

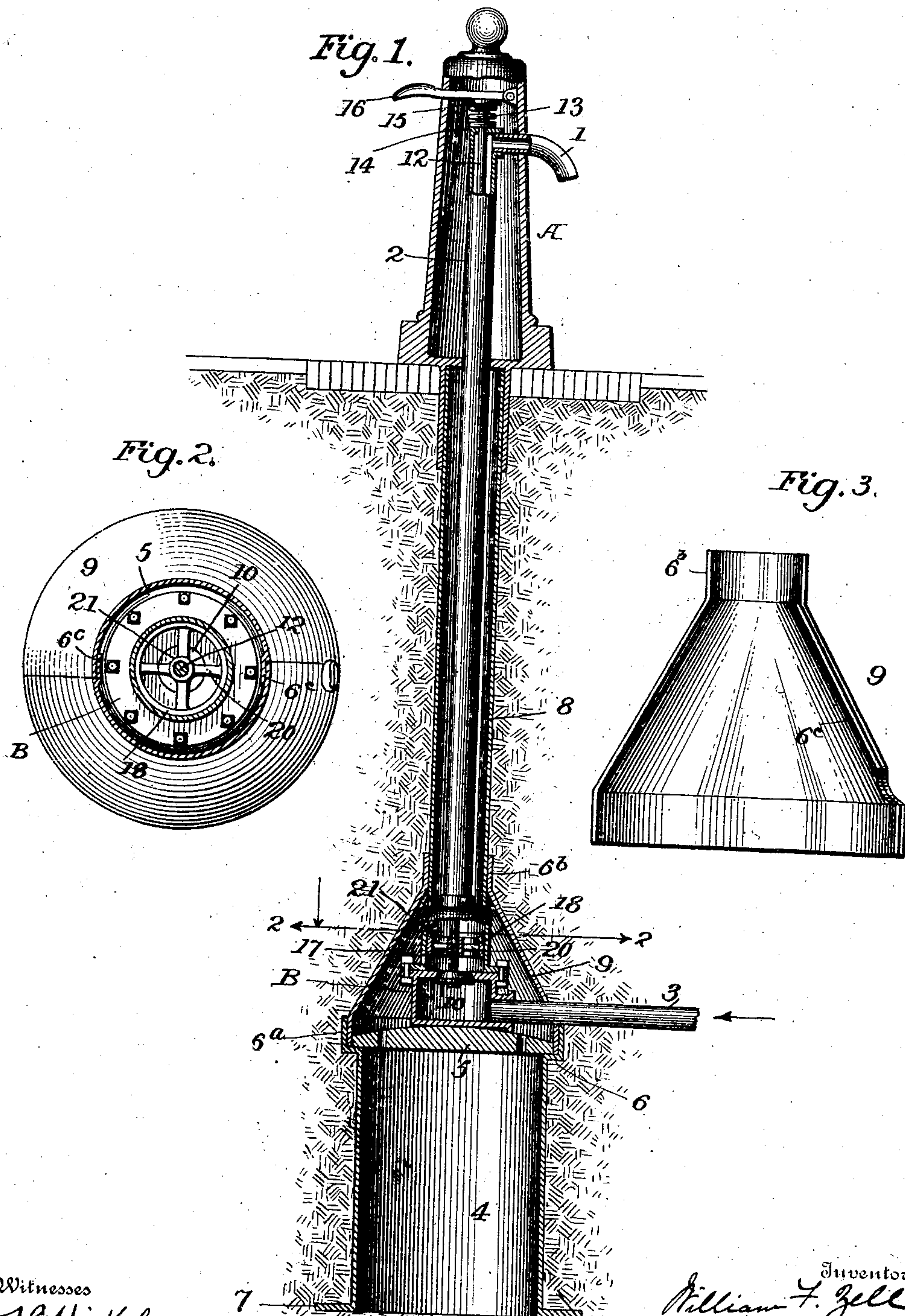
No. 617,848.

Patented Jan. 17, 1899.

W. F. ZELL.
HYDRANT.

(Application filed Apr. 5, 1898.)

(No Model.)



Witnesses

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HYDRANT.

SPECIFICATION forming part of Letters Patent No. 617,848, dated January 17, 1899.

Application filed April 5, 1898. Serial No. 676,572. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. ZELL, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Hydrants, of which the following is a specification.

This invention relates to certain new and useful improvements in hydrants, having for its object to provide simple, efficient, and inexpensive means whereby to prevent the freezing of the delivery-pipes and also to prevent the accumulation of waste water around the said pipes and valve-casing; and with this object in view the invention consists in the novel construction, combination, and arrangement of the parts hereinafter more particularly described.

In the accompanying drawings, forming a part of this specification, and in which like letters and numerals of reference designate corresponding parts, Figure 1 is a vertical sectional view of a hydrant embodying the invention. Fig. 2 is an enlarged detail sectional view of the lower part of the hydrant on the line 2-2 of Fig. 1. Fig. 3 is a detail elevation of one section of the inclosing casing of the valve-chamber.

Referring more particularly to the drawings, A designates the body of the hydrant, which extends above the surface of the ground, as usual, and is provided with a discharge-nozzle 1, communicating with the delivery-pipe 2, extending through the body A and below the surface of the ground. At the lower end of the delivery-pipe communicates with a valve-casing B, which may be of any suitable shape or construction, and with the lower end of this casing communicates a supply-pipe 3.

Extending below the valve-casing B is a cylindrical casing 4, of suitable dimensions, having an open lower end and provided at its upper end with a perforated drip-plate 5, which plate constitutes a seat for the valve-casing. The casing or waste-water chamber 4 is greater in diameter than the valve-casing, and the perforations in the plate 5 are formed outside the edges of the said valve-casing, so as to be free from all obstruction. It will be obvious that the drip-plate 5 and casing 4 may be formed in a single piece; but prefer-

ably the plate is formed separate from the casing and is supported upon an annular shoulder 6 at the upper end of the said casing, as shown, the shoulder being surrounded by a vertically-extending flange 6^a. It is preferred also to form the casing 4 at its lower end with an outwardly-projecting flange 7, thereby providing an extensive bearing for the end of the casing and rendering it less liable to settle.

Surrounding the delivery-pipe 2 from its lower end to the surface of the ground is a frost-jacket 8, which jacket is of greater diameter than the said pipe to leave a space around the same. At its lower end the jacket 8 is formed with one or more perforations 8^a, through which any water of condensation or moisture which collects in the jacket may flow upon the drip-plate and from thence into the waste-water chamber 4.

Inclosing the valve-casing B and likewise the lower end of the frost-jacket 8 is a casing 9, preferably formed in two semiconical sections, which are bolted or otherwise secured together, and at the lower edges of the casing is formed a vertical collar, which rests upon the drip-plate 5 at the outer edge thereof and closely conforms to the inner face of the flange 6^a, thereby forming a close joint, which will prevent earth from entering the interior of the casing. The casing is likewise formed at its upper edge with a collar 6^b, which closely hugs the exterior surface of the frost-jacket and forms a broad continuous bearing therefor.

As above stated, it is preferred to form the casing 9 in two sections, and while these may in certain instances be either bolted together or to the flange 6^a it is usually sufficient to form one vertical edge of each section of the casing with a lip or flange 6^c, which projects from the inner face thereof and is adapted to overlap the edge of the abutting section, thereby forming lap-joints between the sections of the casing and serving to exclude dirt from the interior of the said casing. By thus forming the casing it will be obvious that positive securing devices between the sections are not necessary, as the pressure of the earth upon the exterior thereof will tend to force the collars into close contact with the exterior

of the frost-jacket and the interior surface of the flange 6^a. This casing 9 is sufficiently large to leave a space around the valve-casing and in addition to protecting the valve-casing from frost it serves to prevent sand or dirt from entering and obstructing the perforations of the drip-plate.

While the valve-casing at the lower end of the delivery-pipe may be dispensed with and the valve be located within the hydrant-body, it is preferred to arrange the valve as shown, for the reason which will presently appear.

Formed in the valve-casing is a valve-seat, adapted to which is a valve 10, supported upon the lower end of a valve-rod 12, which extends centrally through the delivery-pipe 2 and is surrounded at its upper end by a coil-spring 13, interposed between a stationary guide 14 and a collar 15 upon the rod, the said spring 13 serving normally to hold the valve firmly to its seat. As a convenient means of operating the valve a lever 16 is provided, which lever is pivoted at one end within the hydrant-body and has its rear end projecting through a slot in the said body, and intermediate its ends the lever bears upon the upper end of the valve-rod 12 in such manner that when it is depressed the valve 10 will be forced from its seat against the stress of the spring 13.

Obviously if water be left within the delivery-pipe between the valve-casing and the discharge-nozzle there is liability of its becoming frozen. In order that this may be guarded against, the delivery-pipe is provided immediately above the valve-casing with a drip-opening 17, through which water in the pipe may flow out upon the drip-plate 5 and thence into the waste-water chamber 4. This drip-opening is always open when the valve 10 is closed; but as it is undesirable that water should escape through it when water is being withdrawn through the discharge-nozzle 1 a slide-valve 18 is provided, comprising a cylindrical shell the outer periphery of which makes close contact with the inner wall of the delivery-pipe. This shell is connected by means of radial arms 20 with a collar 21 upon the valve-rod, the said collar being fixed to the rod to move therewith. Normally the lower edge of the shell is immediately above the opening 17, leaving said opening unobstructed. When, however, the valve-rod is depressed to open the valve 10, the shell is also lowered, thereby closing the said opening. When the valve is again closed, the opening is uncovered, allowing the water remaining in the delivery-pipe above the valve-casing to flow to the waste-water chamber.

It will of course be obvious that the opening 17 and valve 18 may be dispensed with, if desired; but it is preferred to employ them, as all possibility of the freezing of the delivery-pipe is precluded thereby.

Various changes in the construction and arrangement of the parts may be made with-

out departing from the spirit or scope of the invention, and I therefore do not wish to be limited to the precise construction and arrangement shown, since

What I claim is—

1. In a hydrant, the combination with a delivery-pipe adapted to extend below the surface of the ground provided with a valve and having a drip-opening upon one side of the valve, an inlet-pipe communicating with the delivery-pipe at the opposite side of the valve, and a casing constituting a waste-water chamber arranged below and away from the inlet-pipe and communicating with the drip-opening, whereby the waste water from the delivery-pipe is conveyed away and prevented from surrounding the delivery and inlet pipes.

2. In a hydrant the combination of a delivery-pipe, a valve-casing at the lower end of said pipe having a valve for controlling the flow of water through the pipe, an inlet-pipe communicating with the valve-casing upon one side of the valve, a waste-water chamber below and separated from the valve-casing, and a jacket surrounding the valve-casing, the space upon the opposite side of the valve from the inlet-pipe communicating with the chamber of the jacket, and said latter chamber communicating with the waste-water chamber, substantially as described.

3. In a hydrant, the combination of a valve-controlled delivery-pipe, a frost-jacket surrounding said pipe, a second jacket surrounding the first and the lower end of the delivery-pipe and a waste-water chamber below the second jacket communicating with the chamber of the jacket, substantially as described.

4. In a hydrant, the combination of a delivery-pipe, a valve in said pipe for controlling the flow of water through the same, a waste-water chamber below the valve and a valve-controlled opening in the delivery-pipe above the first-mentioned valve through which opening water is permitted to pass from the delivery-pipe to the waste-water chamber, substantially as described.

5. In a hydrant, the combination of a delivery-pipe, a valve-casing containing a valve at the lower end of the said pipe, a valve-controlled opening in the pipe formed above the first-mentioned valve and leading to the exterior of the pipe, a jacket surrounding the valve-casing and into the chamber of which the opening in the delivery-pipe leads and waste-water chamber below the valve-casing communicating with the chamber of the jacket, substantially as described.

6. In a hydrant, the combination of a delivery-pipe, a valve-casing at the lower end of said pipe having a valve for controlling the flow of water through the pipe, an inlet-pipe communicating with the valve-casing upon one side of the valve, a waste-water chamber below the horizontal plane of the valve-casing and delivery-pipe, and a sectional jacket

surrounding the valve-casing and bearing
upon the casing of the waste-water chamber,
the space upon the opposite side of the valve
from the inlet-pipe and the jacket being in
5 communicating with the waste-water chamber,
substantially as described.

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

WILLIAM F. ZELL.

Witnesses:

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A. E. T. HANSMANN.