

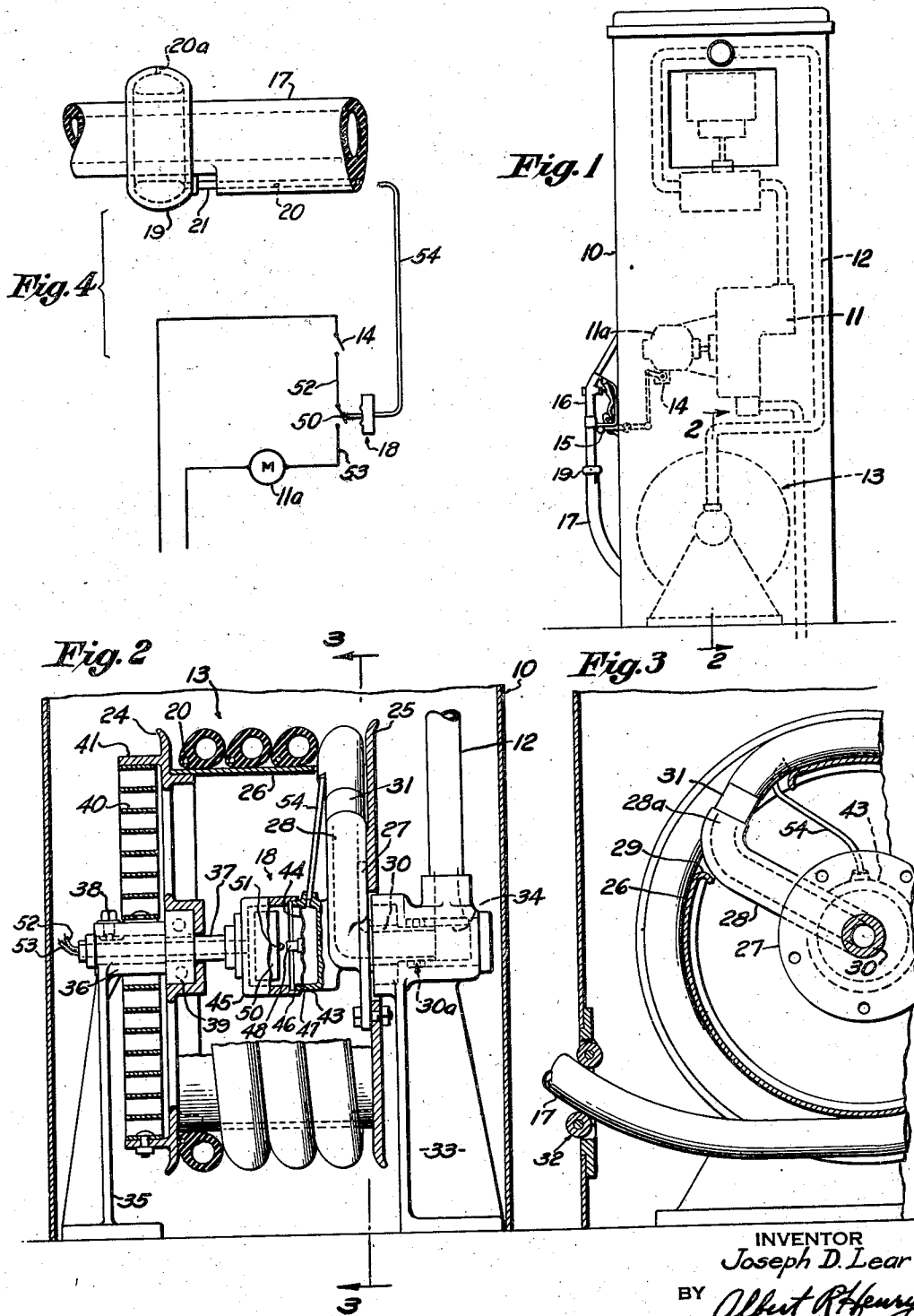
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GASOLINE DISPENSING APPARATUS

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GASOLINE DISPENSING APPARATUS

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5 Claims. (Cl. 221—95)

This invention relates to gasoline dispensers, and it has particular reference to improvements in the controls for the motive elements thereof.

In installations where automatic hose reels are used, the application of safety controls thereto has proved a difficult problem. This has been particularly aggravated where the requirements demand that the controls be so arranged that the motive or pumping elements remain operable only when the attendant is at the controls. In the present invention, this is accomplished in a simple and practical manner through the use of a hose-carried pneumatic system which is unaffected by the variables which have heretofore rendered this problem so difficult, such as stretching of the hose, temperature changes, and the varied positions of the hose when in active service.

The more specific aspects of the invention are set forth in detail in the accompanying specification and drawing, wherein:

Fig. 1 is a side elevation of a dispenser showing diagrammatically the location of the various units;

Fig. 2 is an enlarged section on the line 2—2 of Fig. 1, with portions shown in elevation;

Fig. 3 is a section on the line 3—3 of Fig. 2; and

Fig. 4 is a diagrammatic view showing the electrical circuit of the dispenser motor.

The invention is organized with a gasoline pump unit having a casing 10 containing liquid dispensing mechanism including a motor-driven pump 11, which pump directs gasoline to a flow meter whence it is delivered through a pipe 12 to a hose reel 13. The motor 11a may, if desired, be controlled by a switch 14 which is operated by a lever 15, which lever serves also as a support for the nozzle 16 of a dispensing hose 17.

It will be observed that the hose 17 contains a small passage 20 formed integrally therewith. A torus-shaped rubber bulb 19 is fitted about the hose 17 near the nozzle 16, and it communicates with the passage 20 through a coupling tube 21. Thus, during a dispensing operation, the bulb may be depressed by the operator to operate a second motor control 18, which will be described later. The bulb 19 contains a small bleed port 20a which may be covered by the operator's hand during operation, and which otherwise serves to retain the air within the passage 20 at atmospheric pressure.

The reel 13 is the usual spring-energized type, which is altered slightly to permit organization

thereof with the previously mentioned second motor control 18. As will be seen in Fig. 2, the reel 13 is fabricated of end plates 24, 25, and an attached cylindrical drum 26. An adapter 27 is secured to the plate 25 and it is formed with a radial duct portion 28 which extends through an opening 29 in the drum 26 and terminates in an angular portion 28a. The extremity of the hose 17 is connected to the portion 28a by a coupling 31, and the adjacent portions of the hose are coiled about the drum 26 with the free extremity extending through a suitable guide roller structure 32 to the exterior of the casing 10.

The adapter 27 is formed with a protruding axial portion 30, which is received in a bearing 15 and gland structure 31 carried in a pedestal 33. The pedestal 33 receives the end of the previously mentioned pipe 12, which pipe conveys gasoline to a chamber 34 in the pedestal, where it enters the hollow axial portion 30 and is thus delivered to the hose 17.

A second pedestal 35 is formed with a boss 36, through which extends a hollow pintle 37. The pintle 37 is held against rotation by a set screw 38. The plate 24 carries a ball bearing 39, which bearing is mounted upon the projecting end of the pintle 37. The plate 24 is also formed with a circular flange 41 to which one end of a helical spring 40 is secured. The remaining end of the spring 40 is secured to the boss 36, and inasmuch as the spring is positioned under considerable tension, it will be apparent that it serves as a motor for turning the reel 13 when the hose 17 is released by the operator.

The motor control 18 is organized with the adapter 27 and the fixed pintle 37, and it consists of an open axially positioned chamber 43 which is formed integrally with the adapter 27. The chamber 43 is closed by a flexible diaphragm 44. A cylindrical switch box 45 is fastened to the end of the pintle 37, and its flanged open end 46 slidably covers the lip 47 of the adjacent chamber 43. A switch 50 is carried within the box 45, and its actuating button 51 is located axially, and thus is opposed by the center of the diaphragm 44, which diaphragm is furnished with an actuating pin 48. The electrical connections 52, 53 of the switch 50 extend through the hollow pintle 37, whence they are connected to the motor circuit, as will be seen in Fig. 4.

A coupling tube 54 connects the extremity of the air passage 20 of the hose 17 with the diaphragm chamber 43.

In the operation of the dispensing mechanism, the attendant removes the nozzle 16 from the

lever 15, and then lifts the lever to throw the switch 14. It will be noted (Fig. 4) that the switch 14 is in series with the second switch 18, and thus this act is only a preparatory move to the energization of the motor. The hose 17 is now drawn from the reel 13 against the tension of the reel spring 40, to permit the positioning of the nozzle 16 in the tank of an automobile. During this operation it will be observed that the diaphragm chamber 43 is rotated with the reel, but inasmuch as it is axially located, its position with reference to the stationary switch 50 is not changed.

When the attendant is ready to fill the tank of the automobile, he covers the small bleed port 20a and simultaneously squeezes the bulb 19, thus compressing the air in the pneumatic system and causing the flexible diaphragm 44 to be extended sufficiently to throw the switch 18. This closes the motor circuit, and gasoline is immediately available for delivery through the meter hose and nozzle to the automobile tank.

If the attendant should, for any reason, leave the dispensing station with the nozzle remaining in the tank, it will be obvious that the motor circuit will be broken upon release of the bulb 19. This provides a desired safety feature, wherein the escape of gasoline under pressure is guarded against in the event of a rupture of the hose under the conditions above outlined.

The invention thus provides an extremely simple and positive control for the motor-driven pump 11, which control feature is not affected in any way by the positioning of the hose nor the extent to which it is uncolled from the reel 13. It will be obvious to those skilled in the art that the dispensing system herein described is exemplary of but one of numerous possible adaptations, and therefore the reel control feature may be applied to other dispensing systems and similarly be organized with other controls, switches or solenoids without departing from the inventive concept.

I claim:

1. In a gasoline dispenser having a source of liquid under pressure, a dispensing hose, a reel having one end of the hose attached thereto, said reel being rotatable to permit coiling of the hose thereon, said reel having a liquid passage therein connecting the end of the hose with said pressure source, a control conduit coextensive with said hose, depressible means on the free end of the hose connected with an extremity of the control conduit, expansible means carried by the reel and connected to the remaining extremity of the conduit, and control means for said pressure source organized for operation by said expansible means.

2. In a gasoline dispenser having a source of

liquid under pressure, a dispensing hose, a reel, said reel having a liquid passage therein connecting one end of the hose with said pressure source, stationary means for mounting the reel for rotation to permit coiling of the hose thereon, a control conduit coextensive with the hose, depressible means on the free extremity of the hose connected with an extremity of the control conduit, expansible means carried by the reel and connected to the remaining extremity of the conduit, and control means axially carried by said stationary means and organized for operation by said expansible means.

3. In a gasoline dispenser having a source of liquid under pressure, a dispensing hose, a reel, said reel having a liquid passage therein connecting one end of the hose with said pressure source, stationary means for mounting the reel for rotation to permit coiling of the hose thereon, a control conduit coextensive with the hose, depressible means on the free extremity of the hose connected with an extremity of the control conduit, expansible means carried by the reel in an axial position thereon, and control means carried by said stationary means and organized for operation by said expansible means.

4. In a gasoline dispenser having a source of liquid under pressure, a dispensing hose, a reel, said reel having a liquid passage therein connecting one end of the hose with said pressure source, stationary means for mounting the reel for rotation to permit coiling of the hose thereon, said stationary means including a fixed hollow pintle for said reel, a control conduit coextensive with the hose, depressible means on the free extremity of the hose connected with an extremity of the control conduit, expansible means carried by the reel in an axial position thereon, an electrical control switch for the liquid source carried on an extremity of said pintle and having an axially positioned switch button operable by said expansible means, and electrical connections to said switch extending through said hollow pintle.

5. In a gasoline dispenser including a motor-driven pump, a dispensing hose, a reel, said reel having a liquid passage therein connecting one end of the hose with said pump, said reel being mounted for rotation to permit coiling of the hose thereon, a control conduit coextensive with said hose, depressible means on the free end of the hose connected with an extremity of the control conduit, pneumatically expansible means carried by the reel on the axis of said reel, said expansible means being connected to the remaining extremity of the conduit, and fixed switch means having a switch button positioned in the path of said expansible means, said switch means controlling operation of said motor-driven pump.

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