

No. 652,667.

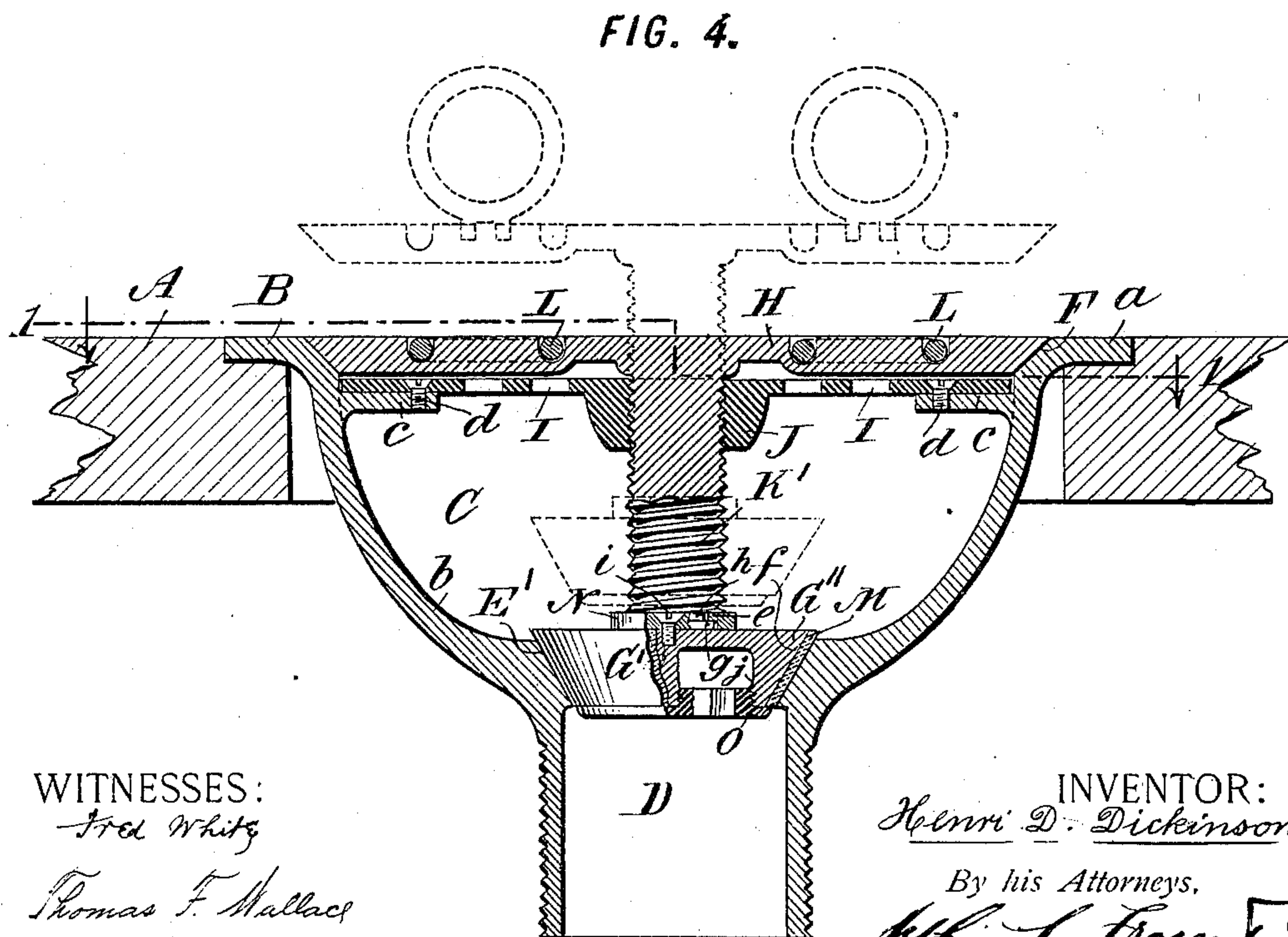
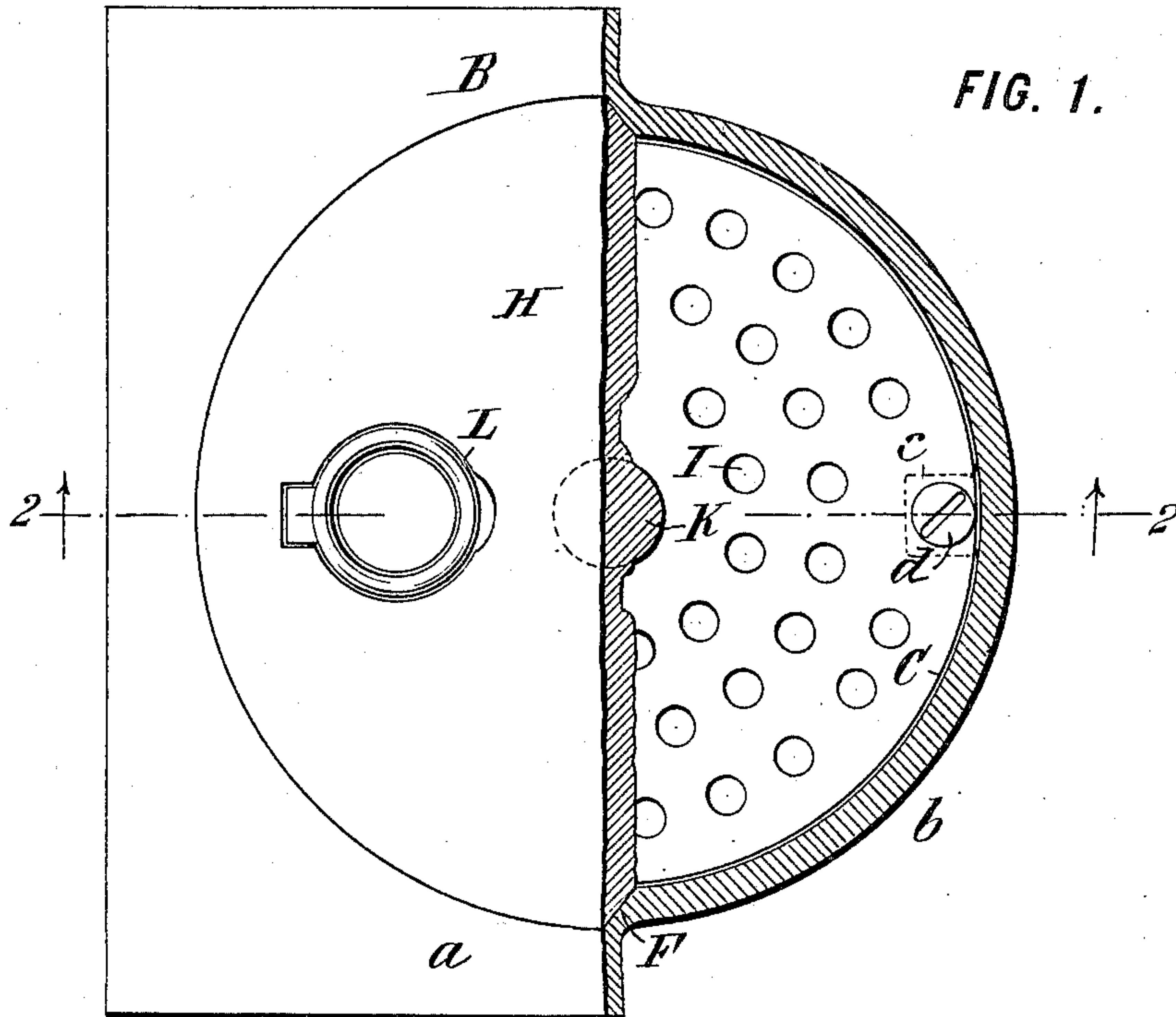
Patented June 26, 1900.

H. D. DICKINSON.
FLOOR DRAIN TRAP.

(Application filed Oct. 1, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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FIG. 2.

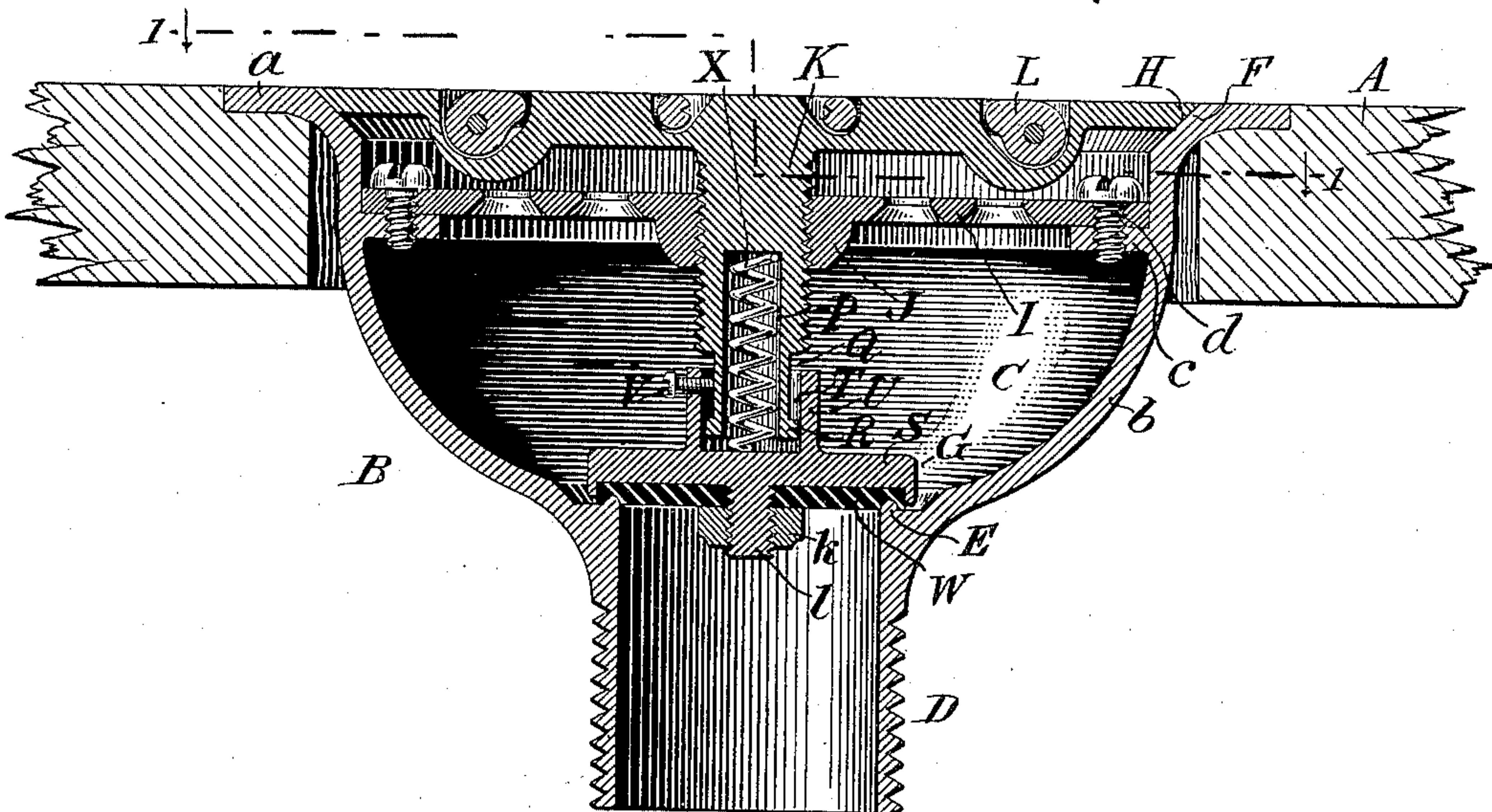
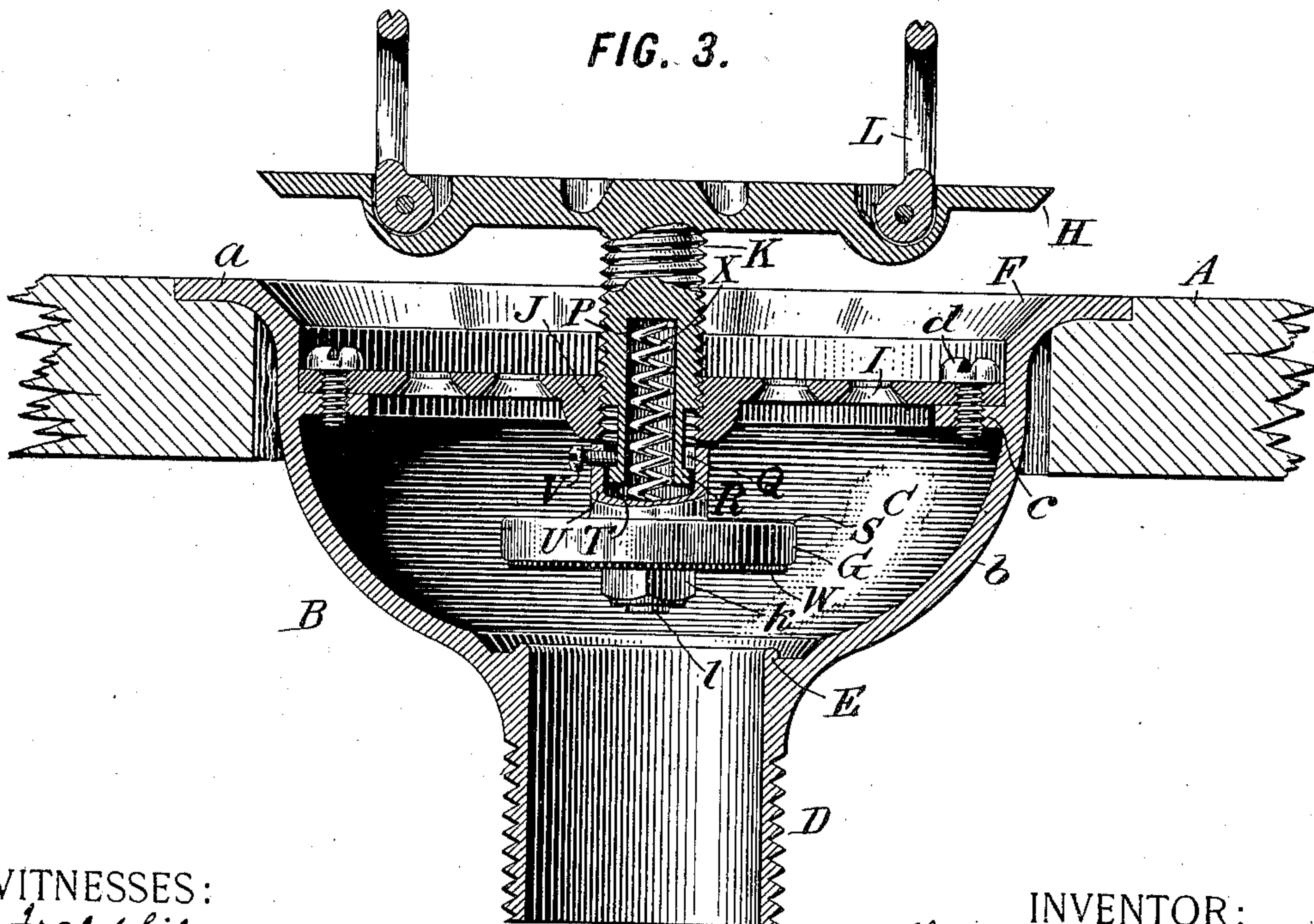


FIG. 3.



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UNITED STATES PATENT OFFICE.

HENRI D. DICKINSON, OF NEW YORK, N. Y., ASSIGNOR TO THE HENRY HUBER COMPANY, OF SAME PLACE.

FLOOR-DRAIN TRAP.

SPECIFICATION forming part of Letters Patent No. 652,667, dated June 26, 1900.

Application filed October 1, 1897. Serial No. 653,689. (No model.)

To all whom it may concern:

Be it known that I, HENRI D. DICKINSON, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Floor-Drain Traps and the Like, of which the following is a specification.

This invention relates to drains and traps, and especially to devices of this character for draining floors.

The invention aims to provide an improved drain or trap valve which can be advantageously adapted for use in office-buildings, hospitals, and bath-houses and for other like uses.

In carrying out the preferred form of my present invention I provide a bowl or vessel adapted to be set into the floor with its top flush therewith and having two valve-seats, an inner one closing its outlet-opening communicating with a drainage or waste pipe and an outer one closing its floor-opening, and I provide two valves connected together and respectively seating on these seats and an intermediate strainer within the bowl, through which the stem of the valves passes and in which the stem makes a screw-thread or other suitable engagement, by means of which the valves can be adjusted to and held at different positions. The top valve is preferably flush with the floor and makes a complete closure of the interior bowl when in the closed position, while being sustained some distance above the floor when in the open position. The inner valve closes communication between the bowl and waste-pipe when seated and rises to between the outlet and the strainer when unseated. I also provide certain other features of improvement, which will be hereinafter fully set forth.

In the accompanying drawings, which illustrate the preferred form of my invention as adapted to a floor-drain, Figure 1 is a plan view of my improved floor-drain, the right-hand side of the view being broken out and showing the drain in section on the line 1 1 in Figs. 2 and 4. Fig. 2 is a vertical axial section of the drain when closed, cut on the line 2 2 in Fig. 1. Fig. 3 is a vertical axial section of the drain when open; and Fig. 4 is a vertical axial section of a modification,

the valve-stem and inner valve being partly in elevation, the valves being shown in the closed position in full lines and in the open position in dotted lines.

Referring to the drawings, let A indicate the floor or other surface to be drained; B, the improved drain valve or trap as a whole; C, the bowl thereof, and D the waste-pipe thereof. These parts may be of any usual or suitable construction.

According to my improvements the trap is constructed with a valve-seat E between the bowl and waste-pipe and with another valve-seat F at the top of the bowl, the bowl being preferably constructed with an integral flange *a*, projecting from its bulbous side walls *b*, at the junction of which flange and walls the seat F is preferably formed. A valve G is provided within the bowl for closing on the seat E, and a second valve H is provided at the top of the bowl for closing on the seat F. The valves and seats may be of any usual construction, and the valves may be connected together in any suitable way; but I prefer to provide a single stem connecting the two valves, so that they will move together, and to make the upper valve a wide flat disk, preferably formed integrally with the stem and flush on its top face with the flange *a*, which in turn may be flush with the surface to be drained. Within the bowl, between the valves, I provide the strainer I, which is shown as a metal disk carried on lugs or projections *c* on the inner wall of the bowl, fixed in place thereon by screws *d* and having a central annular holder J, through which the stem K of the valves passes. Between the stem and holder interengaging provisions are supplied for holding the valves in the desired positions. Preferably the holder is internally screw-threaded, and the stem has an external thread engaging that of the holder, so that the stem can be screwed up and down through the holder, and thereby the valves can be adjusted and held in any desired position. Any suitable or equivalent provisions can, however, be employed.

To facilitate manipulating the valves, I prefer to provide ring-handles L on the top or cover valve H, hinged in sockets thereon, so that they can be lifted, as shown in Fig. 3,

and used as handles for revolving the valve to effect the desired adjustment.

The upper and lower valves move together and preferably seat at approximately the same time, one being preferably rotative relatively to the other and the lower being best constructed to meet its seat slightly in advance of the seating of the upper and to leave its seat slightly after the unseating of the upper valve. To this end the valves are rotatively and yieldingly connected together, preferably as shown in Figs. 2 and 3, wherein the valves proper at the opposite sides of the valve-carrying screen I are connected adjus-
tably to the latter by the stem K, the external threads of which mesh with the internal threads of the carrier J and the body of which is rigidly connected to the top valve and swiveled to the lower valve by an axially-
yielding connection. The stem K is shown as an integral part of the upper disk valve H, projecting downwardly from the center of the imperforate body thereof, having an internal socket P, an internal groove Q, and an external shoulder R on its inner end. The lower valve G is shown as having an imperforate metal disk S, having a socket T on its upper side receiving the head R, a flange U, surrounding the lower end of the stem, and a screw V, traversing the flange U and entering the groove Q above the head R, for preventing separation of the lower valve and stem. On its under side the disk has a packing-socket in which is fitted a slightly-yielding
packing-washer W, which is held in place by a nut *k*, screwed on a threaded stem *l* on the under side of the disk S. Between the disk and stem a stiff spring X is provided, the spring being preferably inclosed in the sockets P and T and of the requisite tension to the desired seating of the lower valve when the upper valve is seated. The spring reacts against the stem and the lower valve and throws the latter outwardly until the screw V engages the head R when the valve is in the open position. It yields when the lower valve seats to permit the upper valve to go to its seat.

The drain may be set into the floor in any suitable manner, as by being embedded therein, so that its top face is flush therewith. Any method of connection between the waste-pipe D and a soil or drain pipe may be employed. The pipe D is shown as screw-threaded.

In use the drain will be normally closed, its top valve being tightly seated, which will hold its lower valve also seated. Should draining be required, the valves will be screwed up until both are open, as shown in Fig. 3, whereupon water on the floor will escape through the drain, while the strainer I will catch any large objects flowing into the drain. On completion of the draining the drain will be again closed by screwing it down until the top valve is seated. Then the lower valve will make a tight joint with packing

material and the upper joint will make a metal joint, the lower valve excluding sewer-gas and backflow and the upper valve concealing the interior of the drain and preventing escape of odors therefrom or access of insects thereto. The valves cannot be lost or misplaced in ordinary operation and no special tool is required to operate the drain. For repair or renewal the valves can be readily removed by turning them to the open position, releasing the screen I, and then lifting the valves and screen out of the bowl.

It will be seen that my invention provides improvements which can be readily and advantageously availed of, and it will be understood that the invention is not limited to the particular details of construction, arrangement, and operation set forth as constituting its preferred form, but that it can be employed according to such modifications as circumstances or the judgment of those skilled in the art may dictate without departing from the spirit of the invention.

In the modification shown in Fig. 4 the construction is similar to that already described and the analogous parts bear the same letters of reference; but in this construction the lower valve G' is rotatively but unyieldingly connected to the stem K', and provision for yielding at the lower valve is made by supplying it with a yielding packing material M opposite the seat E', the seat and material having conical faces and the material being held on the body G'' of the lower valve by being forced over a conical wall *f* thereon by means of a hollow flanged thimble O screwing into an internally-threaded socket *j* in the under side of the body. The lower end of the stem here has a head *g* and groove *h*, and a plate N is fastened on the body G'' by screws *i*, which plate has a flange *e* passing over the head *g* and fitting the groove *h*, whereby the stem and body are rotatively fastened together.

What I claim is—

1. In drain-traps and the like, a bowl having an outlet and a valve-seat thereat, and an opening leading to said bowl, in combination with a strainer within said bowl and secured thereto, a valve proper in the latter engaging said seat, a stem for the valve proper, and an imperforate cover closing said opening above said strainer and stem and extending entirely across the top of the bowl.

2. In drain-traps and other devices, a bowl having a top edge for fitting in a floor or other surface to be drained, opening at said edge and there having a seat, and having an outlet from its interior beneath said seat, in combination with a valve for said bowl seating on the seat thereof and closing said opening, and substantially flush on its top surface with the top of said bowl, and a connection between said bowl and valve holding the latter seated.

3. In drain-traps and other devices, a bowl having a top opening and an outlet, in combination with a valve within the bowl closing

said outlet, and a cover at the outside of the bowl closing said opening to prevent ingress to the bowl, and substantially flush with the top thereof, a connection between the valve and cover connecting them to move together, and means for holding said valve and cover in their open positions.

4. In drains and other devices, a bowl, and a tubular collar J fixedly carried thereby, said bowl having an opening above said collar and an outlet below the latter, in combination with a cover closing said top opening, and a stem fixed to said cover traversing said collar and adjustable therein to hold the cover in its closed position.

5. In drains and other devices, a bowl C having a top opening and an outlet, in combination with a valve closing the latter and a cover closing the former, a stem connecting said parts, a strainer within the bowl and supported thereby between said parts and traversed by said stem, which is movable through said strainer to guide said valve and cover to their seats, and means for holding said valves in open positions.

6. In drains and other devices, a bowl having inlet and outlet openings, in combination with two valves one closing the outlet-opening and the other the inlet-opening, and one yielding valve, a stem connecting said valves and moving them together, whereby the yielding valve can yield until the other valve is seated, and means for holding said valves seated, whereby the former is kept on its seat under pressure.

7. In drains and other devices, a bowl C having a seat E and an opening F, and a strainer I fixed in said bowl, in combination with a valve G engaging said seat E, a cover H fitting said opening F and having a screw-threaded stem

carrying said valve on its inner end, and a screw-threaded collar J within said bowl and traversed by said stem, whereby by rotating said cover H, it and said valve can be adjusted to open or close said bowl.

8. In drains and other devices, a bowl having two seats, in combination with a carrier within said bowl between said seats, having an internal screw-thread, a screw-threaded valve-stem screwing through said carrier, valves at opposite sides of said carrier connected to said stem, one of said valves rotative relatively to the other, and means permitting one of said valves to yield relatively to said stem.

9. In drains and the like, a bowl having two seats, and a screw-threaded valve-carrier between said seats, in combination with valves engaging said seats respectively one above and the other below said carrier, a stem screwing through said carrier for operating said valves, and a spring between said stem and one of said valves.

10. In drains and other devices, a bowl having inlet and outlet openings, and a strainer secured within said bowl between said openings, and having a screw-threaded central portion, in combination with a valve for each of said openings, and a screw-threaded stem connecting said valves and engaging said screw-threaded portion of the strainer, whereby the outlet-valve can be forced to its seat by rotation of the inlet-valve.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HENRI D. DICKINSON.

Witnesses:

J. BUDLONG,

ARTHUR B. J. SAUERBRUNN.