May 10, 1932. E. H. BRADLEY 1,858,035

LIQUID DISPENSING APPARATUS

Filed Oct. 1, 1928

Fig. 4.

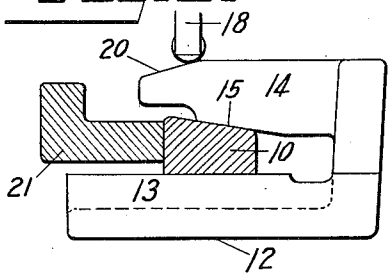


Fig. 1.

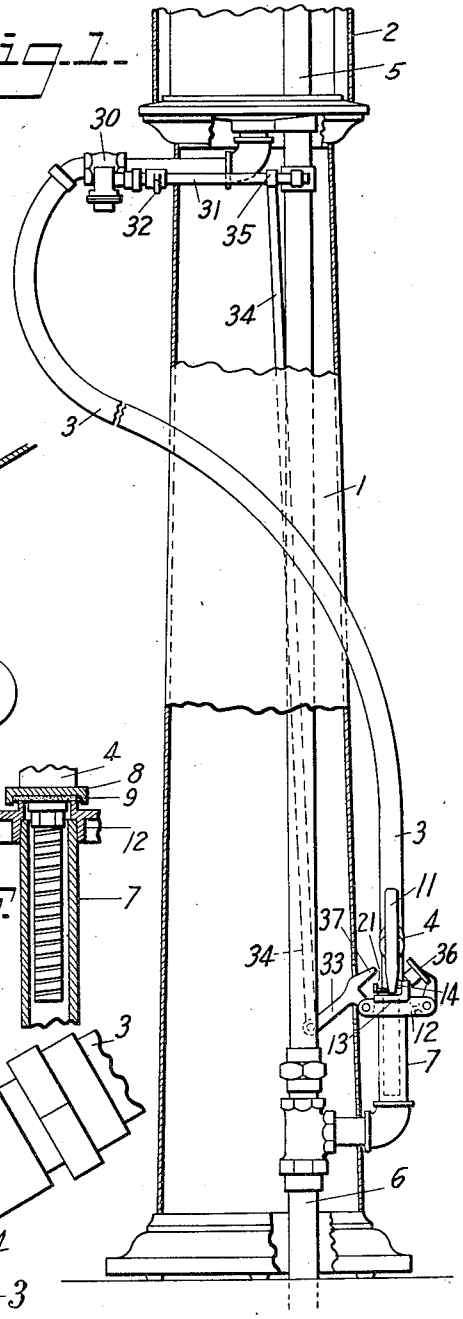


Fig. 3.

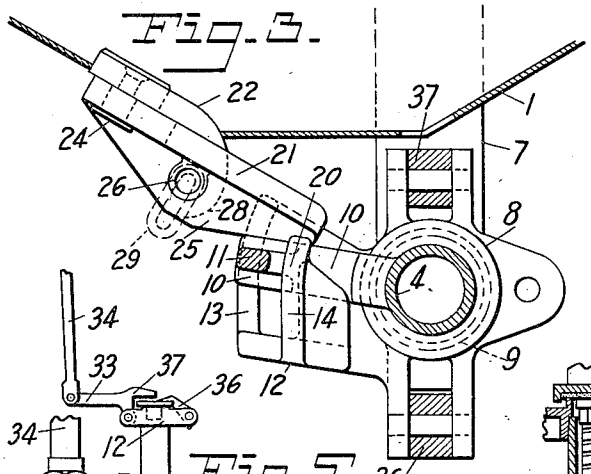
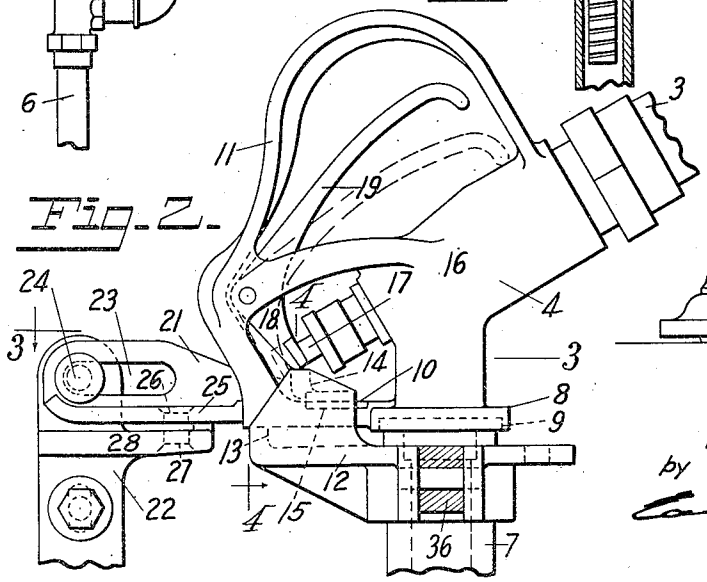


Fig. 5.

Fig. 6.

Fig. 2.



INVENTOR.
ERIC H. BRADLEY.
by Edmund C. Reed.
his ATTORNEY.

Patented May 10, 1932 1,858,035

UNITED STATES PATENT OFFICE

ERIC HEYWOOD BRADLEY, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL PUMPS CORPORATION, OF DAYTON, OHIO, A CORPORATION OF OHIO

LIQUID DISPENSING APPARATUS

Application filed October 1, 1928. Serial No. 309,461.

This invention relates to liquid dispensing apparatus and more particularly to a gasoline pump of that type in which a delivery receptacle is drained through the delivery hose to a drain pipe, which usually leads back to the storage reservoir. To drain the delivery receptacle in this manner the drain pipe is provided with a receptor or socket into which the nozzle of the hose is inserted and in which it is retained during the draining of the receptacle.

One object of the invention is to provide a simple easily operated means for retaining the nozzle in the receptor and for sealing the connection between the same.

A further object of the invention is to provide such retaining means which will hold the valve in the hose line open so long as the nozzle is retained within the receptor.

A further object of the invention is to provide a simple efficient locking device to positively prevent the separation of the retaining devices and to thus prevent the removal of the nozzle from the receptor.

A further object of the invention is to provide means controlled by the presence of the nozzle in the receptor to prevent the closing of a valve in the hose line; and to prevent the insertion of the nozzle in the receptor when that valve is closed.

Other objects of the invention will appear as the apparatus is described in detail.

In the accompanying drawings Fig. 1 is a vertical sectional view, partly in elevation and partly broken away, of a gasoline pump embodying my invention; Fig. 2 is a side elevation of the nozzle and a portion of the receptor; Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2; Fig. 4 is a transverse sectional view taken approximately on the line 4—4 of Fig. 2; Fig. 5 is a side elevation of the receptor and controlling device showing the cap for the receptor in its closed position; and Fig. 6 is a detail view of a portion of the nozzle.

In these drawings I have illustrated one embodiment of my invention and have shown the same in connection with a gasoline dispensing pump of a well known type. It will be understood, however, that this particular embodiment has been chosen for the purposes of illustration only and that the mechanism may take various forms and may be applied to dispensing apparatus of various kinds without departing from the spirit of the invention.

The dispensing apparatus shown in the drawings comprises a hollow standard or housing 1 on the upper end of which is supported a delivery receptacle 2, preferably having transparent walls. Connected with the bottom of this delivery receptacle is a delivery hose 3 having at its free end a discharge nozzle 4. The delivery receptacle is provided with an overflow pipe 5 which is connected with a drain pipe 6, preferably leading back to a storage reservoir, and which serves to return to the storage reservoir any excess liquid pumped into the delivery receptacle. The pumping mechanism for filling the delivery receptacle is not shown but may be of the usual or any suitable type. Connected with the drain pipe 6 and arranged on the outside of the housing 1 is a receptor or socket member 7 adapted to receive the nozzle 4. Suitable means are provided for sealing the connection between the socket and the nozzle and, as here shown, the nozzle is provided with a flange 8 in which is arranged a gasket 9 to engage the upper edge of the receptor, so that when the nozzle is pressed firmly into the receptor the gasket will seal the connection. The discharge portion of the nozzle is preferably of flexible material, such as interlocking flexible brass tubing, thus adapting the nozzle for insertion in the straight socket of the receptor but permitting it to be bent or shaped by hand to adapt it to insertion in the filling opening of the fuel tanks of different automobiles.

The nozzle and receptor are provided with cooperating parts to retain the nozzle in the receptor and these parts are preferably of such a character that when brought into cooperating relation they will press the gasket 9 firmly against the end of the receptor. These cooperating parts are, in the present instance, of such a character that they may be brought into interlocking relation by the movement of the nozzle in the receptor. The

nozzle 4 has a laterally extending lug 10 constituting a retaining member and, in the present instance, this lug is connected at its outer end with, and forms a part of the structure of, a handle 11 by means of which the nozzle is manipulated. The receptor 7 has near its upper end a laterally extending part 12 which is preferably provided at its outer end with a flange 13 on which the outer portion of the retaining member 10 of the nozzle rests and on which it may have sliding movement. Rigidly secured to and, in the present instance, forming a part of the laterally extending member 12, is a lug 14 extending transversely to the retaining member 10 of the nozzle and constituting a second retaining member to cooperate with the retaining member on the nozzle. This second retaining member 14 is spaced above the flange 13 a distance sufficient to permit the lug or retaining member 10 to enter the space between the flange and the lug 14 when the nozzle is moved about a vertical axis in the receptor, thereby causing the lug 10 to engage the underside of the lug 14 and to be so interlocked therewith as to retain the nozzle in the receptor. Preferably one or both of the retaining members have their contacting surfaces inclined, as shown at 15, so that when they are brought into interlocking engagement the nozzle will be pressed downwardly to insure a tight sealing contact between the receptor and the gasket 9.

The gasoline pump to which the invention is here applied is of the wet hose type, that is, the hose is normally full of gasoline. To this end the nozzle 4 is provided with a valve 16 to control the flow of gasoline through the hose. This valve is not shown in detail but may be of any suitable character in which the valve member is normally closed, as by a spring. A valve stem 17 projects beyond the nozzle and is arranged to be engaged by one arm, 18, of a bell crank lever which, in the present instance, is pivoted on the handle structure 11, and the other arm, 19, of which is arranged adjacent to the handle to be engaged by the fingers of the operator, whereby the movement of the lever will actuate the valve stem 17 to open the valve in the nozzle. The retaining member 14 of the receptor is so arranged that the valve will necessarily be open when the two retaining members are brought into interlocking relation and, as here shown, this retaining member is arranged in the path of the arm 18 of the actuating lever so that that lever must be moved to a position to open the valve before the retaining members can be fully interlocked. Preferably the outer end of the retaining member 14 is beveled, as shown at 20, so that it will engage the end of the arm 18 of the actuating lever and automatically open the valve when rotatory movement is imparted to the nozzle to move the retaining member 10 into interlocking engagement with the retaining member 14. The valve will be retained in its open position as long as the retaining members are interlocked.

A locking device is provided to positively prevent the withdrawal of the nozzle from the receptor, this locking device being preferably key controlled. In the present construction, the locking device comprises a lever 21 mounted on a fixed part of the apparatus adjacent to the receptor, such as a bracket 22 secured to the housing 1, and movable into the path of the retaining member 10 of the nozzle when the latter is in operative engagement with the retaining member 14 of the rereceptor, thereby providing a positive stop to prevent the rotation of the nozzle in a direction to separate the retaining members. As here shown, the locking member 21 is slotted at 23 to receive a pivot lug 24 on the bracket 22 and therefore has both pivotal and sliding movement with relation to the bracket. When the nozzle is to be locked the locking member is moved into a horizontal position and then slid lengthwise into the path of the retaining member 10. The locking member here illustrated has a laterally extending flange 25, the outer edge of which is inclined to engage the retaining member 10. This flange has an aperture 26 so arranged that when the locking member is in its operative position the aperture will be in line with a second aperture 27 which, in the present instance, is formed in a lug 28 carried by the bracket 22, the alined apertures being adapted to receive the hasp of a padlock 29.

In the present apparatus the hose line is provided with a second valve 30 which, as here shown, is interposed between the end of the flexible hose and the delivery receptacle. This valve is actuated by a shaft 31 which is operatively connected therewith and is provided with an actuating handle 32. In a wet hose pump this upper valve 30 is normally open and is in fact an emergency valve. In a dry hose pump, that is, one in which the hose is normally empty, the valve 30 may constitute the controlling valve for the hose. As has been stated, in the wet hose pump the valve 30 is normally open and is usually sealed in its open position. The operation of the valve 30 is controlled by a device of such a character and so arranged as to make it necessary that the valve shall be opened before the nozzle can be inserted in the receptor and to prevent the closing of the valve 30 while the nozzle is in the receptor. As here shown, this controlling device comprises a lever 33 pivotally mounted on the receptor and connected by a rod 34 with an arm 35 on the valve actuating shaft 31, the connection being of such a character that the lever 33 will be moved about its axis when the valve is opened or closed. A cap or closure 36 is pivotally mounted on the receptor and ar-

ranged for movement into and out of a position to close the upper end or mouth of the receptor. Preferably the cap is of such a character that it will move by gravity to its closed position when the nozzle is not in the receptor, and when the nozzle is in the receptor the cap will be held in its open position by contact therewith. The lever 33 has a projecting end or finger 37 so arranged that when the valve 30 is open this finger will be out of line with the mouth of the receptor, thus permitting the nozzle to be inserted therein or the cap to be moved to its closed position. If the valve 30 is closed when the cap 36 is in its closed position the finger 37 will be moved into a position immediately above the cap and will thus prevent the opening of the receptor until the valve 30 is opened. Should the valve 30 be closed while the cap 36 is in its open position the finger will extend across the open mouth of the receptor in such a manner as to prevent the insertion of the nozzle. Therefore the valve 30 must be opened before the nozzle can be inserted in the receptor. When the nozzle is in the receptor any attempt to close the valve 30 will cause the finger 37 of the lever to engage the nozzle and prevent the further movement thereof and thus prevent the valve from being closed.

While I have shown and described one embodiment of my invention I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe and a receptor connected with said drain pipe and adapted to receive said nozzle, a retaining member carried by said receptor and spaced laterally therefrom, and a second retaining member extending laterally from said nozzle and arranged to engage the lower side of the retaining member on said receptor when rotatory movement is imparted to said nozzle in said receptacle.

2. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe and a receptor connected with said drain pipe and adapted to receive said nozzle, a retaining member carried by said receptor and spaced laterally therefrom, and a second retaining member extending laterally from said nozzle and arranged to engage the lower side of the retaining member on said receptor when rotatory movement is imparted to said nozzle in said receptacle, one of said retaining members having an inclined contact surface to cause said nozzle to be pressed firmly into said receptor.

3. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe and a receptor connected with said drain pipe and adapted to receive said nozzle, a retaining member carried by said receptor, and a handle structure on said nozzle having a part arranged to be brought into interlocking engagement with said retaining member when rotatory movement is imparted to said nozzle in said receptor.

4. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe, a receptor connected with said drain pipe and adapted to receive said nozzle, and a valve in said nozzle to control the flow of liquid through said hose, cooperating parts carried by said nozzle and said receptor and arranged to be brought into interlocking engagement by the movement of said nozzle in said receptor, and means controlled by the movement of said parts into interlocking relation to open said valve.

5. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe, a receptor connected with said drain pipe and adapted to receive said nozzle, a valve in said nozzle and an actuating device for said valve carried by said nozzle, cooperating parts carried by said receptor and said nozzle and arranged to be brought into interlocking engagement by the movement of said nozzle in said receptor, the part on said receptor being arranged in the path of said valve actuating device when said valve is closed, whereby said valve must be opened before said parts can be fully interlocked.

6. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe, a receptor connected with said drain pipe and adapted to receive said nozzle, a valve in said nozzle and an actuating device for said valve carried by said nozzle, cooperating parts carried by said receptor and said nozzle and arranged to be brought into interlocking engagement by the movement of said nozzle in said receptor, the part on said receptor being arranged in the path of said valve actuating device when said valve is closed, and shaped to impart operative movement thereto as the part on said nozzle is moved into interlocking engagement with the part on said receptor.

7. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe and a receptor connected with said drain pipe and adapted to receive said nozzle, a retaining member carried by said receptor, a second retaining member carried by said nozzle and arranged to be

brought into interlocking engagement with the retaining member on said receptor by the movement of said nozzle in said receptor, and a locking member mounted on a fixed part of said apparatus adjacent to said receptor for movement into and out of a position to prevent the separation of said retaining members.

8. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe and a receptor connected with said drain pipe and adapted to receive said nozzle, a retaining member carried by said receptor, a second retaining member carried by said nozzle and arranged to be brought into interlocking engagement with the retaining member on said receptor by the movement of said nozzle in said receptor, a locking member mounted on a fixed part of said apparatus adjacent to said receptor for movement into and out of a position to prevent the separation of said retaining members, and key controlled means to lock said locking member in its operative position.

9. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe and a receptor connected with said drain pipe and adapted to receive said nozzle, a retaining member carried by said receptor, a second retaining member carried by said nozzle and arranged to be brought into interlocking engagement with the retaining member on said receptor by the movement of said nozzle in said receptor, and a locking member slidably mounted on a fixed part of said apparatus adjacent to said receptor and movable into the path of the retaining member on said nozzle when the latter is in interlocking engagement with the retaining member on said receptor.

10. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe and a receptor connected with said drain pipe and adapted to receive said nozzle, a retaining member carried by said receptor, a second retaining member carried by said nozzle and arranged to be brought into interlocking engagement with the retaining member on said receptor by the rotatory movement of said nozzle in said receptor, and a locking member pivotally and slidably mounted on a fixed part of said apparatus adjacent to said receptor and movable into the path of the retaining member on said nozzle when the latter is in interlocking engagement with the retaining member on said receptor.

11. In a liquid dispensing apparatus, comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe, a receptor connected with said drain pipe and adapted to receive said nozzle, and a valve to control the flow of liquid through said hose, a controlling device connected with said valve and having a part arranged to be moved across the mouth of said receptor when said valve is moved to its closed position.

12. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe, a receptor connected with said drain pipe and adapted to receive said nozzle, a valve to control the flow of liquid through said hose, and a movable closure for said receptor, a controlling device connected with said valve and having a part so arranged that it will be moved into a position to retain said closure in its closed position when said valve is moved to its closed position.

13. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe, a receptor connected with said drain pipe and adapted to receive said nozzle, and a valve to control the flow of liquid through said hose, a cap pivotally mounted on said receptor and arranged to be moved by gravity to its closed position, and a device controlled by said valve to retain said cap in its closed position when said valve is in a predetermined position.

14. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe, a receptor connected with said drain pipe and adapted to receive said nozzle, sealing means arranged between opposed portions of said receptor and said nozzle, a valve in said nozzle to control the flow of liquid through said hose, and an actuating device for said valve, laterally extending retaining members carried by said receptor and said nozzle respectively and so arranged that they will be brought into interlocking engagement by the movement of said nozzle in said receptor and will cause said nozzle to act on said sealing means to tightly seal the joint between said receptor and said nozzle, the retaining member on said receptor having a part arranged to act on said valve and retain the same in its open position when said retaining members are interlocked.

15. In a liquid dispensing apparatus comprising a delivery receptacle, a delivery hose leading from said receptacle, a nozzle on said hose, a drain pipe, a receptor connected with said drain pipe and adapted to receive said nozzle, sealing means arranged between opposed portions of said receptor and said nozzle, a valve in said nozzle to control the flow of liquid through said hose, and an actuating device for said valve, retaining members carried by said receptor and said nozzle respectively and so arranged that they will be brought into interlocking engagement by the

movement of said nozzle in said receptor and will cause said nozzle to act on said sealing means to tightly seal the joint between said nozzle and said receptacle, the retaining member on said receptor having a part to engage said valve actuating device and cause the same to open said valve as said retaining members are moved into interlocking relation.

In testimony whereof I affix my signature hereto.

ERIC HEYWOOD BRADLEY.