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NOZZLE ILLUMINATING MEANS

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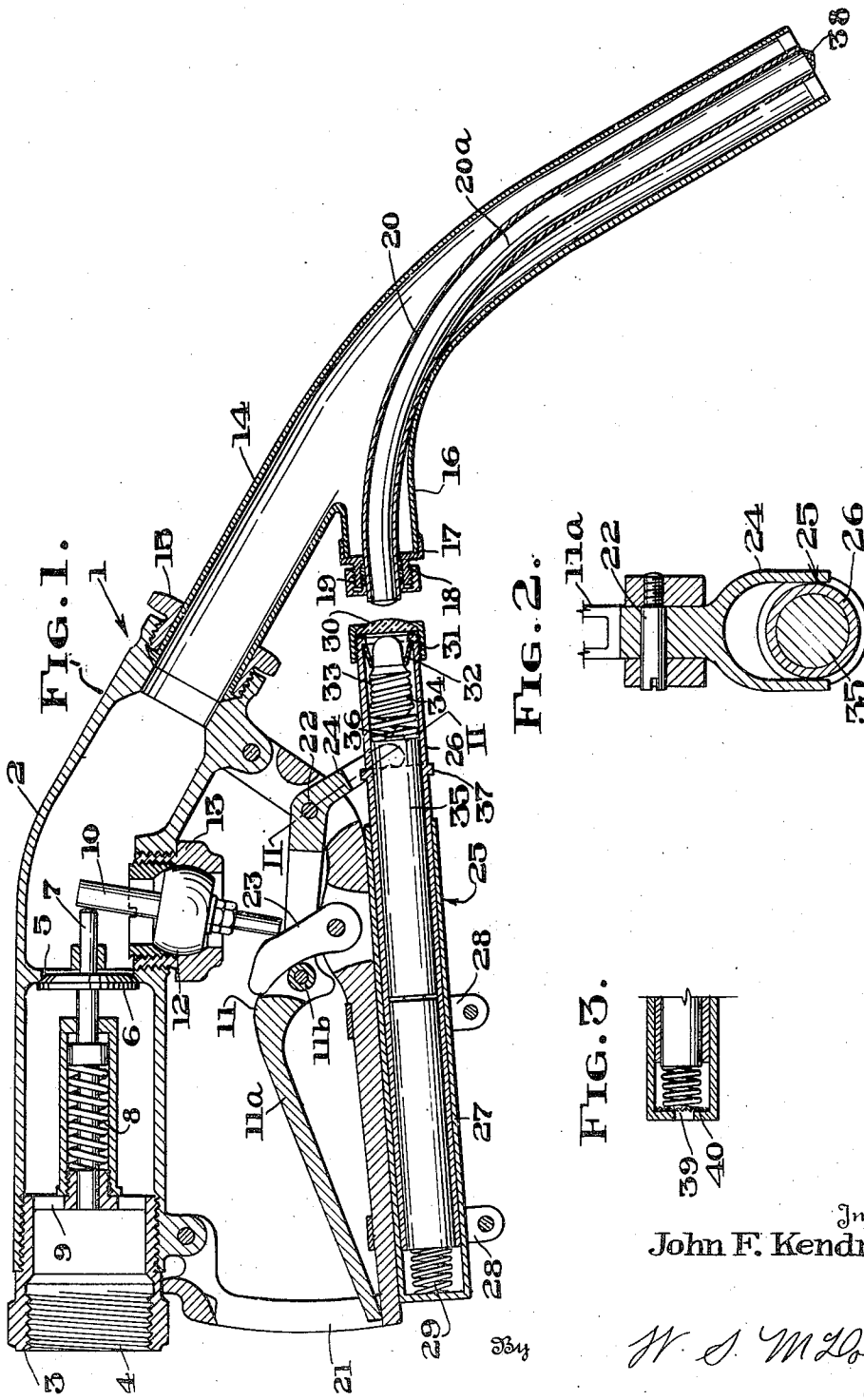


FIG. 1.

FIG. 2.

FIG. 3.

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NOZZLE ILLUMINATING MEANS

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3 Claims. (Cl. 240—2)

This invention relates generally to illuminating means and more particularly to a device for illuminating the discharge end of a nozzle of the type employed in dispensing inflammable fluids such as gasoline.

Other devices for performing this function have previously been proposed but they were all subject to the objection of being unsafe for use with inflammable liquids. Many of the prior devices had lamps positioned in the outer end portions of the dispensing nozzles where they were easily broken and required the extension of wire or other conductors through or along the nozzles. These wires were apt to wear and break during use whereby sparks could be produced which would ignite the liquid dispensed by the nozzle.

One of the primary objects of this invention resides in the provision of a device of the character set forth which will avoid the objections to the prior devices and be positively safe for use on nozzles for dispensing gasoline or other inflammable liquids.

Another object rests in the provision of an illuminating means for nozzles wherein the energized element or lamp is located remotely from the outlet portion of the nozzle and light transmitting means, such as "lucite," is utilized to conduct the light rays from the lamp to the part of the device to be illuminated.

Another object resides in the formation of a light for fluid dispensing nozzles which will include a casing for receiving a lamp and batteries, the casing being so formed that engaging and disengaging contacts used to light and extinguish the lamp will be protected from gas charged air normally found near the nozzles, means being provided also to transmit the light rays from the casing to the outlet end of the nozzle where they may be employed to illuminate the interior of a gasoline-receiving tank.

A further object is met by forming the casing with telescopic sections and providing means for moving the sections upon the operation of valve means carried by the nozzle, the telescopic movement of the sections providing for the energizing of the lamp whereby the outlet of the nozzle will be illuminated when the fluid control valve is opened.

Still further objects will be apparent from the following description and the accompanying drawing in which one embodiment of the invention has been disclosed in detail.

In the drawing:

Fig. 1 is a vertical longitudinal sectional view taken through a fluid dispensing nozzle provided with a light formed in accordance with the present invention;

Fig. 2 is a detail vertical transverse sectional view taken on the plane indicated by the line II—II of Fig. 1;

Fig. 3 is a detail longitudinal sectional view taken through a modified form of light.

Referring more particularly to the drawing, the numeral 1 designates the nozzle in its entirety. In this instance, the nozzle has a body portion 2 which is cast from a suitable metal and is of hollow construction, being open at both ends. The numeral 3 indicates a fitting which is threadedly secured to one end of the body and has internal threads 4 formed therein for the reception of coupling means employed in attaching the nozzle to a hose or other device through which fluid to be dispensed is conducted to the nozzle.

The body 2 has a transverse wall 5 in which a port is provided, a valve member 6 being disposed within the body to control fluid flow through the port. The valve 6 is formed with a stem 7 which projects from each side of the valve and has one end in engagement with a compression spring 8 which bears at one end against a spider 9 formed with the fitting 3. The spring 8 normally serves to maintain the valve in a position to obstruct fluid flow through the body.

When it is desired to establish the flow of fluid, the valve is moved away from the wall 5 to open the port. This movement is accomplished through the provision of a pin 10 which projects through the side wall of the nozzle into the path of movement of an actuating lever designated generally by the numeral 11. Rocking movement of the pin is attained through the provision of a ball 12 supported in a bearing 13 carried by the body. After the fluid flows through the opening in the wall 5, it passes from the body 2 through an outlet tube 14. The body 2 and the tube are each provided with bent portions in order to direct the outlet end of the tube laterally with respect to the longitudinal axis of the body. A suitable connection 15 is provided to secure the tube to the body in fluid-tight relation.

In the form of the invention shown, the tube 14 has a branch 16 projecting generally rearwardly from the tube. This branch is disposed at the under side of the body and has the open end thereof closed by a cap 17. The outer portion of the cap is threaded for the reception of a packing nut 18, the outer portion of the cap also having a socket for the reception of suitable packing material 19. The socket and the nut 18 form a fluid-tight joint around a tube 20 which extends into

the outlet tube 14 through the branch and longitudinally of the outlet tube to the discharge end thereof. The tube 20 receives a rod-like element 20a which is composed of a light conducting material such as methyl methacrylate, which is known in the trade as "lucite," or any other material having the same characteristics of transmitting light from end to end thereof without the liberation of heat.

The under side of the body 2 has a guard member 21 suitably secured thereto and the actuating lever assembly 11 is pivoted on the guard as at 22. The lever assembly includes a manually actuated lever 11a and a roller 11b journaled in an opening provided in the lever. The roller engages an actuating dog 23 pivotally supported in the bracket 21 in registration with the outer end of the valve actuating pin 10. One edge of the dog 23 engages the outer extremity of the pin 10 and when the lever 11a is moved about its pivot, the roller 11b will engage one edge of the dog and impart pivotal movement thereto. This movement of the dog causes the pin 10 to rock in its bearing and move the valve 6 away from the port in the wall 5. The lever 11a has a bifurcated extension 24 on the opposite side of the pivot from the portion of the lever engaged by the operator.

The portion 24 of the lever projects outwardly beyond the guard 21 for engagement with a portion of a flash light assembly 25. This assembly includes inner and outer telescoping tubular members 26 and 27, the latter being rigidly secured to the bracket by clamping rings 28. Other fastening means could be employed instead of the rings, the only requirement being that the fastening means be of a type suitable to permit quick removal of the flash light so that it may be taken to a safe place for the removal and insertion of new batteries or other parts necessary for the operation of the device.

The member 27 has a wall to close the rear end and form a backing member for a spring 29 used in the flash light. The tube 26 is closed at its forward end by a transparent wall 30 which is preferably composed of material highly resistant to breakage. The transparent wall is so secured to the tube as to prevent the entrance of gas-laden fumes into the interior of the casing formed by the tubular elements. The inner portion of the tube 26 has shoulder means 31 for engagement by one end of a sleeve 32, the opposite end of which engages a shoulder formed on a lamp supporting assembly 33. This assembly includes a spring 34, the rear end of which engages the forward end of a battery 35. One or more batteries may be employed, depending upon the desires of the manufacturer. The rear end of the battery engages the spring 29 provided in the rear end of the outer tube 27.

The spring 34 is weaker than the spring 29 so that when the tubes 26 and 27 are telescoped, the spring 34 will compress first and permit a contact 36 on the bulb supporting assembly to contact the center terminal of the battery 35. After this engagement, continued movement of the tube 26 into the tube 27 will compress the spring 29. The telescoping movement of the tubes is caused by the movement of the lever 11a to valve opening positions. To facilitate the transmission of movement from the lever to the tube 26, the latter member has an annular ring 37 formed thereon adjacent to the spaced ends of the lever extension 24. Thus when the lever 11a is moved to establish fluid flow through the nozzle, the initial movement of the lever will cause the engagement of the contact on the bulb assembly with the center terminal of the battery and the lamp will be illuminated. Light rays will flow from the lamp through the transparent wall 30 and strike the exposed rear end of the light transmitting element 20a. This member will conduct the light rays to the discharge end of the outlet tube 14 and illuminate the interior of the tank into which the outlet tube is inserted.

To cause a spreading of the light rays and a better illumination of the tank interior, the element 20a has its forward end faceted as indicated at 38. After the initial movement of the lever 11a has caused the illumination of the lamp, continued movement of the lever will compress the spring 29 without injuring any part of the flash light. When the lever 11a is released to discontinue the flow of fluid through the nozzle, the springs 29 and 34 will cause the casing formed by the tubes 26 and 27 to elongate whereby the contact 36 will be spaced from the battery terminal and the lamp will be extinguished.

By forming the casing from the telescoping tubes 26 and 27 and locating the separable contacts near the closed end of the inner tube a long tortuous passage will be produced through which gas-laden air will have to pass to reach any sparks which might be created. If this gas-laden air should be ignited, the pressures generated would be insufficient to burst the casing and, due to the long tortuous passage through which the gases must pass to reach the atmosphere, they would be sufficiently cooled as to be incapable of igniting the adjacent atmosphere should it contain enough gas to be combustible.

Another manner of constructing the device to prevent it from causing an explosion is to provide the rear end of the tube 27 with an opening 39 as disclosed in Fig. 3 and positioning a disk 40 formed of wire mesh over the opening. This disk will prevent flames which occur in the casing from escaping and igniting gas in the atmosphere around the nozzle. By the provision of the substantially air-tight casing, its remote location from the discharge end of the outlet tube and the employment of the light conducting element 20a, a safe nozzle light has been provided which will satisfy the requirements without the dangers inherent in devices of the character previously provided. Due to the manner of mounting the flash light on the bracket 21, it may be readily removed and transported to a safe place for service. If it is desired, the flash light may be replaced by a lamp energized by current from a commercial supply without departing from the spirit and scope of the invention as set forth in the following claims.

What is claimed is:

1. In a motor fuel dispensing device of the type having a valved nozzle and manually operated means for actuating the valve of said nozzle, means for directing a beam of light in the direction of the liquid undergoing discharge from said nozzle comprising a light-conducting member of plastic composition extending into said nozzle from the discharge end and projecting outwardly through the side wall thereof in spaced relation from said discharge end, a container mounted on said nozzle in registration with the outwardly projecting end of said light conducting member, an incandescent lamp mounted in said container, and means operated by said valve actuating means for energizing said lamp to direct light rays toward the outwardly projecting end of said light conducting member.

2. In a gasoline dispensing nozzle of the type having a liquid control valve and an actuator therefor, means for directing a beam of light in the direction of liquid undergoing discharge from said nozzle comprising, a housing supported by said nozzle, a lamp mounted in said housing, a transparent wall forming a part of said housing and arranged adjacent to said lamp, means controlled by the valve actuator for energizing said lamp, and a solid light-conducting means of plastic composition extending from a point adjacent to said transparent wall into said nozzle and longitudinally thereof to the outlet end.

3. In a fluid dispensing nozzle of the type having a valve containing body, means for actuating the valve in said body, and an outlet tube leading from said body, means for illuminating the discharge end of said outlet tube comprising a casing having telescoping sections and a transparent wall portion, a lamp within said casing adjacent to said transparent wall portion, means for imparting telescopic movement to said sections upon the operation of said valve actuating means, means operated by the telescopic movement of said sections to energize said lamp to direct light rays through said transparent wall, and a light transmitting member carried by said outlet tube, one end of said member being disposed adjacent to said transparent wall and the other end being positioned adjacent to the discharge end of said outlet tube in the path of liquid flow therethrough.

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