No. 648,207. Patented Apr. 24, 1900.

W. J. HOUGH.

TRAP FOR WASTE PIPES OF SINKS, &c.

(Application filed Dec. 11, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 2.

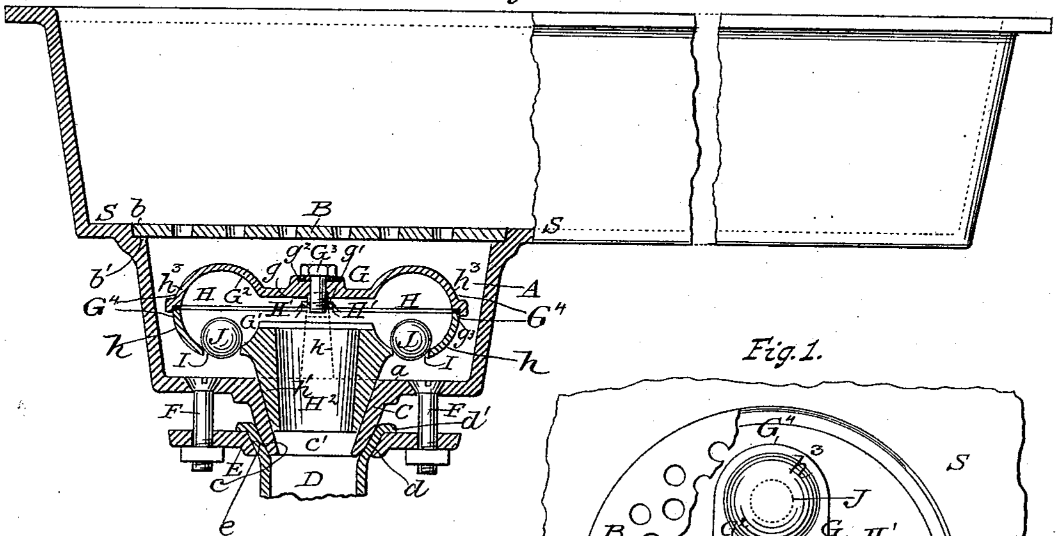

Fig. 1.

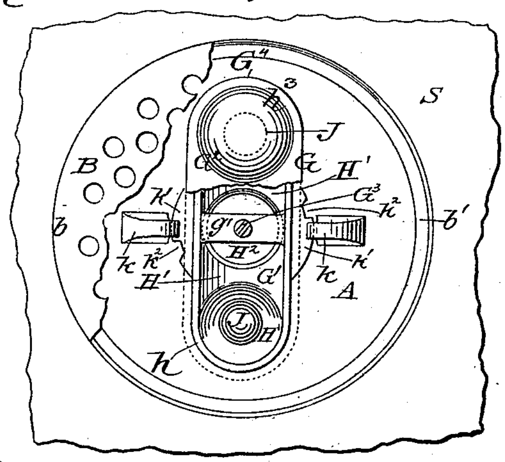

Fig. 3.

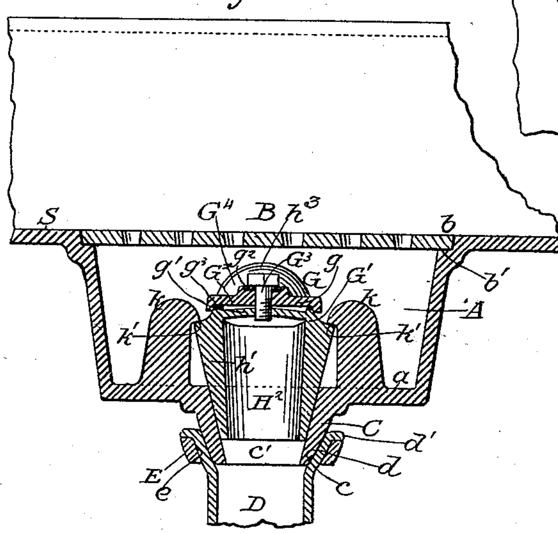

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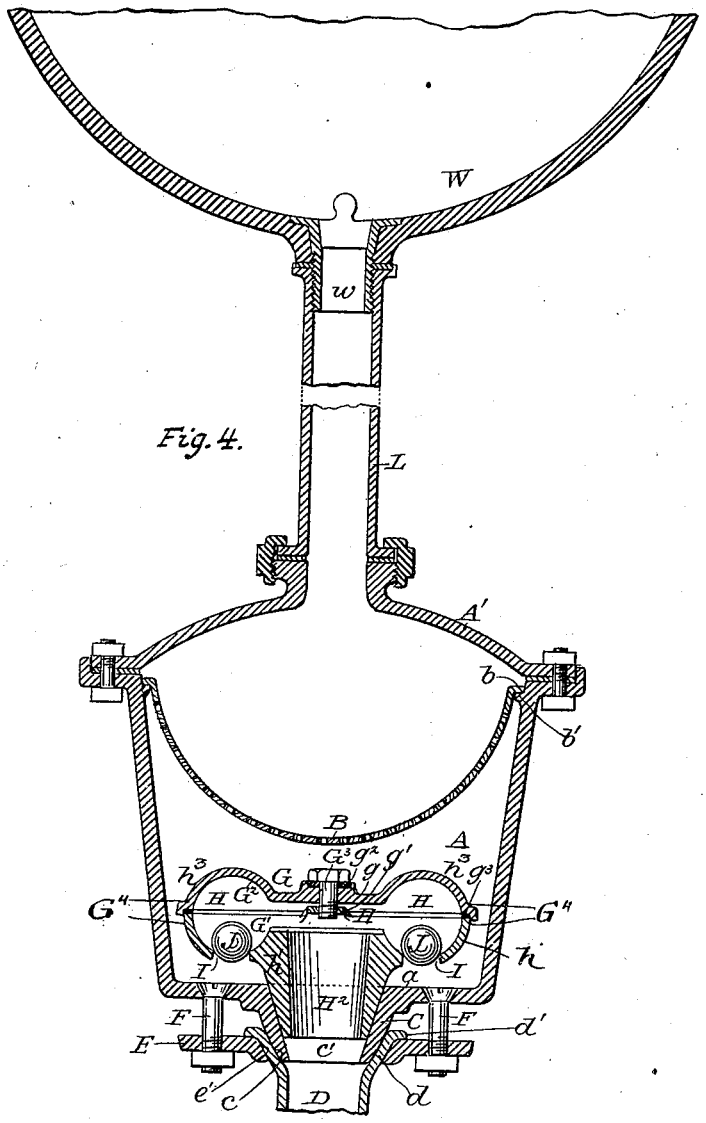
Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM J. HOUGH, OF ALBANY, NEW YORK, ASSIGNOR OF SEVEN-TWENTIETHS TO SIMON F. FRASER, OF SAME PLACE.

TRAP FOR WASTE-PIPES OF SINKS, &c.

SPECIFICATION forming part of Letters Patent No. 648,207, dated April 24, 1900.

Application filed December 11, 1899. Serial No. 739,961. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. HOUGH, a citizen of the United States, and a resident of the city of Albany, in the county of Albany and State of New York, have invented new and useful Improvements in Traps for Waste-Pipes of Sinks, &c., of which the following is a specification.

My invention relates to traps for use with waste-pipes of sinks, washbowls, bath-tubs, and other vessels from which waste water is discharged; and it consists of the novel devices and combinations of parts and devices, as hereinafter described, and set forth in the claims.

The objects and advantages of the invention will be fully understood from the following description and the claims when taken in connection with the annexed drawings, forming a part of this specification, in which—

Figure 1 is a plan embodying my invention, showing parts broken away for exposing hidden parts in the same. Fig. 2 is a section illustrating the same applied to a sink. Fig. 3 is a section of the same, taken in the transverse at the line of the vertical axis of the waste-pipe in Fig. 2. Fig. 4 is a section illustrating my invention applied to a washbowl.

Similar letters of reference refer to similar parts throughout the several views.

In the drawings, A is a well having its walls of metal and water-tight, and is provided with a removable strainer B, which may be flat or concavo-convex or of any other suitable form.

C is a bush which is circular in form and integral with bottom a of said well and has its lower end portion provided with the inclined seating-surface c, and its bore c' is made tapering from its upper to its lower end to adapt it to serve as a taper-form seat for the hollow or perforated stem of the body of the trap supported in the said well.

D is the waste-pipe, the upper end of which is flared outwardly in its walls all around at an angle of incline corresponding with the incline of the seating-surface c of bush C, which this flaring portion receives, and also is provided with rim d', which is integral with the flaring portion of said waste-pipe.

E is a coupling collar or piece having a central perforation e of size and form adapted to receive the flaring portion d of the upper end of the waste-pipe below its rim d'.

F F are suitable coupling-bolts which bolt with the bottom of the well A and the lateral flanges e' of said collar E, as practiced by the trade for securing a waste-pipe to a discharge-nipple of a water vessel.

G is the body of the trap, which body is sectional and comprises the lower-half piece G′ and the upper-half piece G^2, which latter is removable at pleasure from the former. These pieces G′ G^2 are secured together by any suitable means, so as to be water-tight in their joints. The lower-half piece G′ comprises two or more cup-form walls h, having intake-openings I in their lower sides and integral with the centrally-perforated swiveling stem h'. These cup-form walls h are projected horizontally outward from the upper end of said stem h', while the lower-half portion of said stem is on an inclination of outside surface which is in correspondence with the inclination of the inner surface of the wall of the bore c of the bush in which the stem h' is to be seated. The upper-half piece G^2 of this trap-body comprises in a single-piece horizontal portion g, integral with the inverted-cup-form walls h^3, which latter are in number, diameter, and relative position corresponding with the cup-form walls h in the coacting half-piece G′ with which this upper piece G^2 is secured. In small sizes of these traps these two pieces G′ G^2 may be secured together by means of binding-screw G^3, passed through the upper side wall g of piece G^2 and screwing into the bar g', connected to the lower piece G′, and a packing-washer g^2 between the head of said screw and wall g produces a water-tight joint between the latter and said screw. A suitable packing substance g^3 between the pieces G′ G^2 at their outer edges makes the joint of said pieces water-tight. When these sections or pieces G′ G^2 of the trap are secured together as shown, the wall portions h h^3 of these pieces produce the lobes G^4, which inclose by each pair of said walls a valve-chamber H, having communication with the vertical discharge-opening H^2 through the horizontal passage-ways H′, contained between the horizontal

wall portion g of piece G^2 and the upper end portion of the stem h' of piece G'. Within each valve-chamber H of the series in the trap is a suitable valve J, which operates independently of those in the other valve-chambers. These valves J work upwardly within the said chambers, and I at present prefer them to be of the kind known as "ball-valves," having their diameters larger than those of the intake-openings I. They are intended to open for entrance of water into the trap and to close against backflow of either water or gas, and they are of any suitable substance not liable to be affected or changed by action of water.

This trap is shown to be in the lower portion of the well A and supported by its stem h' from the inclined internal seat c, formed in the depending bush C, and may be held from raising out of place by any suitable means, yet I prefer to secure traps of small size for ordinary house use with interlocking devices, as catching devices k, connected with the upper end portion of bush C and the coacting inclined holding-lips k', made integral with the outer side of stem h' of the trap.

In Figs. 1, 2, and 3 this invention is shown to be applied to an ordinary kitchen-sink and the said well A is shown to be sunk below the plane of the bottom s of the sink, while the strainer B is shown to be flat and on a plane with the said bottom s.

In Fig. 4 the invention is shown in section to be applied to a washbowl W by being connected with the usual discharge-bush w by means of a pipe L of suitable size and length and coupled in a water-tight manner to said discharge-bush and the close cover A' of the well A, which latter is shown to be provided with a removable strainer B, having a concave form of upper side and seated by its rim b on a suitable support b', integral with the side walls of said well. The trap and the adjuncts thereof and mode of coupling the waste-pipe W are all made, preferably, as shown in Figs. 1, 2, and 3.

Although the trap-body G is shown to comprise two lobes h h, yet in some cases traps comprising three or more lobes h (having their chambers H and their inlet-openings I, having valves J and communicating with the discharge-opening H^2) may be employed to secure large capacity without departing from the spirit of this invention. This well and its inclosed trap and their adjuncts may be applied to washbowls, sinks, bath-tubs, wash-tubs, cesspools, or other water-receptacles with great advantage in that the said strainer prevents coarse foreign substances passing into the well, while settlings of substances of greater specific gravity than the water into the lower portion of the well, below the trap, is provided for, so that such substances may not be carried into the inlet-openings to the chambers of the lobes to foul the same; further, access may readily be had to the chamber of the well for removal of any accumulations therein of foreign substances.

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

1. In a trap for sinks, waste-pipes, &c., a sectional trap formed by the combination with a lower section or piece G', comprising a downwardly-projected central stem having through it the discharge-opening from the trap and tapering outer side to adapt said stem to seat in a tapering seat so as to be readily removed therefrom, two or more similar cup-form walls h integral with said tapering perforated stem and extended horizontally from the upper end portion of the latter and provided, each in its lower side with an intake-opening I, of an upper section or piece G^2 comprising a series of inverted-cup-form walls h^3, in number, dimensions and relative arrangement corresponding with those in lower section G', and made integral with a horizontal middle portion g, means described securing said sections together in a water-tight manner, and producing between said walls h h^3 valve-chambers H, and horizontal passage-ways communicating from said chambers to the discharge-opening in said central stem and valves within said chambers adapted to open and close the intake-openings thereto, substantially as and for the purposes set forth.

2. In a trap for sinks, waste-pipes, &c., a sectional trap formed by the combination with the lower section G' thereof comprising the depending tapering central stem h' having through it vertical discharge-opening H^2 and two cup-form walls h integral with said perforated central stem and provided each with intake-openings I, in lower sides thereof, and the upper section G' secured water-tight to the said section G^2 and comprising the inverted-cup-form walls h^3 and middle horizontal wall portion g, thereby inclosing two similar valve-chambers and horizontal chambers which together communicate from the intake-openings I to the central discharge-opening H^2, of ball-valves J adapted to close and open the said intake-openings, substantially as and for the purposes set forth.

3. In a trap for sinks, waste-pipes, &c., the combination with section G' provided with a depending tapering and centrally-perforated stem h', upper section G^2 secured to said section G and removable at pleasure therefrom, two valve-chambers H H having each an intake-opening I in the lower side of section G', and horizontal passage-way H' leading from each intake-opening to the perforation in said central stem, of ball-valves J contained between said two sections G' G^2 and adapted to close and open said intake-openings, substantially as and for the purposes set forth.

4. The combination with well A, removable strainer B through which said well is communicated to from a water-receptacle above, bush C integral with the bottom of said well

and provided with external inclined seat-surface *c* and central bore *c'*, and the catching devices *k k* suitably connected with the walls of said well, of a trap comprising a removable upper section G^2, a swiveling stem *h'* having external lips *k'* and central discharge-opening H^2 communicating to the discharge-opening of said bush, and one or more lobes having each chamber H and lower side inlet I which communicates with horizontal chamber H' leading to the central bore of the stem of the trap, and a valve within each chamber of the lobes and adapted to open and close the inlet-opening of the same, substantially as and for the purposes set forth.

5. In a trap for waste-pipes, sinks, &c., the combination with trap-body G having a depending tapering central stem *h'* containing discharge-opening H^2 which leads from the chambers of the said body and having one or more intake-openings communicating from below the said body to the chambers within the same, and ball-valves adapted to close and open said intake-openings, of a well containing within its chamber the said trap-body, a strainer closing the upper end of said well and a central bush C, depending from the bottom wall of said well and having a tapering central opening, which receives the central stem *h'*, and is provided with the annular inclined seat *c*, waste-pipe D having the outward-flaring upper end portion *d*, and the coupling-collar E, provided with waste-pipe seat *e'*, and means described for tightening said coupling-collar on said flaring upper end *d* of said waste-pipe, substantially as and for the purposes set forth.

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