

(No Model.)

2 Sheets—Sheet 1.

C. E. LOETZER.
FIRE HYDRANT.

No. 575,254.

Patented Jan. 12, 1897.

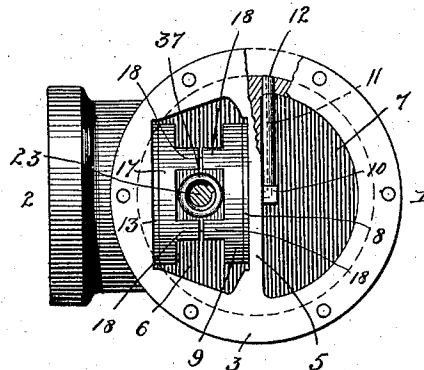
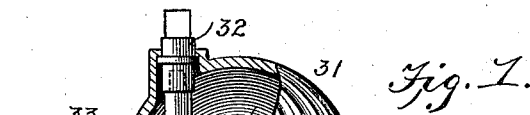


Fig. 2.

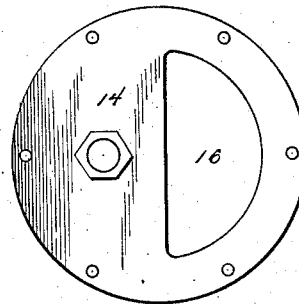


Fig. 3.

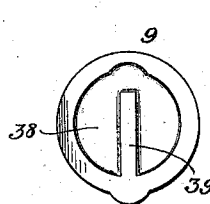


Fig. 6.

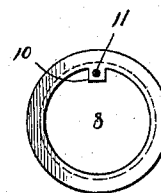


Fig. 7.

Witnesses
E. J. Monroe
V. B. Killyard.

By *his* Attorneys.

Inventor
Christian E. Loetzer.

C. A. Snow & Co.

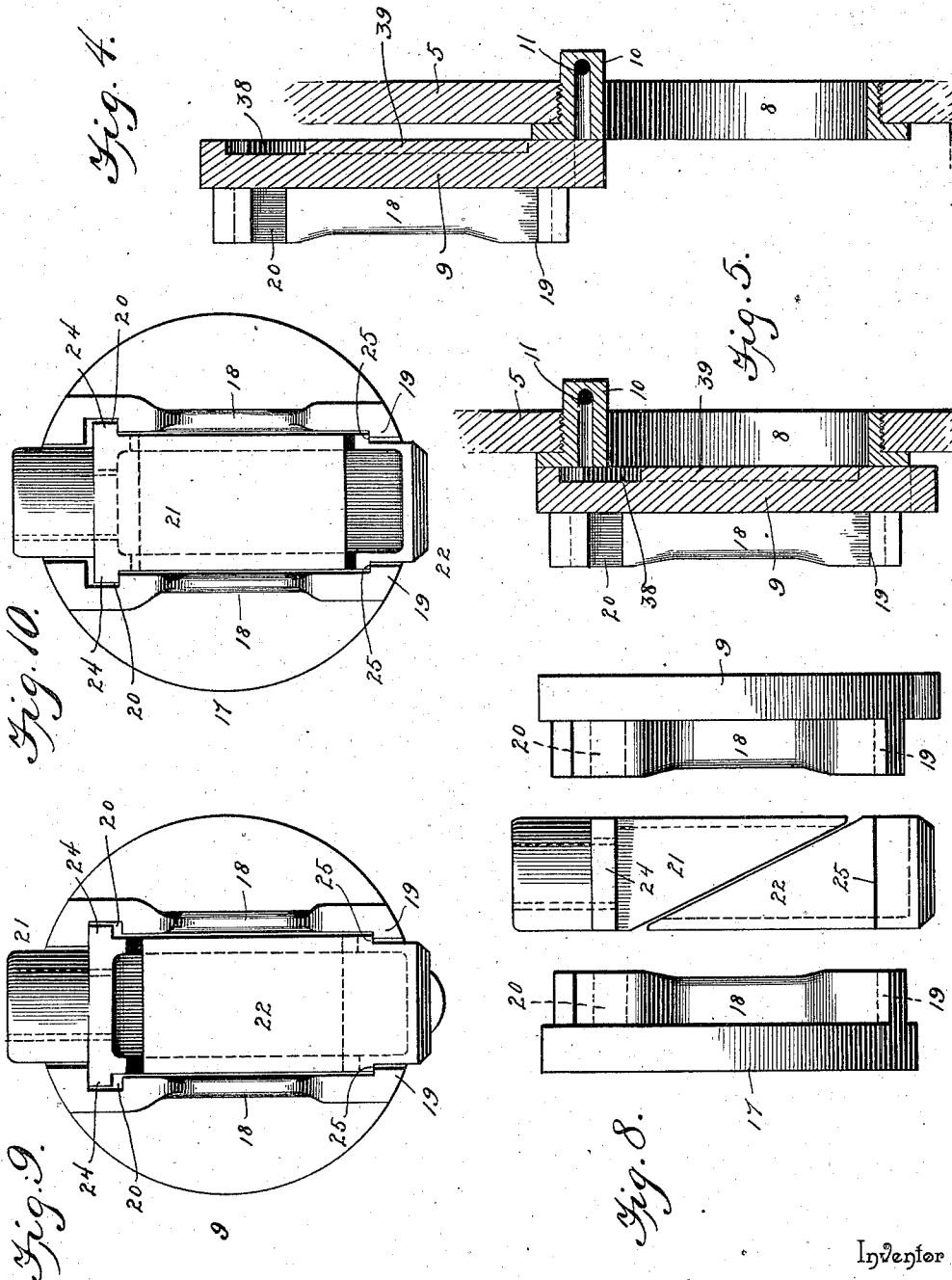
(No Model.)

2 Sheets—Sheet 2.

C. E. LOETZER.
FIRE HYDRANT.

No. 575,254.

Patented Jan. 12, 1897.



Inventor

Christian E. Loetzer.

Witnesses

E. H. Monroe
V. B. Hillyard.

By *his* Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

CHRISTIAN E. LOETZER, OF TOWANDA, PENNSYLVANIA.

FIRE-HYDRANT.

SPECIFICATION forming part of Letters Patent No. 575,254, dated January 12, 1897.

Application filed July 24, 1896. Serial No. 600,404. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN E. LOETZER, a citizen of the United States, residing at Towanda, in the county of Bradford and State of Pennsylvania, have invented a new and useful Fire-Hydrant, of which the following is a specification.

This invention relates to fire-hydrants which have their inlet to the valve or gate below the ground and their outlet above the ground.

The object of the invention is to prolong the life and usefulness of this class of devices; to obviate injurious strain upon the operating-rod for moving the gate or valve to seat or unseat it; to utilize the force or head of water in the service-pipe; to hold and press the valve to its seat; to secure the advantages resulting from the employment of a double gate or valve; to provide means for positively spreading the gates when giving the final turn to the operating-rod, and to release the said gates, so as to admit of them moving away from their seats when giving the operating-rod an initial turn to open the hydrant, whereby the friction between the gates and their seats is reduced to a minimum; to prevent freezing by the provision of a specially-devised drip-passage, and to automatically close the drip-passage upon opening the valve or gates.

Further objects, such as simplicity and durability of construction, compactness in the arrangement of parts, and efficiency in service, are contemplated and will appear more fully as the nature of the improvement is better understood; and to this and such other ends as appertain to the character of the improvement the latter consists of the novel features which hereinafter will be more particularly described, illustrated, and finally claimed.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a fire-hydrant of particular construction embodying the vital features of this invention, parts being

broken away, showing the relative location of the cooperating elements. Fig. 2 is a top plan view of the hydrant-bottom, a portion being broken away to illustrate more clearly the drip-passage. Fig. 3 is a top plan view of the cover for the hydrant-bottom. Fig. 4 is a detail view of a gate and its seat, showing the gate open and the drip-passage closed. Fig. 5 is a view similar to Fig. 4, showing the gate closed and the drip-passage open. Fig. 6 is a face view of the rear gate. Fig. 7 is a face view of the seat for the rear valve. Fig. 8 is a detail view of the companion gates and the compound wedge for forcing the gates against their seats when closed. Fig. 9 is a rear view of a gate and the compound wedge, showing the relative disposition of the parts when the wedge is subjected to an upward strain. Fig. 10 is a view similar to Fig. 9, showing the relation of the parts when the wedge is subjected to a downward strain.

Corresponding and like parts are referred to in the following description and indicated in the several views of the accompanying drawings by the same reference-characters.

The hydrant-bottom 1 is in the form of a cylindrical case which is closed at its lower end, open at its upper end, and provided at one side with an offstanding collar 2 for making connection with the water-main or service-pipe. The open end of the case has an outer flange 3, which is apertured for the passage of bolts, by means of which the stand-pipe and hydrant-bottom are connected together. A partition 5 divides the case or hydrant-bottom into two chambers 6 and 7, the latter being a water-compartment and the former a valve-compartment. This partition 5 comes flush with the open end of the case and may be provided in any convenient and desired way, being preferably cast with the case, so as to form an integral part thereof, thereby obviating the expense and annoyance attendant upon jointing the partition with the walls of the case. An opening is provided in the lower end of the partition in register with the offstanding collar 2 and has a seat 8, against which a gate 9 closes. The seat 8 is preferably a flanged ring which is secured in the opening of the partition 5. The upper portion of the ring or valve-seat 8 is formed with an extension 10, having an opening 11, and a

small pipe or tube 12, leading through a side of the case or hydrant-bottom, communicates with the extension 10, whereby the bore of the pipe and the opening 11 make connection and provide a drip-passage for the escape of the water remaining in the stand-pipe above the valve after the latter has been closed, thereby preventing freezing of the hydrant. A ring or valve-seat 13 is located at the inner end of the offstanding collar 2 and is in coincident relation with the valve-seat 8 and is of similar construction thereto. The flanged ends of the rings or valve-seats 8 and 13 face inward and overlap the openings in the walls of the valve-compartment 6, so as the better to withstand the pressure upon the valve when the latter is closed. The upper end of the hydrant bottom or case 1 is closed by a cover 14, which is bolted between the flange 3 and a corresponding flange 15 at the lower end of the stand-pipe 4. The valve-compartment 6 is entirely closed by the cover 14, and the latter has an opening 16 opposite the water-compartment 7, so as to establish communication between the stand-pipe and the hydrant-bottom, the opening 16 being of D form, corresponding in outline to a cross-section of the water-compartment 7.

The valve or gate is double and comprises two parts or complementary gates 9 and 17 of similar construction and which are disposed to close against the seats 8 and 13. Each gate is formed on its rear face with parallel flanges 18, which have inner extensions 19 at their lower ends and notches 20 near their upper ends for the purpose of supporting and interlocking with the members of the compound wedge by means of which the gates are spread and forced against their seats. The compound wedge comprises an upper member 21 and a lower member 22, both members being hollow to offer an unobstructed passage for the lower end of the feed-screw 23 when the valve moves upward. This compound wedge is located between and held in place by the flanges 18, and the member 21 has side ribs 24, which enter the notches 20, provided in the inner sides of the flanges 18, and the lower portion of the member 22 is reduced, so as to pass between the extensions 19, and forming shoulders 25 to engage with said extensions, whereby the member 22 is prevented from dropping when the valve is elevated. The notches 20 are wider than the thickness of the ribs 24, thereby admitting of the member 21 having a limited play vertically, which is of advantage, so as to insure a release of the gates prior to their upward movement. When the gates are lowered and the lower member 22 strikes the projection 26 at the lower end of the valve-compartment a further downward movement of the member 21 is provided for by the play of the ribs 24 in the notches 20, thereby admitting of the member 21 riding upon the member 22, so as to force the gates apart and against their seats. When it is required to open the valve, an initial turn

of the feed-screw 23 withdraws the member 21 a distance corresponding to the play between the parts 20 and 24, thereby permitting the gates to move inward prior to the engagement of the ribs 24 with the upper walls of the notches 20, whereby the gates will move upward without any binding action against their seats. The feed-screw 23 projects through an opening in the cover 14 and has an angular extension 27 at its upper end and works through a stuffing-box 28, secured to the cover 14 opposite the opening through which the feed-screw passes and by means of which a water-tight joint is secured. A collar 29 is formed on the feed-screw and serves to prevent any vertical movement thereof when turning the feed-screw to open or close the valve.

The stand-pipe 4 may be of any desired length and size and is provided near its upper end with the usual hose-pipe connection 30 and is closed by a cap 31, which is flanged at its lower end and bolted to a corresponding flange at the upper end of the stand-pipe. A plug 32 is journaled in an opening in the cap 31, and its projecting end is constructed to receive a suitable wrench or key, and its inner end is provided with an angular socket to receive a corresponding projection at the upper end of a rod 33, which is journaled in a plate 34, clamped between the opposing ends of the cap and stand-pipe, the lower end of the rod 33 having an angular projection 35, corresponding to the angular projection 27, and which enters a sleeve 36, by means of which the parts 33 and 23 are coupled.

The projection 26 is below the openings closed by the gates and thereby offers little or no obstruction to the free passage of the water through the hydrant.

The parts 32, 33, and 23 constitute in effect an operating rod or stem, which by turning in the proper direction will open or close the gates. The upper member 21 of the compound wedge has formed therewith the nut 37, which receives the feed-screw 23. Hence upon turning the operating-rod in the proper direction the gates will be opened or closed by reason of the screw-thread connection between the compound wedge and the operating-stem and the interlocking connection between the compound wedge and the gates.

The gate 9 is recessed in its outer face, as shown at 38, to provide for the escape of the water remaining in the stand-pipe after the valve is closed, and this recess 38 makes connection with the drip-passage when the valve is closed, thereby admitting of the desired end being effected. A strip 39 extends across the recess 38 to within a short distance of the upper portion of the said recess and is intended to close the drip-passage as soon as the valve or gates begin to open, thereby preventing the water under pressure escaping through the drip-passage and resulting in washouts and otherwise working injury. The drip-passage remains closed during the time that

the valve is open, and after the valve is closed communication between the recess 38 and the drip-passage is established, thereby admitting of the water remaining in the stand-pipe escaping. In addition to the action of the wedge in forcing the gate 9 against its seat the pressure or force of the water in the main or service pipe will serve to hold the gate 9 against its seat by reason of said force being expended upon the gate 17 and transmitted to the gate 9 through the intermediate parts 21 and 22. Hence by the exercise of ordinary care in the construction of the hydrant and in the assembling of the parts a leaky hydrant will be obviated.

Having thus described the invention, what is claimed as new is—

1. In a fire-hydrant, the combination of a stand-pipe, a hydrant-bottom secured to the stand-pipe, a vertical partition subdividing the hydrant-bottom into valve and water compartments, the water-compartment opening directly into the stand-pipe, a cover closing the upper end of the valve-compartment, gates located in the valve-compartment and slidably mounted therein, and adapted to close coincident openings in the said vertical partition and a wall of the hydrant-bottom, and means located within the stand-pipe and operating through the cover of the valve-compartment for actuating the gates, substantially as and for the purpose set forth.

2. In a fire-hydrant, the combination of a stand-pipe, a hydrant-bottom subdivided into vertically-disposed water and valve compartments, a cover closing the hydrant-bottom and having an opening opposite the water-compartment to establish communication between the stand-pipe and hydrant-bottom, valve-seats in the opposite walls of the valve-compartment, gates located in the valve-compartment and adapted to close against the valve-seats, and means for operating the gates, substantially in the manner set forth for the purpose described.

3. In combination, a case having a valve-seat provided with a drip-passage extending from its upper end through a side of the case, a slide-valve having a recess in its side facing the valve-seat and extending from near the bottom to within a short distance of the top and which is in communication with the drip-passage only when the valve is closed, and means for operating the valve, substantially in the manner and for the purpose set forth.

4. In combination, a case subdivided by a partition into water and valve compartments, and having an opening in its side, a

valve-seat inclosing an opening in the partition separating the compartments and having a drip-passage at its upper end which is in communication with the opening in the side of the case, and a slide-valve for closing against the valve-seat and having a recess in its outer face extending from near the bottom to within a short distance of the top and having a vertical portion to close the drip-passage upon opening the valve and spaced at its upper end, substantially as and for the purpose described.

5. In a fire-hydrant, the combination of a stand-pipe, a hydrant-bottom subdivided by a vertical partition into water and valve compartments, a cover secured between the opposing ends of the stand-pipe and hydrant-bottom and having an opening opposite to the water-compartment, valve-seats surrounding openings in the walls of the valve-compartment, the inner valve-seat having a drip-passage extending therefrom through a side of the hydrant-bottom, gates located in the valve-compartment, the rear gate having a recess in its outer face and a strip to close the said drip-passage, a compound wedge interlocking with the gates, a feed-screw journaled in the aforesaid cover and having connection with the wedge, a plug journaled in the cap closing the stand-pipe, and a rod coupled to the plug and feed-screw, substantially in the manner set forth for the purpose described.

6. In a fire-hydrant, the combination of the base having oppositely-disposed seats, vertically-movable gates having vertical flanges on their rear faces in coincident relation, and having recesses in the inner sides of the flanges and corresponding grooves at the upper ends of the recesses, a nut having a wedge at its lower end and provided with lateral ribs of less thickness than and entering the said grooves, and having a limited play therein so as to admit of loosening the gates prior to opening them, a wedge corresponding to the wedge of the nut and supported by the inner recessed sides of the flanges, and an operating-stem having a threaded portion working within the said nut, the wedges being constructed to provide clearance for the threaded end of the operating-stem, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHRISTIAN E. LOETZER.

Witnesses:

JOHN H. SIGGERS,
HAROLD H. SIMMS.