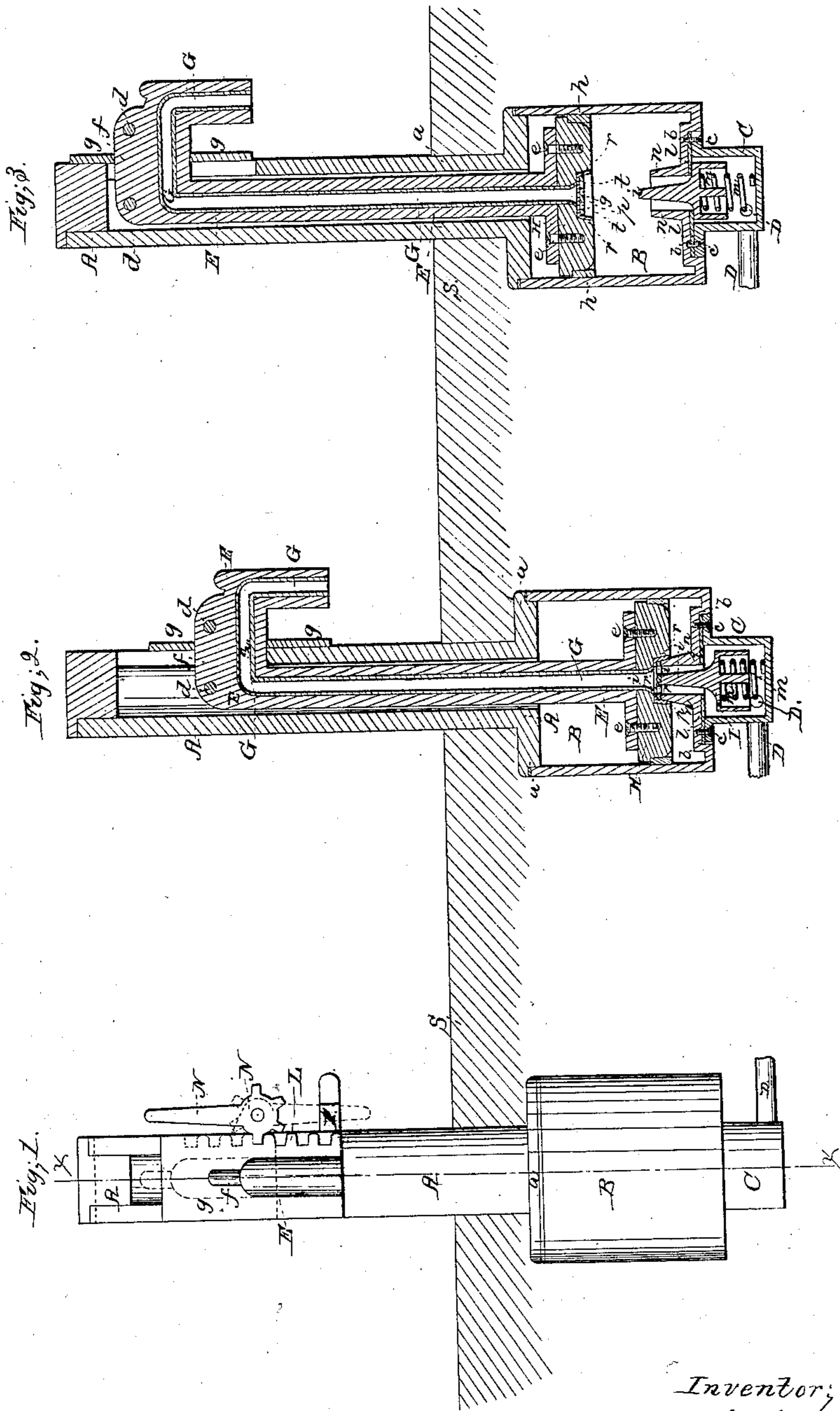


J. N. Smith,

Hydrant.

N^o 59671.

Patented Nov 13, 1866.



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UNITED STATES PATENT OFFICE.

JOSEPH NOTTINGHAM SMITH, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. 59,671, dated November 13, 1866.

To all whom it may concern:

Be it known that I, JOSEPH NOTTINGHAM SMITH, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Hydrant-Reservoir and Ram; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a front view of the whole hydrant and its reservoir, the spout being shown in its lowest position, as when drawing water from it; Fig. 2, a central vertical section in a plane indicated by the line *x x*, Fig. 1; Fig. 3, a similar section, but representing the spout raised to its highest position, as placed after drawing water from it.

The corresponding position of the parts is indicated by red lines in Fig. 1.

Like letters designate corresponding parts in all of the figures.

A suitable hydrant-case, A, is provided, being hollow, for the reception of the spout E, and having an opening in one side at the proper height, and of sufficient vertical length to allow room for the projecting part of the spout, and for a sufficient vertical movement thereof, as required. This case extends down into the ground S to the required depth, and terminates in a flange, *a*, which forms the top or cover for a reservoir, B, under ground. This reservoir is made of cylindrical form, and, at least, of sufficient capacity to hold all the water which may be contained in the whole length of the spout E after drawing water at any time.

The lower end of the spout E terminates in an expanded disk or plate, *e*, (or its equivalent,) to which a piston, H, fitting the inside of the reservoir B, is secured by screws, as shown, or otherwise.

Into the lower end of the reservoir B, or into a separate chamber, C, below, the service water-pipe D discharges, and a valve, I, controls the flow of water from this chamber into the reservoir, or directly into the pipe G of the spout E.

The general action of the whole hydrant is this: A vertical reciprocating movement is given to the spout E, sufficient to move the piston H (attached to the spout) as much as required in the reservoir. When water is to be drawn from the hydrant, the spout E and

its piston H are brought down to their lowest position, as shown in Fig. 2, by which movement, first, the water in the reservoir B below the piston is forced up into the pipe G or bore of the spout, filling the same nearly, or quite, to overflowing; and just before the piston reaches its lowest position it strikes an upwardly-projecting stem, *i*, of the valve I, so as to press down the valve and open it. Then the water rushes up from the chamber C by the pressure in the service-pipe D through the spout, and flows out therefrom till the requisite quantity is obtained. The spout E and its piston H are then raised again to their highest position, as shown in Fig. 3, and indicated by red lines in Fig. 1, which movement first relieves the valve I, allowing it to close, thereby shutting off further flow of water from the chamber C or service-pipe D, and then fills the enlarged space in the reservoir below the piston by the surplus water contained in the spout descending therein.

Thus important advantages are gained by letting all the surplus water which has run from the service-pipe flow back into a reservoir under ground, below the reach of frost. First, there is no loss of water by flowing away upon the ground; second, no inconvenience, danger, or nuisance results from flowing or dripping out upon the ground; third, as the water all flows back immediately into the reservoir below the ground, it is never liable to freeze, so that the hydrant may be used all winter without risk or trouble; fourth, a corresponding advantage is gained in summer, by keeping the surplus water always cool in the reservoir below the surface of the ground.

In order to give the vertical reciprocating movement to the spout E, a plate, *g*, or its equivalent, attached to the spout outside of the case, is provided with rack-teeth L on one edge, and into these a pinion, N, pivoted to a projection of the case A, and provided with a handle, gears, substantially as represented in Fig. 1.

When the spout is down the handle of the pinion points upward, as shown by black lines in the figure; and to raise the spout to its highest position, the handle has to be brought down to its lowest position, as indicated by red lines. In that position it is held by a spring-catch, P, as shown.

By this means the spout is retained in its highest position. The handle of the pinion is readily detached from the catch when the spout is to be lowered by springing the catch one side.

The weight of the spout is intended to be sufficient to cause it to descend against the pressure of water below the piston H, as well as overcoming the friction of the piston against the surface of the reservoir. To insure this the body of the spout is made of cast-iron, in sections or halves, the two parts being fastened together by rivets or bolts *d d*, Figs. 2 and 3, and inside of this is located a simple lead pipe, G, all substantially as represented.

The piston H may be made of wood or other suitable material, to which the flanges *e e* of the spout-segments are secured by screws, as shown, thus fastening the lower ends of the sections together at the same time. The piston has a suitable packing, *h*, on its periphery.

Centrally in the lower side of the piston H is a flaring recess, *p*, lined with an elastic packing, *r*, which is secured in place by a metallic plate or disk, *s*, that has perforations *t t* through it, so that the water may pass through from below up into the pipe G of the spout E; and centrally from the bottom of the reservoir B a tubular projection, *n*, extends upward, and is of such a size and shape as to fit water-tight up into the recess *p* of the piston, as shown in Fig. 2.

The valve I in the chamber C closes upward against elastic packing *l*, as shown, being held up to its seat by a spring, *m*, and by the pressure of water in the service-pipe. The stem *i* of the valve projects upward beyond the projection *n* of the reservoir-bottom when the valve is closed, as in Fig. 3; but when the

spout E and its piston H descend, the plate *s* in the top of the recess *p* of the piston strikes the stem *i* of valve, and thereby presses down the valve and opens it. Immediately after the packing *r* of the recess *p* closes tightly down over the projection *n*, and prevents the water from flowing out into the reservoir, and compels it to flow upward only into the spout. Thus no sand or other impurities or obstructions can get into the reservoir from the flowing water, which otherwise would collect there, and require the reservoir frequently to be cleaned out.

The chamber C is cast in a separate piece from the reservoir B, as shown, and is screwed or bolted to the bottom of the reservoir, its flange *c* generally fitting into a recess, *b*, in the bottom to receive it. The same packing, *l*, which tightens the valve I also tightens the joint between the chamber C and reservoir B.

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

The combination and arrangement of the spout G, weighted as described, reservoir B, and valve I, so that the water when flowing is conducted through said spout without communicating with the reservoir, but when the valve is closed and the water ceases to flow a communication is opened between the spout and reservoir, substantially as and for the purposes herein specified.

The above specification of my improved hydrant-reservoir and ram signed by me this 29th day of December, 1864.

JOSEPH NOTTINGHAM SMITH.

Witnesses:

DAVID MASON,
WM. W. SNOW.