

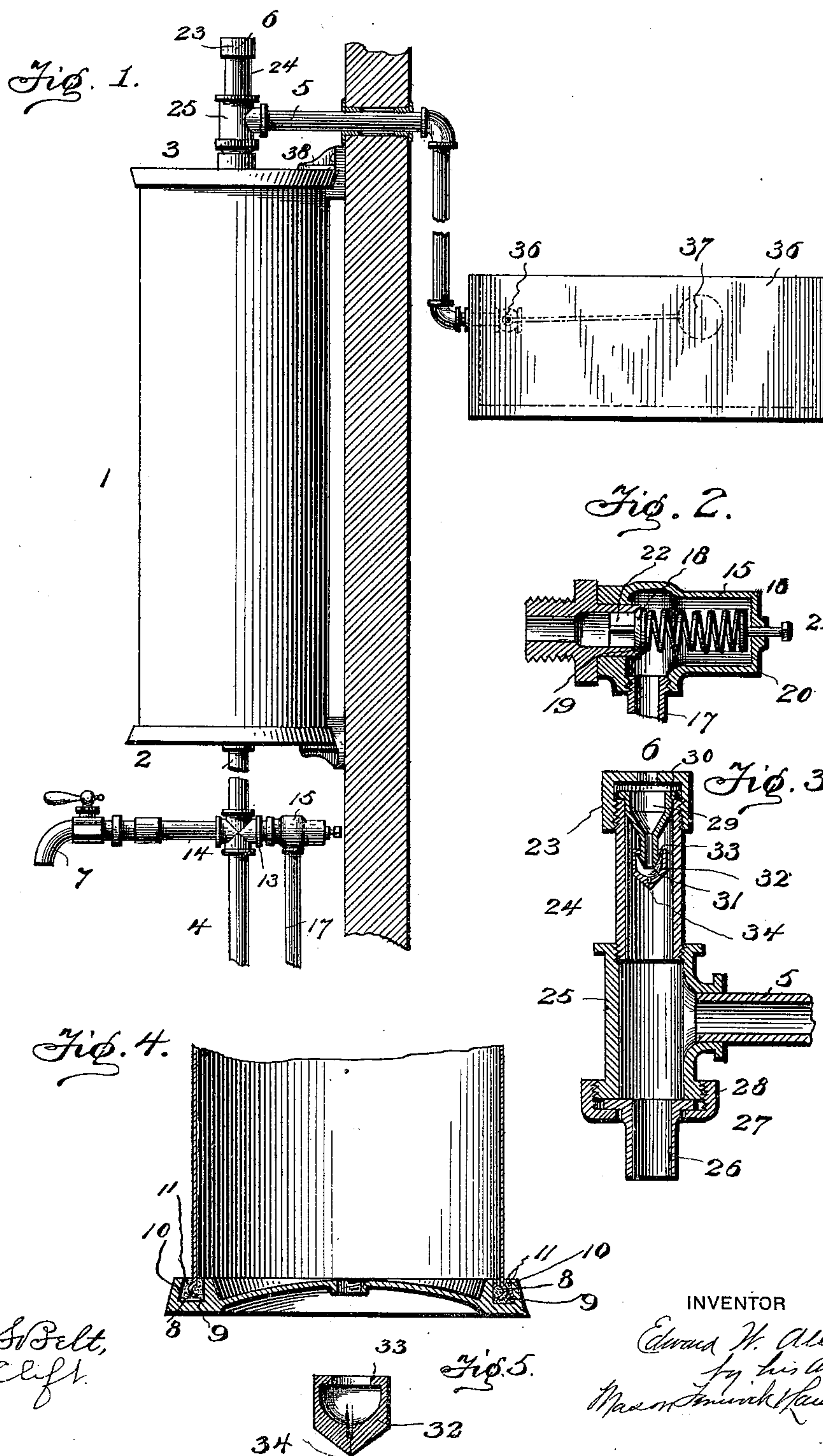
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Patented Aug. 22, 1899.

E. W. ALLER.
AUTOMATIC PRESSURE HOUSE TANK.

(Application filed May 1, 1899.)

(No Model.)



WITNESSES

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UNITED STATES PATENT OFFICE.

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AUTOMATIC PRESSURE HOUSE-TANK.

SPECIFICATION forming part of Letters Patent No. 631,604, dated August 22, 1899.

Application filed May 1, 1899. Serial No. 715,200. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. ALLER, a citizen of the United States, residing at Napoleon, in the county of Henry and State of Ohio, have invented certain new and useful Improvements in Automatic Pressure House-Tanks; and I 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.

My invention relates to house water-tanks designed particularly for use on a farm in connection with a stock-tank; and it consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter described and specifically claimed.

The objects of my invention are, first, to provide a pressure house-tank which is entirely automatic in its operation in the matter of supplying air to the tank in order to permit water to be drawn off through the faucet and to relieve the pressure in the tank in the event of any of the pipes freezing or from any other cause, and, second, to construct a tank in which the use of bolts and rivets for securing the heads thereto is dispensed with, whereby the heads can be much more cheaply applied and water-tight joints secured and lighter metal employed.

In the accompanying drawings, Figure 1 is a side elevation of a house-tank constructed in accordance with my invention, showing the same in connection with a stock-tank. Fig. 2 is a vertical central section through the relief-valve used in connection with my tank. Fig. 3 is a vertical central section through the air-pressure valve. Fig. 4 is a vertical section through the lower portion of the tank, showing the manner of connecting the head or end to said tank; and Fig. 5 is a vertical section through the air-valve proper.

1 in the drawings represents my improved tank, which is of any suitable size and has closed ends 2 3, a water-inlet 4, a water overflow or outlet 5, an air-inlet 6, and a draw-off faucet 7. The heads or ends of the tank are preferably secured to the said tank as shown in Fig. 4, in which construction the ends of the shell of the tank are formed with a curved or angular portion 8, which is seated

in a groove or recess 9, formed in the end or head, which groove has a slanting wall, as 10, making the groove wedge-shaped. Molten metal, as 11, is poured into the groove or recess all around the shell, so that the angular or bent portion 8 is securely anchored or seated therein. It will readily be seen that the greater the pressure in the tank the more forcibly will the metal packing 11 grip, thus making a perfectly water-tight joint without the use of rivets or bolts. This is a great improvement over the old method of employing rivets or bolts for fastening the heads onto the tank, as by the use of my invention I dispense with about eighty rivets and the punching of about one hundred and sixty holes, which is about the number used in the head of a tank twelve inches in diameter. By my construction I do not weaken the shell by punching holes in the same, and thus produce a stronger tank and one in which the head supports the shell at every point. In securing the heads to the tank the heads are first heated and molten metal, as lead or iron or any other suitable metal, is poured into the groove of the heads, and the metal upon being allowed to cool contracts around the shell and makes a very tight joint.

The pipe 4, which is connected with the source of the water-supply, the water being supplied to the same under pressure, as by means of a windmill or other motive power, is provided with a union cross-joint 13, in which is screwed a pipe 14, which latter is provided on its outer end with a faucet 7 for drawing off water from the tank. An extension, as 15, forming a housing for a spring-actuated relief-valve 16, is also screwed into the union cross-joint 13, and this housing is also provided with an overflow or outlet pipe 17. The construction of this relief-valve is clearly shown in Fig. 2.

The valve comprises a disk 18, which is pressed normally against the seat 19 by means of a spring 20, the tension of which latter is controlled by means of an adjusting-nut 21. The disk is formed with spaced guide projections 22, which hold the valve in position and yet are of such a construction as to allow the water to readily pass by the valve when it is forced back to relieve the pressure in the

tank. The valve is very simple yet perfect in its operation and is entirely automatic, and it will be apparent that when the pressure in the tank becomes too great from any cause—as, for instance, by one of the pipes freezing—the extra pressure forces the valve away from its seat against the action of the spring, and it is held away from the same until the pressure in the tank is reduced by the water being allowed to escape through the discharge-pipe 17.

In order to permit the withdrawal of water through the faucet 7 for house or other purposes, I provide the air-inlet 6, the admission of air into the tank at this point being automatically controlled by a valve of peculiar construction, which will now be described. The inlet 6 for air is provided in a removable cap 23, preferably screwed on the end of the short extension of pipe or nipple 24, which latter is secured to a union T 25, which latter is secured to the upper end of the tank by means of a nipple 26, having a flanged head 27, which latter rests on the inside of an internally-threaded nut 28, which latter is screwed on the lower end of the union T 25, as clearly shown in Fig. 3, whereby upon screwing up said nut tightly the flange of the nipple 26 will be very tightly pressed against the under side of the union T and form a secure water-tight joint.

The air-inlet valve is constructed as follows: 29 represents a valve-holder which is provided at its upper end with a flange 30, which latter rests on top of the upper edge of the short section of pipe or nipple 24. The lower end of the valve-holder is provided with a head or projection 31, over which is applied the valve proper, 32, which is clearly shown in Fig. 5 of the drawings. It consists of a disk or head of rubber formed with inwardly-extending flanges 33, which latter engage the head or projection 31 on the lower end of the valve-holder. The valve proper, 32, is pro-

vided with an aperture 34, which is preferably elongated. This valve is never brought into use except when water is being drawn through the faucet 7 and then only when there is no air-pressure in the tank. It will thus be seen that by use of this air-valve a tank is produced in which a sufficient pressure is maintained at all times, and which valve is entirely automatic in its operation. I regard this as an important feature of my invention.

The supply-pipe 5, leading to the stock-tank 35, is also secured in the union T 25, which pipe carries off the overflow from the house-tank to said stock-tank 35. The lower end of said pipe 5 is provided with a valve 36, which operates in conjunction with a float 37, which it is not necessary to describe in detail other than to state that when the water in the stock-tank falls below the desired water-level the float will descend and open the valve 36 and allow more water to enter the tank, and which when said tank is filled to the proper height will rise and close the valve and cut off the supply of water to said tank.

The house-tank is supported on blocks 38 or in any other manner.

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

In an automatic pressure house-tank the combination of the tank proper having an inlet for water at or near its bottom and an outlet for water at or near its top, a relief-pressure valve in said inlet and an air-valve and a faucet for drawing off water from the lower end of the tank, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

EDD W. ALLER

Witnesses:

R. W. CAHILL,
USHER FISER.