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L. B. WARREN

2,035,438

NONDRIP NOZZLE

Filed May 7, 1935

Fig. 1.

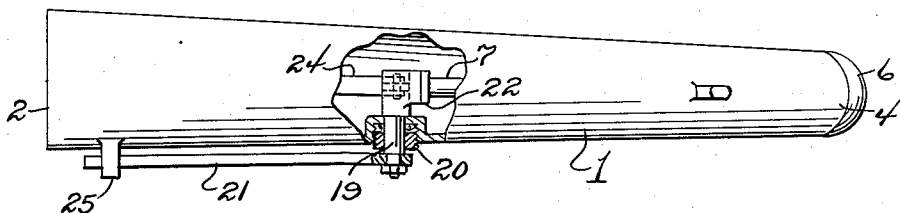


Fig. 2.

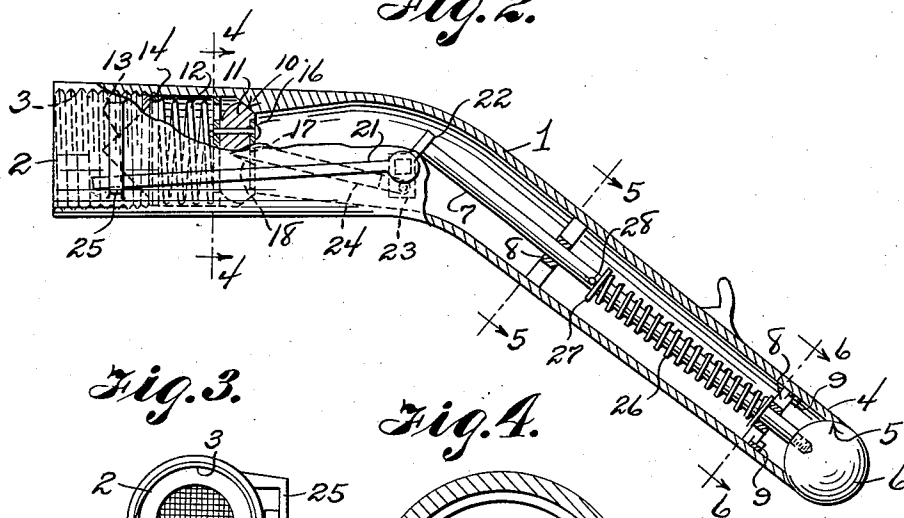


Fig. 3.

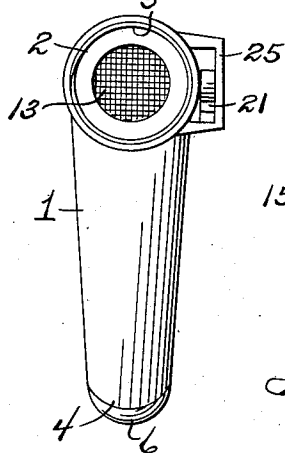


Fig. 4.

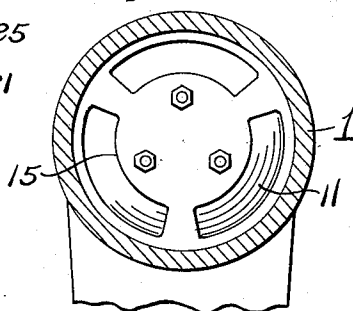


Fig. 5.

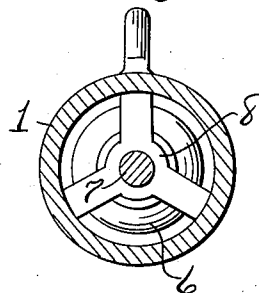
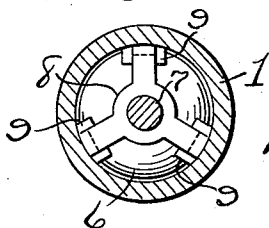


Fig. 6.



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NONDRIP NOZZLE

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3 Claims. (Cl. 221—84)

This invention relates to a non-drip nozzle especially adapted for discharging liquid into a container from a source and has for the primary object the provision of a device of this character having primary and secondary valves actuated from a common control whereby liquid may be prevented from dripping from the nozzle after the closing of the supply thereto and which will not materially interfere with the flow of liquid from said nozzle when open and will permit a person to regulate the flow of liquid so that small containers may be filled without waste of the liquid.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which

Figure 1 is a top plan view, partly in section, illustrating a non-drip nozzle constructed in accordance with my invention.

Figure 2 is a vertical sectional view illustrating the same.

Figure 3 is an end view of the nozzle.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a sectional view taken on the line 5—5 of Figure 2.

Figure 6 is a sectional view taken on the line 6—6 of Figure 2.

Referring in detail to the drawing, the numeral 1 indicates a nozzle having an intake end 2 provided with internal screw threads 3 for attaching the nozzle to a coupling element of a hose or similar device employed in connection with a liquid supply. The nozzle 1 has a discharge end 4 provided with a valve seat 5. A ball type valve 6 engages with the seat 5 and is removably secured to a valve stem 7 slidably mounted in guides 8 located within the nozzle. The guides 8 are of the spider type so as to permit flow of liquid thereby. The guide 8 next to the valve seat 5 is removably mounted on lugs 9 suitably secured to the inner walls of the nozzle, while the other guide is held in place due to the taper of the bore of the nozzle.

The nozzle adjacent the intake end has a valve seat 10 engaged by a valve 11 under the influence of a spring 12. The purpose of the valve 11 is to stop the flow of liquid from the source through the nozzle. Located between the valve 11 and the intake end of the nozzle is a screen 13, the frame of which is removably secured to the nozzle and

forms a seat for a washer 14 engaging one end of the spring 12. The opposite end of the spring bears against the wear plate 15 secured to one face of the valve 11, the opposite face of the valve plate having a wear plate 16 provided with an opening 17 communicating with a notch 18 formed in the valve.

A shaft 19 enters the nozzle between the valve seats by way of a packing gland 20 which will permit the shaft to be turned in either direction by a control lever 21 arranged externally of the nozzle. A projection or ear 22 is secured to the shaft to engage the valve stem 7. The attaching portion of the ear 22 to the shaft 19 has a lug 23 formed thereon to which is pivoted a valve stem 24. The valve stem 24 has its free end tapered or reduced to enter the opening 17 of the plate 16 and the notch 18 of the valve 11. The free end of the valve stem 24 has a loose fit with the valve 11 and when the valve 6 is in a seated position, the valve stem 24 is slightly spaced from the walls of the notch 18, allowing the valve 11 to fully engage the seat 10 under the influence of the spring 12. In other words, the valve 11 seats or engages the seat 10 prior to the valve 6 engaging the seat 5 through the manipulation of the control lever 21. The valve 6 when in an open position due to the control lever 21 being swung away from its rest 25, the valve 11 will be disengaged from the seat 10 by the valve stem 24 allowing the liquid from the supply to flow through the nozzle. The valve 6 will engage its seat when the control lever 21 engages the rest 25 by a spring 26 bearing at one end against one of the guides 8 and the opposite end bearing against the washer 27 mounted on the stem 7 and engaged by a pin 28 secured to said stem 7. The spring 26 acts to maintain the valve stem 7 in engagement with the ear 22 of the shaft 19.

The valve 11 is known as the primary valve while the valve 6 is known as the secondary valve. The primary valve 11 controls the flow of liquid from the source into the nozzle while the secondary valve 6 controls the outflow of liquid from the nozzle. Due to the arrangement of the valve stems 7 and 24, the valve 11 always seats prior to the seating of the valve 6 so that the supply of liquid from the source to the nozzle will be cut off before the drainage of the nozzle is stopped due to the seating of the valve 6. By the arrangement of the valve described in the nozzle it is possible to control the flow of fluid from the nozzle and also when the valve 6 is disengaged from its seat it will not materially interfere with the flow of liquid from the nozzle due to its spheri-

cal shape as the liquid may readily pass about the valve 6 and continue its flow away from the nozzle.

5 A nozzle of the character described can be employed for many purposes. However, one of the most advantageous purposes is the use of the nozzle in conjunction with supply pumps of liquid fuels in filling stations. A nozzle of this character when employed for the purpose stated
10 will prevent waste and spilling of the liquid either upon the ground or upon the vehicle being filled with the liquid.

Having described the invention, I claim:

1. A nozzle comprising a nozzle body having
15 intake and discharge ends, a valve seat at the discharge end of the nozzle, a second valve seat in the body adjacent the intake end, a primary valve to engage the second-named seat, spring means acting on said primary valve to engage the latter with the second seat, a secondary valve
20 of the ball type to engage the first-named seat, a stem secured to the secondary valve, spring means acting on the stem to engage the secondary valve with the first seat, an operating shaft journaled to the body, a control lever secured
25 to the operating shaft, a second valve stem pivoted to the control shaft and loosely connected to the primary valve, and an ear secured to the shaft and engaging the first-named stem where-
30 by the movement of the control lever in one direction will bring about opening of said valve.

2. A nozzle comprising a nozzle body having inlet and outlet ends, said outlet end being in the form of a ball valve seat, a second seat located in the body inwardly of the inlet end, a ball valve arranged exteriorly of the body to engage
5 the ball valve seat and including a stem extending into the body, spring means acting on the stem to seat said valve, a spring pressed slidable valve located in the body to engage the second seat between the latter and the inlet end, and
10 an operating means for simultaneously unseating the valves.

3. A nozzle comprising a nozzle body having inlet and outlet ends, said outlet end being in the form of a ball valve seat, a second seat lo-
15 cated in the body inwardly of the inlet end, a ball valve arranged exteriorly of the body to engage the ball valve seat and including a stem extending into the body, spring means acting on the stem to seat said valve, a spring pressed slid-
20 able valve located in the body to engage the second seat between the latter and the inlet end, said second valve having a notch, an operating medium journaled to the body and extending into
25 the latter, an element pivoted to said medium and having one end engageable with the notch, and an extension on said medium to engage the stem of the ball valve.

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