Dec. 9, 1969 S. G. PODWALNY 3,482,730

FREE SWING WASTE RECEPTACLE COVER

Filed June 6, 1968 2 Sheets-Sheet 1

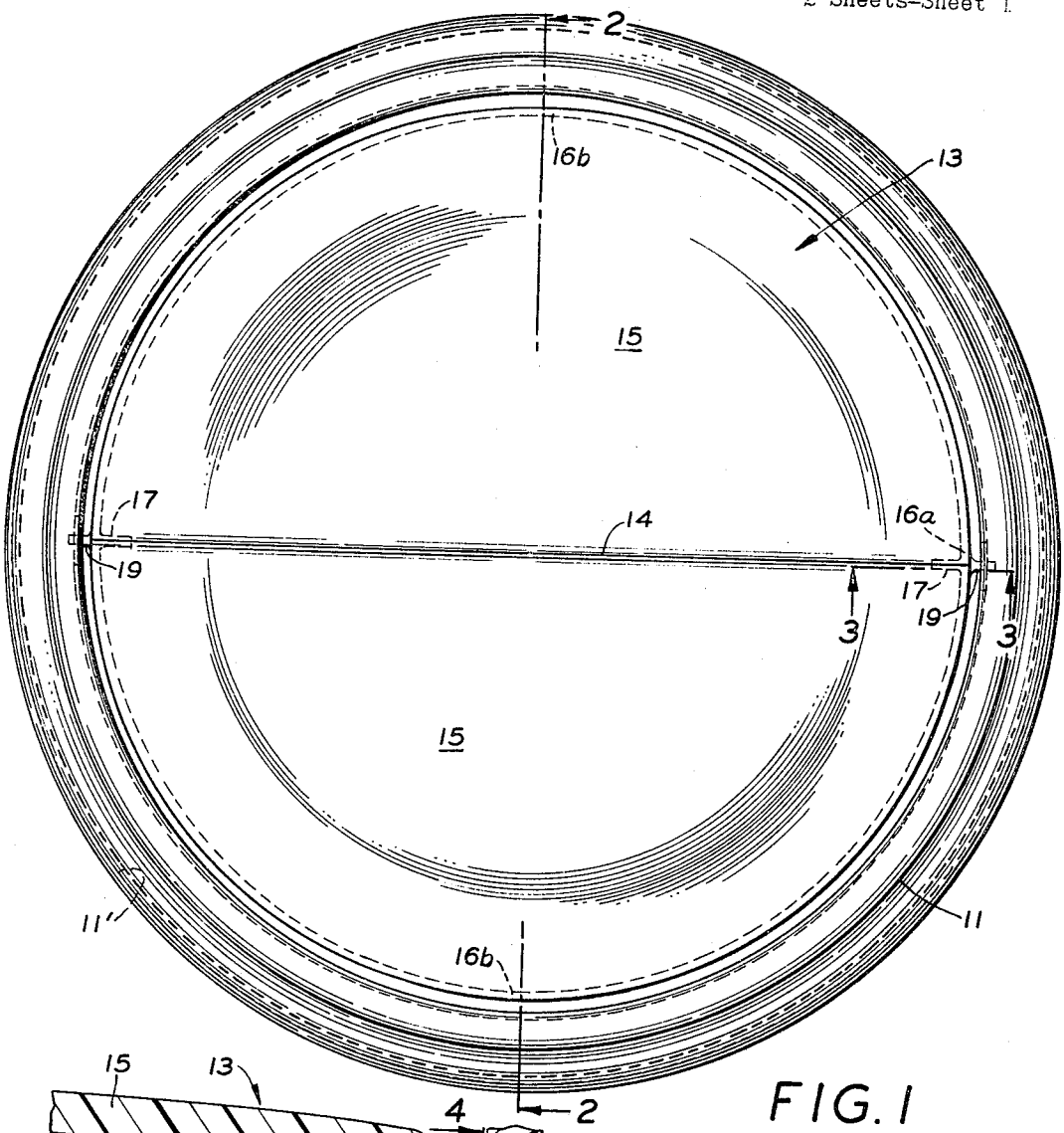


FIG. 1

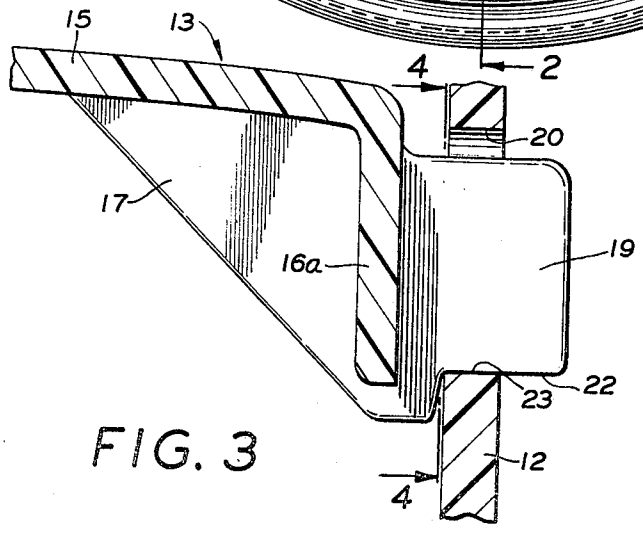


FIG. 3

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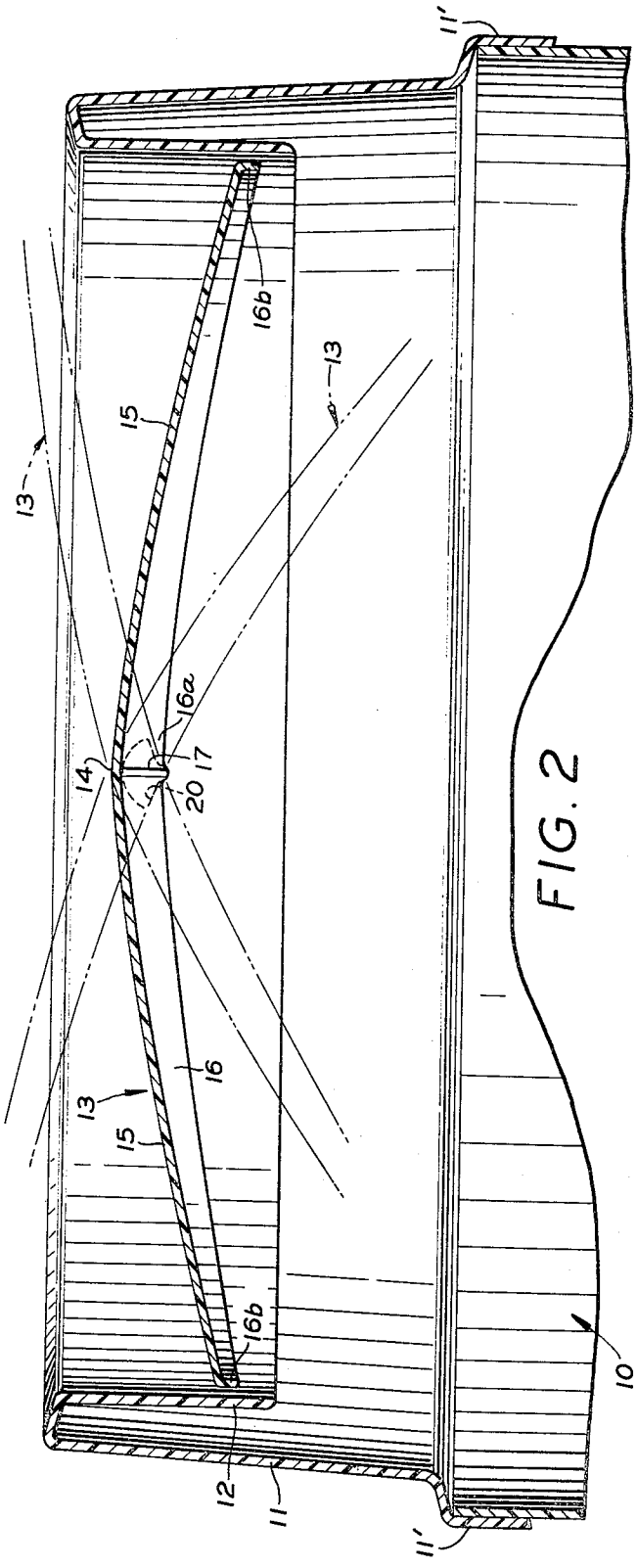


FIG. 2

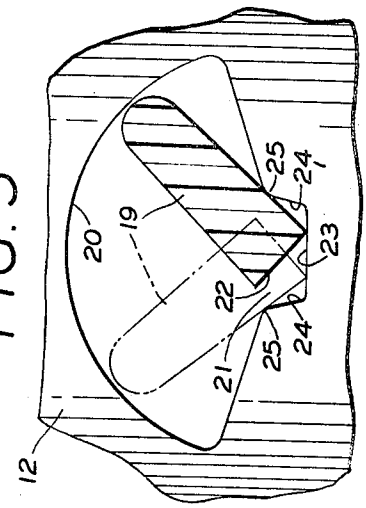


FIG. 5

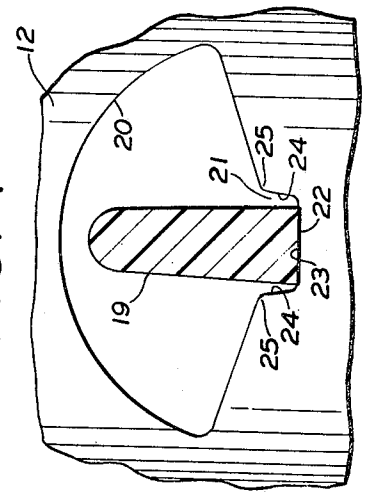


FIG. 4

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3,482,730

FREE SWING WASTE RECEPTACLE COVER

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Int. Cl. B65d 43/16, 7/42
U.S. Cl. 220—31 4 Claims

ABSTRACT OF THE DISCLOSURE

A self-closing cover for the open top of a receptacle having a transverse central apex portion with two equal cover portions inclined downwardly from the apex to outer rim portions and fitting within and normally completely closing the open top of the receptacle, the cover having diametrically opposite pivot lugs projecting outwardly from the ends of said apex portion with their lower flat edges pivotally supported in upwardly open flat bottom notches in the upper inner wall of the receptacle, said cover being balanced for freely swinging to completely closed position when swung to open position and released.

Background of the invention

Prior covers for waste receptacles of which I am aware have been of two kinds, those having eccentrically mounted or counterweighted covers which swing by gravity (sometimes aided by springs) to closing position against stops, and those which are intended to be balanced in closed position so as to tend to return to closed position when opened.

Those of the first kind have the disadvantages, among others, of being heavy and difficult to open, and of noisily banging against the stops when closing, not to overlook the expense of construction. Those of the second kind have the disadvantages of being too sensitively balanced, in which case the cover swings back and forth and takes too long to close, and of not being sensitive enough so that it tends to stick in open position. Moreover, where the pivot portions are all or partly metal, corrosion thereof increases friction and interferes with balance.

It is an object of the present invention to provide a novel and improved free swinging waste receptacle cover which is easily opened and quickly returns automatically to closed position.

Another object is to provide an improved pivot construction which has a minimum amount of friction and is not subject to corrosion.

A further object is to provide an improved pivot construction which is easily modified to control the sensitivity of the balance of the cover.

Summary of the invention

These and other objects are accomplished by utilizing a cover having a central apex portion from which diametrically opposite pivot lugs of plastic material project into notches in the receptacle plastic side walls, the pivot lugs having flat surfaces abutting flat bottom surfaces in the notches when the cover is closed, and a linear edge of said lugs adapted to roll on the flat bottom surfaces when the cover is swung open.

Description of the drawings

FIG. 1 is a top plan view of the receptacle with the cover in closed position.

FIG. 2 is a partial sectional view on line 2—2 of FIG. 1, open positions of the cover being shown in phantom lines.

FIG. 3 is an enlarged partial sectional view on line 3—3 of FIG. 1, showing one of the pivot lugs engaged in a notch in the side wall of the receptacle.

FIG. 4 is a sectional view on line 4—4 of FIG. 3.

FIG. 5 is a similar view, showing how the lug rocks in the notch when the cover is swung open.

Description of the preferred embodiment

The receptacle indicated generally at **10** may be cylindrical as shown or may have a rectangular or polygonal shape with substantially straight sides. In either case the receptacle is molded of suitable plastic material such as high impact styrene.

As shown, the receptacle has an upper top portion **11** of reduced diameter provided with an inner downturned rim flange **12** and an outer bottom flange **11'** which fits over the upper rim of the receptacle. The cover **13** is circular and fits within said rim flange with sufficient clearance to allow free swinging of the cover on its pivots from closed to open position. The cover is also preferably molded of suitable plastic material such as high impact polystyrene.

The cover **13** preferably has a central diametric apex at **14** from which two substantially half circular, slightly convex, inclined portions **15** slope downwardly in opposite directions to the outer downturned rim flange **16**. The rim flange **16** has its greatest depth at the apex portions **16*a*** and tapers therefrom to the shallower flange portions **16*b*** at the lower edges of the inclined top portions **15**. Triangular reinforcing ribs **17** extend inwardly across the corners between rim flange portions **16*a*** and the top wall of the cover at the apex **14**. To insure free swinging, the cover **13** is preferably slightly elliptical so that there is a little more clearance between the receptacle top and the cover at flange portions **16*b*** than at flange portions **16*a***, as seen in FIG. 1.

From the apex flange portions **16*a*** diametrically opposite integral pivot lugs **19** project outwardly, and these lugs are received in sector-shaped apertures **20** formed at diametrically opposite locations in the inner rim flanges **12** of the receptacle. As seen in FIGS. 3 and 4, the apertures **20** are large enough to readily receive the lugs **19**, and have substantially U-shaped bottom notches **21** for receiving and supporting the lower portions **22** of the lugs **19**.

By pivoting the cover at the apex portions, the center of gravity of the cover is located below the pivots so as to cause the cover to tend to return automatically to closed position when it is swung to open position.

The bottom surfaces **22** of the lugs **19** are flat and normally horizontal in the closed position of the cover when they abut the flat horizontal bottom surfaces **23** of the notches **21**. As shown, the width of the notches **21** at their bottom surfaces **23** is somewhat greater than the width of the bottom portions of lugs **19** and the sides **24** of the notches taper upwardly outward to merge into rounded corners **25** so that as the cover swings or rotates on the pivot lugs **19** the flat bottom surfaces **22** of the lugs can roll or rock a limited amount in either direction about one corner resting on the flat bottom surfaces **23** of the notches **21**, as shown in FIG. 5, with a minimum amount of rubbing friction.

As shown in FIG. 3, the longitudinal dimension of the lugs **19** and the flat bearing surface **22** is substantially greater than the thickness of the wall **12** and its flat bearing surface **23**. This compensates for variances in the diameters of the receptacle and cover. The height of the lugs **19** gives it increased strength in the direction of impacts applied to the cover. In the case of an extremely strong impact applied to the cover, the strength of the lugs in the direction of impact will permit the lugs **19** to pop out of the receptacle apertures **20** without damaging the cover or receptacle.

Due to the fact that the flat surfaces of the recessed portions **22** and the flat surfaces of the notches **21** are in abutment when the cover is in closed position, the cover will always tend to stabilize in closed position and quickly cease swinging when it is returned by gravity to that position. By increasing the areas of the abutting flat surfaces, the balance of the cover is made less sensitive, that is, the cover will be more stable in the closed position and require more force to swing it to an open position. Thus, the sensitivity of the balance can be controlled by changing the size of the flat areas, and since the parts are all plastic material there is no corrosion which would affect the sensitivity.

The improved receptacle cover construction is economically molded of plastic material and has no metal to corrode, or separate parts to assemble as the pivot lugs are easily put in place or removed by flexing the receptacle walls. The cover is sensitively balanced so as to swing open when very lightweight objects are dropped thereon, and yet be stable in closed position so as to quickly return from open position to rest in closed position.

I claim:

1. In combination with an open top receptacle having side walls with opposed openings therein and substantially flat supporting surfaces at the bottom edges of said openings, a cover swingably mounted within said open top for normally closing the receptacle, said cover having a transverse central apex portion and two equal top portions

sloping downwardly in opposite directions therefrom, said cover having two integral pivot lugs projecting outwardly from the ends of said apex portion to enter said receptacle side wall openings, and said lugs having substantially flat bottom portions rockably supported on the bottom supporting surfaces of said openings.

2. The receptacle and cover as defined in claim **1**, in which the substantially flat bottom portions of the pivot lugs abut the substantially flat bottom surfaces of the bottom notches of the side wall openings in the closed position of the cover.

3. The receptacle and cover as defined in claim **1**, in which the receptacle and cover are of plastic material.

4. The receptacle and cover as defined in claim **2**, in which the receptacle and cover are of plastic material.

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U.S. Cl. X.R.

220—1, 20.5