

Hydrant.

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UNITED STATES PATENT OFFICE.

JAMES POWELL, OF CINCINNATI, OHIO.

HYDRANT.

Specification of Letters Patent No. 19,513, dated March 2, 1858.

To all whom it may concern:

Be it known that I, JAMES POWELL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Valve-Hydrants; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a vertical central section of a valve hydrant constructed after my invention. Fig. 2, is a side elevation of the working gear of the hydrant.

Similar letters of reference in each of the several figures indicate corresponding parts.

The object of my invention is to prevent waste of water in hydrants and thus save the foundations of buildings from being undermined, avoid freezing of the hydrant in winter and afford facilities for getting at and repairing the valves of the hydrant without digging up, and also render the hydrant, as a whole more durable and perfect in its action.

The nature of my invention consists in the combination of two plungers, or pistons, and having them work in the same line, and within a waste water chamber or cylinder, which has two escape passages at its lower end, said plungers being operated separately, one by means of a cam and the other by a crank in such a manner that by turning the handle of the hydrant in one direction, the waste plunger descends for a certain distance and then it remains stationary, while the supply or cut off plunger rises sufficiently to allow the water to flow or discharge freely, and by turning the handle in an opposite direction, the supply or cut off plunger will descend and shut off the flow of water and then the waste plunger will rise and perform its full stroke and consequently the water, which at this movement remains in the conducting pipe, will run down and fill the space in the water chamber between the two plungers, from which place it will be expelled and caused to pass up through the conducting pipe, when the handle is turned so as to cause the waste plunger to descend and the supply plunger to ascend and open the supply passage.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, is the shell or case of the hydrant.

B, is the supply pipe.

C, is a cylinder made with two chambers *a*, *b*, the lower one of which is of greater diameter than the other. The supply pipe is made of smaller diameter than the chamber *a*, and is made to extend some distance up into the same, and to serve the office of a valve seat as presently described. The upper and lower chambers of the cylinder C, are furnished with escape passages *c*, *d*, which allow the water to flow into the conducting and discharge pipe or spout D.

E, F, are two plungers, E, serving as a valve and F, as a plunger and valve. The plunger E, is fitted water tight to the lower chamber *a*, of the cylinder and rests down upon the supply pipe when the water is not flowing through the hydrant. The plunger F, is fitted water tight to the upper chamber *b*, of the cylinder C, and rests down upon the seat *e*, of the cylinder when the water is flowing through the passage *c* of cylinder but occupies the position shown in Fig. 1, when the water is not flowing. When the plunger E, is down on its seat, the escape passage *c*, of the lower chamber *a*, of the cylinder is closed, and when the plunger F, is on its seat, the escape passage *d*, of the upper chamber *b*, of the cylinder is closed. The rod *g*, of the plunger F, is tubular and fits loosely over the solid rod H, of the plunger E.

I, is a transverse shaft at the top of the hydrant case. This shaft is fitted in boxes and confined by screw plates *g*, *g*, so as to be removable when repairs are necessary. To this shaft, by means of a crank J, and pivoted connecting rod *k*, the tubular plunger rod G, is attached. The solid plunger rod H, is also attached to this shaft by means of an eccentric cam L, the connection being formed between the cam and the rod by means of a curved slot *h*, in the cam, and pin *i*, on the rod. The slot *h*, it will be seen is made concentric from *x* to *, and eccentric from * to its termination. It is by thus shaping the slot of the eccentric that the plunger E, just as the plunger F, has completed its downward stroke, is caused to ascend sufficiently to allow the water to flow. It is also by thus shaping the slot of the eccentric that plunger E, just before the plunger F, has commenced its ascent or return movement, is caused to descend and shut off the supply.

It is by providing the double chambered

cylinder that the waste water is kept within the hydrant or upper chamber of the cylinder, the surrounding ground kept dry, and freezing prevented. And it is by having the
5 plungers connected and attached to rods which are connected to a removable shaft, that facilities for removal are provided.

Operation. The handle is turned down in the direction of the arrow, this operation
10 causes the plunger F, to descend to its seat, and close the escape passage *d*, of the waste chamber *b*, at this movement the eccentric portion of the cam strikes the pin *i*, of the plunger rod H, and causes the plunger to
15 rise and allow the water to flow through passage *c*. Now by moving the handle back to its former position, the plunger E, will be caused to descend and shut off the supply, and then the plunger F, rises and creates a
20 vacuum in the waste chamber, and the water in the conducting or discharge pipe D, flows

into the cylinder and fills the vacuum created. When the piston F, again descends, the water is forced out into the conducting pipe, and is discharged along with
25 water supplied through the supply pipe.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The combination of the two plungers E, F, working in line with each other, and
30 the double chambered cylinder C, having two escape passages, substantially as and for the purposes herein described.

2. The combination of the peculiarly shaped slotted cam L, and the crank J, with
35 the two plunger shafts G, H, substantially as and for the purposes set forth.

JAMES POWELL.

Witnesses:

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