

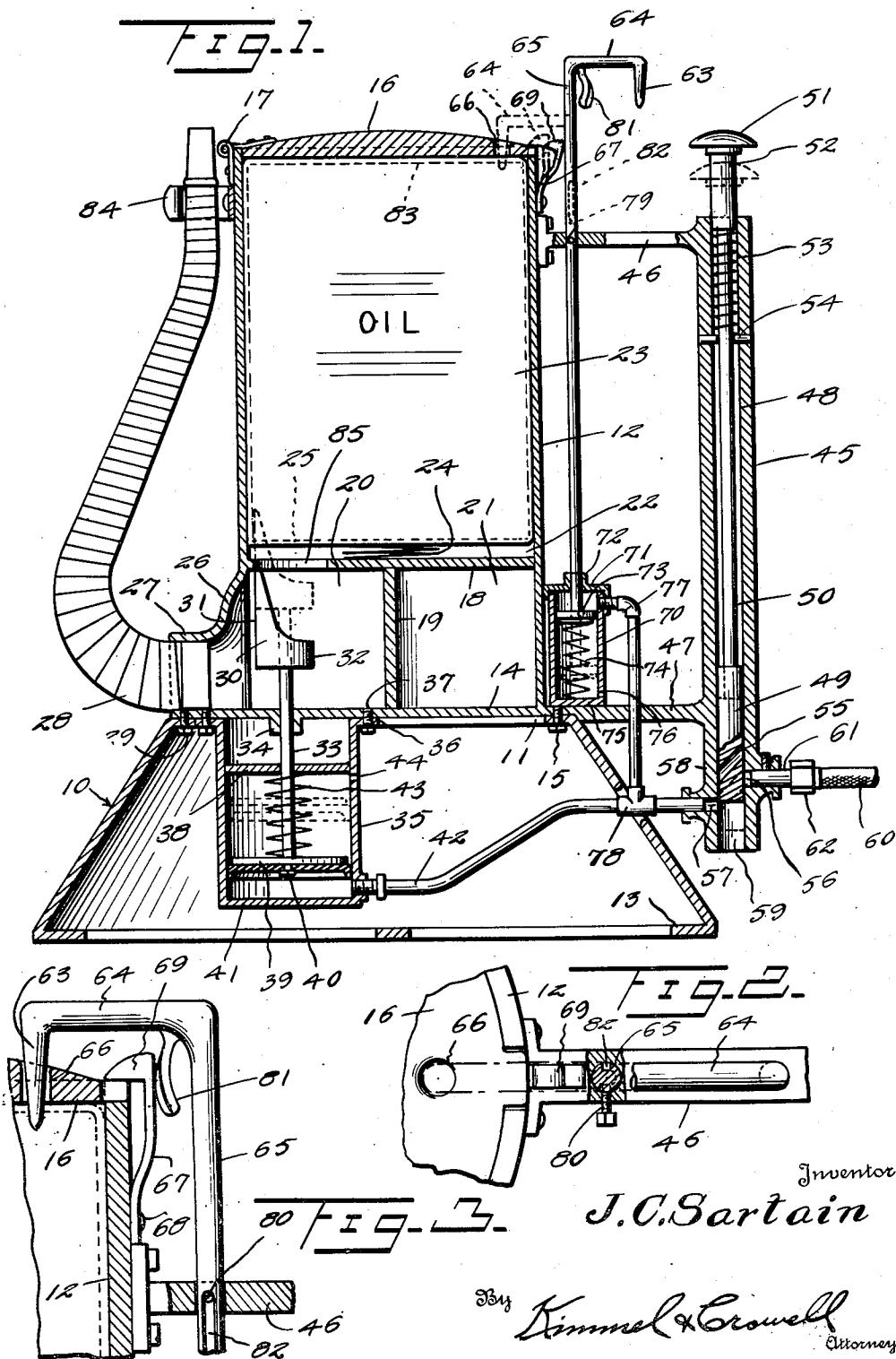
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FLUID DISPENSER

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FLUID DISPENSER

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This invention relates to fluid dispensing means and more particularly to a means for dispensing oil or other liquids from an initially concealed can.

5 An object of this invention is to provide a liquid dispensing means including a holder for a sealed liquid can, means for piercing the can at the top and bottom thereof, and means for connecting the piercing means with an air pressure line.

10 Another object of the invention is to provide a dispensing means of this type which is adapted to enclose a sealed can, the device including a means for piercing the can so as to permit the contents thereof to readily flow out of the can and also includes a liquid dispensing nozzle or pipe.

15 A further object of this invention is to provide, in a liquid dispensing means, an improved device for puncturing one end of the oil can when mounted in the holder so as to provide an air vent, the vent puncturing means being operated simultaneously with a piercing means engaging the opposite ends of the can so as to provide an outlet for the liquid.

20 A still further object of this invention is to provide in a structure of this kind a holder which is adapted to entirely enclose the oil can, the holder including a pair of puncturing members which are adapted to engage the can through the upper and lower end of the holder.

25 Embodying the aims aforesaid and to others which may hereinafter appear, the invention consists of the novel construction, combination, and arrangement of parts as will be more specifically referred to and as illustrated in the accompanying drawing, wherein are shown embodiments of the invention, but it is to be understood that changes, variations, and modifications may be resorted to which fall within the scope of the invention, as claimed.

30 Figure 1 is a vertical section, partly in detail, of a liquid dispensing means constructed according to an embodiment of this invention;

35 Figure 2 is a fragmentary top plan of the device, partly broken away and in section; and

40 Figure 3 is an enlarged fragmentary vertical section, showing the vent producing means carried by the upper portion of the device.

45 Referring to the drawing, the numeral 10 designates generally a hollow base structure which, in the present instance, is constructed of substantially frusto-conical configuration, being provided at the base thereof with an inwardly projecting flange 13. An upper flange 11 is formed at the upper end of the base member 10. A cylin-

drical body 12, provided with a lower bottom 14, is secured by means of fastening devices 15 to the base 10. The cylindrical member 12 is provided at the upper end thereof with the closure or lid 16 which is hingedly secured to the body 12 by means of a hinge structure 17.

5 The body 12, at a point upwardly from the lower end thereof, is provided with an inner bottom 18, and a partition 19 extends diametrically across the body 12, being secured to the inner bottom 18 and the lower bottom 14 thereby dividing the space between the lower bottom 14, and the inner bottom 18 into a delivery chamber 20, and a second chamber 21. The space above the inner bottom 18 forms a can receiving chamber 22, 15 within which a sealed oil can 23 is adapted to removably engage. A spring 24 is disposed in the receptacle chamber 22, one end of the spring 24 engaging the upper surface of the inner bottom 18, and the other end of the spring 24 engaging against the bottom 25 of the can 23.

20 The body 12 adjacent the lower end thereof, is provided with an outwardly offset portion 26 and a nipple 27 extends outwardly from the extension 26. One end of a flexible delivery tube or nozzle 28, is secured, as by fastening members 29, within the nipple 27. A bottom puncturing blade 30 is disposed within the delivery chamber 20, and is constructed in substantially annular form and with an outer side 31 substantially longer than the inner side 32 in order to provide a relatively sharp blade structure which is adapted to initially pierce the bottom 25 of the can and then roll the straight portion thereof inwardly of the can 23.

25 The blade 30 is carried by a stem 33 which is slidable through a guide 34 carried by the bottom 14. A cylinder 35 is disposed within the base 10 being provided at its upper end with a flange 36 which is adapted to be secured, as by fastening members 37, to the bottom 14. The cylinder 35 is provided with a guide member 38 which is disposed below the boss 34 and through which the stem 33 slidably engages. A plunger or piston 39 is secured to the lower end of the stem 33 by fastening means 40, and is slidable within the cylinder 35. A fixed bottom wall 41 is disposed at the lower end of the cylinder 35, and one end of an air pressure pipe 42 is connected to the cylinder 35 adjacent the bottom 41, and below the plunger or piston 39. A spring 43 is disposed 35 within the cylinder 35 about the stem 33, and one end of the spring 43 engages against the inner end of the piston or plunger 39 while the other end of the spring 43 engages against the guide member 38. The cylinder 35, at a point adjacent 40

and slightly below the guide member 38, is provided with a vent 44 so as to permit the air above the plunger 39 to exhaust into the atmosphere.

A vertically disposed handle 45 is secured to body 12, by means of an arm 46 and a second arm or extension 47. The handle 45 is provided with a bore 48 extending vertically therethrough, and a valve plug 49 is slidable in the lower portion of the bore 48. The valve stem 50 is secured to the plug 49 and extends upwardly through the bore 48. A knob or operating member 51, having a boss 52, is secured to the upper end of the stem 50. The boss 52 is of a diameter such that it is adapted to slidably engage in the upper end of the bore 48. A spring 53 is disposed in the bore 48 and at one end bears against the lower end of the boss 52. The opposite end of the spring 53 bears against a shoulder or seat 54 provided in the bore 48 below the upper end thereof. The valve plug 49 is provided with a fluid passage 55 which is adapted to connect an inlet port 56 with an outlet port 57 formed in a valve housing 58 below the handle supporting member 47. In the present instance the bore 48 opens through the lower end of the valve housing 58 thereby forming an exhaust port 59 so that when the valve plug 49 is in a port closing position across the inner end of the intake port 56 the outlet port 57 will communicate with the exhaust port 59. A flexible hose 60 is adapted to be secured to a nipple 61 by a coupling means 62 and the hose 60 is adapted to be connected to a suitable source of air or other fluid pressure supply.

A can piercing blade 63 is carried by a right angularly disposed supporting arm 64 which is integral with an elongated stem 65. The blade 63, when in operative position, is adapted to slidably engage through an opening 66 which is formed in the closure 16 adjacent the margin thereof, opposite from the hinge 17. The closure 16 is adapted to be releasably held in closed position on the upper end of the body 12 by means of a latch 67 which is secured by fastening means 68 to the body 12 adjacent the upper end thereof. The latch 67 is resilient and is provided with a cam-shaped bill 69 which is adapted to be engaged by the marginal edge of the lid or closure 61, and to be moved outwardly by pressure against the lid 61, so as to permit the lid 61 to engage between the bill 69 and the upper end of the body 12.

A second cylinder 70 is disposed laterally of the body 12, being mounted on the supporting member 47. The cylinder 70 is provided with a head 71 having a stem guiding boss 72. A plunger or piston 73 is slidable in the cylinder 70 and is normally urged upwardly to an upper blade released position by means of a spring 74 which at one end engages against the plunger 73 and at the opposite end engages against the bottom wall 75. A vent 76 is formed through the wall of the cylinder 70, adjacent the bottom wall 75, so that air in the cylinder 70 below the plunger 73, can readily be exhausted. An air pipe 77 is connected at one end to the cylinder 70 adjacent the head 71, and at the other end is connected to a T or coupling 78 which is connected to the pipe 42. In this manner movement of the valve plug 49 to an open position will communicate the intake port 56 with the outlet port 57 so that air, under pressure, will pass through the pipe 42 into the cylinder 35 below the plunger 39 and will also pass through the pipe 77 into the cylinder 70 above the plunger 73.

In order to provide a means whereby the blade 63 may be moved to a released position so as to

permit the ready movement of the lid 16 to an open position, I have provided a spiral groove 79 in the stem 65. The stem 65 is slidable through the arm 46 which forms a guide means for the stem 65 at the upper portion of the body 12, and a pin or threaded key 80 engages through the guide arm 46 and engages in the groove 79 so that longitudinal movement of the stem 65 will be accompanied by rotary movement thereof. This rotary movement is substantially one-half turn, as shown in Figure 1, so that when in inoperative position, which is the position shown in full lines in Figure 1, the blade 63 will be disposed diametrically opposite to the operating position, which is the position shown in dotted lines. The stem 65, adjacent the upper end thereof, is provided with a resilient latch holding member 81, which is adapted to engage against the latch 67 when the blade 63 is in operative position. It will be noted from Figure 1, that the spiral groove 79 communicates at its upper end with a straight, longitudinal groove 82, so that the stem 65, after being swung from inoperative position to an operative position may have endwise movement unaccompanied by rotary movement.

In use and operation of this dispensing device the air hose 60 is adapted to be connected to a suitable source of air pressure means. The oil can 23 is initially mounted in the holder or body 12, and a lid 16 then closed and latched by a latching member 67. The knob 51 may then be pressed downwardly, by the thumb or the like, so as to communicate the intake port 56 with the outlet 57. In this position the port 55, in the plug 49, will communicate with the two ports 56 and 57. The air under pressure will pass through the pipe 42 into the lower end of the cylinder 35 so as to thereby force the plunger 39 upwardly against the tension of the spring 43. The bottom piercing blade 30 will puncture the bottom wall 25 of the can so that the oil or other liquid in the can may then flow into the discharge chamber 20. At the same time that air under pressure is forcing the plunger 39 upwardly air under pressure will pass through the pipe 77 into the cylinder 70 above the plunger 73 so as to move the plunger 73 downwardly. The downward movement of the plunger 73 will cause the stem 65 to be initially rotated substantially one-half turn so as to bring the blade 63 in alignment with the opening 66 in the lid 16. Further downward movement of the stem 65 will cause the key 80 to engage in the straight groove 82 so as to hold the blade 63 against rotary movement. The opening 66 in the lid 16 constitutes a guide means for the vent blade 63. Thus blade 63 will then puncture an opening in the top wall 83 of the can 23. The knob 51 may then be released so as to permit the spring 53 to move the valve plug 49 to a closed position across the inner end of the intake port 56. At this time the outlet port 57 communicates with the exhaust port 59 so that the spring 43 may move the plunger 39 downwardly and at the same time the spring 74 may move the plunger 73 upwardly. The flexible discharge hose 28 may then be released from the resilient clamp 84 which is secured to the upper portion of the holder 12, and the liquid from the can 23 then discharged through the discharge opening 85 formed in the bottom wall 18.

What I claim is:

1. A fluid dispensing means comprising a holder, means securing a sealed container in said holder, a pair of oppositely disposed can puncturing blades, means slidably mounting said blades on said holder, a pair of cylinders carried by said

holder, plungers connected to said blades and slidable in said cylinders, and means connecting said cylinders to a source of fluid pressure.

2. A fluid dispensing means comprising a base member, a cylindrical body mounted on said base, a hinged closure carried by said body, said body including an inner bottom provided with a fluid discharge opening, a can puncturing blade, a stem secured to the said blade and extending downwardly into said base, an operating cylinder disposed in said base, a plunger secured to said stem and slidable in said cylinder and means connecting said cylinder with a source of air pressure whereby to move said blade upwardly through said discharge opening to thereby puncture the adjacent wall of a can disposed in said body.

3. A fluid dispensing means comprising a hollow base, a cylindrical body, means securing said body on said base, an inner bottom in said body above the lower end thereof, and provided with a discharge opening, a lower bottom secured to said body below said inner bottom, a can puncturing blade disposed above said lower bottom, a stem secured to said blade and slidably engaging through said lower bottom, a cylinder in said base, guide means carried by said cylinder for said stem, a plunger secured to said stem and slidable in said cylinder, said cylinder having an air intake port adjacent the lower end thereof, means connecting said intake port with a source of air supply under pressure, and a spring in said cylinder about said stem between said guide means and said plunger normally urging said plunger downwardly, upward movement of said plunger forcing said blade upwardly through said discharge opening to thereby puncture the adjacent wall of a can disposed in said body.

4. A fluid dispensing means comprising a hollow base, a cylindrical body secured to and extending upwardly of said base, a lower bottom carried by said body, an inner bottom above said lower bottom and provided with a discharge opening at one side of the axial center thereof, a blade member normally disposed in the space between said inner bottom and said lower bottom, a stem secured to said blade member, a cylinder in said base, guide means in said cylinder, a plunger slidable in said cylinder below said guide means, means connecting the lower portion of said cylinder to a fluid pressure supply, means for constantly urging said plunger downwardly to thereby retract said blade and a fluid dispensing member connected to said body between said lower bottom and said inner bottom.

5. A fluid dispensing means comprising a base, a cylindrical body secured to and extending upwardly of said base, a lower bottom secured to said body, an inner bottom secured to said body upwardly of said lower bottom and provided with a discharge opening, a blade normally disposed in the space between said inner bottom and said lower bottom, and disposed in axial alignment with said discharge opening, means for moving said blade upwardly through said opening to thereby puncture the adjacent wall of a container disposed in said body to thereby form a discharge opening in said container, a second blade disposed adjacent the upper end of said body and means for moving said second blade to thereby form an air vent in the opposite end of said container.

6. A fluid dispensing means comprising a base member, a cylindrical member, a cylindrical body secured to and extending upwardly of said base member, a closure on the upper end of said body,

a can puncturing blade, means for moving said blade upwardly in said body to thereby puncture the lower wall of the container in said body, said closure having a blade guiding opening there-through, means for moving said second blade downwardly through said guide opening, and means for moving said second blade upwardly, said latter means including means for swinging said second blade laterally of said body to thereby normally maintain said second blade in a laterally disposed position relative to said body.

7. A fluid dispensing means comprising a base, a cylindrical body secured to and extending upwardly of said base, means movable in said body for puncturing the lower wall of a can positioned in said body, a vent forming blade, an L-shaped stem secured to said blade, guide means for said stem disposed exteriorly of said body, means for moving said stem longitudinally of said body, and means engaging said stem and said guide means for partially rotating said stem and said blade to thereby swing said blade from a normally offset position relative to said body to a position confronting the upper end of said body.

8. A fluid dispensing means, including a cylindrical body adapted to receive a sealed container, a closure for said body provided with a guide opening therethrough, a blade member, an L-shaped stem secured to said blade member, guide means exteriorly of said body for said stem, means for moving said stem longitudinally of said body, said stem having a longitudinally disposed groove therein for a portion of the length thereof and a spiral groove communicating with said first groove, and a key member carried by said guide means engaging in said grooves to thereby effect an initial rotary movement of said stem co-active with endwise movement, and subsequently effect endwise movement to thereby move said blade through said closure guide opening for puncturing the upper end of a container disposed in said body.

9. A fluid dispensing means comprising a hollow base, a cylindrical body secured to said base, a handle, means securing said handle to said body, said handle having a bore longitudinally there-through, a valve housing formed at one end of said handle, a valve plug slidable in said housing, a valve stem secured to said plug and extending through said bore, an operating member carried by said stem, a spring normally urging said valve plug to a closed position, means connecting said housing to a source of air supply under pressure, a pair of oppositely movable can puncturing blades, yieldable means constantly urging said blades to an inoperative position, and means connected to said valve housing for simultaneously moving said blades to an operative position to thereby puncture the opposite ends of a can disposed in said holder.

10. A fluid dispensing means comprising a hollow base, a cylindrical body secured to said base, a handle, means securing said handle to said body, said handle having a bore longitudinally therethrough, a valve housing formed at one end of said handle, a valve plug slidable in said housing, a valve stem secured to said plug and extending through said bore, an operating member carried by said stem, a spring normally urging said valve plug to a closed position, means connecting said housing to a source of air supply under pressure, a pair of oppositely movable can puncturing blades, yieldable means constantly urging said blades to an inoperative position, and means connected to said valve housing for simultaneously

moving said blades to an operative position to thereby puncture the opposite ends of a can disposed in said holder, said latter means including means for swinging one of said blades from a laterally disposed inoperative position to an operative position confronting an end of said body.

11. A fluid dispensing means comprising a cylindrical body, means at one end of said body for puncturing the adjacent wall of a can positioned within said body, a closure hingedly carried by the other end of said body provided with an opening therethrough, a yieldable latch for said closure carried by said body, a vent forming blade engage-

able in one position through said closure opening, an L-shaped stem secured to said blade, guide means for said stem disposed exteriorly of said body, means for moving said stem longitudinally of said body, means engaging said stem and said guide means for partially rotating said stem and said blade to thereby swing said blade from a normal offset position relative to said body to a position aligning with said opening, and means carried by said stem engageable with said latch for holding said latch in latching position when said blade is in axial alignment with said opening.

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