Aug. 3, 1954 C. LISCIANI 2,685,386

DISPOSAL CAN

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Fig. 1

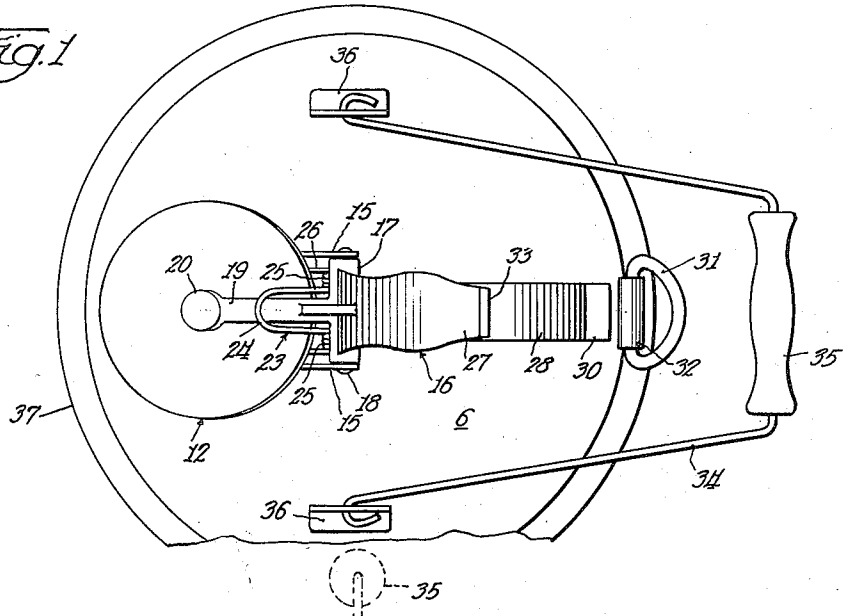
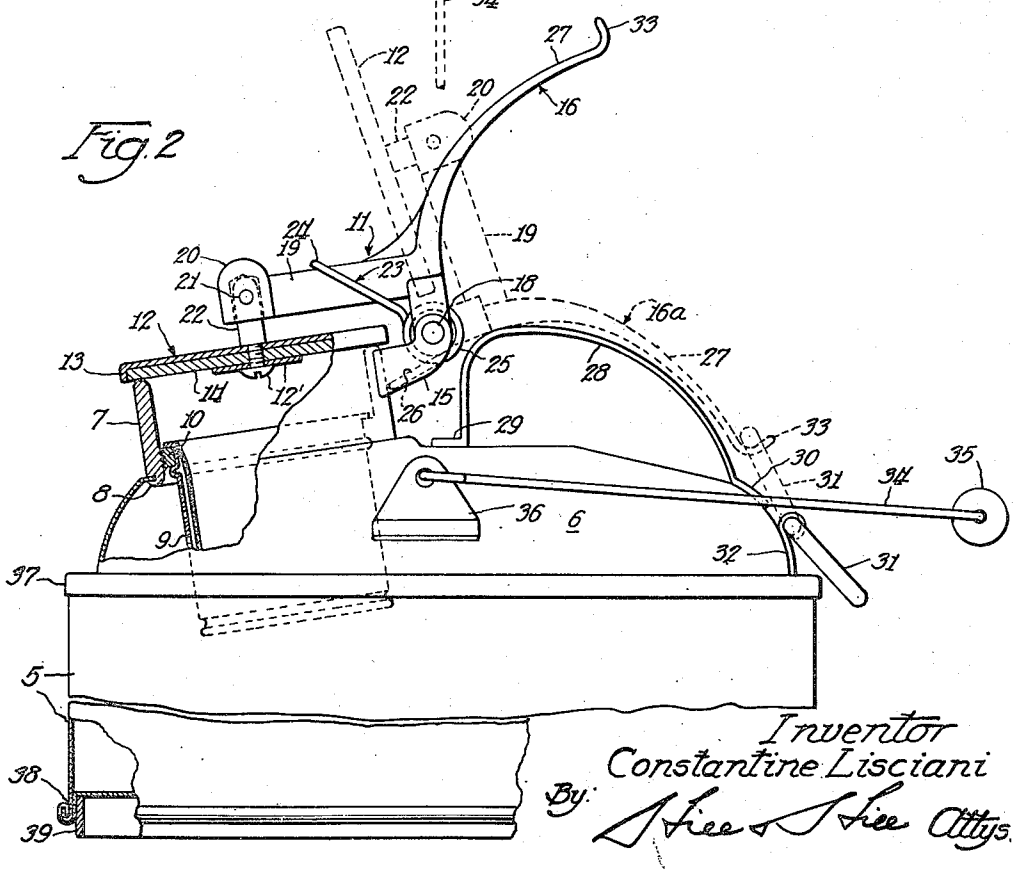


Fig. 2



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DISPOSAL CAN

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13 Claims. (Cl. 222—189)

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This invention relates to a disposal can and more particularly to a laboratory disposal can as a temporary receiver of waste liquids such as waste reagents, solutions, solvents, and the like, which in vapor or in a liquid state may be toxic, inflammable, poisonous, etc.

A principal object of the invention is to provide a spring actuated closure and closure operating means therefor, for a large pouring and receiving spout in which the spring tightly seats the closure upon the spout but the force of the spring being overcome when the closure operating means has been moved by an operator-operated motion to the open position of the closure.

Another object is to provide a handle contiguous to the closure operating means by means of which the can may be handled and to also facilitate the manipulation of the closure operating means.

Another object of the invention is to provide a hand lever constructed and operating in a manner to offset the action of the spring on the lever when the cover is fully opened and also to provide latching means for retaining the cover in its opened position.

Still another object of the invention is to provide a fire protection screen for the large spout opening which may be readily removed for cleaning.

A further object of the invention is to provide an improved laboratory disposal can which is adapted to resist the corrosive action of the liquids disposed of therein.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described and more particularly pointed out in the appended claims.

In the drawings wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a plan view of a laboratory disposal can equipped with a spout closure operating mechanism embodying a simple form of the present invention; and

Fig. 2 is a side elevation thereof with the laboratory disposal can partly broken away illustrating the flame arrester, and also the closure operating means in the closed and open position thereof.

Referring to the drawing which is merely illustrative of one embodiment of the invention, a disposal can 5 of conventional form is provided

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with a dome-shaped top 6, from which projects an enlarged pouring and receiving spout 7, through which the can may be filled, and from which the contents may be discharged. The spout is clinched over as indicated at 8 to the dome and silver soldered. Although described as being affixed as illustrated, it is to be understood that the spout may be welded or otherwise secured without departing from the scope of the invention. From the lower end of the spout leads a flame arrester or removable fire screen baffle 9, as is customary for cans containing hazardous liquids. The flame arrester 9 also provides a strainer preventing foreign particles from reaching the liquid contents of the can through the spout and retaining within the disposal can such foreign particles as may be in the liquid. The flame arrester is suitably affixed to an annular threaded member 10 threadedly mounted within the spout 7, as illustrated in Fig. 2.

The improved closure device and operating mechanism 11 is mounted upon the discharge end of the spout 7 in a manner to effectively seal the spout against leakage should the disposal can be accidentally overturned or submitted to the usual underwriter's tests. The closure device preferably comprises a disc or cap 12 of metal such as brass or other suitable rigid material and having a diameter somewhat larger than that of the open end of the spout. The cap 12 is provided with an annular flange 13 within which is positioned a gasket 14 formed from "Thiokol," or other suitable compositions such as medium hard rubber or other fibrous material having similar cushioning qualities, and adapted to resist the various liquids and vapors disposed within the disposal can. The disc is fastened to the cap 12 by a screw bolt and washer construction 12' or by any other suitable means such as a layer of adhesive material and is adapted to overlap completely and seal the open end of the spout.

Pivotally mounted on a pair of spout ears 15, silver soldered to the spout 7 is a cast lever or closure carrying member 16 which carries the closure disc 12. If desired, the closure carrying member may be in the form of a metal stamping, or it may be constructed of cast metal such as brass. The closure disc 12 is revolvable from closed to open position by the lever 16 having an intermediately located arcuate boss 17 mounted on a pin or pintle 18 supported on the spout ears 15 about which the lever is fulcrumed. The other end 19 of the lever 16 extends over the cap 12 and provides a socket 20 in which is pivotally

mounted, as by a rivet 21, a stud 22 to which the closure cap 12 is secured. The socket and complementally formed stud may be constructed as disclosed and claimed in the U. S. Patent 2,147,230 granted to R. J. Anschicks on February 14, 1939.

The end 19 of the lever 16 is normally pressed toward the cap 14 by means of a torsion spring 23 having a V-shaped portion 24 engaging the end 19 and coiled ends 25 mounted upon the pin 18 with the ends 26 operatively engaging the side of the spout 7 to place the spring under sufficient stress to maintain the cap 12 in its closed position at all times to prevent spillage of the disposed liquids. The socket and stud construction 20, 22 operate as a universal joint when the lever end 19 is pressed toward the cap so that the cap is self adjusting and seats with the cushioned disc or gasket 14 in uniform contact with the open end of the spout 7. The automatic adjustment of the cap 12 also results in the pressure by the lever end 19 being uniformly distributed over that portion of the disc or gasket 14 in direct contact with the end face of the spout 7 and thereby seals the spout regardless of irregularities in its end face.

The cap 12 is adapted to be moved to open the spout 7 against the resistance of the coiled spring 23. This is accomplished by manual actuation of a curved handle portion 27 downwardly from the solid position of the lever 16 to the dotted position 16*a*. A handle grip 28 formed as illustrated in Fig. 2 and affixed by spot welding the ears 29 and 30 to the dome-shaped top 6 is so positioned on the diameter of the disposal can (Figs. 1 and 2), that both the handle grip 28 and the curved handle portion 27 are complementally formed to the handle grip and may be simultaneously grasped with one hand, with the lever 16 lifted to the position shown in solid lines (Fig. 2). In this position of the handle portion 27, the operator, by closing his hand, moves the lever to the dotted position 16*a* which rotates the lever end 19 and cap 12 to their dotted position (Fig. 2) to open the spout 7. If desired, the handle portion 16*a* may be latched in its position contiguous to the handle grip 28 so that the spout remains open without hand control. To accomplish this, a D-shaped swinging hook 31 is pivotally mounted to a support member 32, suitably affixed to the back of the dome of the can and adapted to engage a hook end 33 of the lever 16 as shown in the dotted position 16*a*. Upon the hook 31 being released or upon the release of the handle portion 27, the spring 23 snaps the cap 12 back to closed position of the spout 12.

The described manual manipulation of the closure operating mechanism 11 to open the spout may be accomplished in any position of the disposal can. A handle bail construction 34 having a wooden handle 35 is pivotally mounted on bail ears 36 spot welded to the dome of the disposal can at an off-center point offering a balanced position when the can is empty or full.

In practice, the laboratory technician, when he is ready to dispose of waste liquids, opens the cap as described above and discharges waste liquids into the disposal can. Upon release of the lever 16, the disposal can cap is closed. In practice, in discharging the waste liquids from the disposal can, the can is preferably tilted to a position by the handle bail 34 and handle grip 28 wherein the spout 7 is suitably inclined to discharge into a suitable receiving aperture of a vessel and the like, for receiving the disposed liquids, the tilting being done with the spout

closed. The spout may then be opened by manipulation of the lever 16 as described without further movement of the disposal can or shifting of the operator's hand. The tension of the spring is such that if the disposal can should be accidentally or inadvertently overturned there is no possible leakage through the spout.

It is preferred to seam-weld the disposal can at the joints 37 and 38, as annular supporting ring 39 is affixed in place to the bottom of the disposal can by tacking with silver solder in several places. All surfaces which are in direct contact with the waste corrosive liquids and the like, inside of the can, such as the top, bottom, and shell of the can, the screen 9 and spout 7 are preferably made of type 316 stainless steel or other suitable non-corrosive material. The silver solder for soldering certain of the members is preferably a solder composed of 50% silver, 15.5% copper, 16.5% zinc, and 18% cadmium or other suitable solder which is easy flowing and suitably corrosive resistant.

Suitable sizes in which it is preferred to fabricate the disposal can of this invention are 2 and 5 gallons which may be readily handled but other suitable sizes of disposal cans may be fabricated without departing from the scope of the invention.

Thus, it will be seen that I have provided a simple and inexpensive form of disposal can for the temporary reception of waste liquid reagents, and the like, which in vapor or in a liquid state may be toxic, flammable, poisonous, or the like. Likewise, I have described an improved closure construction and operating mechanism therefor, for a disposal can of this type upon which it is mounted so that uniform pressure is exerted by the cushioned closure cap over the end face of the spout and adapted to effectively seal the spout regardless of any irregularities in the end face or the particular angle of inclination of the face to the vertical axis of the can.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence, I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

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

1. The combination with a vessel having a handle bail, a spout, and a closure for the spout, of a closure carrying mechanism adapted for opening and closing the closure, pivotally mounted on the spout and pivotally connected to the closure to seat the closure upon the open end of the spout, said closure carrying mechanism comprising a lever formed as a handle portion on one end for manually actuating the closure member and a lever end operatively connected to and overlying the closure, spring means normally biasing the closure in its closed position, a handle grip affixed to the vessel adjacent to the spout and in alignment thereto, and said handle portion complementally formed to the handle grip whereby upon actuation of the lever from its closed position to its open position, the lever moves to overlie the handle grip.

2. The combination with a vessel having a handle bail, a spout, and a closure for the spout, of a closure carrying mechanism adapted for opening and closing the closure, pivotally mounted on the spout and pivotally connected to the

closure to seat the closure upon the open end of the spout, said closure carrying mechanism comprising a lever formed as a handle portion on one end for manually actuating the closure member and as a lever end on the opposite end operatively connected to and overlying the closure, spring means normally biasing the closure in its closed position, a handle grip affixed to the vessel adjacent to the spout and in alignment thereto, said handle portion complementally formed to the handle grip whereby upon actuation of the lever from its closed position to its open position, the handle portion moves to overlie the handle grip, and latch means for securing the closure cap in its open position.

3. The combination with a vessel having a handle bail, a spout, and a closure for the spout, of a closure carrying mechanism adapted for opening and closing the closure, pivotally mounted on the spout and pivotally connected to the closure to seat the closure upon the open end of the spout, said closure carrying mechanism comprising a lever for manually actuating the closure member having a lever end operatively connected to the closure, spring means normally biasing the closure in its closed position, a handle grip affixed to the vessel adjacent to the spout and in alignment thereto, said lever complementally formed to the handle grip whereby upon actuation of the lever from its closed position to its open position, the lever moves to overlie the handle grip, and means complementally formed to the lever positioned on the vessel contiguous to and in alignment with the handle grip and adapted to engage the lever whereby the lever is latched in a position overlying and adjacent the handle grip.

4. The combination with a vessel having a spout and a closure for the spout, of a closure carrying mechanism adapted for opening and closing the closure, a handle grip and the spout mounted diametrically in alignment upon the vessel, the spout spaced from the handle grip, a pivot connection for the closure carrying mechanism intermediate the spout and the handle grip and mounted upon the spout, a lever for manually actuating the closure comprising a lever end and a handle portion, said lever end pivotally connected to and overlying the closure, said handle portion complementally formed to the handle grip, spring means normally biasing the closure in its closed position, said handle grip in the open and closed positions of the closure adapted to be engaged by an operator, and the handle portion upon movement toward the handle grip for opening the closure adapted to conform to its complementally formed handle grip completing the handle grip.

5. The combination with a vessel having a spout and a closure for the spout, of a closure carrying mechanism adapted for opening and closing the closure, a handle grip and the spout mounted diametrically in alignment upon the vessel, a pivot connection for the closure carrying mechanism intermediate the spout and the handle grip and mounted upon the spout, a lever for manually actuating the closure comprising a lever end and a handle portion, said lever end pivotally connected to and overlying the closure, said handle portion complementally formed to the handle grip, spring means normally biasing the closure in its closed position, said handle portion and hand grip in the closed position of the closure adapted to be engaged by an operator and upon movement of the handle portion toward

the handle grip also adapted to conform to its complementally formed handle grip completing the handle grip, and said spring means having a U-shaped portion operatively engaging the lever end and intermediate the pivot connection of the closure carrying mechanism and the connection of the lever end to the closure.

6. The combination with a vessel having a spout and a closure for the spout, of a closure carrying mechanism adapted for opening and closing the closure, a handle grip and the spout mounted diametrically in alignment upon the vessel, said spout spaced from the handle grip, a pivot connection for the closure carrying mechanism intermediate the spout and the handle grip and mounted upon the spout, a lever for manually actuating the closure comprising a lever end and a handle portion, said lever end operatively connected to and overlying the closure, said handle portion complementally formed to the handle grip, spring means normally biasing the closure in its closed position, said handle portion in the closed position of the closure adapted to be engaged by an operator and upon movement of the handle portion toward the handle grip also adapted to conform to its complementally formed handle grip completing the handle grip, and latch means operatively mounted on the vessel contiguous to the lower end of the handle and adapted to be selectively connected to the handle portion whereby the handle portion is positioned contiguous to the handle grip and the closure is held in its open position.

7. A laboratory disposal can adapted for the reception of waste liquids comprising a discharge and receiving spout, a closure therefor, a detachable fire baffle screen mounted within the spout, a carrying bail for the disposal can and a handle grip for the disposal can adapted for pouring the waste liquid from the disposal can, closure operating mechanism adapted for opening and closing the closure, said mechanism comprising a lever formed at one end as a handle portion and operatively connected to the closure and fulcrumed upon the spout, said end of said lever opposite to the handle portion overlying and pivotally connected to the closure, spring means adapted to operatively engage said lever end for biasing said closure to its closed position, and the handle portion of the lever in the closed position thereof adapted to be engaged by the operator along with the handle grip, whereby upon movement of the said handle portion toward the handle grip, the closure is adapted to be opened.

8. A laboratory disposal can adapted for the reception of waste liquids comprising a discharge and receiving spout, a closure therefor, a detachable fire baffle screen mounted within the spout, a carrying bail for the disposal can and a handle grip for the disposal can adapted for pouring the waste liquid from the disposal can, closure operating mechanism adapted for opening and closing the closure, said mechanism comprising a lever operatively connected to the closure and fulcrumed upon the spout, one end of said lever overlying the closure, and the opposite end of the lever providing a handle portion and in the closed position thereof adapted to be engaged by the operator along with the handle grip, spring means normally biasing the closure to its closed position, whereby upon movement of said handle portion toward the hand grip against the bias of the spring, the closure is adapted to be opened, and upon release of

said handle partion, the closure is adapted to be closed under the action of the spring means.

9. A laboratory disposal can adapted for the reception of waste liquids comprising a discharge and receiving spout, a closure therefor, a detachable fire baffle screen mounted within the spout, a carrying bail for the disposal can and a handle grip for the disposal can adapted for pouring the waste liquid from the disposal can, closure operating mechanism adapted for opening and closing the closure, said mechanism comprising a lever operatively connected to the closure and fulcrumed upon the spout, one end of said lever overlying the closure, and the opposite end of the lever in the closed position thereof adapted to be engaged by the operator along with the handle grip, and latch means pivotally mounted on the disposal can and adapted to be selectively connected to the lever whereby the lever is positioned contiguous to the handle grip and the closure is held in its open position.

10. In operating mechanism for spout closures for a spout formed on a vessel, a closure operating mechanism adapted to be operatively mounted on the spout, a handle grip positioned on the vessel contiguous to the spout, said mechanism comprising a lever operatively connected to the closure and fulcrumed upon the spout, one end of said lever overlying the closure, and the opposite end of the lever providing a handle portion and complementally formed to the hand grip and in the closed position thereof adapted to be engaged by the operator along with the hand grip, spring means operatively connected to the spout and engaging the lever intermediate its fulcrum and its connection to the spout closure, whereby upon movement of the aforesaid handle portion toward the hand grip, the spout closure is adapted to be opened against the bias of the spring and closed upon release of said last mentioned lever end.

11. In operating mechanism for spout closures for a spout formed on a vessel, a closure operating mechanism adapted to be operatively mounted on the spout, a handle grip positioned on the vessel contiguous to the spout, said mechanism comprising a lever operatively connected to the closure and fulcrumed upon the spout, one end of said lever overlying the closure, and the opposite end of the lever complementally formed to the hand grip and in the closed position thereof adapted to be engaged by the operator along

with the hand grip, spring means operatively connected to the spout and engaging the lever intermediate its fulcrum and its connection to the spout closure, and latch means mounted on the vessel contiguous to the hand grip and adapted to be selectively connected to and disconnected from the lever.

12. A laboratory disposal can adapted for the reception of waste liquids comprising a discharge and receiving spout, a closure therefor, a detachable fire baffle screen mounted within the spout, all of said surfaces of the disposal can in direct contact with said waste liquids formed from an alloy metal adapted to withstand the corrosive action of said waste liquids, a carrying bail for the disposal can and a handle grip for the disposal can adapted for pouring the waste liquid from the disposal can, closure operating mechanism adapted for opening and closing the closure, said mechanism comprising a lever operatively connected to the closure and fulcrumed upon the spout, one end of said lever overlying the closure, and the opposite end of the lever providing a handle portion and in the closed position thereof adapted to be engaged by the operator along with the handle grip, spring means normally biasing the closure to its closed position, whereby upon movement of said handle portion toward the hand grip against the bias of the spring, the closure is adapted to be opened, and upon release of said handle portion, the closure is adapted to be closed under the action of the spring means.

13. In a laboratory disposal can as set forth in claim 7, said discharge and receiving spout formed with a large spout opening through which the waste liquids are adapted to be discharged into and from the disposal can, the aforesaid detachable fire baffle screen being dependently mounted within said spout opening, and said large spout opening upon removal of the detachable fire baffle screen permitting the interior of the disposal can to be cleaned.

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