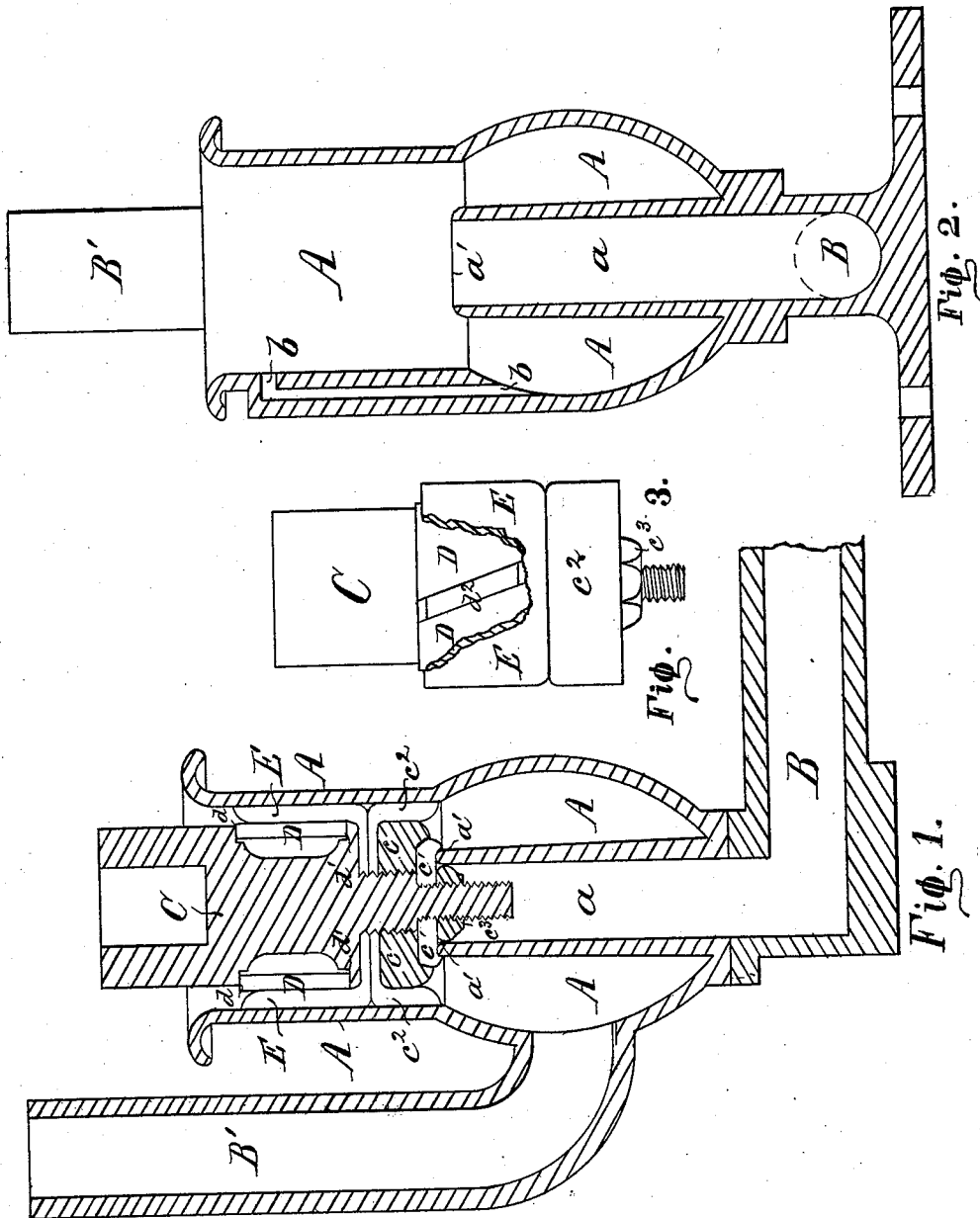


W. H. GRAHAM.
Hydrants.

No. 145,294.

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UNITED STATES PATENT OFFICE.

WILLIAM H. GRAHAM, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. **145,294**, dated December 9, 1873; application filed August 21, 1873.

To all whom it may concern:

Be it known that I, WILLIAM H. GRAHAM, of St. Louis, in the county of St. Louis and State of Missouri, have invented an Improved Hydrant, of which the following is a specification:

The object of this invention is to form a hydrant which, after every time it is used, shall clean itself; also, that shall be non-freezing, water-saving, and otherwise possess the advantages of greater perfectness in operation and be more durable in use. This invention relates to an improved combination of parts, such as packing-cups, adjustable sleeve, valve-packing, and plunger parts, as will hereinafter appear.

Of the drawing, Figure 1 is a sectional elevation; Fig. 2, a similar section taken through line of the waste-pipe; Fig. 3 being a side view of improved plunger, part of the upper cup removed to show slotted sleeve.

As represented, A is the body or chamber of the hydrant, being at its base of enlarged globular dimensions.

The ordinary hydrants have their valve-seats close at bottom of chamber, and no allowance being made for the wear or grinding action upon valve-seat, the perfect fitting operation of valve upon its seat is not maintained, owing to the wearing action upon seat, as stated. Further, this causes undue leakage, waste, and the difficulties arising from said causes.

My improved feature is designed to obviate the said inconveniences; hence, I provide the chamber A with a pipe or tube, *a*, so as to give at top the raised or extended valve-seat *a'*, as clearly shown in Figs. 1 and 2. The further advantage of this raised position for the valve-seat *a'* is that the same is above the sediment and accumulations that gather within the water-chamber, and is capable of wearing to its lowest part. The pipe or tube *a*, as seen in Figs. 1 and 2, communicates with the supply-pipe B, B' being the outlet-pipe. I also provide the body or chamber A with a waste-outlet or side pipe, *b*, which communicates from the lowest part of the chamber A to near its top thereof, (see Fig. 2,) to control the waste.

C is the plunger proper. To the plunger the stem is connected, and said parts are operated

from above or without, in the well-known manner, to impart to plunger and its parts the required reciprocating motion to open or close the outlet or flow from hydrant. The lower part of plunger C I provide with a metallic casing or cap, *c*. This has its face recessed, and the lower edge of its circumference beveled, as indicated in Fig. 1. The recess part of cap *c* forms a seat, to receive and incase the circumference of the valve-packing *c'*; the object of thus incasing the packing *c'* in the valve-cap *c* being to prevent the water from spreading the packing, and otherwise to protect same from the injurious wear of the water, and render said packing more lasting and effective in operation to perfectly close and open or control the valve-seat *a'*. The valve-cap *c*, with packing *c'*, I next surround with a leather cup or packing, *c''*, and the said several parts are secured to the lower screw end of the plunger C by means of a nut, *c'''*, as indicated in Figs. 1 and 3. The purpose of the lower-cup packing *c''* is to form a water-tight joint, preventing the waste or water from bottom of chamber rising above the plunger C and leaking out of top of same, as well as also to control and maintain a steady-pressure flow when the hydrant is used.

It is essential, when the hydrant is open or operated to discharge, that the vent *b* shall be controlled—viz., closed when said hydrant is open, as just stated, and open when hydrant is closed—to effect a discharge of the waste. Said vent or waste-pipe *b* I therefore control by plunger parts, as follows: Sufficient part of the body of the plunger C is countersunk between the upper and lower seats *d* *d'* to receive a sleeve, D. (See Figs. 1 and 3.) The sleeve D I form to possess the feature of contracting or expanding by slotting same diagonally at *d''*. (See Fig. 3.) When, therefore, the sleeve D is contracted or closed, it fits flush with the circumferential body of the plunger C; when expanded, partly projects from said plunger-body. Through the slot *d''* whatever sediment passes can readily lodge in the countersunk or recessed part of the plunger, and thus not affect the adjustable or spring-like action of the sleeve D. Further, I provide or surround the sleeve D, thus placed on the plunger C, with an upper leather cup or

packing, E, the object of which is that same shall be acted upon by the contracting or expanding action of said sleeve to control the vent-opening of the waste-pipe *b*.

Thus arranged and constructed, the operation of the improved parts above described is as follows: As soon as the valve is raised above its seat the flow out of the outlet-pipe commences, and in its first discharge whatever accumulation of sediment is contained in the water-chamber is forced out with it. Also, there can be no waste discharge top of plunger out of waste-pipe *b*, owing to the fact that said pipe is closed by the upper-cup packing in the act of opening the valve. Further, no leakage, at the time of the discharge of the hydrant, can occur above the plunger, owing to the further fact that the lower-cup packing forms the necessary water-tight joint between the upper and lower part of the water-chamber. A steady and uniform discharge from hydrant is thus

had, the degree of pressure being readily regulated by the peculiar-constructed plunger and its valve, and the upper and lower cup packings. When the valve is closed, (or hydrant is shut,) the waste-pipe *b* is also opened at top, and whatever return of water into the water-chamber takes place is allowed to pass from the said chamber up and out of the top of waste-pipe *b* as waste.

Having thus fully described my said invention, what I claim is—

The combination of plunger C, upper packing-cup E, adjustable sleeve D, lower packing-cup *c*², valve-packing *c*¹, and valve-cap *c*, as and for the purpose set forth.

In testimony of said invention I have hereunto set my hand.

WILLIAM H. GRAHAM.

Witnesses:

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