United States Patent

Leeds et al.

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[54] REFUSE CAN BOTTLE CRUSHER

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[52] **U.S. Cl.** **241/99**

[51] **Int. Cl.** **B02c 19/14**

[58] **Field of Search** 241/99

[56] **References Cited**

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[57] **ABSTRACT**

A garbage can incorporating a lid having a bottle crusher built thereinto, the bottle crusher incorporating a receptacle into which a bottle is receivable and held by a bottle holder after which a plunger drives ram against the bottle to crush the same, the broken bottle droping into the garbage can.

1 Claims, 6 Drawing Figures

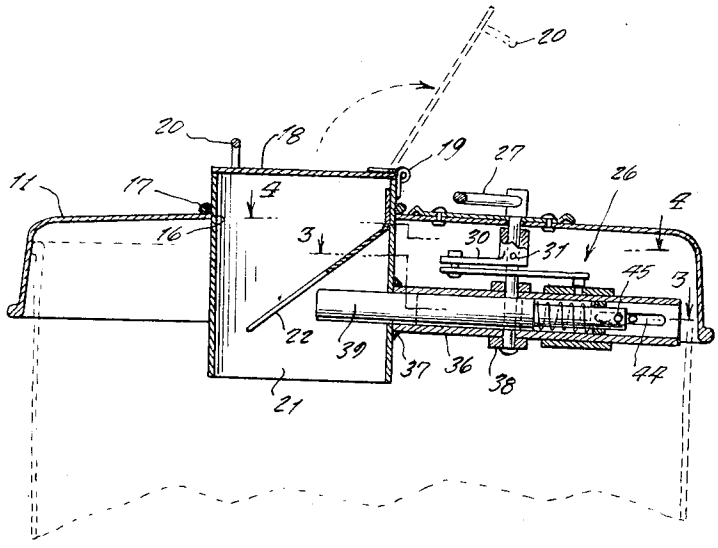


Fig. 1

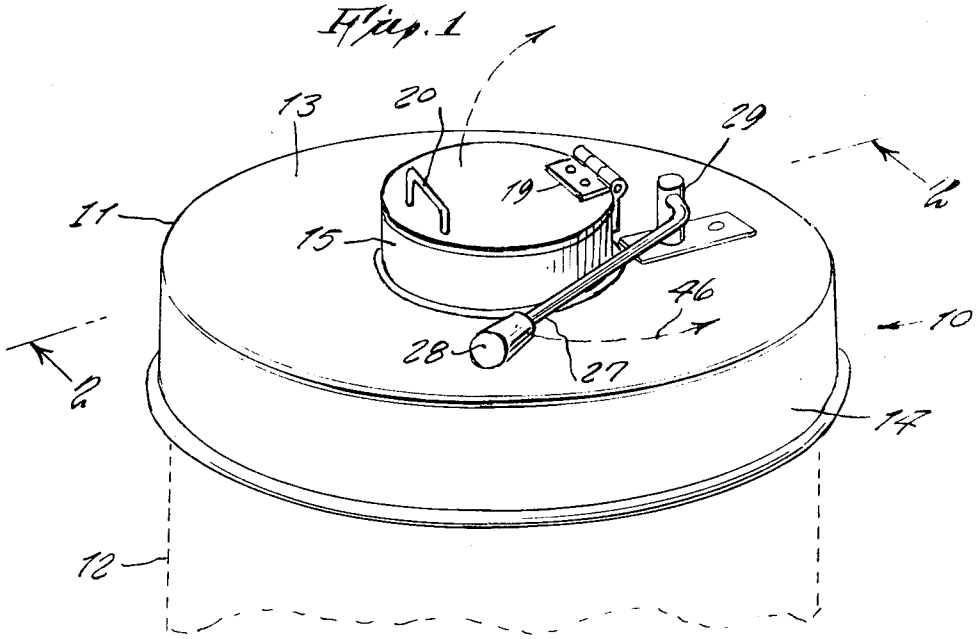
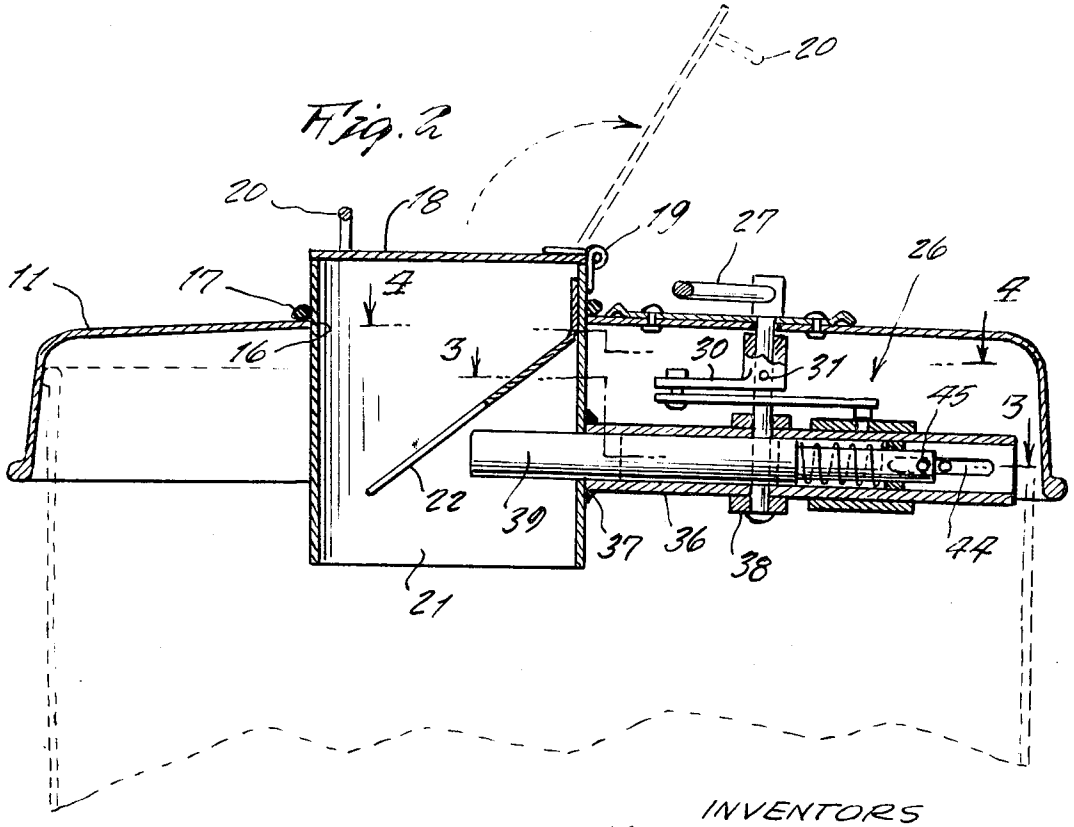


Fig. 2



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Fig. 3

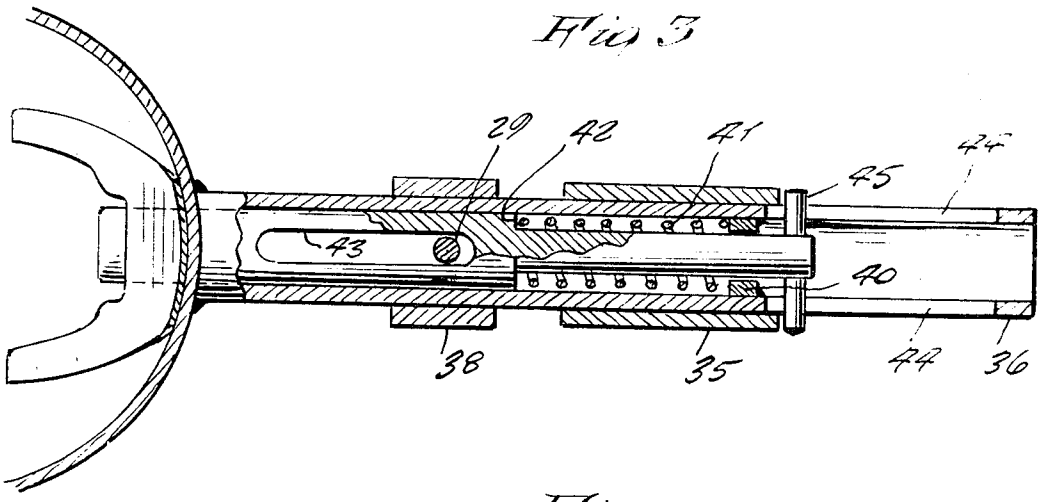
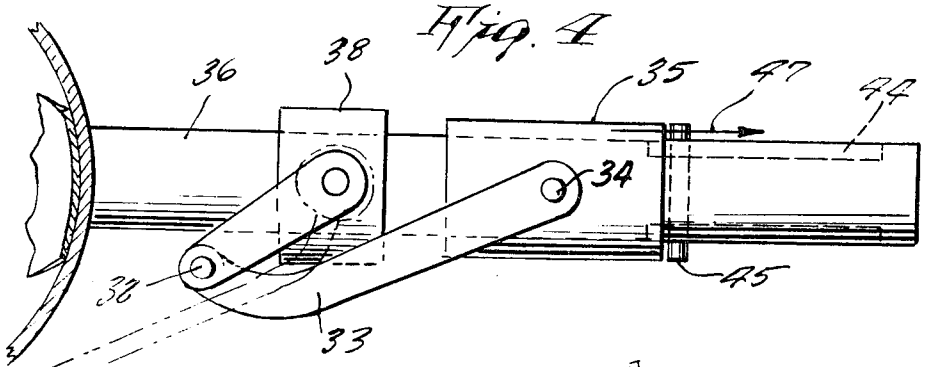


Fig. 4



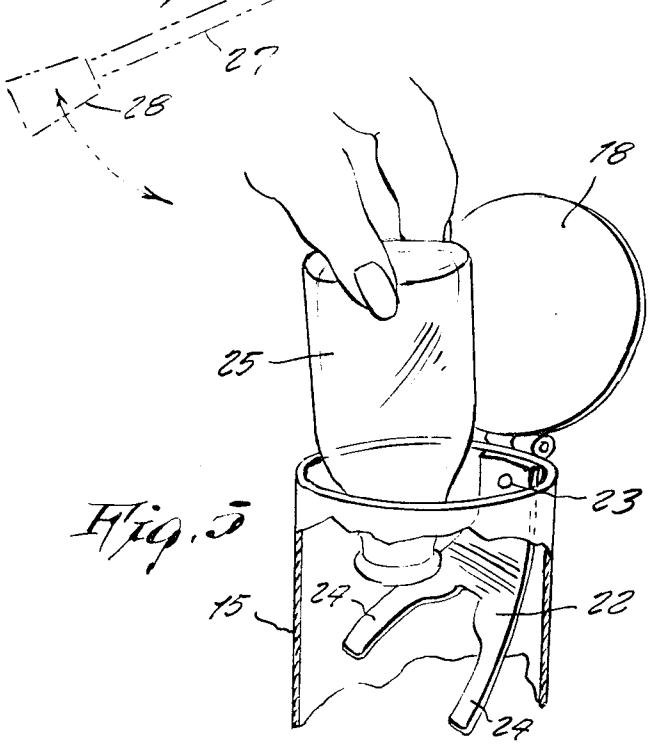
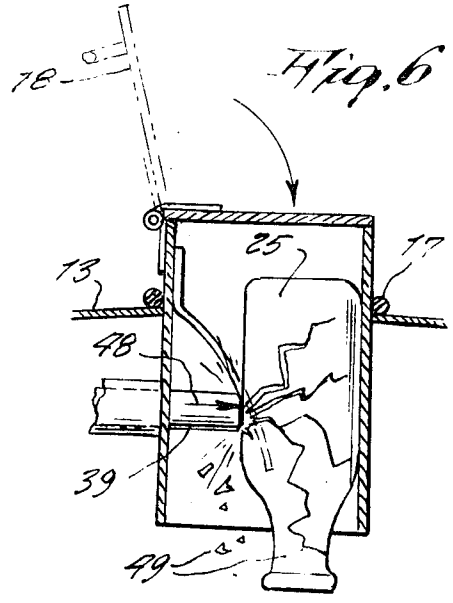


Fig. 5

Fig. 6



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REFUSE CAN BOTTLE CRUSHER

This invention relates generally to refuse or garbage cans. More specifically it relates to a refuse can lid.

A principal object of the present invention is to provide a refuse can having a lid which incorporates a bottle crusher so that bottles being discarded may be first broken up into small parts thereby requiring less space within a refuse can.

Another object of the present invention is to provide a refuse can bottle crusher which is built into the lid of the refuse can and which does not in any way interfere with the other normal use thereof or the refuse can.

Still another object of the present invention is to provide a refuse can bottle crusher which includes a receptacle into which a bottle may be placed, the receptacle having a closure cap so as to inclose the bottle during the crushing operation and prevent the scattering outwardly of broken glass.

Other objects and the present invention are to provide a refuse can bottle crusher which is simple in design, inexpensive to manufacture, rugged in construction, easy to use and efficient in operation.

These and other objects will become readily evident upon a study of the following specification and accompanying drawings wherein:

FIG. 1 is a perspective view of the present invention,

FIG. 2 is a cross sectional view taken on the line 2—2 of FIG. 1,

FIG. 3 is an enlarged cross sectional view taken on the line 3—3 of FIG. 2,

FIG. 4 is a cross sectional view taken on the line 4—4 of FIG. 2,

FIG. 5 is a perspective view showing the placement of a bottle into the bottle crusher receptacle, and

FIG. 6 is a fragmentary cross sectional view through the bottle crusher receptacle showing the present invention in operative use.

Referring now to the drawings in detail, the reference numeral **10** represents a refuse can bottle crusher according to the present invention wherein there is a refuse can lid **11** of conventional type and which may be removably placed upon a garbage or refuse can **12**.

The lid **11** includes an upwardly dished, circular top wall **13** surrounded by a downwardly depending flange or side wall **14** for placement over the upper end of the can **12**. Centrally mounted upon the top wall **13**, there is a cylindrically configurated receptacle **15** which is inserted through an opening **16** formed in the top wall **13**, the receptacle **15** having a rubber gasket **17** placed there around and positioned directly against the side of the top wall **13**. A closure lid or cover **18** is pivotable mounted over the upper end of the receptacle **15** by means of a hinge **19**. A convenient grasp handle **20** is mounted on the upper side of the lid **18** for purpose of raising the same and gain access to the interior **21** of the receptacle. Preferably a tension spring may be incorporated together with the hinge **19** so that the lid **18** will automatically snap down into a closed position over the receptacle by action of the spring thereby normally maintaining the receptacle in closed position. Within the receptacle there is mounted a bottle holder **22** which is comprised of flat spring steel so that it is flexible. The bottle holder **22** may be attached to the side of the receptacle **15** by means of rivets **23**, the lower end of the holder inwardly bent towards the center of the receptacle interior, and the lower end is furthermore bifurcated with legs **24** between which a bottle **25** is receivable and normally retained in the position as indicated in FIG. **6** after the lid **18** is closed.

A crushing mechanism **26** is mounted on the underside of the lid **11**, the bottle crushing mechanism being operated by a pivotable lever **27** on the upper side of the lid **11** as shown in FIG. **1** of the drawing. The lever **27** has a convenient knob **28** on the end thereof, the opposite end of the lever being attached to the upper end of a pin **29** which protrudes downwardly through the lid top wall **13**, the pin having a crank arm **30** secured thereto by means of a transverse extending rivet **31**, the outward end of the crank **30** being attached pivotably by means of a pin **32** to an end of a link **33** the opposite end of the link **33** being attached by means of a pin **34** to a slidable sleeve **35**.

A tube **36** is mounted ridgedly by means of a weld **37** horizontally to a side of the receptacle **15**, the tube **36** having a collar **38** placed there around, the collar and tube having a vertically extending opening transversently there through, this opening receiving a lower portion of the pin **29**, the tube **36** and collar **38** accordingly serving as a fixed bearing within the pin **29** is pivotable.

Within the tube **36** there is a slidable ram **39** which extends into the bottle receptacle **15** and which is in alignment to be movable between the legs **24** of the bottle holder **22**. A stop **40** may be formed of a metal ring that is welded on the inner side of the tube **36**, as shown in FIG. **3** of the drawing, the stop **40** serving to retain one end of a compression coil spring **41**, the opposite end of the compression coil spring **41** bearing against a shoulder **42** formed on the ram **39**, the spring accordingly normally urging the ram inwardly to the bottle receptacle **15**. It will now be readily evident that the plunger has a relatively narrow portion around which the spring **41** is fitted. A slot **43** is formed in the ram **39** so as to clear the pin **29** as the ram **39** is slideable within the tube **36**. On opposite sides of the tube **36** there are provided a pair slots **44** through which a pin **45** secured to the ram **39** extends as shown at FIG. **3**, the outer ends of the pin **45** being in alinement so to abut against the end of the sleeve **35**.

In operative use, in normal use to discard garbage into the can **12**, the lid **11** is lifted in a conventional manner so as to deposit the same into the can. However when a bottle is to be discarded, the lid **18** is pivoted upwardly by grasping the handle **20** after which the bottle **25** is deposited into the receptacle **15** as shown in FIG. **5**. Thereafter the lid **18** closed by action of a spring, the bottle **25** being prevented from falling through the receptacle by being held between the fingers or legs **24** of the flexible bottle holder **22**. Thereafter the lever **27** is pivoted in the direction as indicated by the arrow **46** which causes the pin **29** to rotate, thus causing the sleeve **35** to be retracted in the direction as indicated by arrow **47**, the retractingly moving sleeve **35** picking up the pin **45** which thus causes the ram **39** to be retracted outwardly of the receptacle **15**. After fully retracted, the lever **27** is released, thus causing the spring **41** to rapidly thrust the ram **39** forwardly as indicated by arrow **48** so as to cause the forward end of the plunger to ram against the side of the bottle **25** thus breaking it after which the glass particles **49** and bottle parts will drop through the bottle receptacle and downward into the can **12**.

What we now claim is:

1. In a refuse can bottle crusher, the combination of a refuse can, a lid upon said can, a bottle crusher on said lid, said bottle crusher incorporating a bottle receptacle and a bottle crushing mechanism, said bottle receptacle comprising a vertically extending cylinder mounted through a top wall of said lid, an upper end of said cylinder having a hingedly secured lid there upon for closing the upper end of said cylinder, said cylinder lid being spring loaded to normally remain in a closed position over the upper end of said cylinder, and a bottle holder secured within said receptacle, said holder comprising a spring steel member having the lower end thereof extended into a center of said receptacle for grasping a bottle placed into said receptacle, said bottle mechanism comprising a tube affixed to an outer side of said receptacle, a slidable ram within said tube, said ram being slidable into said receptacle, a pivotable lever located above a top wall of said refuse can lid, said lever driving a crank for moving a plunger mechanism so as to draw said ram rearwardly against the action of a compression coil spring which normally releases said ram into said bottle receptacle to crush said bottle when said lever is released, and said spring steel member within said receptacle being secured to a side of said cylindrical wall of said receptacle and which is on a same side through which said ram is slidable into said receptacle so that said bottle in crushing position is seated between said spring and a stationary opposite side of said receptacle so that said bottle is rigidly stationary when struck by said ram for a full impact shot so to break said bottle.

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