

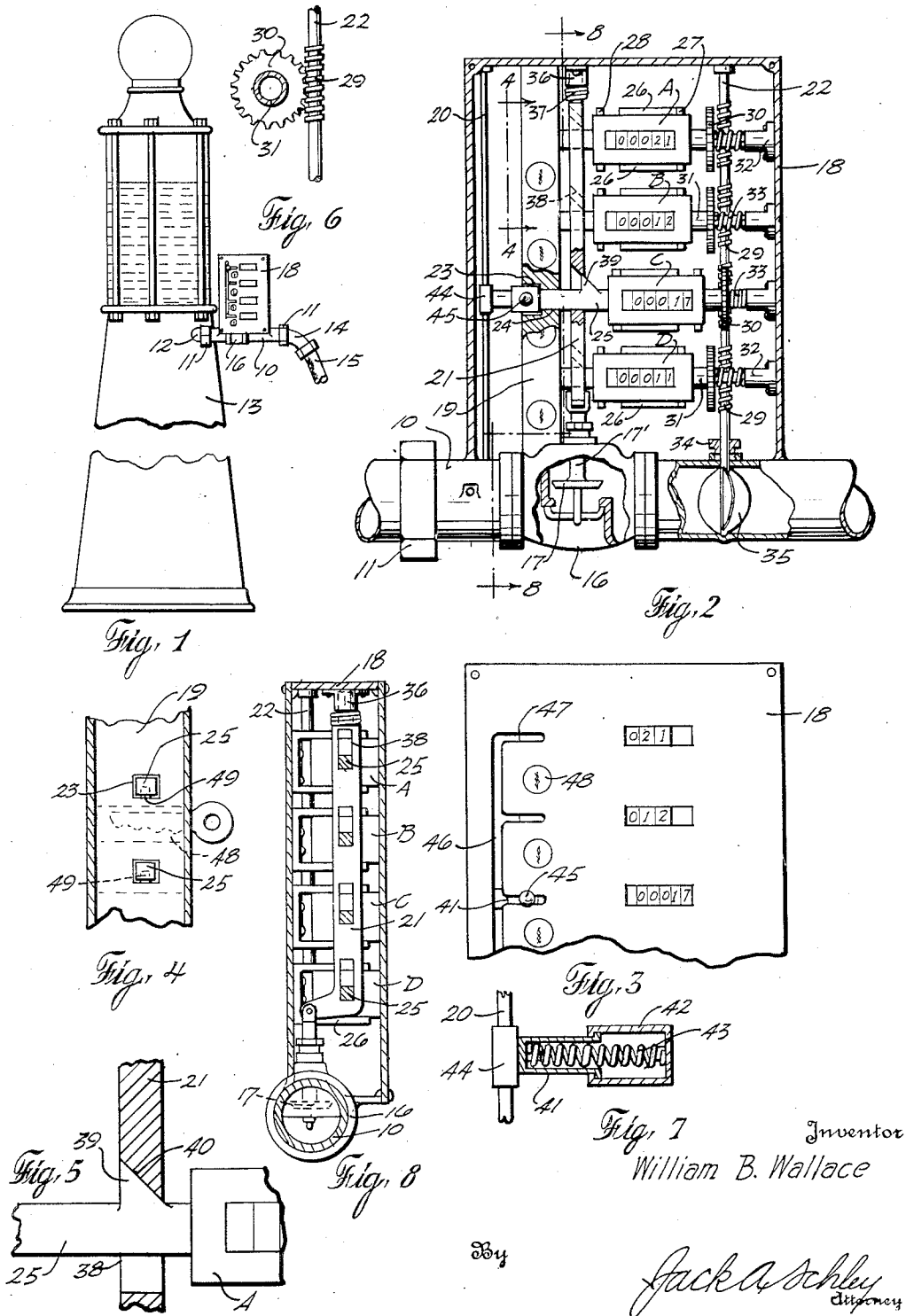
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FLUID REGISTER

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FLUID REGISTER

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5 Claims. (Cl. 235—94)

This invention relates to new and useful improvements in fluid registers.

It is customary in places where fluids are sold to store a certain amount of fluid and to dispense this fluid as the sales are made. Where several salesmen or attendants dispense the fluid from a common dispenser, it is impossible to keep account of the quantity dispensed by individual salesmen or attendants.

One object of the invention is to provide a register which may be attached to the fluid discharge conductor of the dispenser and set to register the quantities of fluid dispensed by individual salesmen.

A further object of the invention is to provide a register including individual registers for each salesman, normally locked against operation, and arranged so that only one register can be operated at a time so that only the salesman having the key can operate his individual register.

Another object of the invention is to provide a cutoff valve in the discharge conductor which is normally closed and which is automatically opened when any of the registers are unlocked and set for operation.

Still another object of the invention is to provide an apparatus of the character described which will be practical and comprise comparatively few parts.

A construction designed to carry out the invention will be hereinafter described together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawing in which an example of the invention is shown, and wherein:

Figure 1 is an elevation of a gasoline dispenser equipped with a register constructed in accordance with the invention,

Figure 2 is a view of the register partly in elevation and partly in section,

Figure 3 is a partial side elevation of the same,

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

Figure 5 is a detail of the valve operating means,

Figure 6 is a detail of the worm gearing,

Figure 7 is a sectional view of the operating plunger, and

Figure 8 is a transverse vertical sectional view taken on line 8—8 of Figure 2.

In the drawing the numeral 10 designates a tubular conduit having unions 11 at each end. One of the unions is connected with an elbow 12

in the fluid discharge line of a gasoline dispenser 13; while the other union is connected with an elbow 14 which in turn connects with the hose 15.

Within the conduit is connected a valve case 16 having a vertically moving valve 17 therein. An upright casing 18 is mounted on the conduit and has a vertical lock supporting bar 19, a vertical guide bar 20, a vertical valve bar 21 and a vertical shaft 22 suitably mounted therein. The lock bar has rectangular recesses 23 (Figures 2 and 4) countersunk in one of its faces and also provided with rectangular slots 24 extending axially from said recesses.

Individual registers A, B, C and D each have a shank or adjuster 25 slidably engaging in one of the slots 24. Each register is slidably mounted between guides 26 integral with the casing. It is not considered necessary to go into the details of the registers as the digits displayed may indicate various measures, such as quarts, gallons, etc. The rearward movement of the register is limited by a stop 27, while its forward movement is limited by a stop 28. These stops are integral with the registers and engage the guides.

The shaft 22 includes vertical worm screws 29 in the path of worm gears 30 mounted on the shafts 31 of the registers. The shafts 31 are reduced and telescope into bearing brackets 32 mounted on the rear wall of the casing. Coiled springs 33 confined on the reduced portions of the shafts between the brackets and the gears urge the shafts 31 and the registers forwardly so that the stops 27 engage the guides 26 and the gears are held out of mesh with the worm screws.

It will be seen that by sliding any shank 25 the register thereof will be slid and its worm gear 30 engaged with its correlated screw 29. The shaft 22 extends through a stuffing box 34 in the top of the conduit 10 and blades 35 secured on said shaft form a rotating means, whereby the passing fluids rotate the shaft. The arrangement is such that when a pre-determined quantity of liquid or fluid has passed through the conduit 10, the blades 35 will have rotated the shaft 22 and the parts associated therewith so as to operate one of the registers, whereby a digit will be displayed indicative of the quantity of fluid or liquid which has passed through said conduit. When a screw 29 and gear 30 are meshed and the shaft 22 rotated, the register (as C, Fig. 2) will be actuated and the quantity of fluid dispensed thus registered.

The valve bar 21 is integral at its lower end with the stem 17' of the valve 17. The upper end of the bar is slipped in a bracket 36 depending from

the top of the casing and is urged downwardly by a coiled spring 37. By this means the valve 17 is normally held closed. Each shank 25 passes through a vertical slot 35 in the bar 21 and carries an inclined cam 39 which supports an inclined cam 40 in the top of each slot.

It will be seen that when any shank is slid to the right (Figures 2 and 5) its cam 39 will slide under one of the cams 40 and thus elevate the bar 21 and open the valve 17. In order to control the opening of the valve I provide an operator for the shanks which includes a plunger 41 having a head 42 slidable thereon. These parts telescope as is shown in Fig. 7 and contain a coiled spring 43.

The plunger has a carrier sleeve 44 at one end slidable on the bar 20 which is square in cross section. The head 42 carries a handle 45. The head is shaped to engage in the recesses 23 of the bar 19 and engage the shanks 25. The front side of the casing 18 has a vertical slot 46 opposite the guide bar 20 and lateral slots 47 through which the handle 45 may be slid in making the various adjustments.

In order to prevent unauthorized operation of the registers a lock 48 for each shank 25 is mounted in the bar 19. Each lock has a detent 49 engaging the under side of a correlated shank. The locks may be of any suitable construction such as is shown in the patent to Cole No. 1,048,041, issued December 24, 1912 and form no particular part of the invention.

When gasoline is not being dispensed the head 42 of the plunger 41 may rest against the face of the bar 19 at the bottom of the slot 46, all of the registers being locked. The device is illustrated for use by four salesmen, each having a key and each lock requiring a different key. The valve 17 will be closed. It will be assumed that salesman C desires to dispense gasoline.

Salesman C will insert his key in lock 48 thus releasing the shank 25 of register C. He will then raise the plunger 41 in the slot 46 and slide in the slot 47 so that the head 42 will enter the recess 23 of the shank 25 of the register C. The spring 43 being under greater compression than the spring 33, the register C will be slid. This will cause the cam 39 to engage the cam 40 and elevate the bar 21 thus opening the valve 17.

When the register C is slid the gear 30 thereof will be engaged with the screw 29. Upon the opening of the valve 17 the gasoline will flow through the conduit 10 thus revolving the blades 35 which in turn will rotate the shaft 22. This will operate the register C and thus register the quantity of gasoline dispensed by salesman C. Upon completing the dispensing, salesman C will slide the head 42 from the recess 23 and move the handle 45 to the bottom of slot 46. This will permit the spring 33 to restore the register parts to their normal positions. Salesman C then removes his key and his register is locked.

It is to be understood that any fluid may be dispensed and the register may be used with any fluid for which it is suitable. The revolving means 35 may take any suitable form so long as the shaft 22 is revolved by the fluid.

It is pointed out that this device is operated by the flow of the liquid or fluid and not by any pump mechanism. Any commodity which flows through the conduit 10 and rotates the blades 35 will be registered. This is of particular advantage because the device does not have to be associated with any pump mechanism and may be readily connected in the discharge line, as shown

in Figure 1. The entire device is enclosed within the supporting casing 18, which is mounted upon the conduit 10. By this arrangement all parts are enclosed and the device is free from exterior cranks and levers, as well as being idle when the pump mechanism is operated.

Various changes in the size and shape of the different parts, as well as modifications and alterations, may be made within the scope of the appended claims.

What I claim is:

1. In a liquid register, a conduit for conducting a liquid therethrough, a support, a shaft carried by the support, blades in the conduit in the path of the liquid flowing through the conduit and connected with said shaft for rotating the same, a valve in the conduit for cutting off the flow therethrough, said valve having a vertically slidable rod extending upwardly therefrom register operating means carried by the rotatable shaft, a plurality of registers movable on the support and having operating means normally out of engagement with the register operating means, and slidable means connected with each register for moving that register for engaging its operating means with the operating means of the shaft to register the quantity of liquid flowing through the conduit, said slidable means having a cam engaging a complementary cam face on the valve rod, whereby the rod is raised or lowered to open or close the valve when said means is slid.

2. In a liquid register, a conduit for conducting a liquid therethrough, a support, a shaft carried by the support, blades in the conduit in the path of the liquid flowing through the conduit and connected with said shaft for rotating the same, a valve in the conduit for cutting off the flow therethrough, an operating rod connected to the valve, register operating means carried by the rotatable shaft, a plurality of registers movable on the support and having operating means normally out of engagement with the register operating means, and slidable means connected with each register for moving that register for engaging its operating means with the operating means of the shaft to register the quantity of liquid flowing through the conduit, said slidable means also having connection with the valve rod, whereby said rod is raised and lowered to open or close the valve when the register is moved.

3. In a liquid register, a conduit for conducting a liquid therethrough, a support, a shaft carried by the support, blades in the conduit in the path of the liquid flowing through the conduit and connected with said shaft for rotating the same, a valve in the conduit for cutting off the flow therethrough, said valve having a vertically slidable rod extending upwardly therefrom, register operating means carried by the rotatable shaft, a plurality of registers movable on the support and having operating means normally out of engagement with the register operating means, and a sliding bar connected with each register for moving that register for engaging its operating means with the operating means of the shaft to register the quantity of liquid flowing through the conduit, said slidable means having a cam engaging a complementary cam face on the valve rod, whereby the rod is raised or lowered to open or close the valve when said means is slid.

4. In a liquid register, a conduit for conducting a liquid therethrough, a support, a shaft carried by the support, blades in the conduit in

the path of the liquid flowing through the conduit and connected with said shaft for rotating the same, a valve in the conduit for cutting off the flow therethrough, an operating rod connected to the valve, register operating means carried by the rotatable shaft, a plurality of registers movable on the support and having operating means normally out of engagement with the register operating means, and a sliding bar connected with each register for moving that register for engaging its operating means with the operating means of the shaft to register the quantity of liquid flowing through the conduit, said bar also having connection with the valve rod to raise and lower the same to open or close the valve when the bar is slid to move its register, whereby the valve is open when one of the registers is in an operating position and is closed when all of the registers are inoperative.

5. In a liquid register, a conduit for conducting a liquid therethrough, a support, a shaft carried by the support, blades in the conduit in

the path of the liquid flowing through the conduit and connected with said shaft for rotating the same, a valve in the conduit for cutting off the flow therethrough, a rod connected to the valve and extending upwardly within the support and provided with a plurality of cams, register operating means carried by the rotatable shaft, a plurality of registers movable on the support and having operating means normally out of engagement with the register operating means, and a sliding bar connected with each register for moving that register for engaging its operating means with the operating means of the shaft to register the quantity of liquid flowing through the conduit, said bar having a cam engaging one of the cams on the valve rod, whereby said rod is raised or lowered each time the bar is slid to open or close the valve when the register connected to said sliding bar is moved into or out of operating position.

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