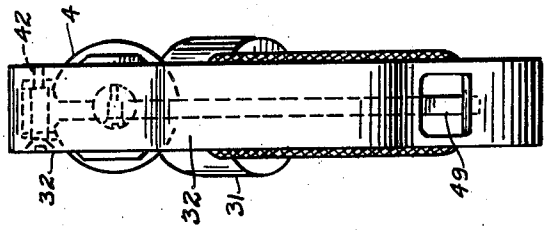
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PORTABLE WET HOSE NOZZLE

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Fig. 3.



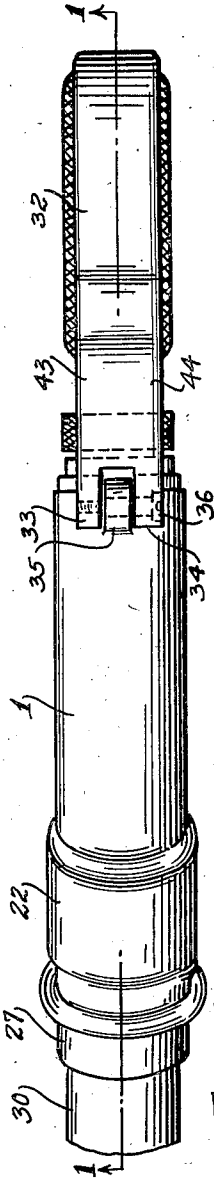


Fig. 2.

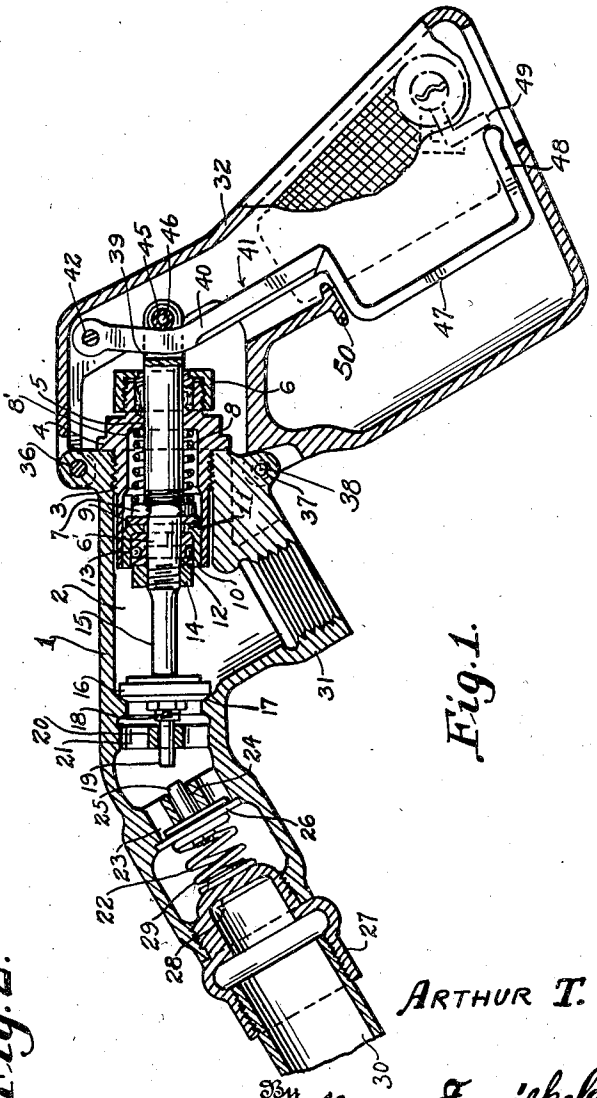


Fig. 1.

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Fig. 6.

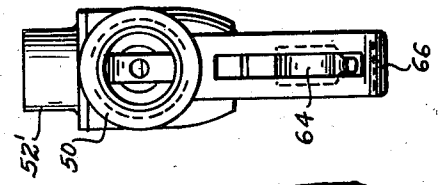


Fig. 5.

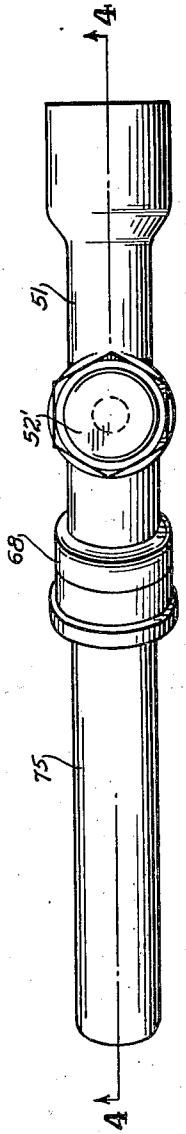


Fig. 4.

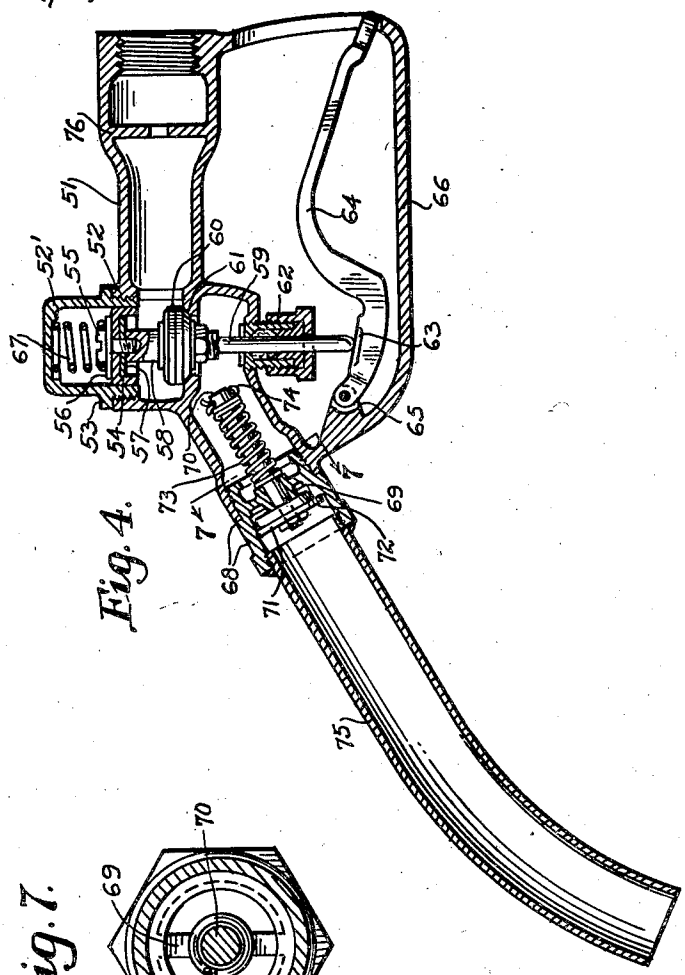


Fig. 7.

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Patented Oct. 31, 1933

1,933,234

UNITED STATES PATENT OFFICE

1,933,234

PORTABLE WET HOSE NOZZLE

Arthur T. Wakefield, Baltimore, Md.

Application August 11, 1932. Serial No. 628,406

13 Claims. (Cl. 277—71)

This invention relates generally to nozzles adapted to be attached to hose for conducting liquids from a dispensing pump, and more particularly to nozzles of the portable wet hose type adapted to be connected to hose for dispensing gasoline from electrically operated pumps.

In most of the valve controlled nozzles connected to pumps of this type, there is practically always about fifteen pounds of pressure when the motor is started in the pump. When the operator releases the valve control lever on the nozzle a sort of vibratory action is set up, which action makes it necessary for the service station attendant to watch the dial on the pumping apparatus very closely so as to stop the pumping operation when the dial arrives exactly at the indication designating the quantity purchased.

The main object of the present invention is to eliminate the aforesaid vibration or jerky discharge through the nozzle, and to regulate the flow of liquid so that it can be reduced to a pin stream slowly moving the hand on the usual indicating dial of the pump, thereby permitting the operator to dispense the exact quantity of gas purchased.

Another object of the invention is to provide a nozzle of this character having the various operative parts detachably connected to each other and readily accessible for replacement and repair. Practically all nozzles of the prior art are made in one piece so that if any of the parts thereof are broken it becomes necessary for the operator to purchase a complete new nozzle.

Another object of the invention is to provide nozzles of this type with an automatically operated anti-drip valve which closes the hose to prevent draining or seepage of gas from the hose after the dispensing operation has been completed.

Other objects of the invention will become apparent as the detailed description thereof proceeds.

In the drawings:

Figure 1 is a central vertical section, through a preferred form of nozzle, taken on the line 1—1 of Figure 2;

Figure 2 is a plan view of the nozzle illustrated in Figure 1;

Figure 3 is an end elevation of the nozzle shown in Figure 1;

Figure 4 is a central vertical section of another form of cushioned anti-drip nozzle taken on the line 4—4 of Figure 5;

Figure 5 is a plan view of the nozzle shown in Figure 4;

Figure 6 is an end elevation of the nozzle shown in Figure 4; and

Figure 7 is a transverse section to an enlarged scale taken on the line 7—7 of Figure 4.

Referring to Figures 1, 2 and 3, the anti-drip nozzle illustrated therein comprises a body 1 provided with a cylindrical bore 2 internally screwthreaded at one end to receive detachably a cylindrical cushion chamber 3. The chamber 3, between its ends, is provided with an outwardly extending annular flange 4 adapted to seat against the end of the body 1 when properly seated in the cylinder 2. The outer end of the chamber 3 is centrally bored to receive slidably a piston rod 5; and a packing gland 6 is formed on this outer end to prevent leakage of liquid along the piston rod 5.

The piston rod 5 is turned down to form an intermediate part 6' of smaller diameter; and the end of the rod 5, where it joins the part 6', is screwthreaded to receive an adjusting nut 7. A compression spring 8 is interposed between the adjusting nut 7 and the end wall 8' of the chamber 3. Obviously, the nut 7 may be rotated in one direction or the other to regulate the degree of compression of the spring 8.

The intermediate part 6' of the piston rod has a washer 9 arranged thereon and in contact with the adjusting nut 7. A leather cup 10 has the bottom thereof provided with an aperture 11 which slides on the intermediate part 6' of the piston. A filler member 12 is seated in said cup around the intermediate part 6', and is provided with an annular groove in which is positioned a coil 13 of wire or other resilient material pressing outwardly against the inside of the cup 10 and holding it in yielding contact with the inner cylindrical wall of the chamber 3. A nut 14 is screwthreaded on to the intermediate part 6' of the piston rod to secure the filler member 12 properly positioned in the leather cup 10.

The intermediate portion 6' of the piston rod 5 connects with a still further reduced portion 15 of the piston rod which is shouldered near its outer end to form a seat for a valve 16 beveled to fit against a seat 17 formed in the body 1 of the nozzle. The narrowed part 15 of the piston rod is again reduced to receive the valve 16 and a lock nut 18 for securing said valve positioned against the shoulder at the end of the portion 15, and also to form a guide rod 19 slidably mounted in an aperture 20 formed centrally in a spider 21 cast integral with the body 1 of the nozzle.

The body 1 is formed integral with the part 22 extending at an obtuse angle to the body 1. The part 22, adjacent to the spider 21, is provided

with a spider 23 having an aperture 24 at its center to form a guide passage for a guide rod 25 formed on an anti-drip valve 26. The part 22 is also suitable recessed to form a seat for the valve 26. The outer end of the part 22 is internally screwthreaded to receive a hollow cylindrical nut 27 having a bridge 28 at the inner end thereof to form a seat for a compression coil spring 29, said coil spring being interposed between said bridge and the valve 26 to force the valve normally into closing position on its seat.

It is to be understood, of course, that the spring 29 is merely of sufficient strength to close the valve 26 but is not strong enough to prevent the flow of liquid from the dispensing pump through the nozzle when the valve 17 is opened. The outer end of the nut 27 is internally screwthreaded to receive the externally screwthreaded end of the spout 30, of the usual type, adapted to be introduced into the filling opening of an automobile gasoline tank.

The body portion 1 at about the center thereof is provided with an enlarged portion 31 which is internally screwthreaded to receive the externally screwthreaded end of a fitting (not shown) at the end of the usual flexible hose connecting the nozzle to a dispensing pump.

A handle 32 is detachably connected to the body 1 of the nozzle. This handle 32, at its upper end, is provided with a bifurcated lug. The furcations 33 and 34 are adapted to receive between them a projection 35 formed on the upper side of the body 1. The projection 35 and the furcations 33 and 34 are provided with aligned apertures adapted to receive a machine screw 36 for detachably securing the upper end of the handle to the upper side of the body 1. The lower side of the handle 32 is similarly bifurcated to receive a projection 37 between the furcations thereof, a screw 38, similar to the screw 36, being used to detachably connect these furcations to the projection 37.

In order to operate the dispensing valve 16, the piston rod 5 is slotted at its outer end. The slot 39 receives the intermediate part 40 of a trigger 41 which swings at its upper end about a pivot pin 42 suitably secured between side walls 43 and 44 formed integral with the upper end of the handle 32. The rear edge of the part 40 contacts with a roller 45 rotatably mounted on a pin 46 extending between the furcations which form the sides of slot 39.

The trigger 41 extends downwardly in the handle 32, and then projects inwardly to form a finger grip 47 bent inwardly at its lower end to provide a lug 48 adapted to contact with the end of a key controlled locking member 49, which may be moved into and out of the path of swing of the lug 48 for the purpose of controlling the operation of the trigger 41. The locking member 49 forms a movable stop adapted to limit the movement of the trigger 41 in the direction for opening the valve 16; and the handle 32 has a stop 50 to limit the swing of the trigger in the opposite direction.

It will be apparent from Figure 1 of the drawings that when the stop member 49 is moved out of the path of swing of the projecting lug 48, the trigger 41 may be pulled backwardly by pressure of the fingers of the operator on the grip 47. This pulling back of the trigger 41 moves the piston rod 5 against the pressure of the spring 8 to open the valve 16. The pressure of the pump on the liquid passing through the hose connection 31 moves the anti-drip valve 26 off its seat and permits the liquid to be dispensed through the spout 30. During this dispensing operation, the leather cup 10 practically eliminates vibration of pump pressure in spout 30, and enables the operator, by manipulation of the trigger 41, to control the flow of liquid through the spout 30 within very fine limits.

It will also be obvious from inspection of Figure 1 that the handle 32 may be readily detached from the body 1 for the repair or replacement. When the handle 32 is removed, the entire valve mechanism mounted on the body 1 can also be detached therefrom for replacement or repair. This also applies to the detachable connection of the spout 30 with the nut 27, and to the detachable connection of the nut 27 with the body 1 to provide for the removal of the spout from the nut and of the anti-drip valve mechanism from the body 1. This presents a very decided advantage over nozzles in which the parts are made integral with each other, and the breakage of any one of which involves the purchase of a complete new nozzle.

The nozzle shown in Figures 4 to 7 somewhat resembles in general outline a type in very common use. It is modified, however, to receive the cushion valve mechanism described in connection with the preferred form of the invention illustrated in Figure 1. The improved nozzle comprises a body 51 having one end thereof internally screwthreaded to receive the usual fitting (not shown) of a flexible hose for connecting the nozzle to the dispensing pump. The body 51 is provided with an internally screwthreaded aperture 52 adapted to receive the external screwthreads formed on the outer end of a cylindrical cup 52'. The cup 52' is provided, between its ends, with an annular flange 53 adapted to seat against the end of the wall surrounding the aperture 52. A leather cup 54 is apertured at its center to receive a machine screw 55 and a washer 56 is interposed between the head of the machine screw 55 and the base of the cup 54 to clamp the body of the cup against the second washer 57 which seats against the end of a piston rod 58. The piston rod 58 is axially bored and tapped to receive the screwthreads of the machine screw 55, whereby the piston rod 58 is rigidly connected to the bottom of the cushion cup 54. The rod 58 is turned down to form a reduced portion 59 on which is suitably mounted a valve 60 adapted to move toward and from a seat 61 suitably formed in the body portion 51. The reduced part 59 extends through a packing gland 62 suitably arranged on the body portion 51, and has its end contacting with the inner edge 63 of a trigger member 64, pivoted at one end thereof to a lug 65 extending inwardly from a guard 66. The end of the portion 59 is held in yielding contact with the edge 63 by means of a compression spring 67 which is interposed between the washer 56 and the bottom of the cylindrical chamber 52'.

It will be obvious that when the operator lifts the trigger 64 against the pressure of the spring 67, the valve 60 will be raised off its seat to dispense liquid through the hollow body portion 51. The outer end of the body portion 51 is internally screwthreaded to receive a fitting 68 which has an apertured spider 69 formed therein to receive a guide rod 70 of an anti-drip valve 71 The valve 71 is held normally in closing position against its seat 72 by means of a coil spring 73 wound around the rod 70 and having one end thereof abutting against the spider 69 while the other end abuts against a cotter pin 74 passed through the

inner end of the guide rod 70. A spout 75 is suitably secured to the end of the fitting 68 and is adapted to be inserted in the filling opening of an automobile tank in the usual manner.

It will be obvious from inspection of Figure 4 of the drawings that the cushion valve mechanism may be readily detached from the body portion 51, and that the anti-drip valve mechanism and spout 75 may also be readily detached therefrom. The body portion 51 is provided with a diaphragm apertured at its center to permit the flow of gasoline therethrough or to receive the guide rod of the anti-drip valve mechanism which may be substituted for the anti-drip valve mechanism shown connected to the spout 75.

While I have described my invention as embodied in concrete form and as operating in a specific manner in accordance with the provisions of the patent statutes, it should be understood that I do not limit my invention thereto, since various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What I claim is:

1. A portable wet hose nozzle comprising a body having a cylindrical valve chamber formed therein, a piston rod, means for mounting said rod to slide axially in said chamber, a valve seat in said chamber, a valve on said rod, yielding means connected to said rod for holding the valve normally in closed position, means mounted on said rod to dampen the vibrations thereof, manually operable means connected to said body and piston rod for opening said valve, and means formed on said body for detachably connecting a liquid conduit thereto.

2. The combination with the device set forth in claim 1 of mechanism for locking said manually operable means against operation.

3. The combination with the device set forth in claim 1 of a second valve mounted to reciprocate in said body, said body being provided with a valve seat for said second valve, and yielding means for normally holding the second valve in closed position.

4. A portable wet hose nozzle comprising a body having a cylindrical valve chamber formed therein, a piston rod reciprocable in said chamber, a valve on said rod, yielding means for normally holding said valve in closed position, a cushion cylinder detachably connected to said body and slidably engaged by said piston rod, means mounted on said rod and in slidable contact with the wall of said cushion cylinder to dampen the vibration of said valve during the reciprocation thereof, and means formed on said body for detachably connecting a liquid conduit thereto.

5. The combination with the device set forth in claim 4 of a handle detachably connected to one end of said body, a trigger pivotally mounted in said handle and slidably connected to one end of said piston rod to reciprocate the same.

6. The combination with the device set forth in claim 4 of a handle detachably connected to one end of said body, a trigger pivotally mounted in said handle and slidably connected to one end of said piston rod to reciprocate the same, and key controlled means for locking the trigger against operation in said handle.

7. The combination with the device set forth in claim 4 of a handle detachably connected to one end of said body, a trigger pivotally mounted in said handle and slidably connected to one end of said piston rod to reciprocate the same, a second valve reciprocable in said body, and means for normally holding said second valve in closed position, the last named means yielding to open said second valve when the first named valve is open by pressure of liquid flowing through said body.

8. A portable wet hose nozzle comprising a main body bored to form a valve chamber having a valve seat adjacent one end, a valve in said chamber, yielding means for holding said valve normally seated and a cushion cylinder detachably connected to the other end of said chamber, a handle detachably secured to said other end, means pivoted in said handle and connected to said valve to move the valve off said seat, and means in said cylinder to dampen the vibrations of said valve, said chamber being provided between said valve and cylinder with means for detachably receiving one end of a liquid conduit.

9. The combination with the device set forth in claim 8 of an anti-drip valve detachably mounted in the discharge end of said body, and a dispensing spout detachably connected to said discharge end.

10. A portable wet hose nozzle comprising a main body having means between its ends for detachably securing a hose thereto, valve mechanism in said body to control the flow of liquid therethrough, means for normally holding said mechanism in closed position, means detachably mounted at one end of said body for opening said valve, an anti-drip valve detachably connected to the other end of said body, and a spout detachably connected to said last named end.

11. The device set forth in claim 10 in combination with key controlled means for locking the valve opening means against operation.

12. A portable wet hose nozzle comprising a cylindrical body provided with means for attaching a flexible hose thereto, a valve reciprocably mounted in said body to control the flow of liquid from said hose therethrough, means connected to said valve to dampen the vibrations of said valve caused by pressure of liquid flowing therethrough, a handle detachably secured to said body, and means in said handle for operating said valve.

13. A portable wet hose nozzle comprising a cylindrical body provided with means for attaching a flexible hose thereto, a valve reciprocably mounted in said body to control the flow of liquid from said hose therethrough, means connected to said valve to dampen the vibrations of said valve caused by pressure of liquid flowing therethrough, a handle detachably connected to said body, means in said handle for operating said valve, and means for locking said handle to prevent operation thereof.

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