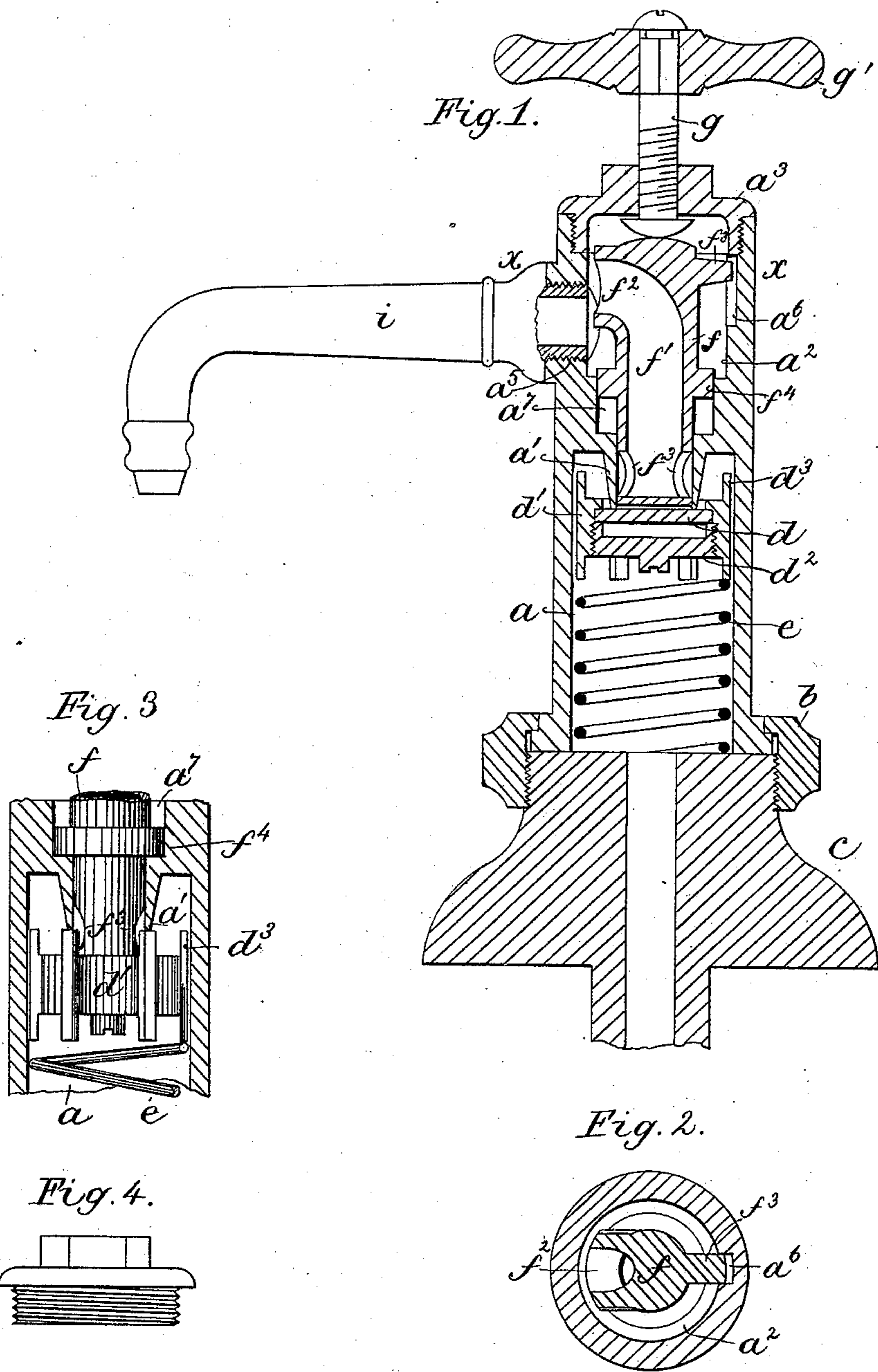


(No Model.)

W. T. MESSINGER.  
FLUID DISCHARGING APPARATUS.

No. 351,455.

Patented Oct. 26, 1886.



Witnesses,  
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Att'y.

# UNITED STATES PATENT OFFICE.

WILLIAM T. MESSINGER, OF CAMBRIDGE, MASSACHUSETTS.

## FLUID-DISCHARGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 351,455, dated October 26, 1886.

Application filed October 12, 1885. Serial No. 179,625. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM T. MESSINGER, of Cambridge, county of Middlesex, State of Massachusetts, have invented an Improvement in Fluid - Discharging Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relating to a fluid-discharging apparatus is shown embodied in an apparatus adapted for use as a basin-faucet, although the invention is not limited to this use. The apparatus contains a valve-chamber having an inlet and outlet opening, the latter being formed in the valve-seat, and the said chamber contains a valve movable toward and from the said seat to control the discharge of fluid from the valve-chamber. The valve may be constructed and operated on the same principle as that forming the subject of another application, Serial No. 179,623, filed October 12, 1885; and the present invention consists, mainly, in novel features of construction of the apparatus hereinafter pointed out. The apparatus is provided with an auxiliary chamber beyond the outlet-opening of the valve-chamber, which auxiliary chamber contains a valve-actuating device, and is provided with a delivery-passage, through which the fluid when permitted to pass from the valve-chamber into the auxiliary chamber escapes.

Figure 1 is a vertical section of a fluid-discharging apparatus or faucet embodying this invention; Fig. 2, a transverse section thereof on line *x x*, showing the valve as seated or closed; Fig. 3, a sectional detail showing the valve in side elevation and in the position with relation to its seat which it occupies when open or permitting the fluid to escape, and Fig. 4 a detail to be referred to.

The valve-chamber *a* is connected at its lower end by a coupling-nut, *b*, with a piece or fitting, *c*, adapted to be connected with the pipe or source of supply of the fluid, the flow of which is to be controlled by the faucet, the said fitting *c* being shown as of proper construction to rest upon or to be connected with the marble slab or other finish of the stand or frame-work of a set-basin.

The valve-chamber *a* is provided at its upper end with an inwardly-projecting valve-seat, *a'*, surrounding the outlet-passage from the said chamber, beyond which is an auxiliary chamber, *a<sup>2</sup>*, shown as formed in the same piece with the valve-chamber *a*, and closed at its upper end by a cap, *a<sup>3</sup>*.

The flow of the fluid through the outlet-passage from the valve-chamber is controlled by a valve consisting of a flexible diaphragm, *d*, confined at its edges in a ring, *d'*, by a nut, *d<sup>2</sup>*, the said ring being provided with guide-arms *d<sup>3</sup>*, which guide it in its longitudinal movement in the valve-chamber, there being sufficient space between the said guide-arms for the flow of fluid through the chamber around the ring *d'*. The valve moves toward its seat in the direction of the flow of the fluid through the valve-chamber, and the pressure of the said fluid will usually be sufficient to seat the said valve and retain it tightly on its seat, but, in order to overcome the weight of the valve and assist in seating it, a spring, *e*, is interposed between the valve and the upper end of the piece *c*, which forms the end of the valve-chamber when the parts are properly connected by the coupling *b*. The spring *e* will preferably be so adjusted as to merely raise the valve to its seat without pressing it against the seat, as the pressure of the fluid will be sufficient to insure the tight seating of the valve.

In order to permit the fluid to escape from the valve-chamber the valve *d* must be pressed and held away from the seat, which is done by the valve-actuating device *f*, shown in this instance as consisting of a tube having a working fit and longitudinally movable in the outlet-passage from the valve-chamber, and being itself actuated by a suitable operating device, shown as consisting of a threaded spindle, *g*, working in a threaded passage in the cap *a<sup>3</sup>*, and provided with a handle, *g'*, by which it may be turned to depress the valve-actuating device *f*, or permit the latter to be raised by the valve moving upward under the action of the spring *e* and pressure of the fluid in the valve-chamber.

The valve actuating device *f* preferably contains a passage, *f'*, shown as having a lateral mouth, *f<sup>2</sup>*, and lateral inlet-openings *f<sup>3</sup>*, which,

when the device is depressed to unseat the valve, project beyond the valve-seat and into the valve-chamber and receive the fluid passing around the valve in the said chamber, so that the said fluid is conducted through the passage  $f'$  and escapes through the mouth  $f''$  into the auxiliary chamber  $a^2$ , which is provided with an outlet-opening,  $a^3$ , which may have connected with it a discharge-pipe,  $i$ , to deliver the fluid at any desired point or in any desired direction.

The valve-actuating device  $f$  is retained with its mouth  $f''$  on the side toward the outlet  $a^3$  of the chamber  $a^2$  by a projection,  $f^3$ , entering a guide-groove,  $a^6$ , in the chamber  $a^2$ , and the said device  $f$  is shown as provided with a circumferential flange,  $f^4$ , entering a guide-passage,  $a^7$ , in the lower part of the chamber  $a^2$ , in order to steady it in its longitudinal movement.

The valve is disconnected from the valve-actuating device, and in coming to its seat is actuated wholly by the spring  $e$  and the pressure of the fluid in the valve-chamber, so that if desired the cap  $a^3$  may be removed at any time, affording access to the interior of the auxiliary-chamber, from which the valve-actuating device may be removed, if necessary, without endangering the escape of fluid which is retained by the valve confined within the valve-chamber.

If necessary to remove and inspect or repair the valve, this can be done by uncoupling the nut  $b$ , without disturbing the piece  $c$  or its connection with the pipes or receptacle from which the fluid is drawn, and when the valve-chamber is thus uncoupled the spring  $e$  and valve may be at once removed therefrom, and it will be seen that all the parts of the apparatus are readily separated and co-operate together without the necessity of close fitting or grinding, making a faucet which is very simple and inexpensive, and at the same time durable and not likely to get out of repairs, but very easy to repair if necessity should occur for doing so.

If desired, the screw-threads may be omitted from the spindle  $g$ , in which case the faucet will be operated by merely depressing the said spindle, and the valve would automatically close as soon as the pressure was removed from the spindle.

If desired to render the apparatus inoperative for drawing fluid, the cap  $a^3$  and valve-operating device  $g$ , which works in it, may be removed, and the top of the auxiliary chamber may then, if desired, be closed by a plug or cap such as shown in Fig. 4, which may be screwed tightly into place, preventing access to the valve-actuating device and valve.

I claim—

1. A cylindrical valve-chamber and auxiliary chamber in line therewith having a stationary outlet-passage and a partition separating the said chambers provided with a

valve-seat projecting from said partition into the valve-chamber, and having an opening within it connecting the said chambers, combined with a valve consisting of a flexible disk and supporting-frame therefor, having guide-arms co-operating with the walls of the valve-chamber, the said disk being confined at its edges in the frame and having its surface exposed to the pressure of the fluid in the valve-chamber, and the valve-actuating device inclosed and longitudinally movable in the auxiliary chamber, working in the opening of the valve-seat, and being disconnected from the valve, but engaging and unseating the same in its movement toward the valve-chamber, substantially as described.

2. The cylindrical valve-chamber and auxiliary chamber made integral and in line therewith and partition separating the said chambers provided with a valve-seat projecting from the said partition into the valve-chamber, and having an opening within it connecting the said chambers, and a coupling-nut and base-piece connected thereby with the valve-chamber, forming one end of the valve-chamber, and having an inlet-passage thereto, combined with the valve working in said valve-chamber and free to move out from the said chamber when uncoupled from the base-piece, and the valve-actuating device longitudinally movable in the auxiliary chamber and opening in the valve-seat, substantially as described.

3. A valve-chamber provided with a valve-seat and outlet-opening therethrough, combined with a valve working in the said chamber between the inlet and outlet openings thereof, the said valve consisting of a flexible disk and supporting-frame therefor, having guide-arms co-operating with the walls of the valve-chamber, and a spring which presses it to its seat, and a valve-actuating device working in the outlet of the valve-chamber, disconnected from the valve, but engaging and unseating the same in its movement toward the valve-chamber, substantially as described.

4. A valve-chamber provided with a valve-seat and outlet-opening therethrough and an auxiliary chamber beyond the said opening, provided with a discharge-passage, combined with a valve operating in the said valve-chamber, and longitudinally-movable valve-actuating device inclosed in the said auxiliary chamber, provided with a tubular passage having a lateral orifice, and with a guide-projection working in a groove in the auxiliary chamber, substantially as described.

5. A valve-chamber provided with a valve-seat and outlet-opening therethrough and an auxiliary chamber integral and in line with the said valve-chamber beyond the said opening, provided with a stationary discharge-passage, combined with a valve movable in the said valve-chamber, composed of a flexible disk and frame therefor, having guide-

arms co-operating with the walls of the valve-chamber, the said disk being confined at its edges in the said frame, and having its surface exposed to the pressure of the fluid in the valve-chamber, and a removable cap for the said auxiliary chamber, and a valve-operating device working therein, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. T. MESSINGER.

Witnesses:

JOS. P. LIVERMORE,  
H. P. BATES.