J. J. CATRON.

FLUID DISPENSING APPARATUS.

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1,103,939. Patented July 21, 1914.

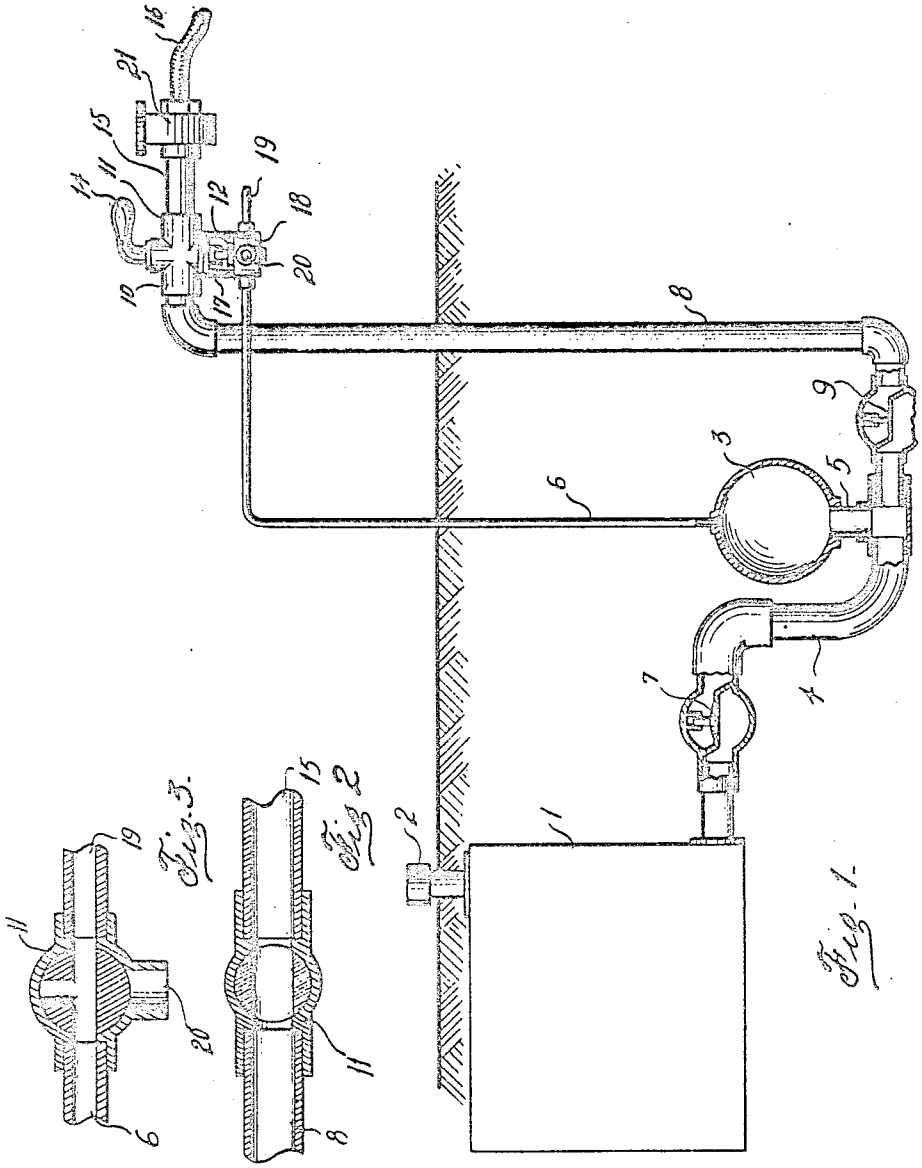


Fig. 1.

Fig. 3.

Fig. 2.

WITNESSES:

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FLUID-DISPENSING APPARATUS.

1,103,939. Specification of Letters Patent. Patented July 21, 1914.

Application filed April 8, 1913. Serial No. 759,721.

To all whom it may concern:

Be it known that I, JOHN JAMES CATRON, a citizen of the United States, residing at Bonham, in the county of Fannin and State of Texas, have invented certain new and useful Improvements in Fluid-Dispensing Apparatus, of which the following is a specification.

This invention as specified relates to new and useful improvements in fluid dispensing apparatus.

The object of the invention is to provide an apparatus for dispensing liquids such as oils and comprising a storage tank, a pressure tank, an air pressure pipe connected to the pressure tank, a discharge pipe having connection with both tanks, and a valve mechanism arranged to simultaneously open the discharge pipe and admit compressed air to the pressure tank and to simultaneously close the discharge pipe, cut off the supply of compressed air to the pressure tank and open the pressure tank to atmosphere, thus relieving all pressure from the oil and eliminating danger in case of surrounding fire.

Another feature resides in the provision of a small pressure tank whereby a comparatively small amount of oil is placed under pressure and a high degree of safety maintained.

A further object is to provide a compound valve mechanism arranged so that it is impossible to cut off the discharge of oil without cutting off the air pressure and relieving the pressure on the oil.

Finally the object of the invention is to provide a device of the character described that will be strong, durable, efficient, and simple and comparatively inexpensive to construct, also one in which the several parts will not be likely to get out of working order.

With the above and other objects in view the invention has relation to certain novel features of construction and operation, an example of which is described in the following specification and illustrated in the accompanying drawings, wherein:

Figure 1 is an elevation of the apparatus, certain parts being shown in section, Fig. 2 is a horizontal cross-section of the liquid discharge valve, and Fig. 3 is a similar view of the air valve.

In the drawings the numeral 1 designates a storage tank suitably located under ground and provided with a suitable filling connection 2. A small pressure tank 3 is connected under ground to the lower portion of the storage tank by a pipe 4 and may be located at any desirable point. The tank 3 is connected to the pipe 4 by a pipe 5. This pressure tank is comparatively small so that only a small amount of oil is placed under pressure at a time.

An air line pipe 6 enters the top of the pressure tank 3. In the pipe 4 between the two tanks a check valve 7 is located and arranged to permit the passage of the liquid from the storage tank 1 to the pressure tank 3, but closes against back flow and back pressure.

A fluid discharge pipe 8 is connected to the pipe 4. Between the pipe 5 and the pipe 8 a check valve 9 is located in the pipe 4 and is arranged to permit the flow of the liquid to the discharge pipe, but to prevent back flow and back pressure from the discharge pipe.

It is obvious that the liquid will normally reach the same level in the tank 1, pipe 6, and pipe 8, and pressure in the pipe 6 cannot force the liquid back through the valve 7; neither could pressure in pipe 8 force liquid back past the valve 9. Air under pressure being admitted to the pipe 6 places a pressure on the liquid in the small tank 3, but does not affect the liquid in the tank 1, as the valve 7 is held to its seat. Such pressure forces the liquid past the valve 9 and into the discharge pipe 8 from which it is dispensed. Only a comparatively small quantity of oil is placed under pressure and before additional oil can be admitted to the tank 3, the pressure must be relieved to permit the valve 7 to open. This maintains the liquid in the storage tank 1 free from pressure at all times and reduces the fire risk.

At the upper end of the discharge pipe 8 a compound valve 10 is located. This valve comprises one cut-off valve plug 11 and one three-way valve 12, each having the ordinary construction except as hereinafter pointed out. The plug 11 is provided with a handle 14 and controls the passage of liquid to a pipe 15 in which a suitable measuring meter 21 is connected and which in turn is connected to the usual dispensing hose 16. The valve 10 has a depending housing 17 connected to a valve casing 18 in which the plug 12 is arranged. The plugs are con-

nected in the housing as shown in Fig. 1, and so arranged that both are turned simultaneously. The valve casing 18 is connected to the air pipe 6 and has connection by means of a pipe 19 with a suitable source of compressed air supply (not shown). At right angles to the entrances of the pipes 6 and 19, which are alined, the casing 18 has a port 20 opening to the atmosphere.

Should it be desired to discharge the liquid as before described, the handle 14 is swung to give the plugs a quarter turn, which establishes communication between the pipes 8 and 15 and between the pipes 6 and 19 and closes the port 20. This permits air under pressure to flow to the tank 3 and force the liquid out through pipe 8 to the meter and hose 16. When the handle is swung back to its normal position the plugs are turned so that the flow of liquid is cut off and the flow of air from the pipe is also cut off. At the same time connection is established between the pipe 6 and the port 20, thus relieving all pressure in the tank 3 and pipe 6.

It will be apparent that the plugs are simultaneously operated and it is impossible to open the discharge pipe without admitting air to the tank 3, and also the discharge can not be cut off without also cutting off the supply of compressed air to the tank 3 and opening said tank to atmosphere, thus relieving the pressure on the liquid.

What I claim is:

A fluid dispensing apparatus, comprising a fluid storage tank, a supplementary tank disposed at a level lower than that of the storage tank, a fluid conducting connection between the two tanks, a check-valve interposed in said connection, permitting a flow of fluid only from the storage tank to the supplementary tank, a discharge pipe, having communication with the supplementary tank and extending to an elevation above the storage tank, a check-valve interposed in the discharge pipe, adjacent to the supplementary tank, permitting fluid to flow through said pipe from but not to the supplementary tank, an air pipe communicating with the supplementary tank, and a valve normally closing the discharge pipe and opening the air pipe to the atmosphere, the discharge pipe being open and the air pipe connected with a source of compressed air in the other limiting position of the valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN JAMES CATRON.

Witnesses:
W. A. PETERS,
L. WATSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."