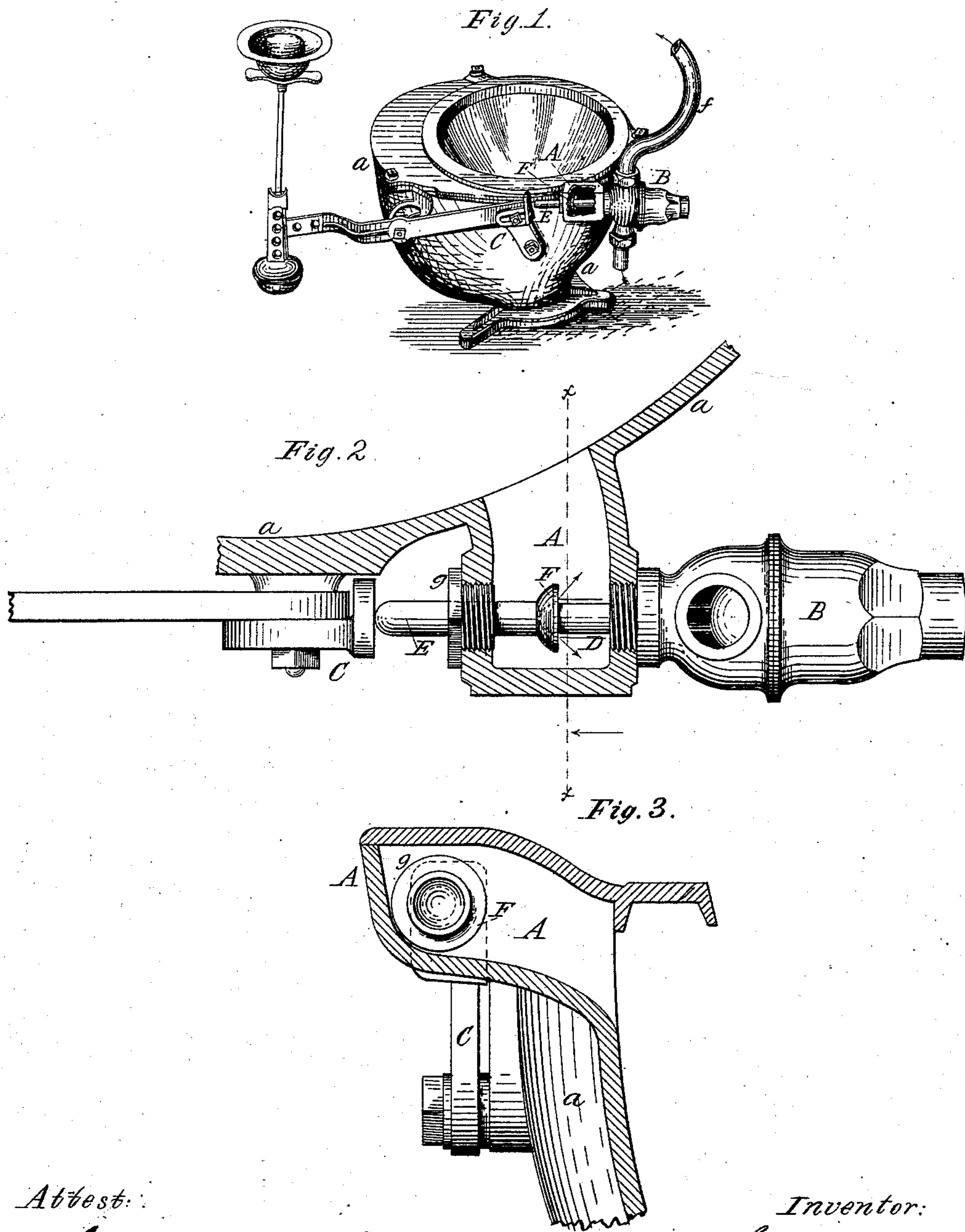


H. H. CRAIGIE.
Water-Closet.

No. 216,312.

Patented June 10, 1879.



Attest:

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UNITED STATES PATENT OFFICE.

HUGH H. CRAIGIE, OF STAMFORD, CONNECTICUT, ASSIGNOR TO JULIA CRAIGIE, OF SAME PLACE.

IMPROVEMENT IN WATER-CLOSETS.

Specification forming part of Letters Patent No. **216,312**, dated June 10, 1879; application filed November 16, 1878.

To all whom it may concern:

Be it known that I, HUGH H. CRAIGIE, of Stamford, Fairfield county, Connecticut, (assignor to JULIA CRAIGIE, of same place,) have invented certain new and useful Improvements in Water-Closets, of which the following is a specification.

My invention relates to the connection of the valve with the hopper of the closet; and it lies in a novel construction and arrangement of the valve-stem and valve with relation to a hollow projecting arm or lug on the side of the hopper, by which the main advantages of simplicity, compactness, and directness of action are obtained insuring also additional advantages, as hereinafter set forth.

Figure 1 of the drawings annexed represents a perspective view of the lower part or hopper of a water-closet and its connections embodying my improvements, a part of the hollow arm in which the valve-stem is inclosed being broken away to show the interior. Fig. 2 is a fragmentary plan of that part which embodies my invention, the hollow arm and the portion of the hopper being in section; and Fig. 3 is a fragmentary vertical section of the same part on line *x x*.

In the construction of water-closets, as is well known, many methods of connecting the valve therewith so that the drip therefrom shall be conducted into the hopper have been employed. In one class a drip-pan is arranged under the valve, from which a drip-channel extends to the interior of the hopper, the valve being situated entirely outside the hopper, and its stem being packed to avoid leakage as much as possible. In another class the neck and stem of the valve are inclosed, or practically inclosed, in the hopper and packing of the stem is dispensed with. In this latter class the valve is in some instances placed directly on the top of the hopper over the axis of the pan, the neck and stem extending down into the hopper, into which the drip from the valve falls, while in other instances the valve is placed on the top of a hollow arm projecting from the front side of the hopper, with which it has open communication, so that the drip from the valve is conducted thereinto. In these instances of the latter class, however, the arrangement of parts is more or less com-

plicated, inconvenient, and unnecessarily expensive, and is such that directness of action between the pull or valve lever and the valve cannot be obtained, so that additional and intermediate devices are employed, and these are the main objections which I now aim to avoid.

Now, in my present invention I attach the valve to a hollow lug on the front side of the hopper, which incloses the neck and stem of the valve, this lug being of simpler and neater form than heretofore used, and the connection of the valve and valve-stem with reference thereto and to the pull-lever, as well as the construction of the valve-stem itself, is novel and advantageous, and in this the invention consists.

Accordingly, as shown in the drawings, A is a hollow lug, which projects laterally from the front side of the hopper *a a* at the upper edge thereof, being cast solidly on the hopper, and is of a compact and neat form, as shown.

The interior of the lug has open communication with the interior of the hopper, and it takes a slight upward inclination from its connection therewith, so that any drip from the neck of the valve, which projects into the lug, will at once trickle downward into the hopper, as shown in Figs. 2 and 3.

B is the valve, which is of the usual kind, and which is attached directly to one side of the lug, arranged horizontally, as shown, with its neck and stem projecting into the interior of the lug, while the stem extends directly through the lug and projects from the opposite side, where it receives the direct contact of the pressing end of the pull-lever C, by which the valve is directly actuated in a simple and positive manner, as shown. The valve is secured to the lug by screwing its threaded neck directly into a hole tapped through the side of the lug, as shown in Fig. 2, a tight joint being effected by screwing up the shoulder on the neck, which is fitted with a packing-washer tight against the side of the lug. This threaded neck is usually fitted with a packing-gland, which in this construction is dispensed with, and the threaded neck made to serve the means of attaching the valve to the lug. The valve-stem, which thus works without packing, passes through the usual

close but free-fitting bore in the neck of the valve, and as this neck opens directly into the lug, all drip that takes place therefrom when the valve is opened is at once conducted safely into the hopper. The valve-stem thus works easier in not being packed, while the drip therefrom is not only no objection, but an advantage, which I specially seek, for it may be observed that the slight leakage which the unpacked neck thus permits around the valve-stem enables the pipe *f*, which leads from the valve to the horn of the basin, to empty itself back into the hopper after the valve closes, thus preventing the continued presence of water therein, which in cold weather would be sometimes likely to freeze and clog the action of the closet.

The valve-stem is preferably made in two parts, *D* being the main stem, which projects a short distance from the neck, and terminates at about the center of the lug, while *E* is a supplementary stem, which is formed separate from the main stem, but arranged in direct line therewith, as shown, its inner end being formed with a concave disk, *F*, which sockets against and over the end of the main stem, while its outer end extends through the opposite side of the lug, being guided in a close but free-fitting bore in the nipple *g*, which is screwed into the side of the lug, in line with and opposite the neck of the valve, as shown. The supplementary stem thus conveys the action of the pull-lever in a direct line to the main stem, while the disk arrests the spurt of water that may issue from the neck of the valve and deflects it laterally into the lug, thus preventing its escape from the lug along the line of the stem, which might otherwise occur.

I prefer to employ the supplementary stem and deflecting-disk, formed as shown; but this is not essential, as the deflecting-disk may be formed separate, and slipped tightly, as an embracing-ring, onto the main stem before the same is inserted in the lug. Furthermore, the valve stem may be formed in one elongated piece, extended continuously through the lug, thus dispensing with the supplementary stem; but for practical reasons these modifications are not generally desirable.

It may now be seen that by this construc-

tion and arrangement a direct action between the pull-lever and valve is secured, the valve works easier and more efficiently, while the leakage is safely conducted into the hopper, and the horn-pipe emptied after each action, while the entire construction is simple and compact, the disposition of the parts being convenient and accessible for examination or repairs, while the cost is considerably reduced.

It is usually preferable to arrange the valve horizontally on the lug, as shown; but it may also be arranged vertically, the neck being screwed on the under side of the lug, and the stem rising vertically through the same, the end of the pull-lever being extended to bear directly down on the stem.

What I claim is—

1. In a water-closet, the combination, with a hollow lug, *A*, projecting from the hopper or connecting therewith, of the water-valve *B*, connecting directly to one side of the lug, with its unpacked neck opening into the same, while the spindle or valve-stem extends directly through the lug and projects from the opposite side, where it receives the direct action of the pull-lever, substantially as and for the purpose set forth.

2. In a water-closet, the combination, with a hollow lug projecting from or connecting with the hopper and with a water-valve attached thereto, having its neck and stem extending into one side of the lug, the supplementary stem *E*, extending through the opposite side of the lug in line with the main stem, with its inner end bearing against the same, and its outer end arranged to receive the action of the pull-lever, substantially as shown and described.

3. In a water-closet, in combination with a hollow lug projecting from or connecting with the hopper, and arranged to receive the drip from the valve, with the valve connecting to one side of the lug, and having its neck and stem extended within the same, a deflecting-disk, *F*, fitted on the stem within the lug, substantially as and for the purpose set forth.

HUGH H. CRAIGIE.

Witnesses:

CHAS. M. HIGGINS,
JOHN E. GAVIN.