

G. C. BAILEY.
HYDRANT.

No. 172,071.

Patented Jan. 11, 1876.

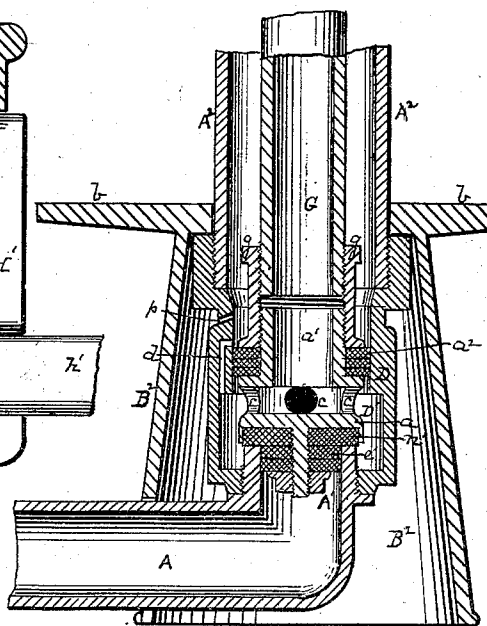
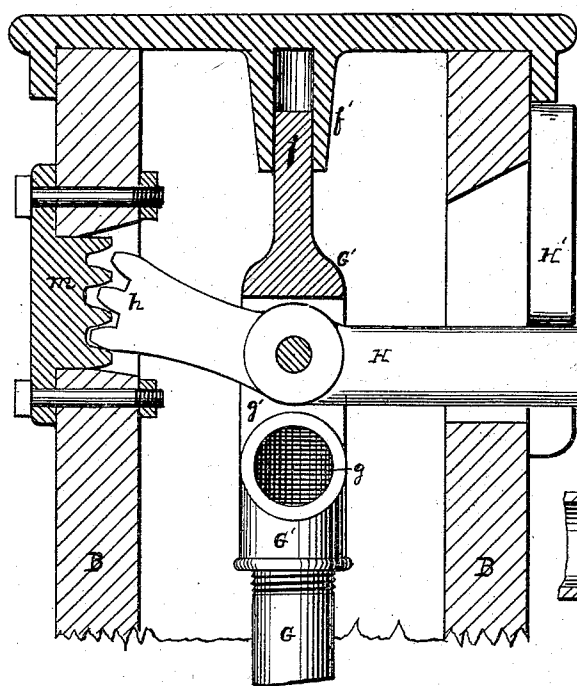


Fig. 4.

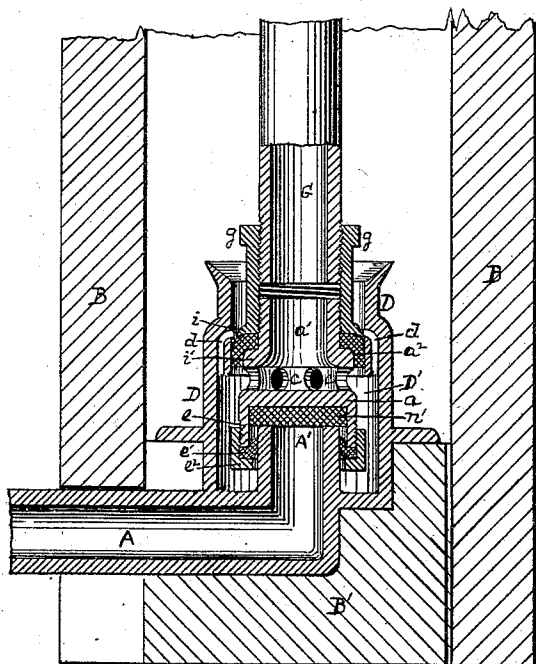


Fig. 1

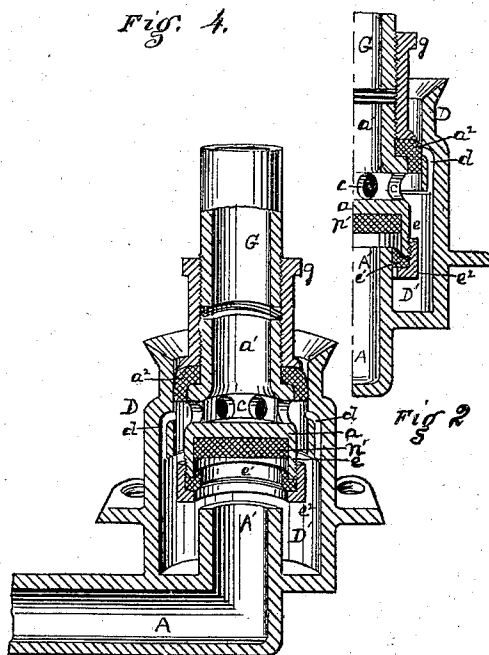


Fig. 3.

Witnesses
J. E. Boggs.
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By George H. Christy,
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UNITED STATES PATENT OFFICE.

GEORGE C. BAILEY, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. **172,071**, dated January 11, 1876; application filed December 20, 1875.

To all whom it may concern:

Be it known that I, GEORGE C. BAILEY, of Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Hydrants; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which (like letters indicating like parts)—

Figure 1 is a vertical sectional view of the upper and lower parts of a wood-incased hydrant embodying my improvements, showing the hydrant-valve closed and waste open. Fig. 2, by a like view of a detached portion, shows the hydrant-valve at about the middle of its opening and closing motion, and with the waste closed. Fig. 3 shows the hydrant-valve fully opened, and Fig. 4 shows certain modifications of the same improvement.

My invention relates to that class of hydrants in which is employed a moving water-way closing against the pressure, and may be used either inclosed in a wooden case, B, as in Fig. 1, with an attachment to a block of wood or plate of metal, B¹, which latter is secured in the wooden case; or the valve-case containing the valve may be attached to a wrought-iron tubular case, A², as shown in Fig. 4, to the upper end of which tubular case a cast-iron head is attached for the convenient placing of my lifting arrangement; or the apparatus thus designated may be used in connection with a cast-metal case; but, whatever be the exterior case, the usual supply-pipe A is employed seated in or on the block or plate B¹, as in Fig. 1, or combined with a waste-box, B², as in Fig. 4. But, referring more particularly to Figs. 1, 3, the supply-pipe A terminates in a raised valve-seat, A¹, which is surrounded by the valve-case D, the lower part D' of the chamber of which is somewhat enlarged, so that the water may have room to flow up around the valve. From this chamber waste-ports *d* extend up to a point just above the upper packing when the valve is seated. These waste-passages are preferably made through the body of the shell or case, as shown; but mere channels in the inner surface of the chamber, terminating at or about the same points, will perform the same func-

tion, though such channels are somewhat objectionable on account of the liability of the packing to work into them. The hollow moving water-way G, by a coupling, *g*, is connected to the hollow stem *a*¹ of the valve *a*, and the upper packing *a*² is held between the flanges *i* *i'*, or between the end of the coupling and a flange on the stem. Just below this packing are the ports *c*, and below these is a cup-shaped valve, *a*, which seats, by suitable packing *n'*, on the valve-seat A¹. The tubular sides *e* of the cup extend down around the valve-seat, and are packed at their end by packing *e*¹ and flanged screw-ring *e*²; then, as the valve is raised, the upper packing *a*² first covers the waste-ports *d*, as illustrated in Fig. 2, before the supply is opened. By a further upstroke the lower packing *e*¹ is carried clear of the pipe A¹, the upper packing still cutting off the waste. With a downstroke the operation is reversed, and the supply is cut off before the waste is opened.

It will be observed that the disk-packing *n'* is not essential to the complete working of the hydrant, as the upper packing *a*² and lower packing *e*¹ govern the waste and supply completely of themselves; but it serves as an additional preventive against leakage from the supply when the hydrant is fully closed. These features are shown in a form somewhat modified in Fig. 4, but not so as to change substantially their operation.

In Figs. 1, 3, the annular packing-rings are of the kind known as "cup-leathers," while in Fig. 4 they are of the common form of piston-valves; also, in Fig. 4 the lower packing *e*¹ is arranged so as to bear on the inside of the pipe A¹ instead of the outside, as in Figs. 1, 3. The valve-case D is screwed onto the supply-pipe instead of being cast on.

The waste, instead of going out over the open mouth of the valve-case, goes out at a port, *p*, made for the purpose; but with this construction it is not essential that the valve-seat be raised, provided the lower packing *e*¹ make a sufficiently tight joint on the inside of the supply-pipe. Hence the valve-seat may be even with or even below the bottom of the valve-chamber.

When an iron tube is used for a casing, as in Fig. 4, a waste-box, B², is provided with a

broad annular flange, *b*. The cup prevents the earth being filled in too closely to the waste-passage, and thus gives room for the waste water to get away from the valve, and the weight of the superincumbent earth, bearing on the flange *b*, steadies the valve and hydrant in the ground, and prevents it from being raised by the frost; and for this purpose the flange *b* may be fixedly attached to the hydrant-casing at any desired point where subject to the weight of the superincumbent earth. Preferably, however, it is made as an attachment of the waste-box, substantially in the manner represented in Fig. 4, and, with such waste-box, is made separate from the rest of the hydrant for convenience in adjusting, removing, and replacing. It is simply slipped on over the outer hydrant-case after the supply-pipe is screwed into place, and is simply raised up—sliding freely on the outer case—when necessary for the purpose of renewal, repairs, &c., to any part of the apparatus, after which it is replaced, as before.

In connection with the moving water-way *G*, I employ a head, *G'*, screwed thereon, hollow up to and opening into a spout, *g*, slotted as at *g'*, and having a stem, *f*, which, in order to guide the water-way in a direct line of motion, plays in a socket, *f'*, or other suitable guide. Pivoted in the slot *g'* is a lever-handle, *H*, one end having segmental gear *h*, which meshes into a counter-gear, *m*, fixed to the hydrant-case, and the other end, *h'*, constituting the handle proper. When the valve below is closed the handle is held down by a latch, *H'*, or other suitable means.

By the use of the lever-handle and segmental gear I am enabled to raise and lower the moving water-way in a direct line, which, of itself, is a desirable feature in such apparatus, preventing strain to the connections and lessening the wear.

I claim herein as my invention—

1. An upper packing, *a*², controlling the waste, in combination with a lower packing, *e*¹, bearing on the supply-pipe below the valve-seat, for controlling the supply, substantially as and for the purposes set forth.

2. An upper packing, *a*², to close the waste in advance of the opening of the valve, a lower packing, *e*¹, bearing on the supply-pipe below the valve-seat, and an intermediate packed valve, *n'*, combined substantially as set forth.

3. The flange *b* on the waste-box, as a device for steadying the waste-box, and with it the hydrant-valve and connections, by means of the superincumbent weight of the earth thereon, substantially as set forth.

4. The waste-box *B*², sliding freely on the outer hydrant-case, and in combination therewith, substantially as set forth.

5. The lever-handle *H*, having a segmental gear, *h*, combination with fixed counter-gear *m* and a moving water-way, substantially as set forth.

In testimony whereof I have hereunto set my hand.

GEORGE C. BAILEY.

Witnesses:

JAS. S. YOUNG,

MAGNUS PFLAUM.