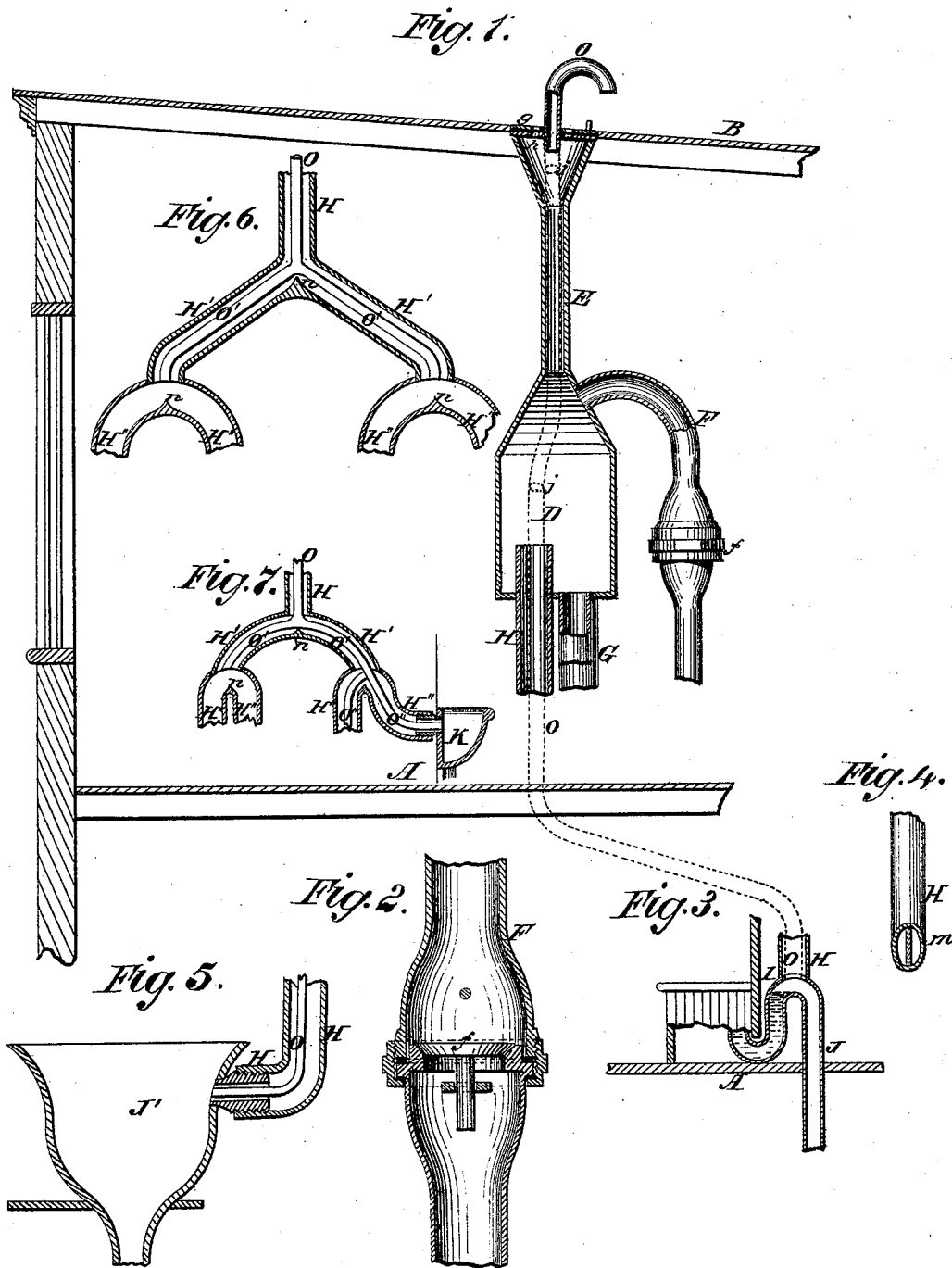


J. H. MORRELL.

WATER-TRAP SUPPLY AND VENTILATOR.

No. 171,689.

Patented Jan. 4, 1876.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN H. MORRELL, OF NEW YORK, N. Y.

IMPROVEMENT IN WATER-TRAP SUPPLIES AND VENTILATIONS.

Specification forming part of Letters Patent No. **171,689**, dated January 4, 1876; application filed November 6, 1875.

To all whom it may concern:

Be it known that I, JOHN H. MORRELL, of the city, county, and State of New York, have invented a new and useful Improvement in Water-Trap Supply and Ventilation, of which the following is a specification:

The present invention is an improvement upon the patent granted to me October 5, 1875, and its object is to provide for ventilation during the downflow of water through the pipes; also, to provide for the water-supply, and also the ventilation of the traps and their adjuncts when the orifice of the supply-pipe mentioned in my said patent is obstructed by ice, or when water cannot be obtained from the roof or eaves of the building, or when from any cause it is desirable not to use such water.

My present invention consists in the combination, with the reservoir D, mentioned in my said patent, of an additional water-supply pipe; also, of a ventilating-pipe within some portion of the water-pipe, or extending through the interior of the whole length of the same, as hereinafter set forth, applied to said pipe.

Referring to the drawing, Figures 1, 2, 3, 4, 5, 6, 7 are side elevations of my improvement and some of its modifications. Fig. 1 is an elevation, showing the arrangement of water-reservoir and adjuncts. Fig. 2 is an enlarged view, in section, of valve *f* and supply-pipe F. Fig. 3 is an elevation illustrating the application of my double pipes to the ventilation and supply of traps for water-closets or other purposes. Fig. 4 shows a modification of my improvement, consisting of a divided or partitioned pipe, one portion of which may be used for ventilation, the other for water-supply. Fig. 5 is an elevation illustrating the application of the double pipes to water-closets. Fig. 6 is an elevation showing the application of the double pipes to other distributing-pipes. Fig. 7 is an elevation showing the application of the double pipes to urinals and water-closets.

Similar letters of reference indicate corresponding parts in all the figures.

A, floor of a building; B, roof thereof; E, water-pipe from basin to storage and distributing reservoir D; F, water-supply pipe, having at *f* a puppet-valve of the usual construction, to prevent flow of water or gas; G, dis-

tributing-pipe, taking water from the reservoir D to any desired portion of the building, and having water-cocks at convenient places below the reservoir; H, trap supply-pipe, conveying the overflow of reservoir D to one or more traps, as described in my said patent of October 5, 1875.

Referring to my said patent, I would observe that in some climates the entrance or roof-orifice to the reservoir D is liable to be obstructed with snow or ice, in which case not only the water-supply to said reservoir would be cut off, but also the ventilation. To provide for a supply of water under such circumstances, I combine, with the reservoir D, or with one of the reservoir-pipes G, an additional water-supply pipe, F, which is to be connected with a pump or other source of water-supply, by which the said reservoir D may be supplied with water whenever needed. The said pipe F may be provided with a valve, *f*, to prevent back flow of water or gas. The pipe G is provided, below the reservoir D, with suitable cocks, to prevent the escape of water except when desired. The overflow of water will pass down from reservoir D through pipes H, and be automatically distributed into the various chambers and traps, as described in my said patent.

To provide for ventilation when the entrance-orifice to reservoir D is closed, either purposely or by ice, I provide the upper part of the pipe E with a register-valve, consisting of a fixed register-plate, *g*, and a movable register-plate, *h*, in the center of which, but attached to *g*, I place a short ventilating-pipe, O, which extends down within the interior of pipe E, as shown. When desired, I close the plate *h*, so that no water can pass down into the reservoir D; but whether the register be purposely closed, as stated, or whether the water is prevented by ice or snow from entering the reservoir, the pipe O will always afford free ventilation and escape from all gases that rise in reservoir D. To facilitate the ventilation of the pipes E H during the downflow of water, and also the ventilation of the reservoir D, and also the ventilation of other pipes and chambers mentioned in my said patent, the said pipe O may be extended down through the interior of the pipe E, and through the

reservoir D; also through the pipe H, as indicated by the dotted lines, Fig. 1. At convenient points along its length, as at *jj*, the said pipe O may have openings for the ingress of gas or air, thus facilitating ventilation of the parts through which the pipe O passes during the downflow of water in said parts. The pipe O may extend down through such of the other pipes and chambers mentioned in my said patent as may be desirable, and the lower end of said pipe O may communicate at any convenient point with the sewer pipe or pipes of the building, so as to ventilate the same.

The said pipe O may also communicate with the traps I, being carried within the pipe H to such traps, as illustrated in Fig. 3. The said pipes O and H may be also carried in any suitable manner, one within the other, to the water-closet basin, so as to supply and ventilate the same, as illustrated in Fig. 5, in which *J'* shows a water-closet basin, which may be of any desired form.

Instead of carrying the pipe O within the pipe H, as hereinbefore described, it may be desirable in some cases to divide the pipe H by a longitudinal partition, *m*, as illustrated in Fig. 4, so as practically to make two pipes, one of which may be used for ventilation, and the other to conduct the water, substantially as described in connection with pipes H O.

It is obvious that such a construction of pipe H would be an equivalent or modification of my pipes H O. Fig. 6 is an elevation showing the application of double pipes H O to other distributing-pipes.

The vertical pipes H O are provided with two or more branches, *H' O'*, and these branches may be joined to additional distributing-pipes, each having two or more branches, *H'' O''*, leading to traps, water-closets, urinals, or wherever required, as in Fig. 7. Directly under the points where the pipes H *H' H''* divide into branches I provide a rise or dividing-blade, *n*, by which the water that falls

from the pipe above will be divided and pass in equal quantities into the pipes on each side of the blade.

Fig. 7 is an elevation illustrating the application of the pipes H O to branch distributing-pipes, such as those above mentioned, and also to urinals and water-closets.

In Fig. 7, K is a urinal, of the usual form, to the upper part of the basin whereof are attached the branch pipes *H'' O''*. A portion of the downflow of water through H will be discharged through *H'* and *H''* into the urinal, while the ventilation of the urinal will be effected through *O' O'*. Either of the remaining branch pipes *H'' O''* may go to water-closets on the same floor, or to some other position in the building.

I do not confine myself to the precise form or position here shown of any of the parts, as they may be varied without departing from my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the reservoir D, or with one or more of the pipes G, of a water-supply pipe, F, substantially as and for the purpose described.

2. The combination, with pipe H, of a ventilating-pipe, O, arranged and operated substantially as described.

3. The combination of the ventilating and supply pipes H O with the traps, water-closets, or urinals, substantially in the manner herein described.

4. The combination, with the pipes H O, of branch distributing and ventilating pipes *H' O' H'' O''*, substantially as described.

5. The arrangement of the ventilating and water-supply pipes H *H' H'' O' O' O''* with the urinal K, substantially as described.

JNO. H. MORRELL.

Witnesses:

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ALEX. F. ROBERTS.