

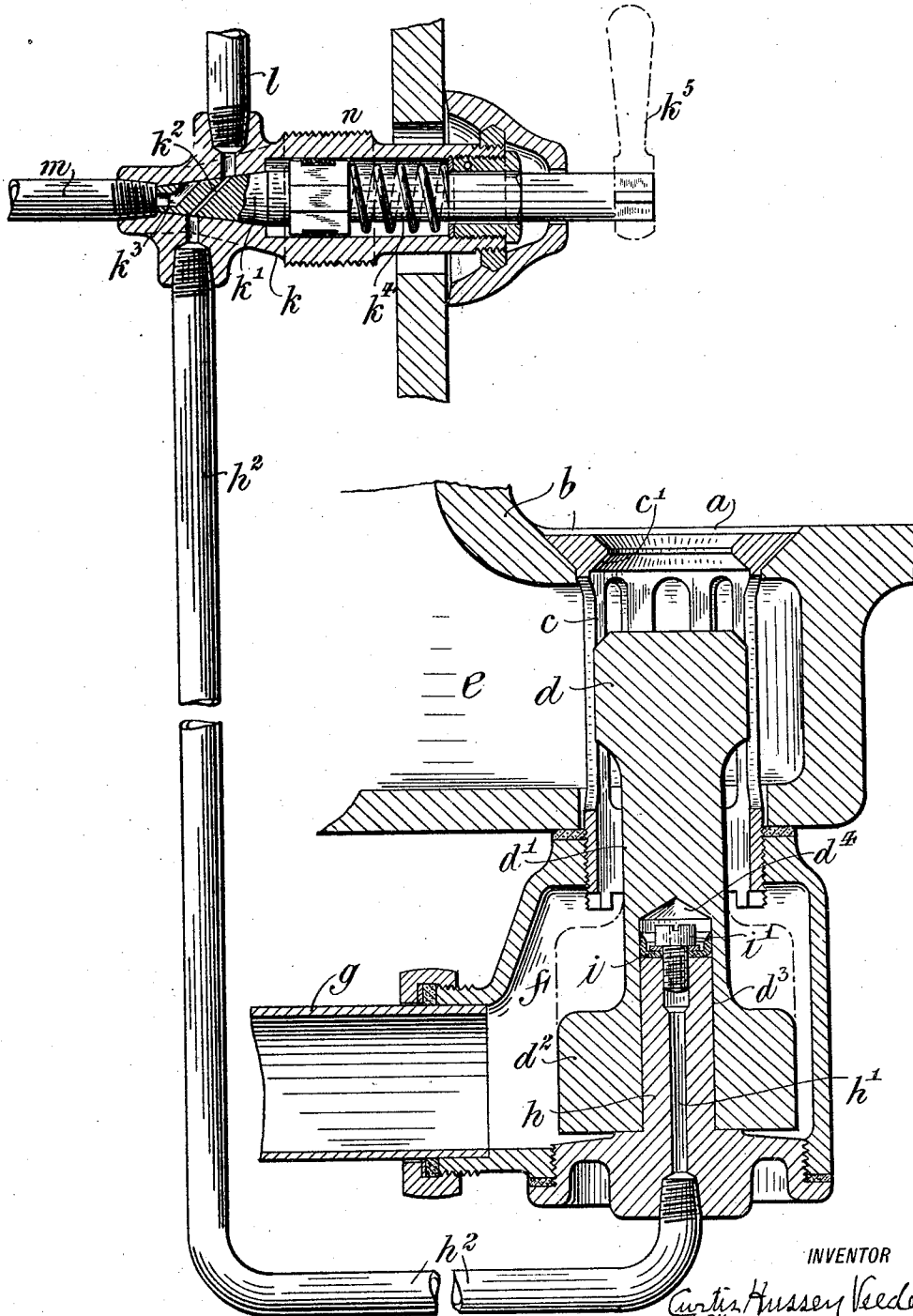
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WASTE VALVE FOR BATHTUBS, ETC

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WASTE VALVE FOR BATHTUBS, ETC.

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In an application of George Hiram Henrietta for Letters Patent of the United States for improvements in waste plugs or valves for bathtubs and lavatories, filed concurrently herewith, there is shown and described hydraulic means for operating such a valve, the valve being carried by a piston subject to pressure supplied from the water pipe under control of a hand-operated valve. In that application the valve is shown as of the "pop-up" type, being raised by the applied hydraulic pressure above the bottom of the tub or lavatory to permit the discharge of water therefrom and being also moved by the applied hydraulic pressure to its closed position. The present invention is concerned with the application of hydraulic pressure to the operation of a "pop-down" valve, which is preferable to the "pop-up" valve because it leaves the bottom of the tub or lavatory unobstructed and therefore more easily kept clean. In the operation of a "pop-down" valve, moreover, the pressure of the water in the tube or lavatory is added to the weight of the valve itself and its connected parts when the lifting pressure is relieved and the operating devices, in the present instance, are therefore so constructed as to dispense with the application of pressure for the purpose of moving the valve downward from its seat to discharge the contents of the tub or lavatory. A valve which moves downward to its open position can therefore be actuated by a single connection to the control valve and moreover, when open, will remain open by its own weight.

The invention will be more fully explained hereinafter with reference to the accompanying drawings in which it is illustrated and in which the single figure illustrates, partly in elevation and partly in vertical section, the application of hydraulic operating means to the operation of a "pop-down" waste valve for a lavatory.

The outlet *a* in the bottom of the lavatory *b* is shown as having fitted therein a skeleton sleeve *c* which is formed at its upper end with a seat *c'* against which the valve plug *d* is seated when the valve is closed. In the construction shown the skeleton sleeve *c* forms a guide for the valve plug *d* and the water which escapes through the outlet *a*, when the valve plug is lowered from the seat, escapes through the openings in the sleeve *c* above the valve plug *d*, into a chamber *e* and thence, through the openings in the

skeleton sleeve *c*, below the head of the valve plug and around its stem into a lower chamber *f* to which is connected the usual discharge pipe *g*. The head *d* of the valve plug is shown in this instance as carried by a reduced stem *d'* which, for added weight, is enlarged at its lower end as at *d²* and is chambered, as at *d³*, to have a free working fit on a fixed, centrally bored spindle *h* which is suitably seated in the bottom of the chamber *f* and has its bore *h'* connected with the water supply system through a suitable pipe *h²*. A suitable cup packing *i* may be secured to the upper end of the spindle *h* by a centrally bored screw *i'*. It will be understood that the stem *d'* with its reaction surface *d⁴*, exposed to the pressure admitted through the pipe *h²*, constitutes in effect a piston which carries the valve plug *d*, subject to the hydraulic pressure in the pipe *h²*.

At its other end the pipe *h²* is connected to a three-way control valve *k*, the body of which has connected thereto a water supply pipe *l* and an exhaust or discharge pipe *m*. The valve plug *k'* is formed with suitable passages *k²* and *k³* through which water under pressure is admitted from the pipe *l* to the pipe *h²* and through which the pipe *h²* may be connected to the pipe *m* to relieve the pressure in the pipe *h²*. The channeled plug *k'* is carried by a stem *k⁴* in a suitable stuffing-box *n* and is provided with an operating handle *k⁵*.

It will now be understood that when the pressure in the water pipe system is admitted through the control valve *k*, the pipe *h²* and the bored stem or spindle *h* and is exerted upon the piston surface *d⁴*, the valve plug *d* will be raised against the seat *c'* and will be held there as long as the pressure is maintained, even though the control valve *k* be turned to cut off the connection to the water supply pipe. When, however, the valve plug *d'* is turned to establish communication between the connecting pipe *h²* and the exhaust pipe *m*, the pressure against the piston surface *d⁴* will be relieved and the valve plug *d* will fall from its seat by its own weight with the added pressure of the water in the tub or lavatory upon it. It is therefore unnecessary, in this instance, to provide pressure means to move the valve plug from its seat, in the opening thereof and unnecessary to provide for more than one connection from the waste valve to the control valve.

I claim as my invention:

1. In a waste valve for bath tubs, etc., the combination of a valve seat, a valve plug movable under the action of gravity from the valve seat to open the outlet, a member supporting the valve plug and having a piston surface, and means to admit fluid to exert pressure against the piston surface to move the valve plug against the action of gravity to its seat.

2. In a waste valve for bath tubs, etc., the combination of a valve seat, a valve plug movable under the action of gravity from the valve seat to open the outlet, a member supporting the valve plug and having a piston surface, means to admit fluid to exert pressure against the piston surface to move the valve plug against the action of

gravity to its seat, and a hand-operated valve to control the admission of fluid under pressure to act against the piston surface.

3. In a waste valve for bath tubs, etc., the combination of a valve seat, a valve plug movable under the action of gravity from the valve seat to open the outlet, a centrally bored stem supporting the valve plug and movable therewith, a centrally bored spindle fitted within the bore of the valve stem and itself centrally bored, and a control valve having a connection to a source of fluid pressure, a connection to the bore of said spindle, and a waste connection.

This specification signed this 13 day of April A. D. 1926.

CURTIS HUSSEY VEEDER.