

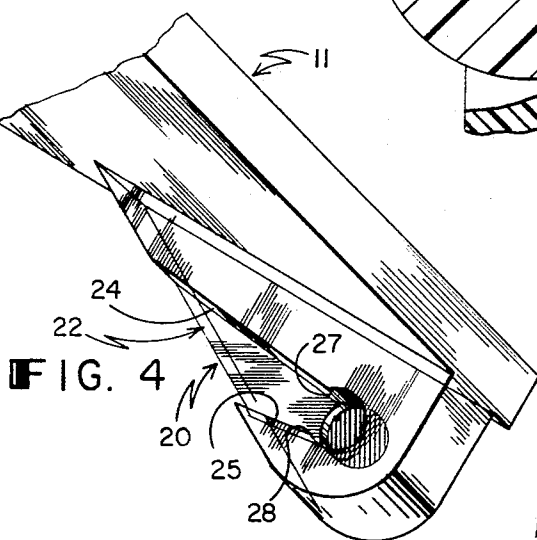
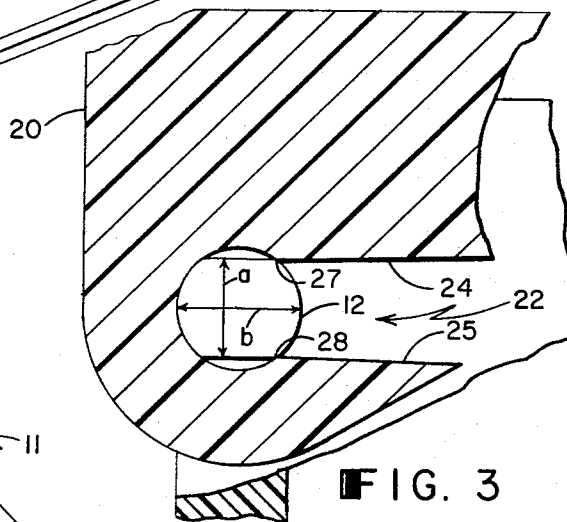
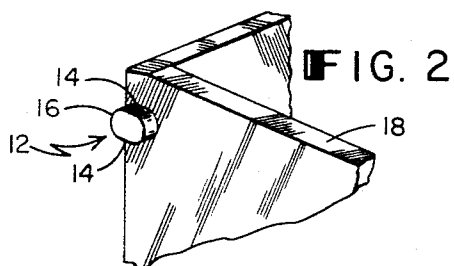
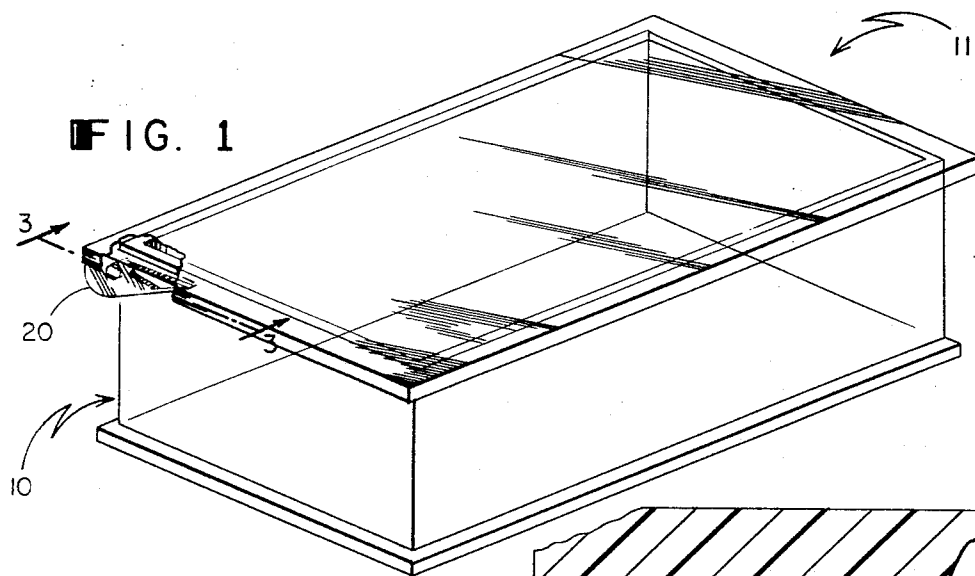
Aug. 1, 1967

P. J. BELANGER
HINGE FOR CONTAINER

3,333,726

Filed Feb. 14, 1966

2 Sheets-Sheet 1



INVENTOR.
PAUL J. BELANGER

BY

Patrick L. Henry

ATTORNEY.

Aug. 1, 1967

P. J. BELANGER
HINGE FOR CONTAINER

3,333,726

Filed Feb. 14, 1966

2 Sheets-Sheet 2

FIG. 5

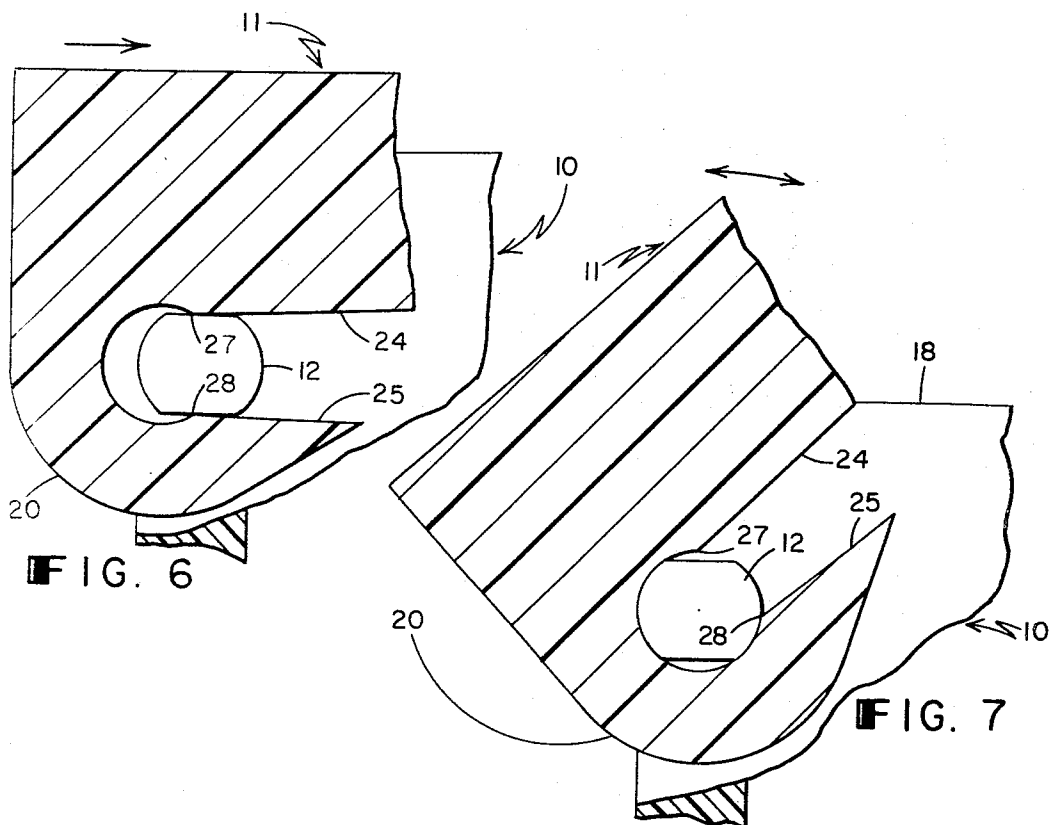
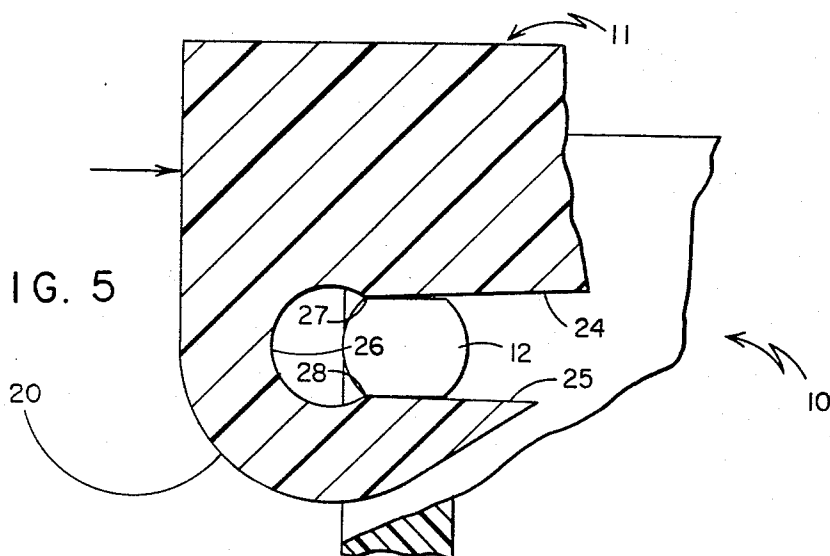


FIG. 6

FIG. 7

INVENTOR.
PAUL J. BELANGER

BY *Petrich L. Henry*

ATTORNEY.

1

3,333,726

HINGE FOR CONTAINER

Paul J. Belanger, Leominster, Mass., assignor to Foster Grant Co., Inc., Leominster, Mass., a corporation of Delaware

Filed Feb. 14, 1966, Ser. No. 527,170

3 Claims. (Cl. 220—31)

This invention relates to a novel hinge structure and more particularly to a novel hinge structure for a box lid in which the lid can be assembled to the container or disassembled therefrom only when said lid is in a predetermined position.

It is an object of this invention to provide a hinge structure for a container whereby the lid and container are capable of being assembled or disassembled only when the lid is in a predetermined position.

It is a further object of this invention to provide a container and a lid therefor which will not be separated from the box when it is open.

It is a further object of this invention to provide a container and lid each containing integral molded hinge portions which allow the container to be rapidly assembled; but inhibit removal of the lid from the box after assembly.

The foregoing and other objects are achieved in the presently preferred embodiment in the following manner.

A plastic container 10 is provided with lugs 12 extending laterally from the sides of the box at the rear corners thereof. These lugs have a flat portion 14 at the top and bottom thereof and substantially arcuate portions 16 connecting the flat portions. For purposes of description, let it be said that the lugs have a minor axis *a* terminating at the flat portions and a major axis *b* terminating at the arcuate portions. The flat portions of the lugs are parallel to the top of the box. The lid 11 is also plastic and has ears 20 depending therefrom. Each ear has an open ended slot 22 therein adapted to cooperate with the lugs 12. The slot is defined by converging side portions 24, 25 merging into a substantially cylindrical portion 26 at points 27, 28 whereat the side portions are spaced a distance slightly less than the length of the minor axis *a* of the lugs. By this structure is provided a hinge member which allows the lid and box to be assembled when the lid is in horizontal position, but prevents separation of the lid from the container in all other positions of the lid, and inhibits separation of the lid and box even when the lid is in horizontal position.

Other objects and features of the invention will become apparent by reference to the following specification and to the drawings in which:

FIG. 1 is a perspective view of the container 10 and lid 11 showing novel hinge construction.

FIG. 2 is a perspective view of a portion of the box showing the shape of the lug 12.

FIG. 3 is section view of the lug portions of the hinge taken along lines 3—3 of FIG. 1 showing the cross sectional shape shape thereof and the coaction of the lugs 12 with the ears 20 of the lid.

FIG. 4 is a perspective view of an ear 20 showing the shape of the slot 22 in the ear.

FIG. 5 is a sectional view similar to FIG. 3 showing a portion of the lid in position just prior to assembly.

FIG. 6 is a sectional view similar to FIG. 5 showing the lid as it is being moved into assembled relation with the container.

FIG. 7 is a sectional view to FIG. 6 showing the lid assembled and in a tilted open position.

In the preferred embodiment a plastic container 10 is provided having lugs 12 extending laterally therefrom at the rear corner thereof. It is to be understood that a lug 12 is provided at each side of the box; but since one is

2

a mirror copy of the other, only one lug 12 will be described.

Each lug 12 has substantially flat portions 14 on the top and bottom thereof and arcuate portions 16 connecting the flat portions 14. The flat portions 14 are substantially parallel to the top 18. For purposes of description, let it be said that each lug cross section has a minor axis *a* terminating at flat portions 14, and a major axis *b* terminating at arcuate portions 16.

The top 11 of container 10 includes ears 20 depending therefrom and coacting with slots 22 formed therein. The slots are defined by converging side portions 24, 25 merging into a cylindrical portion 26 at points 27, 28 which are spaced a distance slightly less than the length of axis *a* of lug 12. The diameter of cylindrical portion 26 is at least as great as the length of axis *b* of lug 12.

The box and lid are assembled as follows:

The lid 11 is placed on the top of box 10 in such a manner that the ears 20 are slightly to the rear of lug 12 (FIG. 5). The lid is then pushed forwardly on the box whereby points 27, 28 are spread slightly (FIG. 6) to allow the lug 12 to snap into cylindrical portion 26 (FIG. 7). When the lid is in place (FIG. 3), it is inhibited from removal due to the fact that distance between points 27, 28, is slightly less than the length of axis *a*. When the lid is in its tilted (open) position (FIG. 7), it is effectively prevented from being separated from the box 10 due to the fact that the length of axis *b* (being greater than axis *a*) is larger than the distance between points 27, 28. Another way of expressing this relationship is to say that the lid may be assembled only when the plane of the lid 11 is substantially parallel to major axis *b*.

The container and lid are preferably molded from a resilient plastic material such as polystyrene, polyethylene, etc. The lugs are preferably molded as integral portions of the container; and the ears and slots are molded as integral portions of the lid.

As is apparent from the drawings and the above specifications, a container and hinged lid have been provided having a hinge structure which facilitates easy assembly of same while at the same time effectively preventing undesirable separation thereof.

While exemplary embodiments of the invention have been set forth in detail, the foregoing description is to be considered exemplary rather than limiting; and the scope of the invention is to be determined from the appended claims.

I claim:

1. A novel hinge structure for a container and lid, said hinge structure comprising:

lug means projecting from one of said box or lid, and having a major axis and a minor axis less than said major axis;

ear means formed on the other of said box or lid and adapted to cooperate with said lug means;

said ear means having a slot formed therein;

said slot including two side portions which converge toward points whereat they are spaced a distance slightly less than the length of said minor axis, said side portions subsequently merging into a substantially cylindrical portion;

whereby the lid may be assembled or disassembled only when the major axis of the lug means is substantially parallel to the plane of the lid.

2. A novel hinge structure for connecting a thermo-plastic lid and box, said hinge comprising:

lug means extending laterally from each side of said box;

said lug means having a minor axis terminating at flat portion at the top and bottom thereof, said flat portions being substantially parallel to each other and to the top of said box;

3

and a major axis being larger than said minor axis and terminating at substantially cylindrical portions connecting said flat portions;

ear means depending from the lid of said box and adapted to cooperate with said lug means;

said ear means having a slot therein;

said slot including converging side portions merging into a substantially cylindrical portion at a point whereat the side portions are spaced a distance slightly less than the length of the minor axis of said lug means;

said substantially cylindrical portion having a diameter

4

at least as great as the length of the major axis of said lug means.

3. The device of claim 2 wherein the box and lid are constructed of polystyrene.

References Cited

UNITED STATES PATENTS

2,990,082 6/1961 Boxsen.

3,055,534 9/1962 Boenecke.

THERON E. CONDON, *Primary Examiner.*

JAMES B. MARBERT, *Assistant Examiner.*