Nov. 26, 1935. J. C. WOODFORD 2,022,629

LIQUID DISPENSING APPARATUS

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FIG. I.

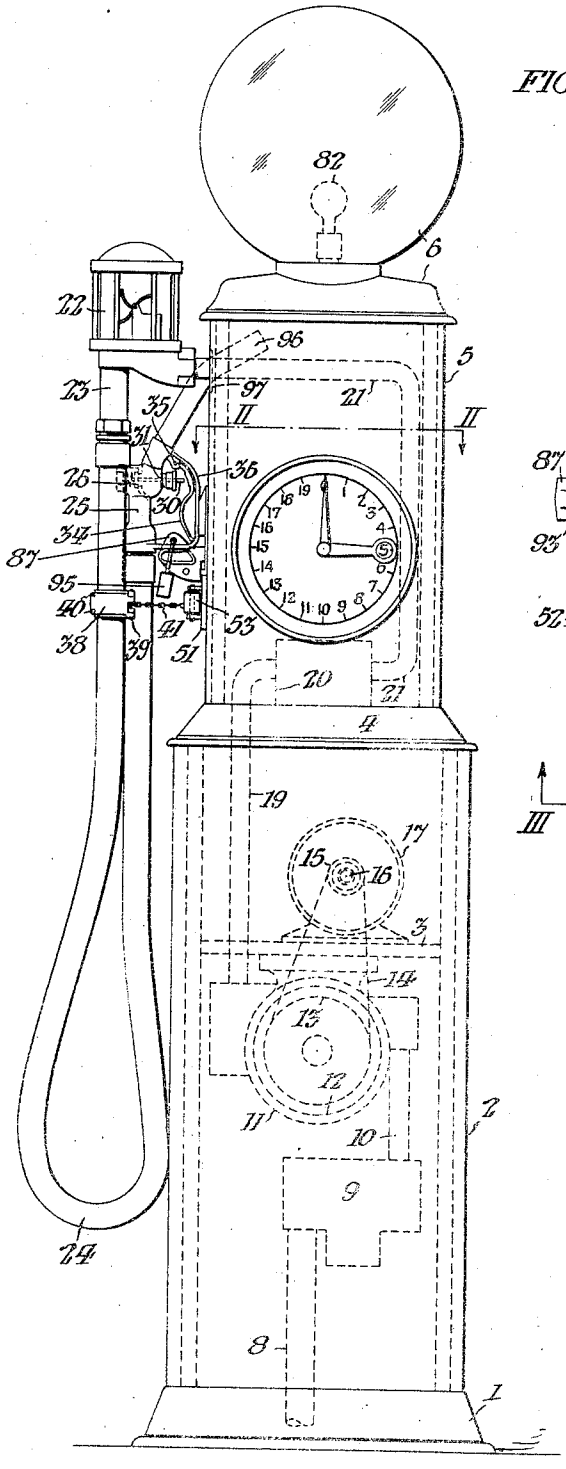

FIG. II.

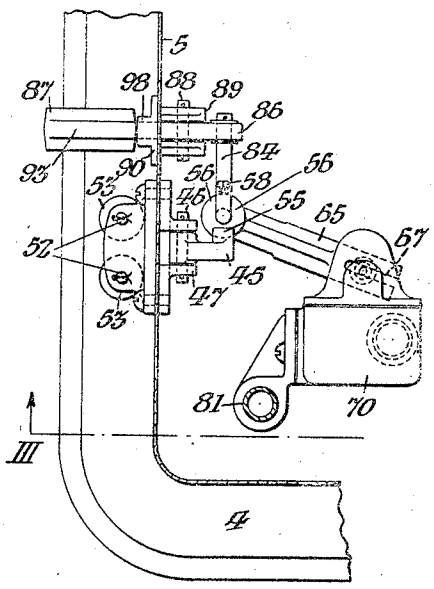

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FIG. III.

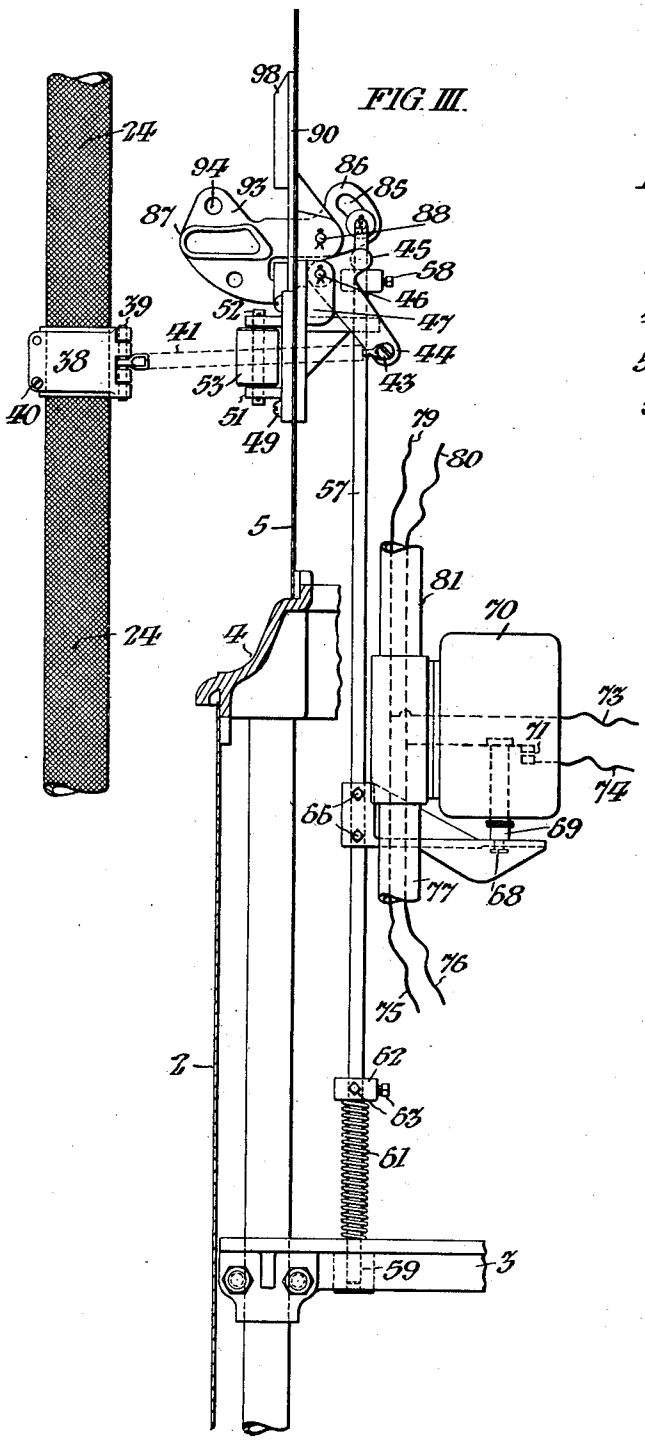
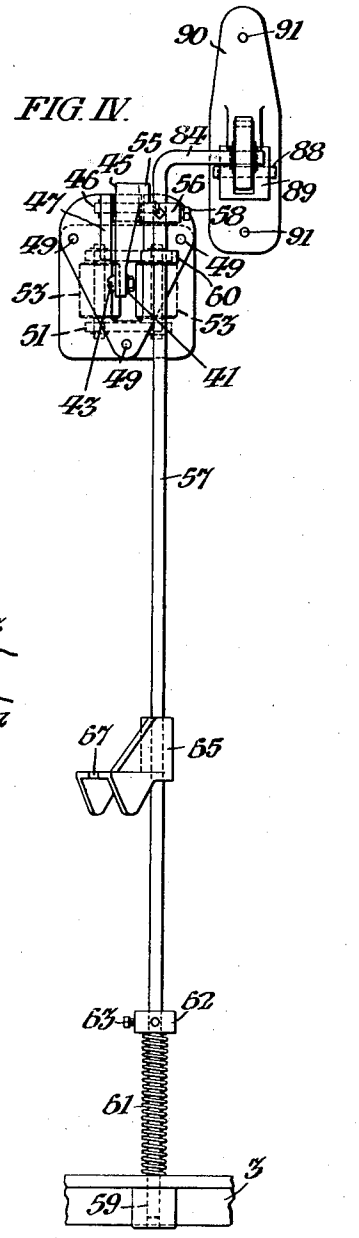


FIG. IV.



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UNITED STATES PATENT OFFICE

2,022,629

LIQUID DISPENSING APPARATUS

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Application June 4, 1931, Serial No. 541,994

2 Claims. (Cl. 221—95)

My invention relates to apparatus which may be advantageously employed in dispensing gasolene from a flexible hose having one end connected with a stationary pump stand and having its free end provided with a nozzle including a manually operative valve controlling the dispensation of liquid therethrough; said hose having means adjacent to said stand operatively connecting said hose with an electric switch in the stand for controlling the circuit of an electric motor for operating a pump to supply the liquid for discharge through the hose.

As hereinafter described, mere bending movement of the hose away from the stand, by the operator manipulating the hose to dispense liquid therethrough, suffices to close said electric switch to start and maintain the operation of the pump motor. Such closing movement of the switch is effected against the stress of a spring which normally tends to open said switch and stop the motor. Such operation is terminated when the operator releases the hose, permitting it to swing back to its normal position; such release permitting the switch to be opened by said spring.

In the form of my invention chosen for illustration the motor controlling mechanism which is in cooperative relation with the hose as above indicated is also in cooperative relation with a hose support which is pivoted in the pump stand and projects exterior thereto and is adapted to support the hose in idle position by engagement with the hose nozzle; said hose support and nozzle being so correlated that they may be locked together in idle position and, when thus locked, the motor controlling mechanism is rendered inoperative by its connection with the hose. That construction and arrangement is advantageous in that it prevents accidental or mischievous manipulation of the hose to operate the motor when the hose nozzle is in such idle position. However, when the nozzle is released from said support, the controlling mechanism is freed to be operated by its connection aforesaid with the hose. Therefore, simpler embodiments of my invention may be made including the hose operable motor controlling devices, without correlation with any hose support.

My invention includes the various novel features of construction and arrangement hereinafter more definitely specified.

In said drawings: Fig. I is a front elevation of a stationary pump stand including a convenient embodiment of my invention.

Fig. II is a fragmentary plan sectional view taken on the line II, II, in Fig. I, but on a larger scale.

Fig. III is a fragmentary vertical sectional view taken on the line III in Fig. II, on the same scale as the latter.

Fig. IV is an elevation of the right hand side of certain of the parts of the controlling mechanism as shown in Fig. III and on the same scale.

In said figures; the pump stand includes the base 1, casing 2, platform 3, center frame 4, casing 5, and dome 6.

The liquid to be pumped is withdrawn from a subjacent tank through the pipe 8, the screen casing 9, and the pipe 10 to the rotary pump 11 which has its casing rigidly connected with the lower side of said platform 3. The rotor 12 of said pump is provided with the pulley 13 adapted to be driven by the belt 14 extending around the pulley 15 on the armature shaft 16 of the electric motor 17.

Said pump 11 is adapted to discharge the liquid through the pipe 19, the meter 20, and the pipe 21 into the sight gage 22 from which it gravitates through the pipe 23 into the flexible dispensing hose 24. Said hose has, at its free end, the nozzle 25 containing the valve 26 which is normally closed by a spring. Said valve has the stem 30 extending through the stuffing box 31 in said nozzle 25, adapted to be operated by the lever 34 which is fulcrumed at 35 in the nozzle frame 36.

Said flexible hose 24 is provided with the band 38, conveniently formed of two oppositely counterpart semicylindrical sections hingedly connected by the pintle 39 at one side of the hose and clamped upon the latter by screws 40 at the opposite side of the hose. Said pintle 39 is pivotally connected with the flexible connector 41, conveniently a flat link chain. Said chain is pivotally connected, by the screw 43, at its other end, with the long arm 44 of the bell crank lever having the short arm 45. Said lever is fulcrumed on the pin 46 in the lever bracket 47 which is rigidly connected with the inner face of said casing 5, conveniently by the three screws 49. Said screws 49 are in screw threaded engagement with said bracket 47 but extend through smooth holes in the roller bracket 51 which they rigidly secure upon the outer face of said casing 5. Said bracket 51 supports the two roller shafts 52 upon which are respectively journaled the two rollers 53, upon opposite sides of said flexible connector 41 which they guide, so as to permit said hose 24 to be pulled in any direction within an arc of one hundred and eighty degrees, to draw said flexible connector 41 between said rollers with a mini-

mum amount of friction, said rollers serving as anti-friction bearings.

As shown in Figs. II and IV, the short arm **45** of said bell crank lever has the cylindrical stud **55** overhanging the collar **56** which is adjustably rigidly connected with the vertical slide rod **57**, conveniently by the set screws **58**. Said rod is mounted to reciprocate in the bearing **59** in said platform **3** and in the bearing lug **60** on said bracket **47**. Said rod **57** is continually stressed upwardly against said lug **55** on the bell crank lever arm **45** to pull the flexible connector **41** and hose **24** to the position shown in Fig. III, by the spring **61** which encircles said rod between said platform **3** and the collar **62** which is adjustably rigidly connected with said rod, conveniently by the two set screws **63**.

Said slide rod **57** carries the bifurcated arm **65** which is adjustably rigidly secured thereon by the set screws **66** shown in Fig. III, so as to embrace, in the slot **67**, between its bifurcations, the plunger **68** which is mounted to reciprocate in the bearing **69** of the switch casing **70** which contains a switch of any suitable type, indicated at **71** in Fig. III, operable by said plunger to control the circuit including the conductors **73** and **74** of said motor **17**. Electrical energy is supplied to said motor through the conductors **75** and **76** which are conveniently extended to said switch box **70** through the conduit **77** which is stationary in said pump stand. In the position shown; the switch plunger **68** is at the upper range of its movement and the motor circuit broken. Said circuit is closed by downward movement of said plunger; effected by the operator pulling the hose away from the stand as above contemplated. The operator holds the hose **24** in such bent position during the time when it is desired that said motor **17** shall be operated to dispense liquid through said hose.

It is to be particularly noted that, in comparison with devices of the prior art in which a rigid connector extends from the hose to the means for controlling the flow of liquid through the hose; the connector **41**, which is flexible in any direction at the hose and at the wall of the casing, affords at least two distinct advantages, to wit, first, the maximum range of lateral movement of both the hose and its connection with the controlling means is afforded with the minimum of projection thereof through the wall of the casing containing the pump and, second, it is impossible to disable the connection by lateral movement thereof, whereas, with the rigid connections aforesaid, the range of lateral movement of the hose is materially limited and if the hose be accidentally forced aside from the plane in which the rigid connection is designed to move, the latter is distorted and disabled.

Electrical conductors **79** and **80** may be extended through the conduit **81** from the conductors **75** and **76** and in multiple relation with the motor circuit, to energize an electric lamp **82** in said dome **6**.

As shown in Figs. II and IV; the upper end **84** of said slide rod **57** is bent at right angles thereto and fitted through the slot **85** in the arm **86** of the hose supporting lever **87** which is fulcrumed on the shaft **88** in the bracket **89**. Said bracket **89** has the outer face plate **90**, rigidly connected with the outer face of the pump stand casing **5**, conveniently by the screws **91**. Said lever **87** has the upwardly extending locking flange **93**, intermediate of its width, adapted to project upwardly through a slot in said nozzle frame **36**, and having the hole **94** through which the staple of a padlock **95** may be extended to hold said nozzle upright with the discharge end **96** thereof projecting through the slot **97** in said casing **5**, as indicated in dotted lines in Fig. I; in which position the nozzle serves to brace said lever **87** against upward movement and thus prevent accidental or malicious operation of the electric switch **71** by pulling the hose **24** when thus locked in idle position.

It may be observed that the slot **85** in the arm **86** of the hose supporting lever **87** is of such extent that said lever may be idly upturned to the limit of its movement, stopped by contact of said flange **93** against the flange **98** on said plate **90**. However, when said lever **87** is released by removal of said nozzle; it is free to be moved from the position shown in Fig. III to the upper limit of its movement by pulling the hose **24** away from the stand and thereby turning said bell crank lever arm **45** downward, as above described, to depress said slide rod **57** against the stress of said spring **61** which latter continually tends to restore the switch controlling mechanism to the idle position shown in Fig. III, in which the motor circuit is broken.

However, as above indicated, my invention may be simplified by omitting the parts which cooperatively connect the motor switch controlling devices with the means for supporting the hose, and the hose be otherwise supported than by the lever **87**.

Moreover, it is to be understood that the flexible connector **41** may be operatively connected with the motor controlling switch, by means other than above described.

Therefore, I do not desire to limit myself to the precise details of construction, arrangement, and method of operation herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention, as defined in the appended claims.

I claim:

1. In liquid dispensing apparatus; the combination with a flexible hose; of a fixed support for one end of said hose; said support having an opening therethrough; a roller bearing plate on the outer face of said support in registry with said opening; a lever bearing plate on the inner face of said support in registry with said opening; fastening means extending through said support and both of said plates, for holding them in rigid relation; a pair of rollers journaled in said roller bearing plate upon respectively opposite sides of said opening; a lever fulcrumed on said lever bearing plate in registry with said opening; a clamp band encircling said hose in registry with said opening; an electric switch operatively connected with said lever; means continually stressing said switch toward one extreme of its movement; and a flexible connector pivotally connected at one end to said lever and connected at its opposite end to said band; whereby bending movement of said hose tilts said lever and operates said switch in one direction and release of said hose permits said lever to be automatically returned to its initial position.

2. In liquid dispensing apparatus; the combination with a stationary pump stand having an opening in the side wall thereof; of a pair of rollers mounted in parallel spaced relation on said wall at opposite sides of said opening; a liquid dispensing pump in said stand; an electric

motor in said stand, operatively connected with said pump; a liquid discharge conduit in communication with said pump and including a flexible hose having one end held stationary at said pump stand; a nozzle valve at the free end of said hose; an electric switch in said stand, adapted to control the energizing circuit of said motor, and including a recirocatory plunger; means cooperatively connecting said flexible hose with said switch, including a flexible connector extending through said opening between said rollers and having one end connected with said hose; a bell crank lever fulcrumed in said stand and attached to the other end of said flexible connector; a slide rod mounted to reciprocate in said stand, parallel with said switch plunger; means on said rod in cooperative relation with said bell crank lever; an arm carried by said rod in cooperative relation with said plunger; and a spring in cooperative relation with said rod, arranged to stress the latter to open said switch; whereby, said flexible connector is mounted for reciprocation through the side wall of said pump stand and may be pulled outwardly by the operator flexing said hose in any direction away from said stand to effect a dispensing operation, against the stress of said spring, and said switch be closed and said pump operated while said hose is held in dispensing position, and said switch be automatically opened, by said spring, to terminate the operation of said pump, when said hose is released; and the dispensation of liquid through said hose be manually controlled at said nozzle valve.

JOSEPH C. WOODFORD.