

UNITED STATES PATENT OFFICE.

PETER D. DONNELLY, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF HIS RIGHT TO SAMUEL BISSICKS, OF SAME PLACE.

IMPROVEMENT IN VALVES FOR WATER-CLOSETS.

Specification forming part of Letters Patent No. 167,998, dated September 21, 1875; application filed August 30, 1875.

To all whom it may concern:

Be it known that I, PETER D. DONNELLY, of the city, county, and State of New York, have invented a new and useful Improvement in Valves for Water-Closets; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms part of this specification:

This invention relates to valves used in water-closets, principally closets of the pan kind, which serve during their opening or closing action to admit a limited supply of water to the basin or container in a gradual manner, and so that the water not only serves to wash out or remove the contents of the basin or its pan, but, after the pan or discharge from the basin is closed, operates to continue the supply of water to seal the pan or discharge opening so as to prevent escape of effluvia. The invention consists in a hollow perforated valve with a plain or disk-shaped flexible facing, whereby these results are obtained in a most perfect manner, substantially as hereinafter described, and whereby I not only dispense with a variable chamber below the valve to which water is supplied, or from which water is discharged, by a contracted opening liable to choke, and which governs the opening and closing of the valve, but also do away with a cup-leather packing or valve-facing, which is not only unreliable but lacks durability, and involves frequent attention or repair.

Figures 1 and 2 represent partly-broken longitudinal sections of my improved valve, which, although it will here be described as vertical, may be horizontally or otherwise arranged, and in various positions relatively to the basin of the closet.

A is the valve-box or casing, that may be attached to its place by a screw at its base or lower end, and the valve be lifted when it is required to admit water to the closet or its basin by a lifter, B, operated by a suitable pull, and acting on the lower end of the valve-stem C. Said valve-box A is divided into an upper chamber, *b*, and a lower chamber, *c*, by a fixed partition or diaphragm having a valve-opening, *d*, in it of considerably

larger diameter than the valve-stem which passes up through it. D is the inlet for the water to the valve-box communicating with the chamber above the partition having the opening *d* in it, and E the outlet for the water communicating below said partition with the chamber *c*, and serving to supply the basin of the closet or its pan with water. G is the valve, consisting of a hollow cylindrical metal cup open at its top, which, when the valve is fully raised, as shown in Fig. 2, approaches or closes against a packing, *e*, applied to a cap, *f*, which screws onto the top of the valve-box. This cylindrical cup-shaped valve, mounted on the valve-stem C, is of somewhat lesser diameter than the chamber *b*, in which it works or moves up and down, so that water entering by the inlet D is free to trickle or pass in a restricted manner up around it when the valve is closed over the opening *d*, or when it is moving up and down within the chamber *b*. Said cup-shaped valve G is provided with one or more perforations, *g*, in its bottom, which are closed by a rubber or other flexible valve-facing, *h*, when the valve is down, as shown in Fig. 1. This valve-facing *h* is a simple flexible disk arranged on the under side of the cup portion of the valve, and when the valve is down closes the opening *d* to shut off communication between the inlet D and outlet E, as also represented in Fig. 1. When the valve is closed water passes by the inlet D around the hollow cylindrical upper portion of the valve to fill it and the space *b* above said valve G, the flexible disk *h* then closing both the opening *d* and perforations *g*. When the valve is lifted to establish communication through the opening *d* between the inlet D and outlet E, to supply the basin or its pan with water, the disk *h* is free to open as regards uncovering the perforations *g* so as to permit of a sufficient escape of water to prevent the valve being restrained in its movement. At the same time the upper portion of the valve will be kept full of water, and after the pan has discharged its contents, and is closed, an equilibrium of pressure will be maintained above and below the valve, and the latter, which may be started in its descent by a spring, *k*, will only gradually fall till it

closes the opening *d*, thus admitting of a supply of water to the closed pan to seal it. During the closing action of the valve the flexible disk *h* also closes the perforations *g*, and water continues to pass up around the cup or hollow cylindrical portion of the valve to keep it filled.

I claim—

The hollow valve *G*, having one or more perforations, *g*, in its face, and fitted in the

chamber *b* so as to admit of water passing around and into it, in combination with the flexible disk *h* and the valve-case *A*, with its valve-opening *d*, the inlet *D*, and outlet *E*, substantially as specified.

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Witnesses:

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