Oct. 12, 1926. 1,602,820

A. K. JONES ET AL

WATER REGULATOR FOR STOCK TANKS

Filed Oct. 9, 1925

Fig. 2.

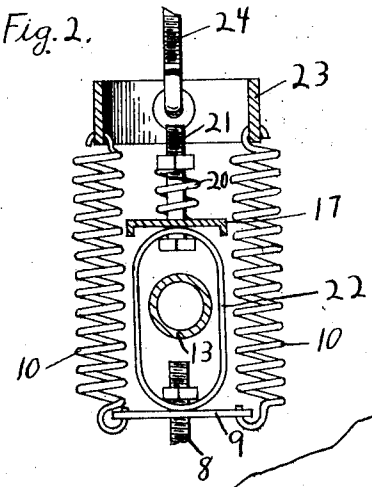


Fig. 3.

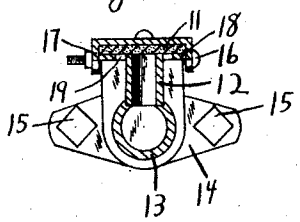
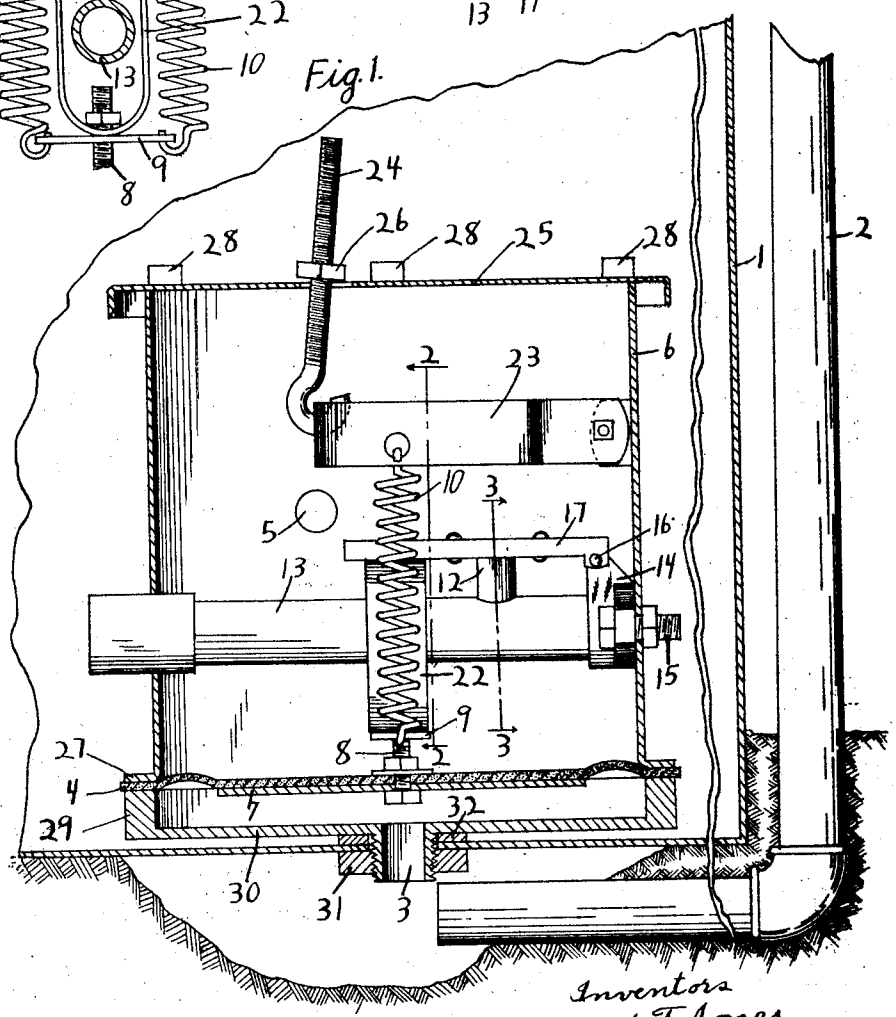


Fig. 1.



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ALBERT K. JONES AND HOMER T. JONES, OF ORD, NEBRASKA; SAID ALBERT K. JONES ASSIGNOR TO SAID HOMER T. JONES.

WATER REGULATOR FOR STOCK TANKS.

Application filed October 9, 1925. Serial No. 61,496.

The invention relates to improvements in water regulators in which a very sensitive and flexible partition operating a valve is placed in the bottom of the stock drinking tank, and a free air conduct leading through the bottom of the tank communicates with one side of the flexible partition; and the objects of the improvements are, first, to provide a means of regulating the flow of water into the stock drinking tank that will not become inoperative when ice forms on the water; second, to provide a water regulator that is not likely to get out of working order, that is cheap and durable and can be quickly repaired by unskillful workmen; and, third, to provide a valve that will be positive with its action in varying and adverse conditions.

One form of the invention is illustrated in the accompanying drawing in which Fig. 1 is a side elevation partially in section showing the means of connecting to the stock tank and our method of communicating with the free air,

Fig. 2 is a vertical section of a part of the flexible partition controlling mechanism on the line 2—2 of Fig. 1, and looking in the direction of the arrows, and

Fig. 3 is a vertical section of the valve on the line 3—3 of Fig. 1.

In the practical embodiment of our invention we employ an air conduit 2 which leads down the side and along under the stock drinking tank 1 through the projection 3 to the under side of the flexible partition 4. The opening 5 admits the pressure of the water inside of the cylinder 6 to remain the same as on the outside; when the water in the tank 1, becomes at a predetermined height it presses the flexible partition 4 against the sheet metal disk 7, moving the bolt 8 which carries the cross bar 9 against the tension of the springs 10, 10 until the elastic member 11 closes down on the nozzle 12, stopping any further flow of water into the tank 1 until the pressure of the water on the flexible partition 4 is lessened.

The inlet water pipe 13 is connected to any convenient water supply, which preferably should be brought through the bottom of the tank 1. The pipe 13 is held firmly at one end by the block 14, which is attached to the wall of the cylinder 6 by the bolts 15, and on the said block is also a pivot 16. Hinged on this pivot is a lever 17. Holding the elastic member 11 to the under side of the lever 17 is a plate 18 with an opening 19, which passes loosely over the nozzle 12. (See Fig. 3.)

To safeguard the valve against damage when the flexible partition 4 exerts an excessive pull such as is experienced when thick ice freezes on the water, a spring 20 is placed over the bolt 21, (being omitted in Fig. 1) they are plainly shown in Fig. 2. Thus the connecting link 22 can continue its movement downwards until the head of the bolt 21 strikes the pipe 13.

Pivoted to the wall of the cylinder 6 is a loop 23; the springs 10, 10 and threaded rod 24 are hooked into this loop; the threaded rod 24 extends through a slot in the sheet metal lid 25 and a nut 26 is screwed down until the desired tension of the springs 10, 10 is accomplished. Extending through the rim of the lid 25 down on the outside of the cylinder 6 and through the flange 27 of this cylinder are bolts 28; these bolts pass through holes near the edge of the flexible partition 4 and screw into the thick rim 29 of the base 30. By screwing the nut 31 onto the projection 3 the gasket 32 makes a tight joint between the tank 1 and the base 30.

Modifications in the water regulator and in the arrangement and location of parts may be made within the spirit and scope of our invention and such modifications are intended to be covered by the appended claims.

What we claim is:

1. In combination, with a flexible partition, a cylinder with one end closed by the said flexible partition and the other end closed by a firm cover, springing means within the cylinder connected to and adapted to pull the flexible partition inwards, means whereby the tension of the said springing means may be quickly changed from the outside of the said cylinder, and an air conduit leading from one side by the said flexible partition and adapted to project through and connect to the wall or bottom of a water container.

2. In a water regulator, the combination, of a cylinder having nearly the same length as diameter, a flexible partition closing one end of the said cylinder, a sheet metal cover closing the other end of the said cylinder, a firm plate adapted to reenforce the greater and central portion of the said flexible partition, springs inclosed by the said cylinder

and connected to the said flexible partition, means whereby the tension of the said springs may be quickly changed, means whereby a valve is operatively connected with the said flexible partition, means whereby the pressure of a fluid is admitted to remain the same on the outside as on the inside of the said cylinder, and an air conduit adapted to lead from one side of the said flexible partition through the wall or bottom of a water container to the free air.

3. The combination in a water regulator, a cylinder with nearly the same length as diameter, a sheet metal lid with its edge re-enforced covering one end of the said cylinder, a flexible partition covering the other end of the said cylinder, a loop pivoted to the wall of the said cylinder two springs carried by the said loop means of connecting the said springs to the said flexible partition, means carried by the said metal cover adapted to adjust the tension of the said springs, a pipe leading in through the side and across the said cylinder, a nozzle turned upwards from the said pipe, a valve closure on the said nozzle, a plate pivoted to the said pipe, and holding the said valve, a link connecting the said flexible partition with the said plate and a spring on the said plate adapted to admit the said link to continue its movements after the valve is closed.

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