June 4, 1929. C. H. EDWARDS ET AL 1,715,540

PUMP

Filed Nov. 10, 1926 2 Sheets-Sheet 1

Fig. 1

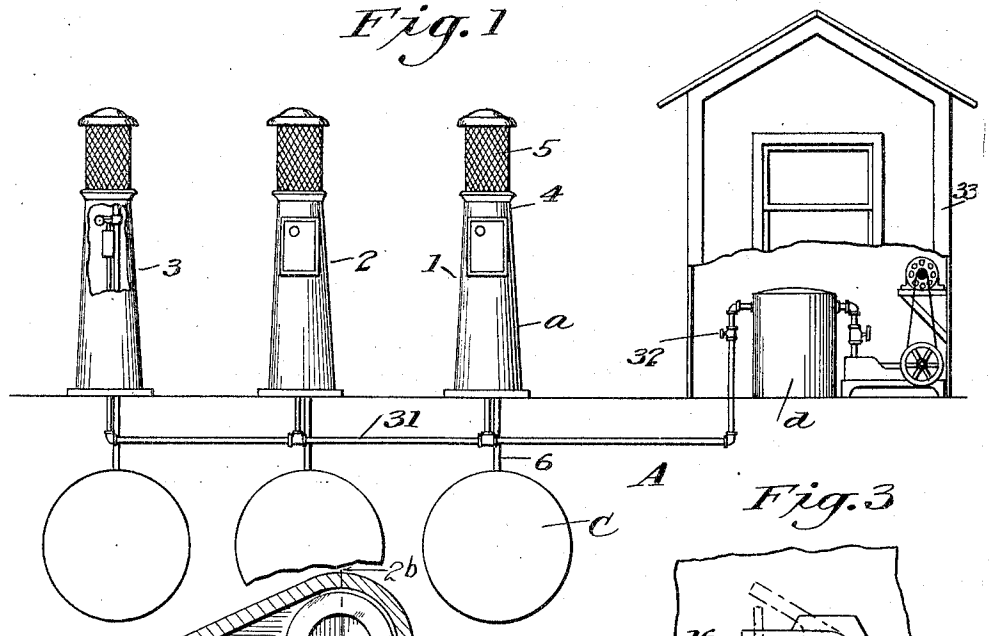


Fig. 3

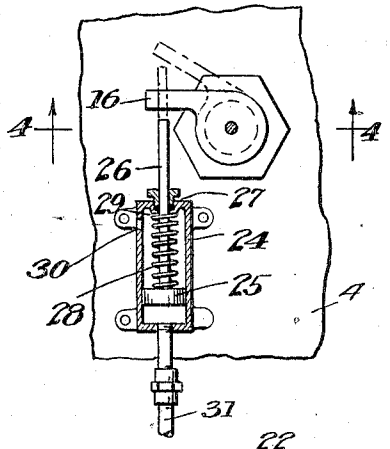
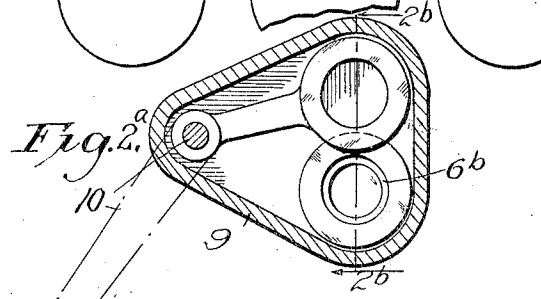


Fig. 2.



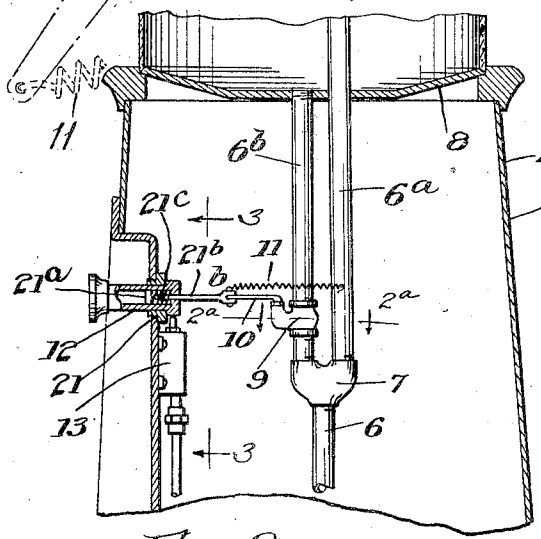


Fig. 4

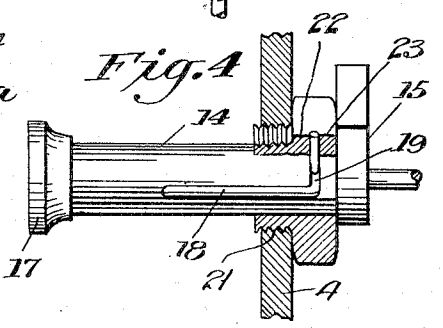


Fig. 2.

INVENTOR:
Curtis H. Edwards,
BY Robert L. Transtrom
Blakeslee & Brown ATTORNEYS.

June 4, 1929. C. H. EDWARDS ET AL 1,715,540

PUMP

Filed Nov. 10, 1926 2 Sheets-Sheet 2

Fig. 5

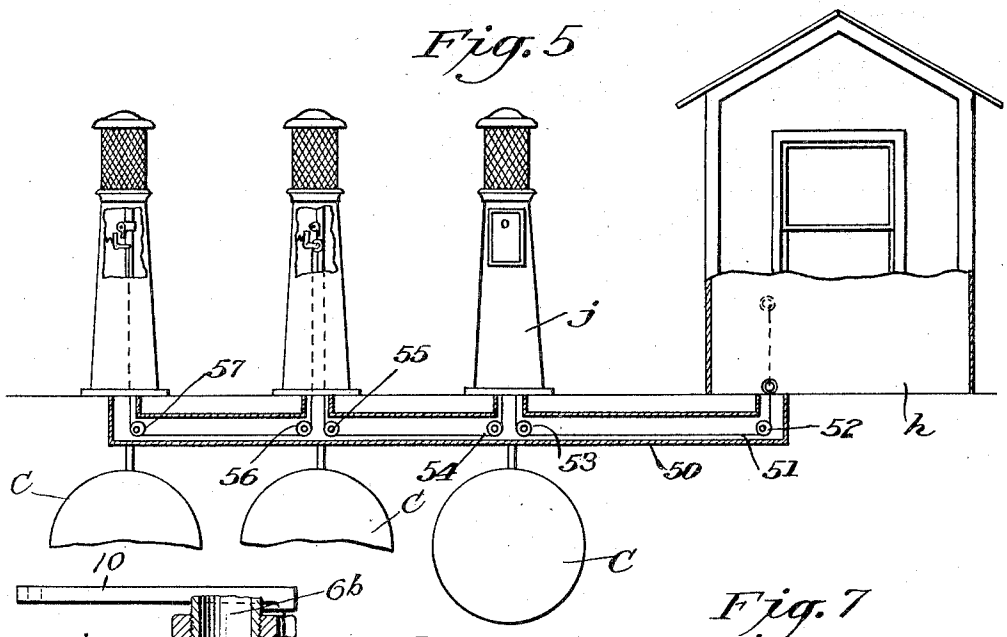


Fig. 2b

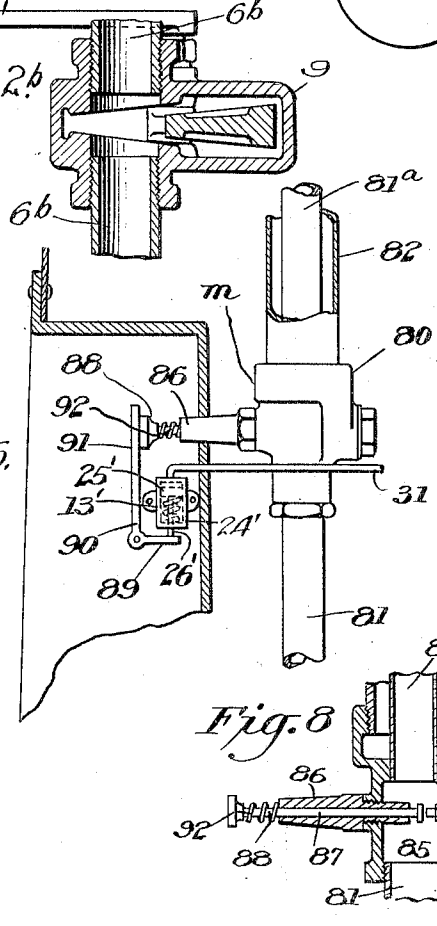


Fig. 6.

Fig. 7

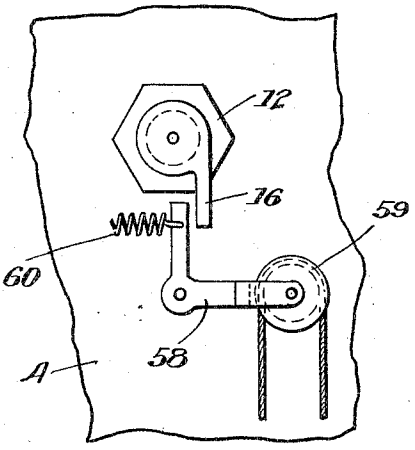


Fig. 8

INVENTOR:
Curtis H. Edwards,
BY Robert L. Transtrom,
Blakeslee & Brown
ATTORNEYS.

Patented June 4, 1929. 1,715,540

UNITED STATES PATENT OFFICE.

CURTIS H. EDWARDS AND ROBERT L. TRANSTROM, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO THE BOYLE-DAYTON CO., OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

PUMP.

Application filed November 10, 1926. Serial No. 147,473.

This invention relates to improvements in pumps, and particularly that class of pumps to be utilized in the dispensing of liquids such as gasoline.

In particular the invention has for an object the provision of a novel means whereby liquid such as gasoline may be readily drained from the pump when it becomes necessary to do so for any cause, such as a fire. The draining of the pump may be very rapidly accomplished and from a position remote from the pump, so that hazard to the person effecting such draining is minimized.

In practicing one embodiment of the invention we may provide any number of dispensing pumps with an air line for operating the drain valves therefor, or we may, when considering other embodiments of the invention operate the drain valves by mechanical means. Each drain valve is associated with an overflow pipe so that dual piping is unnecessary.

The invention has for further objects the provision of a novel draining system for pumps which is superior in point of relative simplicity and inexpensiveness, taken in conjunction with utility, durability and general serviceability.

With the above and other objects in view, the invention consists in the novel and useful provision, formation, construction, association and inter-relation of parts, members and features, all as shown in certain embodiments in the accompanying drawings, described generally and more particularly pointed out in the claims.

In the drawings:

Figure 1 is an elevational view showing a general arrangement of an operating house and pump members;

Figure 2 is a fragmentary sectional view of one of the pumps and showing details of construction;

Figure 2^a is a detail sectional view taken on line 2^a—2^a of Figure 2,

Figure 2^b is a detail sectional view taken on line 2^b—2^b of Figure 2^a.

Figure 3 is a fragmentary partially sectional view of certain details of one form of the invention;

Figure 4 is a cross sectional view on the line 4—4 of Figure 3 and on an enlarged scale from the said showing;

Figure 5 is an elevation partly in section of a modified form of the invention;

Figure 6 is an elevational view partly in section of a further modified form of the invention;

Figure 7 is an enlarged fragmentary detail of certain portions of the modified form of the invention shown in Fig. 5;

Figure 8 is a vertical section of a valve used in illustrating the embodiment of the invention shown in Figure 6.

Corresponding parts in all the figures are designated by the same reference characters.

Referring with particularity to the drawings, that form of the invention shown in Figs. 1 to 4 inclusive is designated by A of which *a* is a dispensing pump of which there may be a plurality, as shown at 1, 2 and 3, *b*, means for controlling the passage of liquid from the pump to a suitable container or source of supply and *d*, means for controlling operation of the means *b*, all of which elements may be utilized in practicing one embodiment of the invention. Each dispensing pump may be of any preferred construction, that in the showing including the usual stand 4, with a visible cylinder 5, within which cylinder is received gasoline, which gasoline is dispensed from said cylinder in measured quantities. A pipe 6 carries a three-way fitting 7, one opening of which receives an overflow pipe 6^a. A drain pipe 6^b communicates with the base 8 of the cylinder and with the other opening of the three-way fitting 7. Thus liquid might be drained through the pipe 6^b into the pipe 6 or from the pipe 6^a into the pipe 6. Included within the length of the pipe 6^b is a valve 9 which is operated through the medium of a lever 10. A coil spring 11 associated with the lever 10 normally tends to open the said valve 9, so that liquid may pass through the pipe 6^b and into the pipe 6. This valve 9 constitutes a part of the means *b*, and as further constituting elements of the said means is a locking device 12 and means 13 for releasing the lock. The locking device includes a tubular member 14 having integrally formed at one end a cap 15 provided with an arm 16 and at the opposite end said tubular member carries a finger-piece or head 17. The said tubular member is provided on its surface with a bayonet groove having a longitudinal portion 18 and a portion 19 at substantially right angles thereto. The dispensing pump stand 4 has one portion thereof, 21, formed with a screw-threaded opening, and a flanged nut 22

is received on the periphery of the part 12 and has the head thereof interposed between a surface of the stand and the cap 15 of the tubular member, with the said nut screw-threaded within the screw-threaded opening 21. Thus the tubular member 14 is maintained in a given position; that is to say, a major portion of the body extends outwardly from the dispensing pump stand, as shown in Figure 2. This nut is adapted to permit rotation of the tubular member 14 therein, and said nut carries an inwardly projecting stud or pin 23 having a portion thereof received within the peripheral slot on the tubular member 14.

Within the tubular member is a piston 21^a, which piston carries a stem 21^b projecting through openings in the member 15, and said stem is formed with a knuckle for engagement with an end of the lever 10. The opening in the member 15 is comparatively large so that the said stem 21^b may have side movement to compensate for swing of the lever 10. A small spring 21^c is interposed between the piston head 21^a and the member 15, which spring acts as a cushion means.

The release means for the lock includes a cylinder 24 within which is a piston 25 having a stem 26 passed through a stuffing box 27 at one end of the cylinder, and a coil spring 28 is interposed between the piston 25 and the end 29 of the cylinder. To maintain the interior of the cylinder 24 back of the piston under atmospheric pressure a small opening 30 is placed in the cylinder 24. A tube 31 communicates with the said cylinder and with the air pressure tank *d*, there being a valve 32 included within said tube 31.

The air pressure tank *d* is placed within a house 33 which house is preferably located at some zone remote from the dispensing pump *a*. In the showing of Figure 1 we have shown three of the dispensing pumps, and we may have any number of dispensing pumps, depending upon requirements, all of said pumps having a connection with the air pressure tube or line 31.

The operation of this device as just described is as follows: If we assume that the cylinder 5 is filled with gasoline, and fire breaks out, an operator turns the air valve 32 which would allow air under pressure to enter the cylinder 24 and move the piston 25 inwardly of said cylinder. We have assumed that the parts are in the position shown in Figs. 2 and 4. In this position it will be noted that the valve 9 is closed and that the spring 11 is under tension. Furthermore, the member 14 is held in outward position by the pin or key 23 being received in the groove 19. When the air enters the cylinder 24 to actuate the piston 25, the stem 26 will strike the arm 16, which arm it will be remembered is associated with the end 15 of the tubular member 14, and push the said arm upwardly into the dotted line position of Figure 3. When this occurs the pin 23 will slide within the groove 19 and be received in the groove 18 at which time the spring 11 will be released so that it may swing the arm 10 to open the valve 9. When this occurs all liquid within the cylinder 5 will be drained through the pipe 6^b and into the pipe 6 back to the source of supply, *c*. The device would be operated at night when the station is closed. The operator upon desiring to re-fill the cylinders 5 would first pull outwardly upon the finger-piece 17 to move the tubular member 14 outwardly and then turn the finger-piece so that the pin 23 would be received within the slot 19 to lock the said tube 14 against movement and close valve 10.

That form of the device shown in Fig. 5 does not differ in essential details from the form of the device just described. However, the device of Fig. 5 is adapted to be operated by mechanical means in place of air pressure. In particular we have shown as before, an operating house or the like *h* and one or more pumps *j*. A conduit 50 communicates with the house *h* and with the base of the pump *j*. The reservoir *c* is preferably placed within the ground. In the present instance a cable 51 is passed over sheaves 52 to 57 inclusive, which sheaves are within the conduit 50.

Referring to Figure 7 we have provided the device 12 as before, and which device is identical with the showing of Figs. 2 and 4. In place of the air-operated lock release 13, we have provided a bell crank arm 58 pivotally carried by the casing or standard 4 and one end of said bell crank carries a sheave 59 and the opposite end is adjacent the arm 16 and is normally held out of contact with said arm by a coil spring 60. The cable 51 is passed over the sheaves 52 and 53 and upwardly within the first pump and over the sheave 59 and back downwardly and over the sheave 54, and so on for succeeding pumps until the last pump is reached when the cable end is secured to the bell crank arm. The device 12 would be locked in position with the valve closed the same as before, and when it is desired to open the valve 9 the cable 51 is pulled to move the bell crank downwardly so that one of the arms of the bell crank 58 would contact with the arm 16 and open the drain valve 9.

The form of the device shown in Figures 6 and 8 is operated by air pressure and the same will be designated as an entirety by *m*. This valve includes a housing 80 having direct connection with inlet pipes 81 and 81^a whereby liquid may pass through said pipe 81, through the valve housing 80 and pipe 81^a without interruption in the flow thereof. Surrounding the said pipe 81^a is a second or drain pipe 82 which would communicate with the base of the cylinder and this pipe communicates with a chamber 83 of the valve housing.

A spring-pressed valve 84 closes communication between the chamber 83 of the housing and a chamber 85 which communicates with the pipe 81. An extension 86 is formed on the housing 80 and a stem 87 is passed through said extension and within the chamber 85 of the housing, and likewise outwardly from the extension, as shown at 88. A device 13′ with cylinder 24′ and piston 25′ therein similar to the device 13 has the pin 26′ thereof adapted to contact with one arm 89 of a bell crank lever 90. The second lever portion 91 of said bell crank is adapted to contact with the stem 87. A coil spring 92 normally urges the stem to an outward position and against the lever portion 91. When air is admitted into the line 31 it will actuate the piston 25′ to move the stem 26′ outwardly and in turn move the bell crank 90, which will force the lever portion 91 against the stem 87 to unseat the valve 84 which will permit any liquid such as gasoline to flow downwardly from the tank through the pipe 82 and into the pipe 81.

It is obvious that various changes and modifications may be made in practicing the invention, in departure from the particular showing of the drawing, without departing from the true spirit of the invention.

Having thus disclosed our invention, we claim and desire to secure by Letters Patent:

1. In a device adapted to permit the draining of liquid from a container, comprising a valved drain, means for locking the valve closed, and release means for the first means to permit an opening of said valve; said last named means including an air-operated piston adapted to contact with the first named means.

2. In a device adapted to permit the draining of liquid from a container, comprising a valved drain, means for locking the valve closed, and release means for the first means to permit an opening of said valve; said last named means including an air-operated piston adapted to contact with the first named means; and further means spaced in a zone remote from the tank for controlling operation of the second named means.

3. In a device of the character disclosed, a tank, a valved drain therefor, and means for locking the valve closed; said means comprising a tubular member, a piston associated with the valve and in part received within the tubular member, and means for locking the tubular member relative to the piston to close the valve.

4. In a device of the character disclosed, a tank, a valved drain therefor, and means for locking the valve open; said means comprising a tubular member, a piston associated with the valve and in part received within the tubular member, means for locking the tubular member relative to the piston to close the valve, and further means for unlocking said tubular member to open the said valve.

In testimony whereof, we have signed our names to this specification.

CURTIS H. EDWARDS.
ROBERT L. TRANSTROM.