April 14, 1936. D. J. NELSON 2,037,141

GASOLINE DISPENSER

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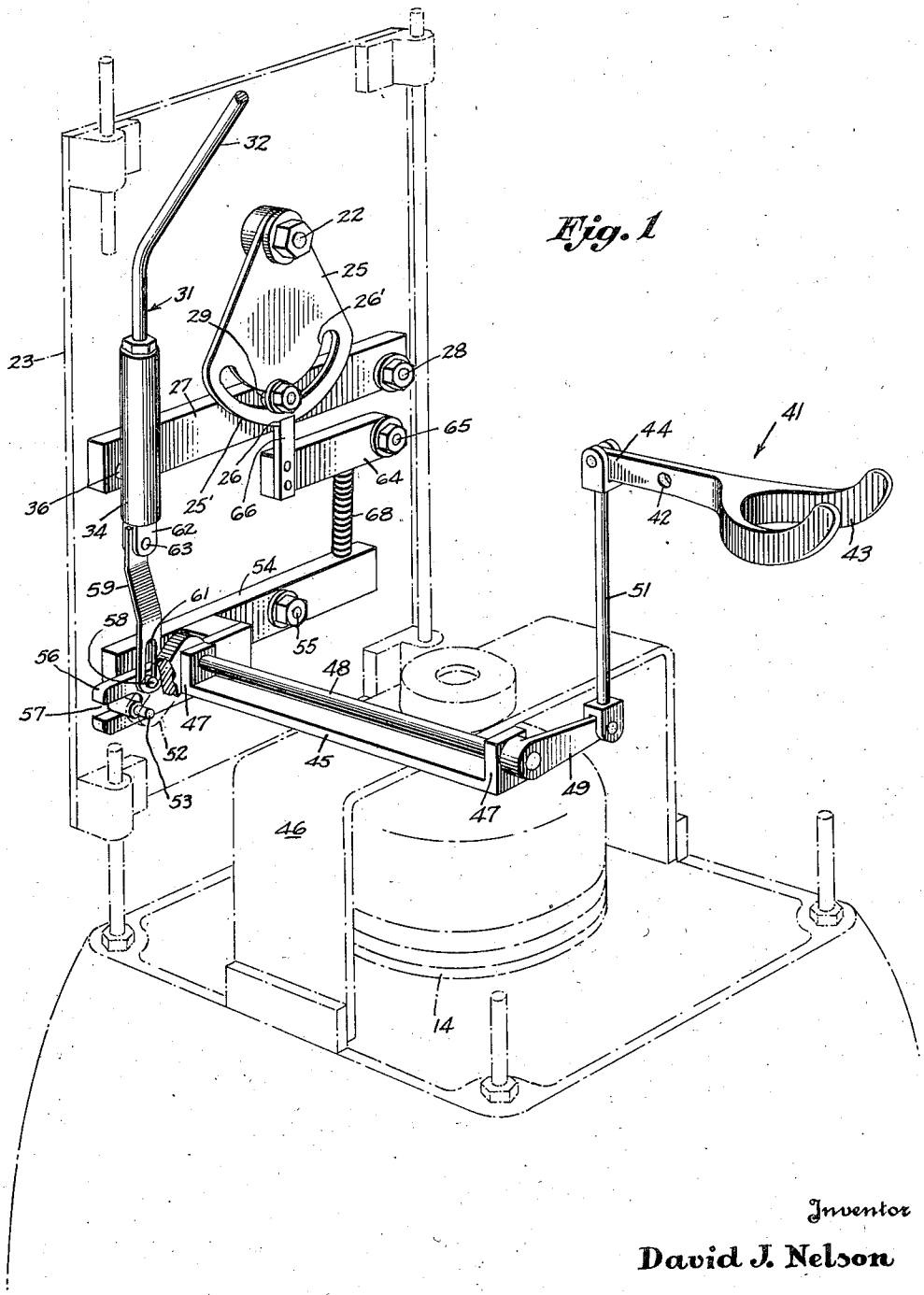



Fig. 1

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Fig. 2

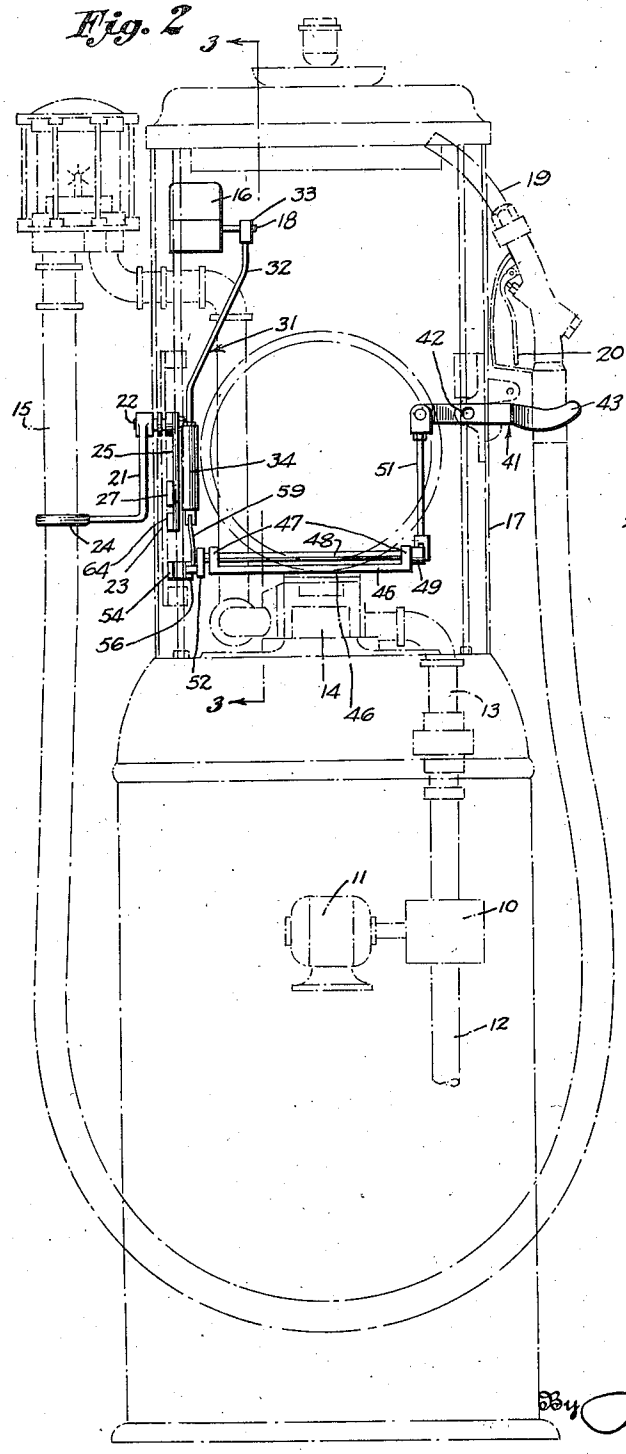
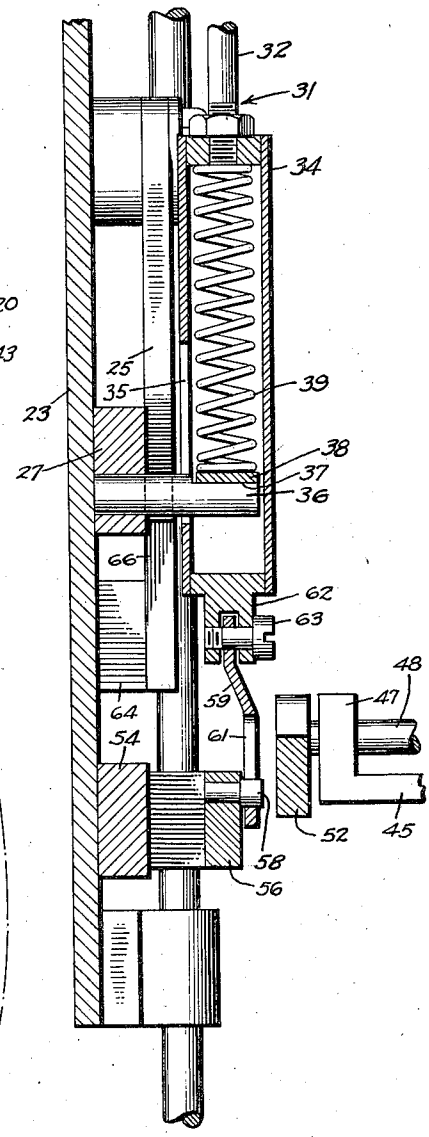



Fig. 5




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Fig. 3

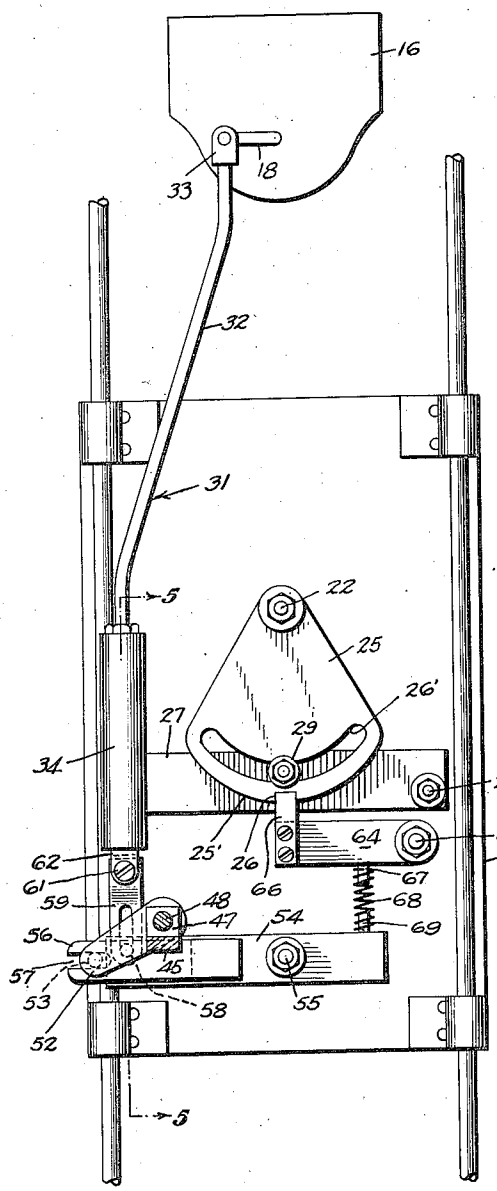
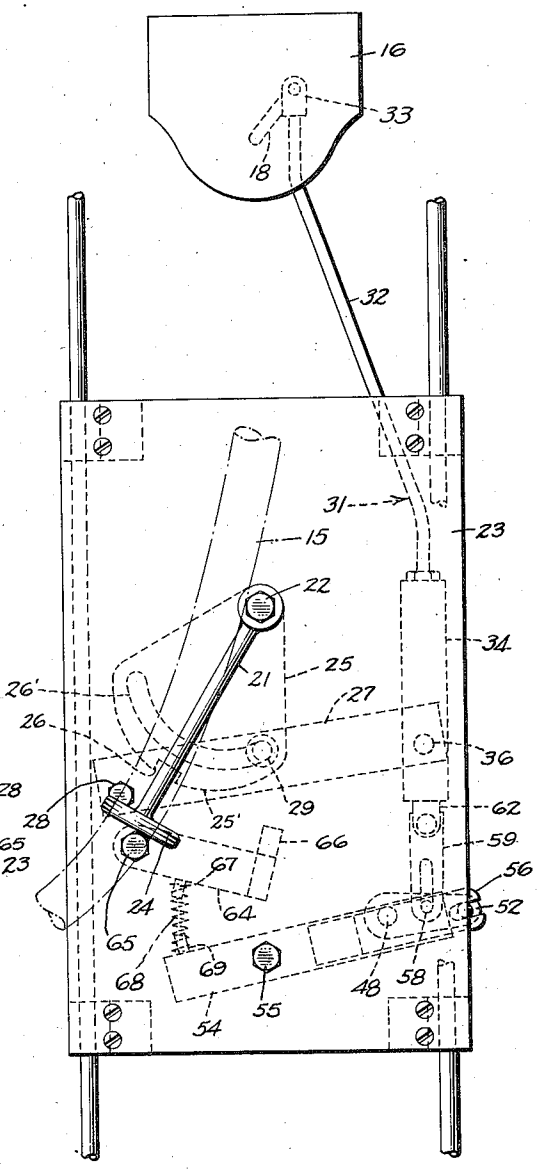



Fig. 4




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Fig. 7

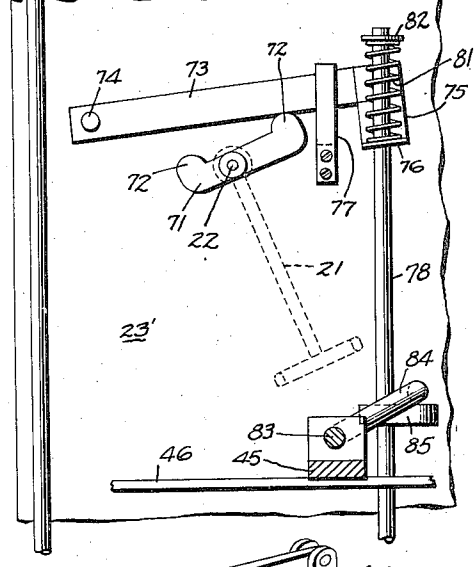



Fig. 6




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# UNITED STATES PATENT OFFICE

2,037,141

## GASOLINE DISPENSER

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Application May 15, 1931, Serial No. 537,676

5 Claims. (Cl. 221—95)

This invention relates to apparatus for dispensing gasoline or other liquids wherein a pedestal or casing is utilized to house control means for fluidly connecting a dispensing hose located on the exterior of the casing to a source of liquid supply. The control means may be a valve arrangement for connecting the hose to any of the well known types of fluid pressure systems, or a pump system including a motive power unit therefor, or any other well known controllable connecting means for fluidly connecting the hose to a source of supply.

The invention contemplates the provision of mechanism connected to the hose and operable by manual movement thereof to operate the control means to fluidly connect the source of supply to the hose and operable upon release of the hose to discontinue the supply to the hose. This provides a convenient means for operating the control means and insures the presence of the attendant at the dispenser while fluid under pressure is applied to the hose, where he will be available for action upon the occasion of any emergency such as the rupture of the hose under pressure. Inasmuch as the release of the hose discontinues the liquid supply to the hose, the operator will be able to quickly perform this operation before the serious loss of gasoline and the resulting fire hazard is occasioned.

A locking device for locking both the control means in inoperative position is also provided, and movable portions of this device are utilized as a parking bracket for the nozzle of the hose. The nozzle has sufficient weight when parked to operate the mechanism of the locking device.

In the drawings:

Fig. 1 is a perspective view of one embodiment of the invention showing the control device and associated mechanism maintained in locked position by the nozzle bracket, with portions of the dispenser casing, forming mounting means for this device, shown in broken lines.

Fig. 2 is a side elevation of control mechanism shown in locked position, the dispenser structure including the dispensing hose being shown in broken lines.

Fig. 3 is an enlarged section on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged elevation of the control mechanism in operating position as viewed from the left side of Fig. 2.

Fig. 5 is an enlarged section on the line 5—5 of Fig. 3 showing the compensating device.

Fig. 6 is a perspective view of another embodiment of the invention showing the control device maintained in locked position by the nozzle bracket, portions of the dispenser casing being shown in broken lines.

Fig. 7 is a vertical cross section through Fig. 6 with portions of the casing broken away.

In the embodiment of the invention in Figs. 1 to 5 control mechanism is shown applied to a dispenser utilizing the well known individual pump system wherein a pump 10, operated by an electric motor 11, receives its liquid supply from a suitable source through the input conduit 12 and delivers such liquid through a meter 14 for measuring and from thence to the dispensing conduit or hose 15.

A switch unit 16 controls the application of the electrical energy to the motor 11. This unit is protected by a housing or casing 17 against unauthorized manipulation (Fig. 2). The switch 16 is electrically connected to the motor and a source of electrical energy so that upon movement of its switch arm 18 from its horizontal or "off" position (Fig. 3) to its upward position (Fig. 4) electrical energy is supplied to the motor 11 to render the same operative to operate the pump 10.

Mechanism for operating the control switch is mounted on the casing 17, and is connected to the hose 15 on the exterior of the casing and to the switch arm 18 on the interior of the casing, whereby upon manual movement of the hose from its normal depending position, such mechanism is operated to throw the switch arm 18 to connect the source of fluid under pressure to the hose. During a dispensing operation the operator inserts the nozzle 19 of the hose into the tank of the automobile to be supplied, moves the hose to a predetermined position to operate the control and then releases the nozzle valve by moving the trigger 20 to supply the desired quantity of gasoline.

The control mechanism consists of an arm 21 mounted on the exterior of the casing and secured to a stud 22 which is pivotally mounted on the plate 23 of the casing and extends therethrough. The free extremity of the arm 21 extends outwardly and is provided with an annulus 24 which engages about a depending portion of the hose 15 (Fig. 2).

A cam member 25 is secured to the stud 22 on the interior of the casing. This member is triangular in shape and is provided with an arcuate surface 25' on its free extremity, slotted at 26 for purposes hereinafter described. The cam member contains a cam slot 26' spaced from its pivot point and having its low point adjacent the center of the member and opposite portions extending upwardly relative a radius swung from

the pivot point. A lever 27 is pivotally mounted on the plate 23 by a stud 28 and is located immediately beneath the cam member. A cam roller 29 is mounted on the lever 27 and is engaged in the cam slot 26'. The free end of the lever is connected to a link member 31 which is adapted to be operated thereby to move the switch arm 18.

Although the link member 31 may comprise a simple rod connected at one end to the lever 27 and at the other end to the switch arm 18, it is preferred that the link member include a compensating device to cooperate with a locking device hereinafter described. As shown in Fig. 3 the link member 31 comprises a rod 32 having a bearing 33 at its upper extremity for rotatably receiving the end portion of the switch arm 18. The lower extremity of rod 32 is screwed into the top wall of a cylindrical housing 34. The vertical wall of the housing is slotted at 35 to slidably receive a pin 36 secured to the free end of the lever 27. The portion of the pin 36 extending within the housing is flattened at 37 to mount a washer 38 (Fig. 5) and a compression spring 39 is mounted in the housing between the washer 38 and the top wall thereof. The spring 39 is sufficiently tensed so that when the free end of the lever is moved upwardly, the pin 36 thereof will act upon the spring and move the link member 31 in an upward direction to operate the switch crank 18.

Referring to Figs. 2, 3, and 4, it will be seen that should the portion of the dispensing hose adjacent the arm 20 be moved in either lateral direction, the arm 21 will be carried with it thus moving the cam member 25 from its normal depending position as shown in Fig. 3 to a position at an angle thereto as shown in Fig. 4. This movement causes corresponding upward movement of the lever 27 since the cam roller 29 thereon will follow one of the upwardly extending portions of the cam slot 26' of the cam member 25. The link member 31 will be carried upward by the stud 36 of the lever 27 and will cause the movement of switch lever 18 to its upward position as shown in Fig. 4 to operate the switch mechanism and connect the motor 11 to the source of electrical energy to operate pump 10.

Upon manual release of the hose from its position shown in dot and dash lines in Fig. 4, the hose will drop to its natural vertical position carrying with it arm 21, and cam member 25, thereby restoring the lever 27 to its normal position, (Fig. 3) and also restoring switch crank 18 to its inoperative position. During this return movement, the spring 39 by its thrust upon pin 36 accentuates the return movement of the hose and urges cam roller 29 to seek its lowest position in cam slot 26'.

It is desirable to lock the switch in its inoperative position when the nozzle 19 of the hose is placed in a parked position upon the casing. For purpose of illustration the parking or mounting device for the hose nozzle is shown as being of the "telephone hook type", well known in the art. The parking device indicated at 41, (Figs. 1 and 2) is a lever fulcrumed at 42 near its central portion to the casing and having one end bifurcated at 43 and extending exteriorly of the casing for reception of nozzle 19 and having its opposite end 44 connected to a suitable mechanism for locking both arm 21 and arm 18 against movement. As best shown in Fig. 1 such mechanism is mounted on bearing member 45 secured to the meter bracket 46 or other suitable structure within the casing. This member is provided with spaced bearings 47 in which a shaft 48 is rotatably mounted. An arm 49 is secured to one end of the shaft and the free extremity of the arm is connected to the end 44 of the mounting member by means of a rod and clevis connection indicated at 51.

An arm 52 is secured to the opposite extremity of shaft 48 and is provided at its free extremity with a pin 53. A lever 54 is pivotally mounted on plate 23 by means of a stud 55 and is provided with an outwardly extending arm portion 56 secured thereto. The extremity of arm portion 56 is slotted at 57 to receive the pin 53 of arm 52. The arm portion 56 is also provided with a pin 58, which is connected to the lower end of housing 34 by means of a link 59 which is slotted at 61 to receive the same. The top extremity of link 59 is received in a bearing portion 62 of the housing 34 and is retained therein by a stud 63.

When the nozzle 19 of the hose is placed upon the bifurcated end 43 or parking portion of the mounting member, the weight thereof is sufficient to carry such end downward thus causing the upward movement of rod 51 and lever 49 to turn the shaft 48 counterclockwise and the lever 52 in a downward direction. The lever 54 is also moved downward by the engagement of pin 53 in its slot 57 and thus carries with it link 59 and connecting member 31, to operate the switch crank 18 and restore the switch mechanism to its inoperative position. This movement takes place irrespective of the position of cam member 25. Should the cam member be in a position as shown in Fig. 4 with the resulting upward positioning of crank arm 18, and the hose nozzle be placed upon the mounting member, the weight of the same will be sufficient to actuate its mechanism to pull the connecting member 31 in a downward direction against the action of spring 39.

Upon removing the hose nozzle from the mounting member, the end 43 thereof may be manually moved in an upward direction, thus moving the arm 52 in an upward direction and carrying with it arm member 54. The pin 58 of arm 54 will accordingly move upwardly in slot 61 of the link. This entire operation presets the cam 25 for operation, as it now can be actuated without interference from the mechanism associated with the mounting member.

The placing of hose nozzle 19 upon the mounting member also controls the locking of cam member 25 in its normal depending position. The locking means provided for such purpose comprises a locking lever 64 pivotally connected at one extremity to the plate 23 by means of a stud 65 and having at its opposite extremity an upwardly extending key member 66. A pin 67 is secured to the central portion of lever 64 and one extremity of a coil spring 68 is secured thereto. The other extremity of the coil spring is secured to the right hand portion of the underlying lever 54 by means of a similar pin 69.

When nozzle 19 is removed from the mounting member and the lever 54 is raised, spring 68 is moved downward and carries with it lever 64 (Fig. 4). However, when the nozzle is placed upon the mounting member, the spring is moved upward to urge lever 64 and accompanying key 66 to contact with the cam member 25. Should the cam member be in its depending or central position as shown in Fig. 3, the key 66 enters slot 26 thereof and locks the cam member against rotation.

If the cam member is not in its normal or central position during the locking operation, the key 66 engages upon the arcuate surface 25' of the cam member and spring 68 is stressed to maintain such contact, whereupon, when the hose and accompanying cam member are moved to their natural vertical position the slot 26 of the cam member is engaged by key 66.

In the embodiments of the invention shown in Figs. 6 and 7 a similar control device is portrayed wherein the locking lever is eliminated and a different type of cam and connecting member is provided. In this embodiment the stud 22 is secured to the central portion of a cam member 71 arranged in a longitudinal plane and having raised cam portions 72 at opposite extremities. A lever 73 is pivotally mounted at one extremity to the plate 23' of the casing by means of a stud 74. The central portion of the lever when in a normal position lies upon both cam portions 72 of the cam lever 71. An angle member 75 is secured to the opposite extremity of lever 73 and is provided with an extending leg portion 76. A guide member 77 is secured to the plate 23' to retain the lever 73 against lateral displacement during movement.

The lever 73 is connected to the control member 16' by means of a connecting member 78 secured to the extremity of arm 18' of the control member. The opposite extremity of connecting member 78 extends through a suitable aperture in leg 76 of lever 73. A coil spring 81 is arranged about the protruding portion of the connecting member and is retained between leg 76 and the extremity thereof by means of a washer 82 pinned or otherwise secured to the extremity of the connecting member. It will be seen that upon swinging of the hose, the accompanying arm 21 (Fig. 7) will turn cam member 71 about its fulcrum point and actively engage either of its cam portions 72 with the bottom of lever 73 to raise the same under the guidance of its guide member 77. Such action will compress spring 81 and move the connecting member 78 upward to operate the arm 18' and connect the fluid supply to the hose.

This device is also controlled by the mounting member for the hose nozzle and as shown in Fig. 6 a similar mounting member is provided and is connected by means of the connecting member 51 to a lever 49 secured to one extremity of a crank member 83 which is mounted in the bearing member 45. The other extremity of the crank member is provided with a crank portion 84 which registers with a collar 85 secured to the central portion of connecting member 78.

Upon placing the nozzle upon the mounting member the crank portion 84 of crank member 83 will be actuated in a clockwise direction, as viewed in Figs. 6 and 7, and will be impinged upon collar 85 to move the same downwardly and thus restore switch crank 18' to its normal inoperative position. If, during such operation, cam member 71 is canted, due to an impediment or the like holding the hose in its moved position, the rod will be moved downwardly against the action of spring 81 regardless of the position of the lever 73.

When it is desired to set the dispenser for operation the nozzle is removed from the mounting member and the portion of the hose adjacent arm 21 is swung in either lateral direction to move the cam member and lift the lever 73 thus lifting the connecting member 78 and operating the switch mechanism to set the motor in motion.

The two embodiments above described both disclose the principle of controlling the operation of the pump motor of the dispensing device by means of the movement of a portion of the dispensing hose and it will be obvious that the forms shown may be varied without departing from the principle of the invention.

What is claimed is:

1. In a fluid dispenser, fluid supply means, a casing, a dispensing conduit leading from the supply means and mounted on the exterior of the casing for movement from an inoperative position to an operative position, control means for the supply means mounted within the casing, cam means within the casing, means connecting the cam means to the conduit for operation by and during movement thereof, and means actuated by the cam means for actuating said control means.

2. In a fluid dispenser, the combination with a casing of fluid supply instrumentalities disposed therein, a control for said instrumentalities, a flexible dispensing conduit connected to said instrumentalities, said conduit extending exteriorly of the casing, a movable mounting bracket disposed on said casing to receive the end of said conduit, means for operating said control to condition said instrumentalities for fluid delivery, said last named means comprising a clamp on said flexible conduit and movable therewith, conduit controlled means extending from said clamp to said control to operate said control upon movement of the flexible conduit, said conduit controlled means including a yieldable linkage, holding means extending from said movable mounting bracket to said conduit controlled means for preventing movement thereof when said conduit is mounted on said bracket; said holding means being operable on said yieldable linkage to decondition said control irrespective of the movement of said flexible conduit.

3. In a fluid dispenser including a casing, a pump therein, a motor for operating the pump, a switch for controlling the motor, a discharge conduit connected to said pump, a flexible hose connected to said discharge conduit, and a pivoted bracket mounted on said casing for receiving the end of said hose; means for turning on said switch to operate said pump through the successive operation of the bracket and hose and for turning off said switch through the independent retrograde movement of the hose or bracket comprising a clamp secured to the hose, a mechanical linkage extending from said clamp to said switch, said mechanical linkage including a yieldable link, a second linkage extending from the bracket to said first named linkage to hold the same when the hose is on the bracket, said second linkage being connected to said first linkage through said yieldable link to turn off the switch irrespective of the positioning of the first named linkage.

4. In a liquid dispensing apparatus, a casing, a pump in the casing, a motor connected to said pump, a control switch for the motor, a dispensing conduit connected to the pump, said conduit terminating in a flexible hose disposed exteriorly of the casing, a pivoted bracket on the casing adapted to receive the end of the hose and to be depressed by the weight thereof, a clamp on the hose, a lever in the casing, linkage extending from the lever to the switch for operating the same, means connected to said clamp for operating the lever and thereby said linkage, said linkage including a resilient link whereby said switch may be independently operated, a stop member in said

linkage, a stop for said stop member, said stop being operable by said bracket, whereby said switch may be operated through said hose after said bracket is moved to release said stop, said stop member being positioned in said linkage between said switch and said resilient link, whereby, upon retrograde movement of the bracket, said switch will be reversely operated irrespective of the positioning of said hose and clamp.

5. In a liquid dispensing apparatus, a casing, a pump in the casing, a motor connected to the pump, a switch for the motor, a dispensing conduit connected to the pump, said conduit terminating in a flexible hose disposed exteriorly of the casing, a bracket pivotally mounted on the casing to receive the end of the hose and adapted to be depressed thereby, a clamp on the hose, a cam plate mounted in the casing and operatively connected to said clamp, a lever mounted in the casing and movable by said cam as said cam is moved, a mechanical linkage extending from said lever to said switch, whereby upon movement of the hose and clamp said switch is operated to its opposite position, said linkage including a yieldable link, a stop on said linkage, stop engaging means on said casing operable by movement of said pivotally mounted bracket whereby when said bracket is depressed said switch is opened, said stop engaging means being connected to said switch through said yieldable link to open said switch irrespective of the position of said cam plate and the linkage controlled thereby.

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