Aug. 18, 1931. W. RASTER 1,819,037

SAFETY RECEPTACLE FOR INFLAMMABLE LIQUIDS

Filed Feb. 16, 1928 2 Sheets-Sheet 1

Fig. 1.

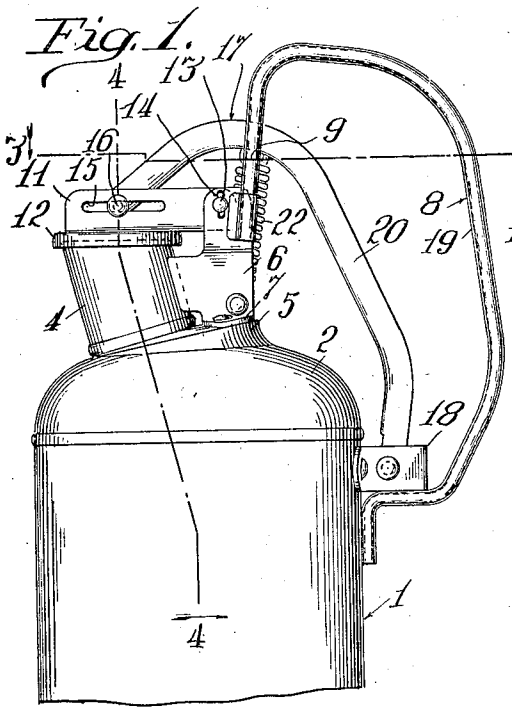


Fig. 2.

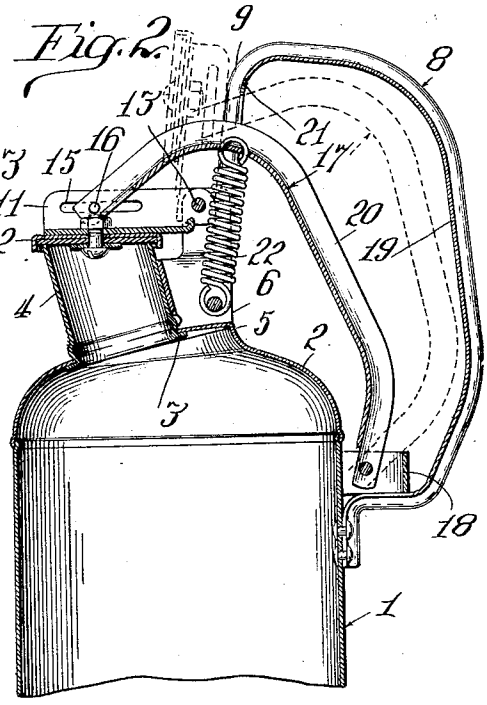


Fig. 3.

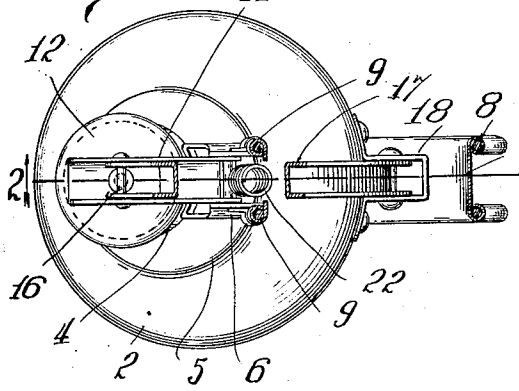
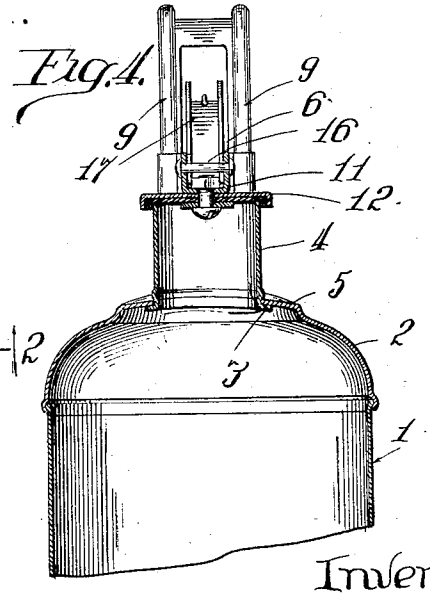


Fig. 4.



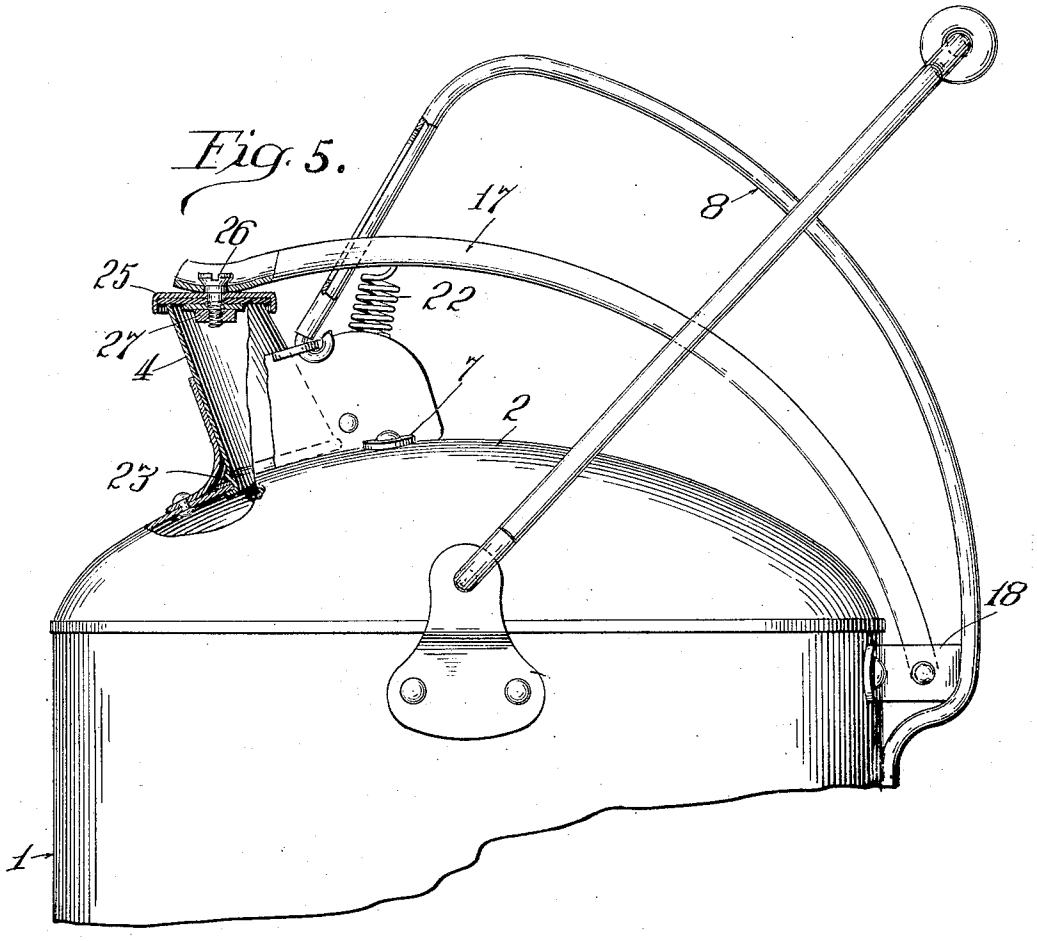
Inventor
Walther Raster
By Rudolph Im. Lotz
Attorney

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Fig. 5.



Inventor
Walther Raster
By Rudolph Mm Fox
Attorney

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UNITED STATES PATENT OFFICE

WALTHER RASTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO JUSTRITE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

SAFETY RECEPTACLE FOR INFLAMMABLE LIQUIDS

Application filed February 16, 1928. Serial No. 254,657.

This invention relates to what is known as a safety closure for receptacles adapted to contain volatile inflammable liquids such as gasoline, alcohol and the like and has for its object to provide a springheld closure associated with a hand lever which is in turn associated with the bail or handle of the receptacle so as to be grasped and operated to permit flow from the receptacle at the same time that the latter is lifted preparatory to tilting the same to cause flow of liquid therefrom, the present invention being directed to specific improvements in the mechanism which renders it efficient to maintain the receptacle normally sealed and the sealing mechanism easily operable to permit discharge of liquid.

Receptacles of the class to which the invention relates are made in different sizes and as between the smaller and larger sizes the main difference lies in the diameter of the receptacle body and in the specific type and location of the bail or handle thereof. It is desirable for reasons of cost economy in the manufacture of receptacles differing in diameter to employ the same size spout and closure mechanism and an important feature of the present invention consists in so forming the tops of receptacles of different diameters as to permit the spouts or nozzles and the closures thereof to be interchangeably associated with the same thus necessitating only a change in the operating lever to accommodate the latter to such various sizes of said receptacles.

The invention is fully illustrated in the accompanying drawings wherein:

Fig. 1 is a side elevation of a receptacle and closure mechanism therefor constructed in accordance with my invention.

Fig. 2 is a central vertical section of the same on the line 2—2 of Fig. 3.

Fig. 3 is a plan section on the line 3—3 of Fig. 1.

Fig. 4 is a front elevation of the same.

Fig. 5 is a side elevation of a receptacle equipped with a modified form of closure mechanism.

The receptacle body 1 is usually and preferably cylindrical and varies in length for various capacities from a given minimum to a given maximum. Sizes larger than the latter are of larger diameter and again varied in length for various capacities. This scheme permits the manufacturer to produce a large line of different sizes of receptacles at the smallest cost for dies to form the top and bottom walls, the former being dished and presenting its convex surface outwardly. The top wall is provided with a discharge opening which is disposed eccentrically thereof and is bordered by the flange 3 of the discharge spout or nozzle 4 which, while cylindrical, is passed through the discharge opening and is then flared to lie in close contact with the inner face of the head 2 to which it is then soldered to provide a fluid tight joint. The body of the nozzle 4 is thus disposed angularly of the vertical axis of the receptacle.

Rigid with the spout or nozzle 4 is a vertically disposed U-shaped member 6 which is provided along its lower end with flanges 7 which are secured by means of rivets, or otherwise, to the top wall 2 or top wall of the boss 5 of the receptacle. The handle or bail 8 of the receptacle is equipped with a vertical end portion 9 the lower end portion of which is suitably secured to the upper rear corner portion of the member 6, the other end portion of said handle or bail 8 being suitably rigidly secured to the receptacle body 1. Said bail or handle is usually a flat metal structure consisting preferably of light sheet metal having wires enclosed in its side edge portions.

Pivotally secured to the upper end portion of the member 6 between the side flanges thereof is a U-shaped bar 11 to which the closure cap 12 for the spout or nozzle 4 is

rigidly secured. The pivot pin 13 for the bar 11 fits snugly in perforations in the side flanges of the bar and passes through vertical slots 14 in the side flanges of the member 6, said slots being short and being so disposed that the plane of the slots in the bar 11 intersects said slots substantially midway between the ends thereof. Consequently, when the closure cap 12 rests firmly on the top of the spout or nozzle 4 the pivot pin 13 will be disposed substantially midway of the ends of the slots 14 and may move up or down therein to permit the cap 12 to adjust itself to the top of the spout or nozzle to seal the latter.

In the side flanges of the bar 11 are longitudinal slots 15 which extend from a point approximately in vertical alignment with the rear edge to a point near the front edge of the closure cap 12, the length of said slots 15 being of importance only as concerns the portion thereof in which the pin 16 moves, viz. from a point at substantially the vertical axis of the cap 12 toward the rear ends of said slots in order that the said pin may turn the cap 12 through an arc of about ninety degrees to full open position. Said pin 16 is mounted in one end of a hand lever 17 which, at its other end, is pivotally secured to a U-shaped projection 18 on the body 1 adjacent the upper end of the latter and above the lower end of the bail or handle, which in part, covers and protects said projection. Said lever 17 is so shaped and arranged that when digitally engaged by the fingers of the hand, the palm of which engages the inclined middle portion 19 of the bail or handle, the middle portion 20 of said lever will be moved to a position wherein it is substantially parallel with the portion 19 of the handle and opposed thereto. When in this position, the outer edges of the flanges of the bar 11 will be in contact with a portion of the bail or handle just above the slot 21 therein through which the forward portion of the lever 17 normally projects.

A helical tension spring 22 is secured at one end to lever 17 at the highest point between the ends of the latter and at its other end to the member 6, said spring being under tension when the closure cap 12 is seated on the spot or nozzle 4 and serving to maintain the same firmly seated, the pressure exerted by said spring being transmitted to the said cap 12 by the pin 16 at substantially the center of said cap.

In manufacture, the spout or nozzle 4, member 6, bar 11 and bail or handle 8 are assembled before the spout or nozzle is mounted on the head 2. The bail or handle 8 varies in shape and size to accord with various diameters of bodies 1 and the levers 17 must necessarily also similarly vary in shape and size but the assembly above mentioned effects a very appreciable cost economy in that a single set of tools or special equipment is required for its manufacture for all sizes of receptacles thus limiting the investment and also obviating the costs of set-ups of dies, etc., when changing from one size to another as has been the practice heretofore.

In Fig. 5 I have illustrated a form of embodiment of the invention wherein the cap 25 for the spout or nozzle 4 is carried by the lever 17, the connection between said cap and lever being in the nature of a universal joint permitting limited movement of the cap relatively to the lever in all directions to an extent sufficient to permit the cap to adjust itself to seat upon the end of the spout or nozzle. This joint consists of a shoulder stud or bolt 26 threaded into the center of the cap 25 and held against rotation by means of a jamnut 27. The shank of the bolt passes freely and loosely through an opening in the end of the lever 17, the thickness of the wall or portion of said lever containing said opening being less than the length of the shank of the bolt 26 between the top of the cap 25 and the head of said bolt. This provides for limited longitudinal movement of the bolt relatively to the cap while the opening permits lateral and swinging movement of the same.

It will be noted that the flanges or projections 7 are so disposed or positioned relatively to the annular bead 23 of the discharge spout, which provides an annular shoulder determining the position of the discharge spout on the receptacle head, as to rest upon the latter when the said bead or shoulder rests upon the same around the opening through which the lower end of the spout is passed. The dished head 2 is either accurately or approximately formed in a spherо-convex shape either substantially throughout its entire top surface or over a sufficient area, as in the case of the boss or formation 5 to correspond to the relative positions of the bottom of the bead or shoulder 23 and the said flanges 7.

The assembling of the nozzle with its closure cap, flanges 6 and 7 and pivot pin 13 as a unitary structure for mounting on the receptacle heads, and forming the heads for receptacle bodies of various diameters so that each will present a surface portion to fit said unitary structure, is believed to constitute a clearly novel and patentable method of manufacture as a distinct and important feature of the invention, it being obvious that the said flanges 7 when secured to the receptacle top serve to hold the nozzle against possible forced rotation and to distribute strains and stresses tending to distort the top wall as by a blow on the nozzle or resulting from supporting a full receptacle upon the edge of the filler spout of another receptacle being filled.

I claim as my invention:

1. In a receptacle of the kind specified, a

discharge nozzle mounted eccentrically of the longitudinal axis of the receptacle body upon the top wall thereof, a bail or handle secured at one end to the receptacle body and extending over the top wall thereof and downwardly to a point approximately in alignment with the longitudinal axis of the body behind said nozzle, a hand lever disposed mainly between the handle and the receptacle top and pivotally secured at one end to the receptacle, a closure cap for the nozzle having pivotal and sliding connection with said lever for movement to and from the nozzle and for movement relatively to said lever to cause said cap to adjust itself to firmly seat upon the nozzle, and a spring engaged with said lever for normally holding the same at the limit of its movement whereat the cap is seated, there being a slot in said handle through which the non-pivoted end portion of said lever projects.

2. A receptacle provided with a handle overhanging the top wall thereof from about its center to its periphery, the portion of said handle at the center of said top wall being provided with a longitudinal slot, a discharge nozzle mounted on said top wall in alignment with a vertical plane intersecting the handle between its side edges, a hand lever pivotally secured at one end to the receptacle adjacent the peripheral edge of its top wall and at its other end portion projecting through said slot and operating in said plane, a closure cap for said nozzle having pivotal and sliding connection with said lever for opening and closing movement by the latter and for movement relatively to said lever for causing self-seating of said cap on said nozzle, and a spring operatively associated with said lever for maintaining said cap normally seated.

3. In a receptacle, a discharge nozzle equipped at one side with a rigid longitudinal flange, a closure cap seating on said nozzle, a flange rigid with said cap and provided between its ends with a longitudinal slot, a pin pivotally connecting said flanges at a point spaced from said cap, there being a slot in one of said flanges extending substantially perpendicularly of the slot in said flange of said cap through which said pin passes, a hand lever and a spring therefor, said lever engaging at one end in the longitudinal slot in said flange of said cap and pivotally secured at its other end to the receptacle for maintaining said cap normally seated on said nozzle and coacting with said pivot pin and the slot through which the latter passes to firmly seat said cap.

4. A receptacle equipped with a discharge nozzle projecting from its top wall and disposed in spaced relation to the vertical axis of the receptacle, a handle for said receptacle having a vertical arm portion secured to the said nozzle and provided with a longitudinal slot, the other end portion of said handle being bent and its extreme end secured to the peripheral wall of the receptacle at a point diametrically opposite the said nozzle, a closure cap for the latter, a lever, a spring maintaining said lever normally bearing upon said cap at substantially its center and loosely engaged with said cap to cause said cap to adjust itself to sealing position on said nozzle, said lever extending through the slot in the vertical arm of said handle for guidance thereby and pivotally connected at one end with the receptacle body at a point adjacent to the top thereof and diametrically opposed to the nozzle, the middle portion of said lever being normally spaced from the middle portion of said handle.

5. A receptacle equipped with a discharge nozzle, a closure cap for sealing the latter, a handle for said receptacle overhanging the top wall thereof and provided in its overhanging portion with a guide slot, a lever pivotally secured at one end to the receptacle and overhanging the top of the latter and engaged between its ends in said guide slot, a spring engaged with said lever, the other end of said lever pivotally and slidably connected with said closure cap and normally bearing substantially upon the center thereof responsively to said spring to cause said cap to adjust itself to sealing position on said nozzle, the middle portion of said lever spaced from and lying below the middle portion of the handle with respect to the top wall of the receptacle.

6. A receptacle equipped with a discharge nozzle, a closure cap for sealing the latter, a handle for said receptacle overhanging the top wall thereof and provided in the overhanging portion with a guide slot, a spring-held lever pivotally secured at one end to the receptacle and overhanging the top thereof and engaged between its ends in said slot, a spring engaged with said lever, a diametric flange on said cap provided with a longitudinal slot, the other end of said lever slidably engaged in said slot and normally exerting pressure on said cap responsively to said spring at substantially the center of said cap, means loosely pivotally associating said cap with said nozzle for causing the cap to adjust itself to sealing position on said nozzle under the influence of the pressure of said lever, the middle portion of said lever spaced from and lying below the middle portion of the handle with respect to the top wall of the receptacle.

7. A normally sealed discharge nozzle for receptacles comprising a tubular discharge spout, a projection rigid therewith, a cap adapted to seat on said spout, an arm rigid with said cap, a pivot pin connecting one end of said arm with said projection, one of the aforesaid elements joined by said pivot pin being provided with a slot in which said pin is slidable and said slot being substantially

parallel with the axis of said cap, and a spring-held hand-lever pivotally associated at one end with the receptacle and at its other end pivotally and slidably connected with said cap to bear upon the same at substantially the center thereof, thereby to force said cap to seated position and adapted to swing said cap on the said pivot pin to open position upon urging said lever out of its normal position.

WALTHER RASTER.