underlying and an overlying side panel; a reinforcing flap disposed under and adhered to said underlying side panel to form a member of two-ply thickness; a retainer flap underlying an end of said reinforcing flap; a two-ply handle cutout formed in said underlying panel and reinforcing flap, said handle including a stem attached integrally at one end to said underlying panel and reinforcing flap and having a laterally enlarged head at its other end; said retainer flap having an aperture adapted to register with the head and adjacent portion of the stem of said handle, and a margin disposed so as to traverse the stem of said handle; the stem of said handle adapted to be arched upwardly from said underlying panel, and said head adapted to be thrust downwardly through said retainer flap and moved along the opening formed by said stem until restrained by said margin; said overlying panel having an aperture adapted to receive the stem of said handle; and a locking flap connected at one side margin of said aperture and foldable upwardly to permit arching of said stem through said aperture, said locking flap having a profile to pass under said arched stem into coplanar relation with said overlying panel thereby to lock said stem in an arched position above said overlying panel.

6. A carton as set forth in claim 5, wherein: said retainer flap is adhesively attached to the under side of said reinforcing flap.

7. A carton as set forth in claim 5, wherein: said retainer flap is adhesively attached to the under side of said reinforcing flap; and a closure flap disposed under said reinforcing flap and adhesively attached thereto to cover the under side of said stem cutout, said closure flap terminating adjacent said retainer flap.

8. A carton blank, comprising: a panel destined to become a side of a carton; a reinforcing flap foldably attached to a margin of said panel; a retainer flap foldably attached to one end of said reinforcing flap; a cover flap foldably attached to the other end of said reinforcing flap; handle cutouts in said panel and reinforcing cutouts adapted to register when said reinforcing flap is folded; said retainer flap having an aperture adapted, when said

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retainer flap is folded, to register with said handle cut-
outs and a web adapted to bridge said handle cutouts; said
cover flap adapted when folded to cover the portion of
said handle cutouts uncovered by said retainer flap; said
flaps being adhesively coated and destined to be secured 5
in their folded positions.

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