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2,022,629

LIQUID DISPENSING APPARATUS

Filed June 4, 1931

2 Sheets-Sheet 1

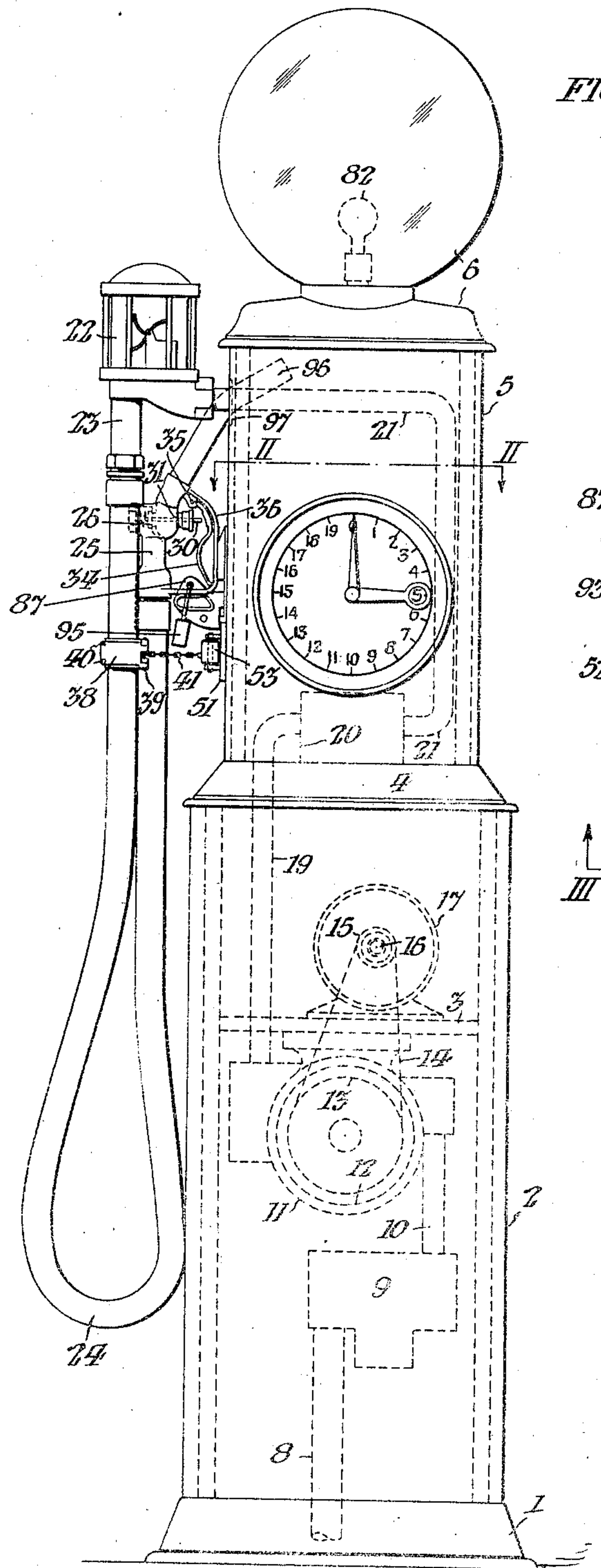


FIG. I.

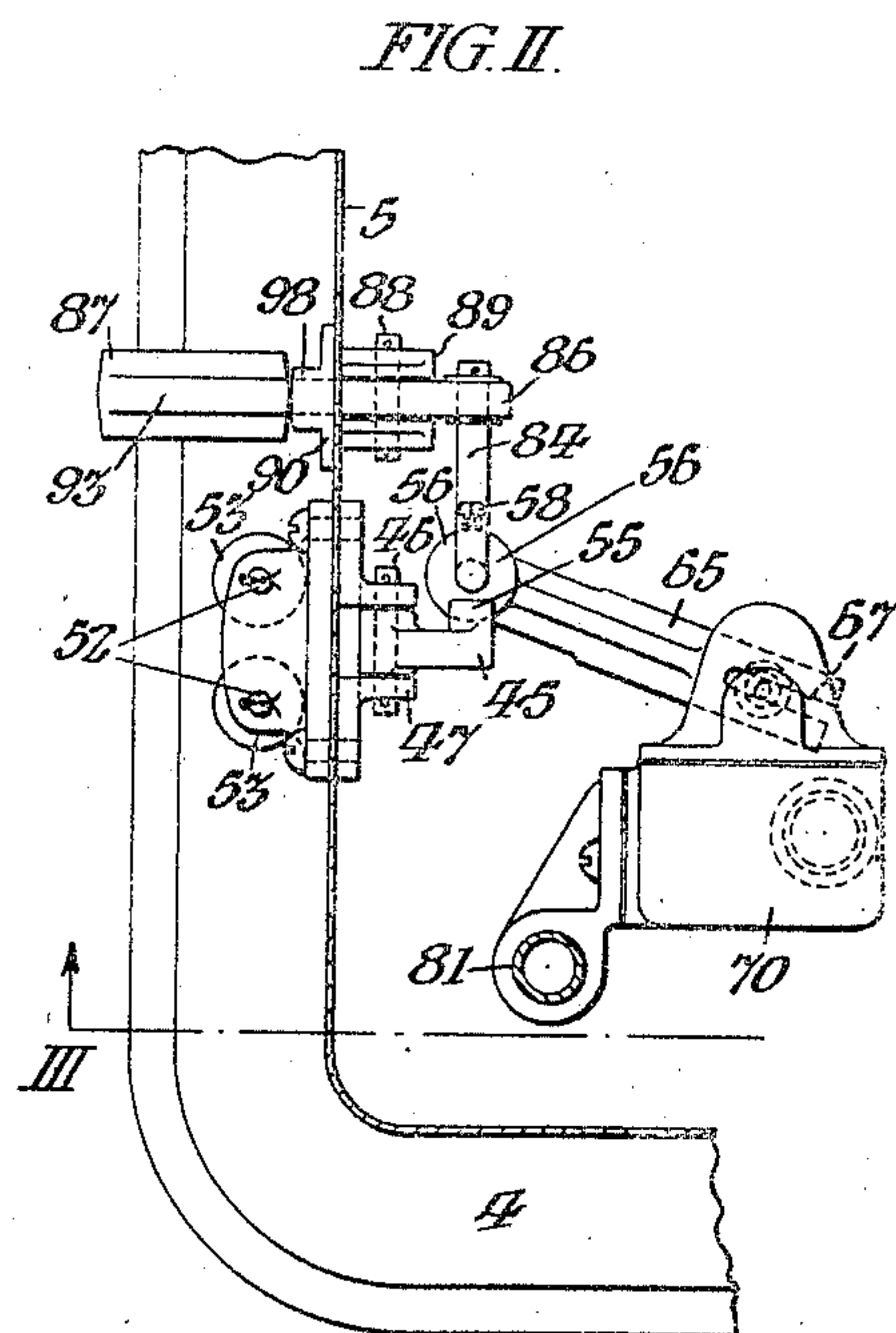


FIG. II.

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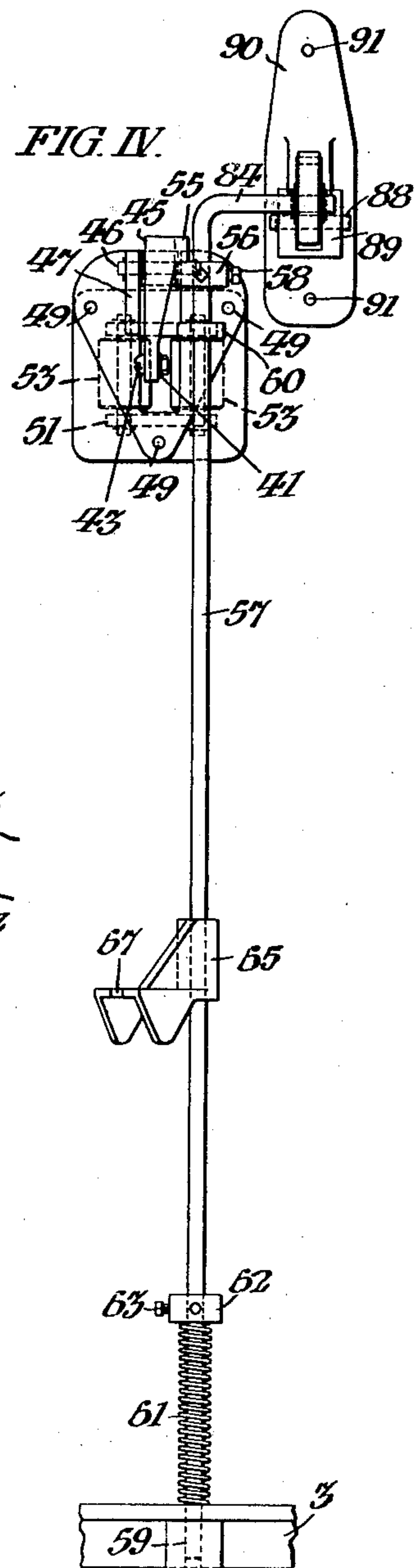
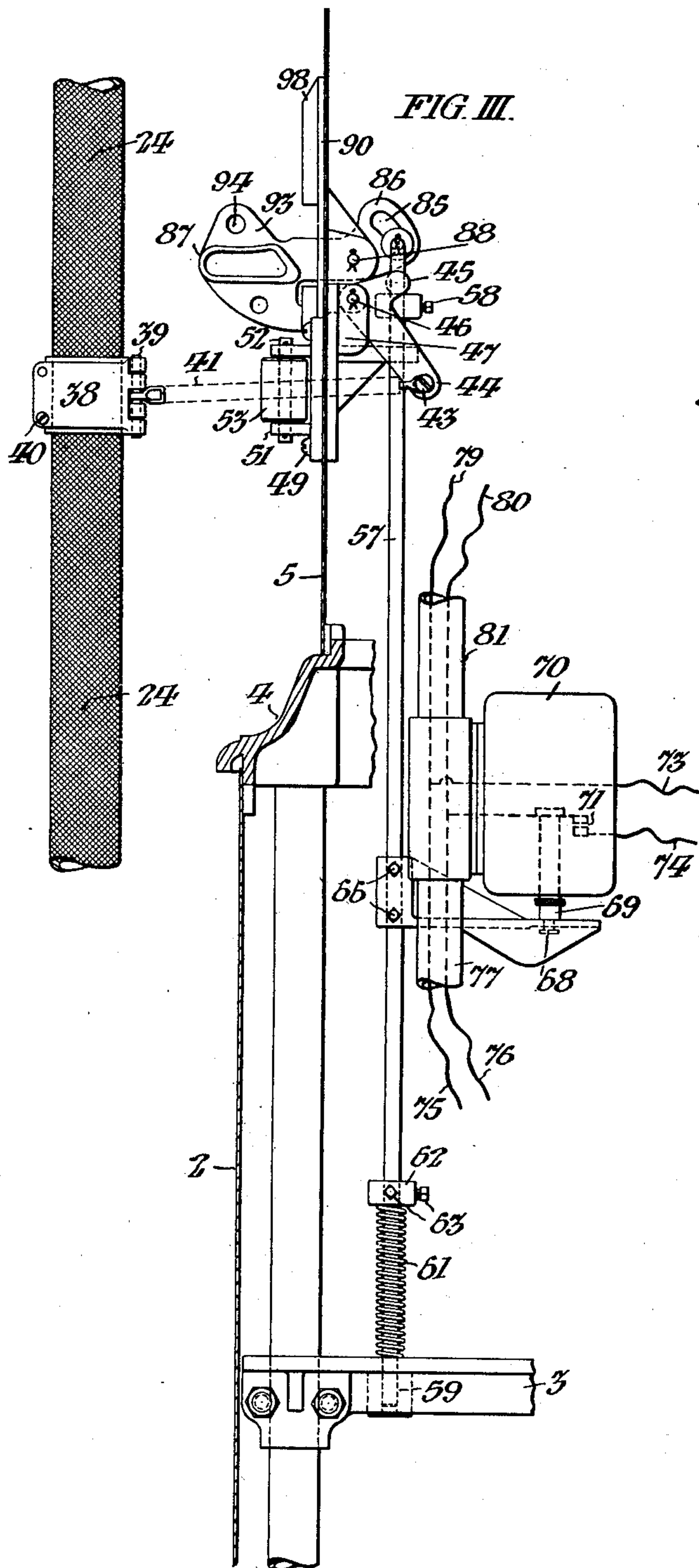
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LIQUID DISPENSING APPARATUS

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

2,022,629

## LIQUID DISPENSING APPARATUS

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John Wood Manufacturing Company, Inc.,  
Conshohocken, Pa., a corporation of Delaware

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 gasoline 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 40 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 com-  
munication with said pump and including a flexi-  
ble hose having one end held stationary at said  
5 pump stand; a nozzle valve at the free end of  
said hose; an electric switch in said stand, adapt-  
ed to control the energizing circuit of said motor,  
and including a reciprocatory plunger; means co-  
operatively connecting said flexible hose with said  
10 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  
15 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 co-  
operative relation with said rod, arranged to stress  
the latter to open said switch; whereby, said  
flexible connector is mounted for reciprocation 5  
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 10  
pump operated while said hose is held in dis-  
pensing 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 15  
manually controlled at said nozzle valve.

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