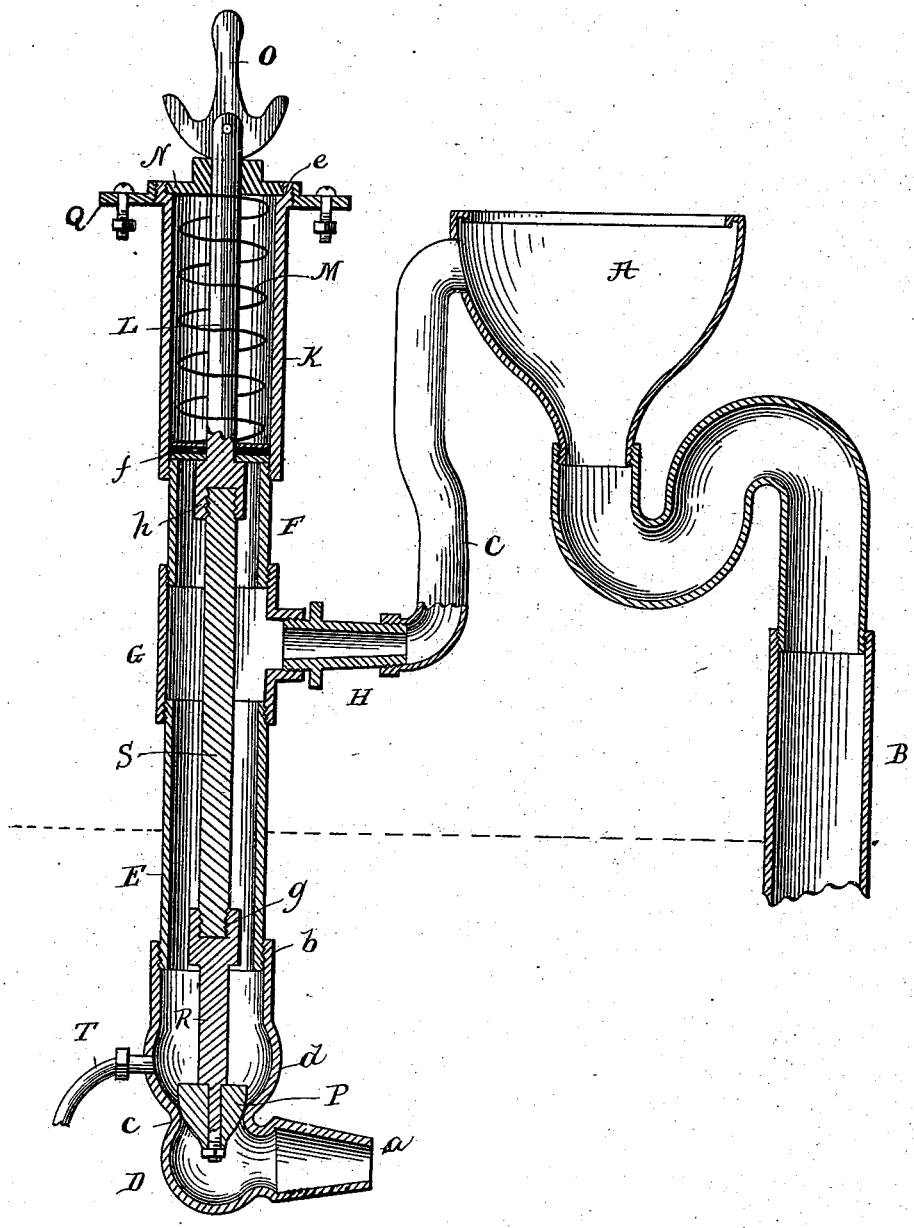
(No Model.)

G. F. MARSHALL.

VALVE CONNECTION FOR HOPPER WATER CLOSETS.

No. 382,820. Patented May 15, 1888.



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UNITED STATES PATENT OFFICE.

GEORGE F. MARSHALL, OF BROOKLYN, NEW YORK.

VALVE-CONNECTION FOR HOPPER WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 382,820, dated May 15, 1888.

Application filed April 18, 1887. Serial No. 235,181. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. MARSHALL, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Valve-Connections for Hopper Water-Closets, of which the following is a specification.

My invention relates to valves for supplying flushing-water to hopper water-closets. It may be applicable in other connections, however.

The invention has for its object the devising of means whereby the water-supply valve, which is an adjunct of the usual hopper-closet, may be connected with the closet in such manner as that the expense and inconvenience of a specially-prepared inclosure or protecting structure are dispensed with and all liability of the valves freezing is obviated.

A further object is to render the valve easily capable of repairs without the necessity of disturbing the valve-casing or other parts of the valve structure, which, as ordinarily constructed, can only be gotten at for repairs by annoying and expensive excavations.

My invention will be hereinafter described, and is shown in the accompanying drawing, and the features of novelty for which Letters Patent are desired are pointed out in the claims at the end of this specification.

In the annexed drawing, forming a part of this specification, I show in a central vertical section a structure which illustrates my invention and its application to a common hopper-closet.

Referring to the drawing, A indicates the hopper-closet; B, a soil-pipe, and C the pipe adapted to supply the flush-water to the closet.

D indicates an elbow, which connects at the end *a* with the water-supply under pressure, and whose opposite end, *b*, is screw-threaded to receive the extension pipe-section E. The coupling D is preferably made of brass, and in the act of casting is formed with a constricted portion, *c*, whereby a suitable valve-seat is provided. Above this constricted portion *c* the elbow is enlarged, as shown at *d*, in order that when the valve is raised off its seat it will not materially interfere with the inflowing water-supply.

F also represents an extension pipe-section, between which and the lower pipe-section, E—both of which pipe-sections are preferably of wrought-iron—there is located the T-coupling G, also of wrought-iron, into which is secured the brass coupling device H, which receives the pipe C, which supplies the closet with the flush-water. To the top of the extension pipe-section F there is secured, by screw-threads or otherwise, the casing K, through which passes the valve-rod L, and which contains the compression-spring M. The casing K is preferably of brass, and is provided at its upper end with a vertical flange, *e*, furnishing a seating-surface for the cap N, which is held in position by screw-threads or otherwise, and through which the valve-rod L projects, and whose upper end is supplied with a rocking lever, O, of well-known type, whereby the valve-rod is operated for opening and closing the valve P. The external circumference of the flange *e* may be screw-threaded to receive the usual plate, Q, which is adapted to be secured to the closet-seat by screws and nuts, or otherwise.

The valve-rod L is provided with an enlargement at its lower end, upon which is seated the disk *f*, upon which rests the compression-spring M. The disk *f* is also adapted to bear upon the upper end of the extension pipe-section F, and it is composed of material adapting it for service as a packing to prevent the passage of water into the casing K, this being one of its principal functions.

The valve P is secured upon the lower end of the rod R preferably in the manner shown. The upper end of the rod R is enlarged and provided with a screw-threaded depression, *g*, corresponding to the screw-threaded depression *h* in the enlarged lower end of the rod L. These screw-threaded depressions are adapted to receive the ends of the extension connecting-rod S, as shown.

The elbow-coupling D is provided above the valve-seat with a drain-pipe, T, which connects with the sewer, and which is adapted to drain off the water that may remain in the structure above the valve-seat after the water-supply has been shut off.

In practice the elbow-coupling D, which contains the valve-seat, will be located permanently beneath the surface of the ground sufficiently deep to avoid all liability from the effects of freezing. The distance between the top of said elbow D and the bottom of the cas-

ing K, when the latter is placed in position upon the closet-casing, may vary with different localities, and it is one of the purposes of my invention to render a structure such as herein described readily applicable under any conditions that may arise. I therefore provide the extension pipe-sections E and F, with which the T-coupling G co-operates, as well as the extension rod-section S, of lengths suitable for the special service, so that while in some cases the said extension pipe-sections and extension rod-section may be a few feet in length in other cases they may be many times greater in length, so that practically it is immaterial, within certain limits, what the distance may be between the valve-seat coupling and the means for operating the valve-rod.

Under my plan of construction the valve may be reached for repairs, notwithstanding it may be located beneath the surface of the ground a considerable depth, without any excavation or tearing up of the structure. This is accomplished by disconnecting the cap N at the top of the casing K and withdrawing the rods L, S, and R with the attached valve, the diameter of the conduit between the valve-seat and the top of the casing K being sufficient to permit the withdrawal of the entire interior mechanism. By this means repairs may be cheaply and quickly accomplished.

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

1. In a valve-connection for supplying flush-water to hopper water-closets, the combination of the seat-plate Q, having the screw-threaded central aperture, the cylindrical casing K, having the screw-threaded flange *e*, screwed into the aperture of the plate, the cap N, screwed into the upper end of the casing, the valve-rod sliding through the cap, and the rocking cam-lever bearing against the cap and pivoted in the upper end of the valve-rod, as shown, and for the purpose specified.

2. In a valve-connection for the flush-water in hopper water-closets, the seat-plate Q, the guide-cap N, the upper casing, K, and the lower casing, E, their intermediate couplings, F and G, the latter having the hopper-connecting pipe H, and the supply-coupling D at the lower end of the lower casing, having the seat-forming constriction *c* of curved walls, forming the valve-seat centrally in line with the guideway in the cap, and having the drain-pipe T above said constriction and the supply branch *a* below said constriction, in combination with the elongated valve P, having curved walls, and its connecting-rod, whereby the said cap forms the guide for the valve-rod and the said curved constriction forms a centering guide and seat for the valve, as set forth.

Signed at New York, in the county of New York and State of New York, this 9th day of April, A. D. 1887.

GEO. F. MARSHALL.

Witnesses:
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