

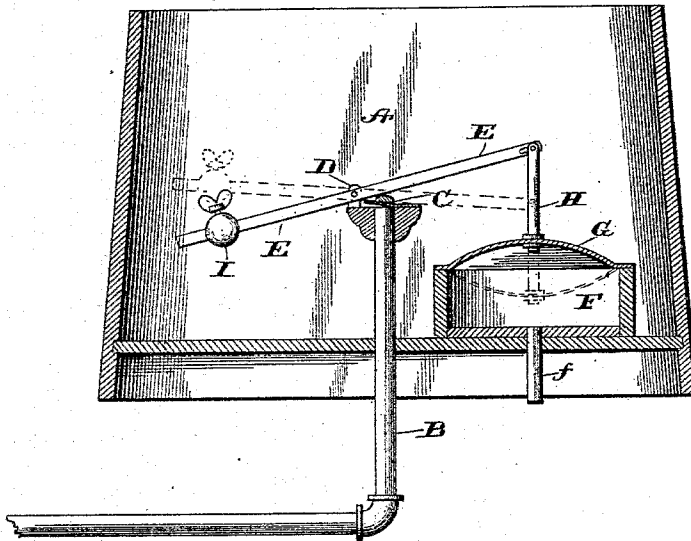
(No Model.)

J. B. VAIL, S. E. JACKSON & W. C. SMITH.

ANTIFREEZING AUTOMATIC CUT-OFF VALVE FOR WATER TANKS.

No. 495,074.

Patented Apr. 11, 1893.



Witnesses

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James B. Vail
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UNITED STATES PATENT OFFICE.

JAMES B. VAIL, SHELDON E. JACKSON, AND WELLINGTON C. SMITH, OF
WESTON, MICHIGAN.

ANTI-FREEZING AUTOMATIC CUT-OFF VALVE FOR WATER-TANKS.

SPECIFICATION forming part of Letters Patent No. 495,074, dated April 11, 1893.

Application filed May 4, 1892. Serial No. 431,773. (No model.)

To all whom it may concern:

Be it known that we, JAMES B. VAIL, SHELDON E. JACKSON, and WELLINGTON C. SMITH, citizens of the United States, residing at Weston, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Anti-Freezing Automatic Cut-Off Valves for Water-Tanks; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to certain improvements in anti-freezing automatic cut-off valve apparatus for water-tanks and consists in certain novelty in the construction, arrangement and combination of the various parts of the same, all of which we will now proceed to point out and describe, reference being had to the accompanying drawing, in which the figure illustrates a vertical central section of a water tank provided with our improved apparatus.

Referring to said drawing—A indicates a water tank of any ordinary construction.

B is a water supply pipe preferably entering the bottom of the tank at or near its center and extending up above the bottom of said tank.

C is a cut-off valve of any desired construction adapted to be opened by the pressure of the water in the supply pipe.

D is a projection or arm secured to the upper end of the supply pipe to one side of the cut-off valve. To said projection is pivoted or fulcrumed a lever E adapted as hereinafter described to engage to close the same.

F is an air chamber located at the bottom of the tank and having a vent *f* extending through the bottom of said tank. The top of the air chamber being formed by a flexible diaphragm G preferably disk shaped and constructed of rubber or other suitable water and

Normally the parts are in the position shown in full lines in the figure, the valve being open. Water enters the tank through the supply pipe till it reaches the desired height in said tank and the pressure of the water is sufficient to overcome the resistance of the weight or governor I. This pressure forces the diaphragm top of the air chamber down to the position shown in dotted lines, causing the lever to engage and close the valve and shut off the supply of water. When the height of the water is reduced the weight or governor raises the diaphragm, releases the valve and permits water to enter and fill the tank. The height of the water being regulated by the position of the weight or governor on the lever.

All the parts of our controlling apparatus being below the water level, the possibility of becoming inoperative by freezing is reduced to the minimum and it is in effect an anti-freezing cut-off valve apparatus.

Having thus fully described our invention, what we desire to secure by Letters Patent is—

1. In an automatic valve controlling apparatus, the combination with a water tank, having a water supply pipe provided with a cut off valve, of an air chamber located at or near the bottom of the tank, and having a flexible portion adapted to be acted upon by the pressure of the water, a pivoted lever connected with the flexible portion of the air chamber and adapted to engage the valve, and having attached thereto a weight or governor, all constructed, arranged and operating substantially as shown and described, as and for the purpose set forth.

2. In an automatic valve controlling apparatus, the combination with a water tank having a water supply pipe, provided with a cut off valve, of an air chamber located at or near the bottom of the tank, and having a flexible

3. In an automatic valve controlling apparatus, the combination with a water tank having a supply pipe provided with a cutoff valve C, of an air chamber F located at or near the
5 bottom of the tank and having a flexible diaphragm top G adapted to be acted upon by the pressure of the water, a pivoted lever E adapted to engage and close the valve and connected with the diaphragm G, and the ad-
10 justable weight or governor I mounted upon said lever, all constructed, arranged and oper-

ating substantially as shown and described as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES B. VAIL.
SHELDON E. JACKSON.
WELLINGTON C. SMITH.

Witnesses:

H. LUCAS,
H. C. RETAN.