Jan. 2, 1962 D. L. STERLING 3,015,405

REFUSE CONTAINERS

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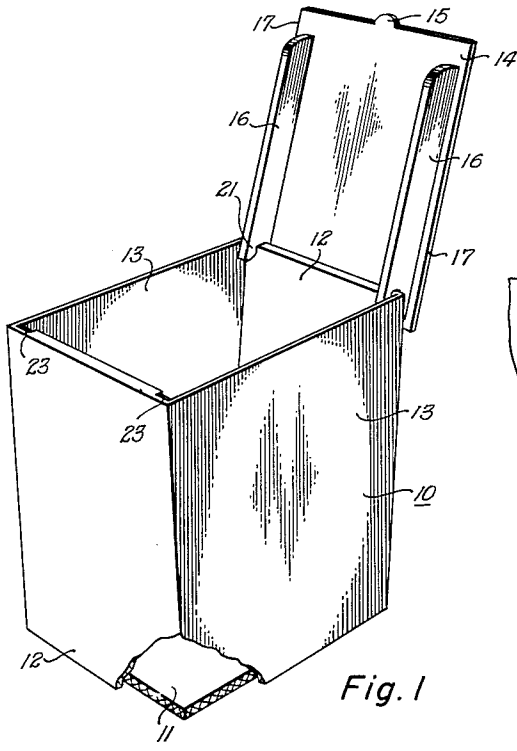


Fig. 1

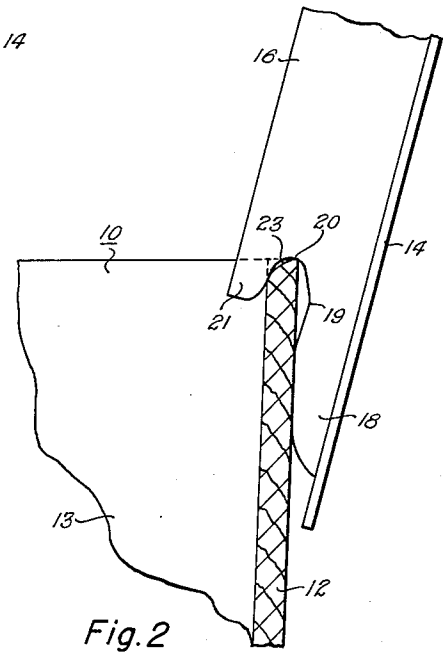


Fig. 2

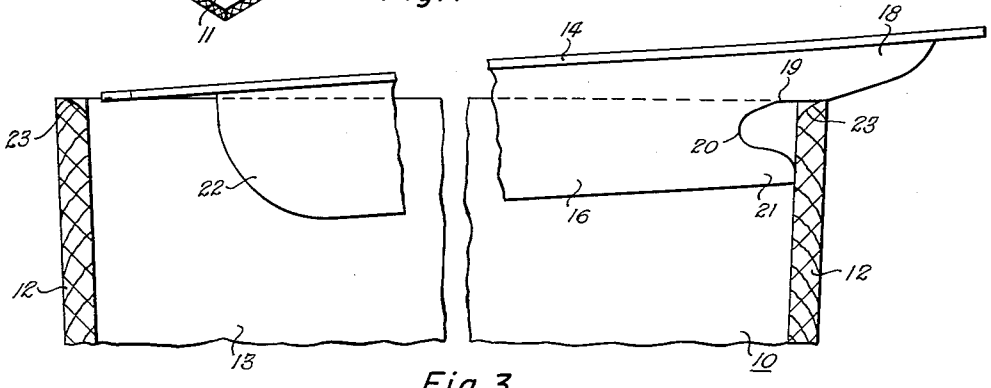


Fig. 3

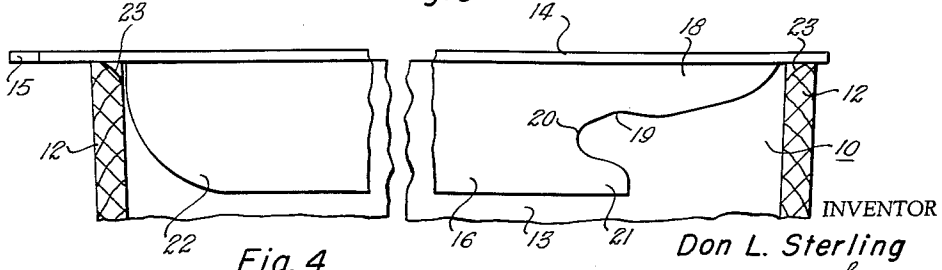


Fig. 4

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REFUSE CONTAINERS

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This invention relates to new and useful improvements in containers.

The invention is particularly directed to refuse or garbage containers as commonly employed in the kitchens of residences, physician's offices, and other localities in which there is a need for a relatively small container having a cover lid for closing the upper end of the container. Many types of such containers are in present day use, but each is subject to difficulty in removal of the lid, or when employing mechanical opening arrangements of various types, tend to malfunction after prolonged use so that the lid does not properly close the container. Further, it is the practice to place a disposable liner, of the nature of a paper sack, within such containers, and almost invariably, the containers do not lend themselves well to the reception of readily available standard lining items such as paper grocery sacks and the like.

It is, therefore, one object of this invention to provide an improved container which is free of springs, operating levers, and the like which tend to malfunction after prolonged use.

A further object of the invention is to provide an improved container having a snugly fitted lid which thoroughly and completely closes the open upper end of the container upon each use and retains such ability to effect a complete closure over indefinite periods of time.

A particular object of the invention is to provide an improved container having a unique cover structure by means of which the cover lid may be tipped upwardly and readily held at an open position, automatically remaining in such position until the lid is tipped forwardly, at which time, the lid invariably and without fail returns automatically to a fully closed position.

An additional object of the invention is to provide an improved container which may be readily nested in similar containers for storage or shipping purposes, and which will accommodate a standard large sized grocery sack of the type readily obtainable in virtually any locality.

Other and more particular objects of the invention will be apparent from a reading of the following specifications and claims.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawing, wherein an example of the invention is shown, and wherein:

FIG. 1 is a view in perspective illustrating a container constructed in accordance with this invention and showing the lid in a raised position,

FIG. 2 is an enlarged, fragmentary, sectional view showing the interrelationship of the lid with the container body when the lid is in a raised position,

FIG. 3 is a vertical view, partly in elevation and partly in section, illustrating a position assumed by the lid in the closing operation, and

FIG. 4 is a view similar to FIG. 3 and showing the lid in its fully closed position.

In the drawings, the numeral 10 designates the receptacle portion of a container, the receptacle portion including a rectangular bottom 11, spaced opposed end walls 12, and spaced opposed side walls 13 joined together to form an enclosure of substantially rectangular cross

section. As indicated in FIG. 1, the side and end walls are upwardly divergent so as to add to the attractiveness of the container as well as to permit a number of the receptacles 10 to be nested one within the other for storage or shipping purposes. Further, since the container is adapted to receive a conventional paper grocery sack when in use, and such sacks are of a relatively uniform rectangular cross sectional area as well as height, the tapering walls of the receptacle 10 facilitate the insertion of the paper sack or other similar article, the entire receptacle 10 being so dimensioned and proportioned as to receive such a sack in fully opened condition without requiring tearing, folding, or other manipulation.

A rectangular lid 14 having a tab or lifting handle 15 is arranged for closure of the upper end of the receptacle 10, the lid carrying on its under side a pair of spaced, parallel, depending rails or ribs 16 extending parallel to the lateral edges 17 of the lid 14 and adapted to lie closely adjacent the inner faces of the upper ends of the side walls 13 when the lid is in lowered position to close or cover the receptacle 10.

It is to be noted that the lid 14 has a width slightly greater than the transverse outer dimension of the receptacle 10 and is also of greater length than the upper end of the receptacle so as to project a short distance beyond the upper edges of the side and end walls as shown in FIG. 4. In such position, the ribs 16 are received in their entirety within the interior of the receptacle 10 and lie closely adjacent the upper portions of the side walls 13.

Each of the ribs 16 is formed at its rearward end with a pivot member comprising a downwardly curved wedge or inclined section or surface 18 formed at the rearmost extremity of each of the ribs and merging forwardly into a concave reentrant portion 19 which, in turn, merges into a rearwardly facing notch 20 having its lower face defined by a curved lug or extension 21. The forward ends of the ribs are formed in a smoothly upwardly curved fashion as indicated at 22, the curved upper ends curving smoothly from the lower or bottom edges of the ribs 16 forwardly and upwardly to the plane of the underside of the lid 14. As shown in FIG. 4, the overall length of each of the rails 16 is only slightly less than the internal, longitudinal dimension of the upper end of the receptacle 10.

Each of the end walls 12 is provided on its upper edge with a pair of spaced notches or recesses 23 facing toward the interior of the receptacle 10 and being disposed in the inner side of each of the end walls. As shown in the drawings, the notches are provided with convex bottom walls and form retaining means for maintaining the proper alignment between the ribs 16, and thus the lid 14, and the upper end of the receptacle 10.

In use, and assuming the container to be in its normal position with the lid 14 resting upon the upper end of the receptacle 10 and closing the same securely, the handle 15, or the forwardly projecting end of the lid 14 is grasped by the fingers or lifted from beneath and the lid swung vertically about the upper edge of the opposite end wall 12 as an axis of rotation. In such operation, the lid automatically drops a short distance so that the upper ends of the rearward wall 12, and particularly the recesses 23 thereof, enter into the notches 20 so that the lid more or less automatically moves and drops into the position shown in FIG. 2 in which the wedge portion 18 engages the outer face of the rearward end wall 12 while the lug 21 engages the forward portion of the notch 23 and/or the inside face of the rearward end wall. In such position, the lid is held against further movement and remains in a stable open position until closed.

In order to close the lid, the upper end thereof is

touched lightly by the finger or hand in order to tip the lid slightly forwardly after which the lid is allowed to close of its own accord. In such closing movement, the lid will swing down by gravity onto the open upper end of the receptacle **10** into approximately the position shown in FIG. 3. It is to be noted that as this forward tipping of the lid occurs, the lugs **21** will pivot against the inner face of the rearward end wall **12**, pushing the lid forwardly toward the front end wall to a certain extent and bringing the wedge portion **18** to a position immediately rearwardly of the rearward notches **23**. As the lid falls and strikes the upper end of the receptacle **10**, it will inherently bounce upwardly to a slight degree, and during this bouncing movement will also move forwardly slightly due to the inertia imported to the lid by its forwardly swinging or pivoting movement. When this occurs and the lid again falls into position on the open upper end of the receptacle **10**, the wedge portions **18** will be moved sharply downwardly onto the arcuate bottoms of the rearward notches **23**, and because of the inclined lower edge of the wedge portions **18**, the lid will be caused to move forwardly into the position shown in FIG. 4 wherein the receptacle is fully closed and the lid exactly and properly aligned thereon. While the notches **23** are desirable for other reasons, they also are of aid in this last operation in that their forwardly curved bottom walls cooperate with the wedge portions **18** to aid in the forward movement of the lid and proper positioning thereof upon the receptacle **10**.

The reentrant portions **19** have also been found to be important in facilitating the smooth and ready upward swinging of the lid **14** while also functioning to prevent premature forward movement of the lid during closing operation, thus assuring the engagement of the lugs **21** with the rearward end wall **12** for the initial forward movement of the lid during the closing step. Thus, as the lid moves downwardly onto the receptacle **10** and bounces or recoils slightly therefrom while also moving forwardly a small additional amount, the positively inclined portions of the wedges **18** are brought into engagement with the upper edge of the rearward end wall as the lid again settles into position, and the forward movement of the lid is completed and made certain. The curved forward ends **22** of the rails **16** are of benefit in making certain that the lower forward corners of the ribs cannot strike the forward end wall **12** and possibly cause malfunctioning of the lid, but they are not essential to the invention. Nevertheless, they are preferred and contribute materially to the apparently infallible operation of the structure in providing a secure and exact closing of the lid upon each actuation thereof. In addition, the provision of the spaced ribs **16** positioned closely adjacent the side walls of the receptacle aids in maintaining the lid properly aligned with the receptacle during the closing operation.

Of course, only one pair of the notches **23** will be employed at any one time, but the pairs of notches are provided on each end wall so that the lid may be positioned thereon with the notched portions **20** of the ribs **16** adjacent either pair of the notches **23**, and also so that the receptacle **10** may be reversed, if desired, should an exposed wall thereof become marred or damaged so that concealing of such wall might become desirable.

The structure has been illustrated as formed of wood or similar materials, but clearly it may be formed of metal, synthetic resins, or any other suitable or desirable material. Further, the exact arrangement and disposition of the ribs **16** may be varied to a considerable degree so long as the described configuration of the rearward ends of the ribs is retained and a lid of sufficient rigidity is provided.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

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

1. A container including, an open top receptacle having side walls and forward and rearward end walls, a lid for the receptacle having forward and rearward ends, spaced ribs depending from the underside of the lid adjacent the rearward end thereof, the ribs having their rearward ends formed as pivot members and including an inclined surface extending forwardly and downwardly from the rearward end of the lid and extending to a rearwardly facing notch having as its lower wall a projection extending rearwardly a distance less than the inclined surface and stop means depending from the lid for limiting forward movement of the lid with respect to the receptacle.

2. A container as set forth in claim 1 wherein the inclined surface is convex and the notch is concave.

3. A container as set forth in claim 1 wherein the rearward end wall is provided on its upper edge with spaced notches aligning with the pivot members.

4. A container as set forth in claim 1 wherein the rearward end wall is provided on its upper edge with spaced notches aligning with the pivot members and having convex bottoms.

5. A container as set forth in claim 1 wherein each end wall is provided on its upper edge with spaced notches aligning with the pivot members.

6. A container including an open top receptacle having side walls and forward and rearward end walls, a lid for the receptacle having front and rearward ends and lateral edges, spaced ribs depending from the underside of the lid in parallel relationship adjacent the lateral edges of the lid, the ribs extending from a point adjacent the rearward end wall of the receptacle to a point adjacent the forward end wall thereof and in close proximity to the inner faces of the side walls of the receptacle when the lid is in closed position, the rearward ends of the ribs being formed as pivot members and including an inclined surface extending forwardly and downwardly from the rearward end of the lid and extending to a rearwardly facing notch having as its lower wall a projection extending rearwardly a distance less than the inclined surface, and stop means depending from the lid for limiting forward motion of the lid with respect to the receptacle.

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