

(No Model.)

W. T. MESSINGER.
FLUID DISCHARGING APPARATUS.

No. 351,454.

Patented Oct. 26, 1886.

Fig. 1.

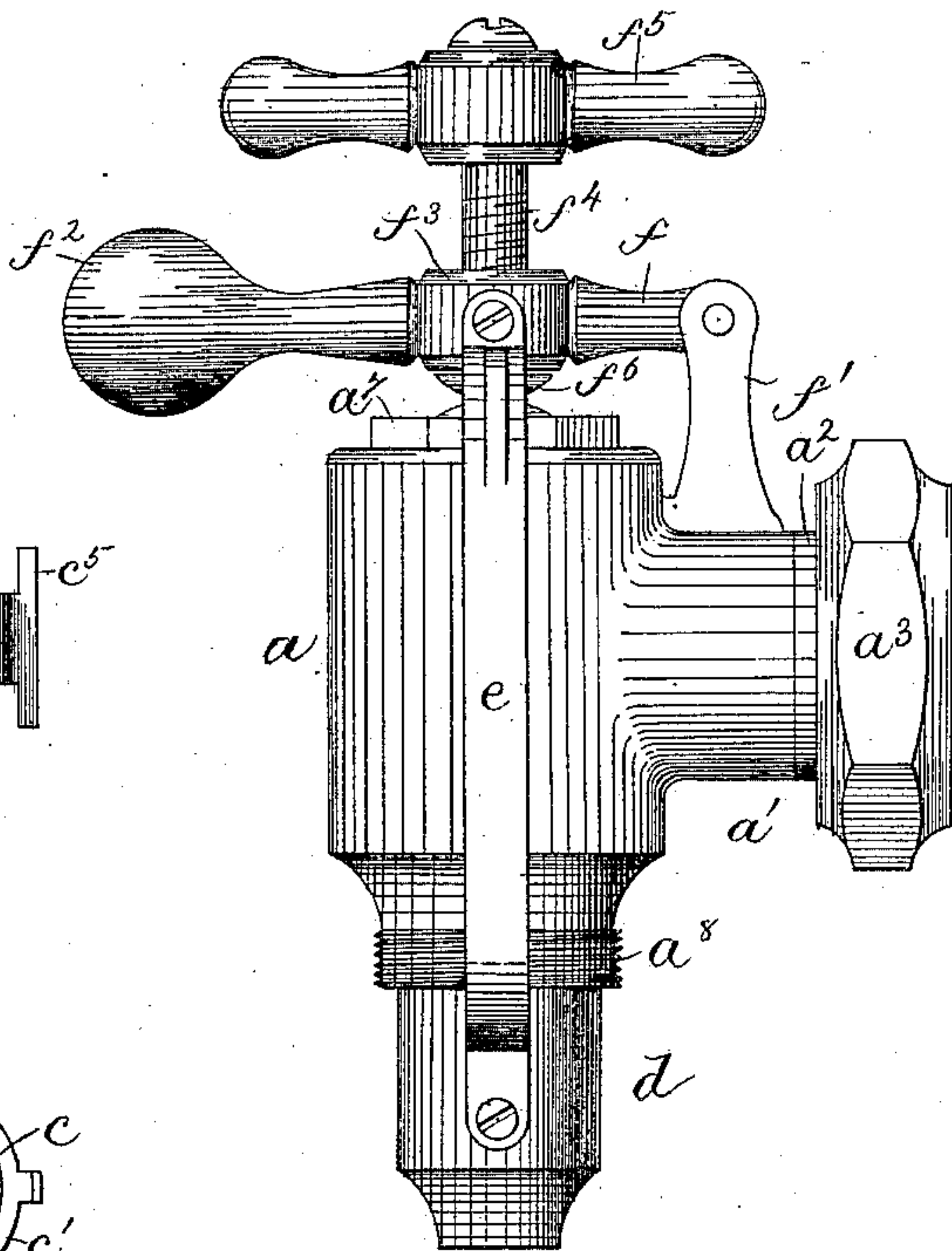


Fig. 3.

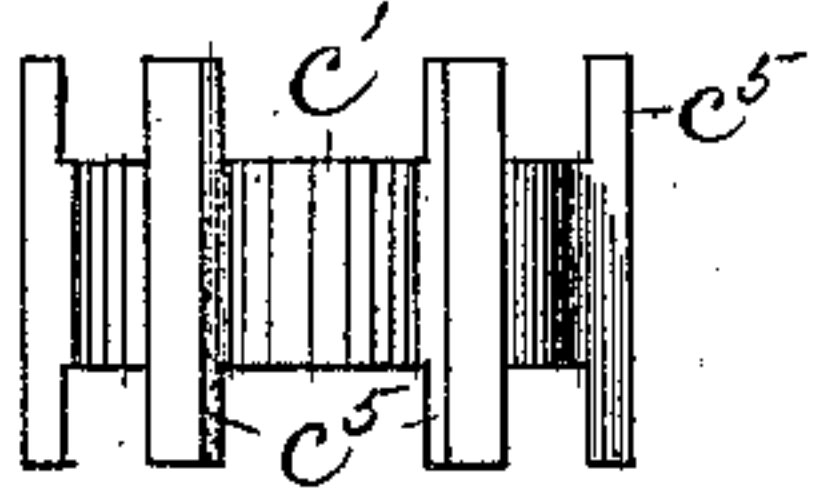


Fig. 4.

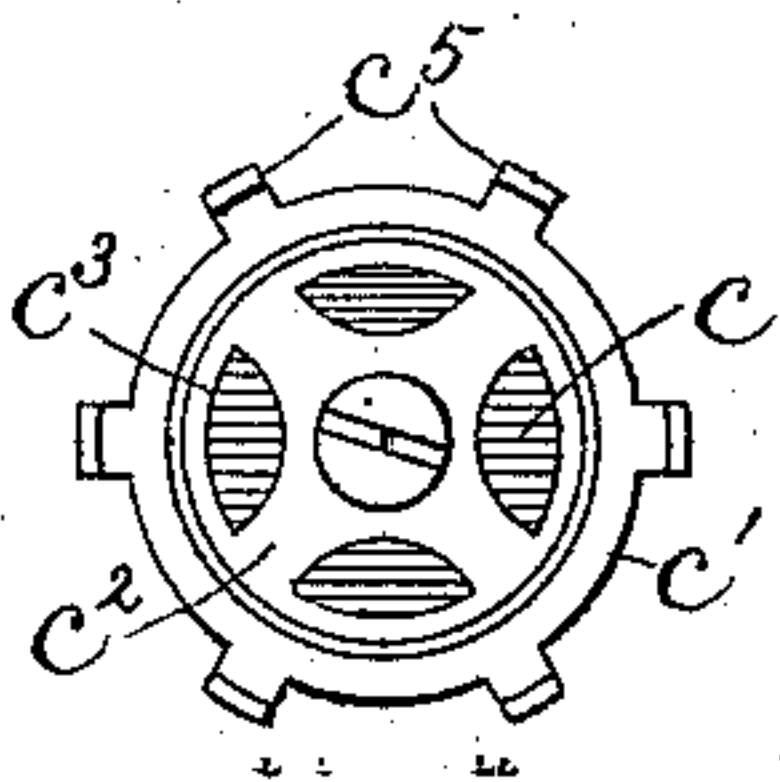
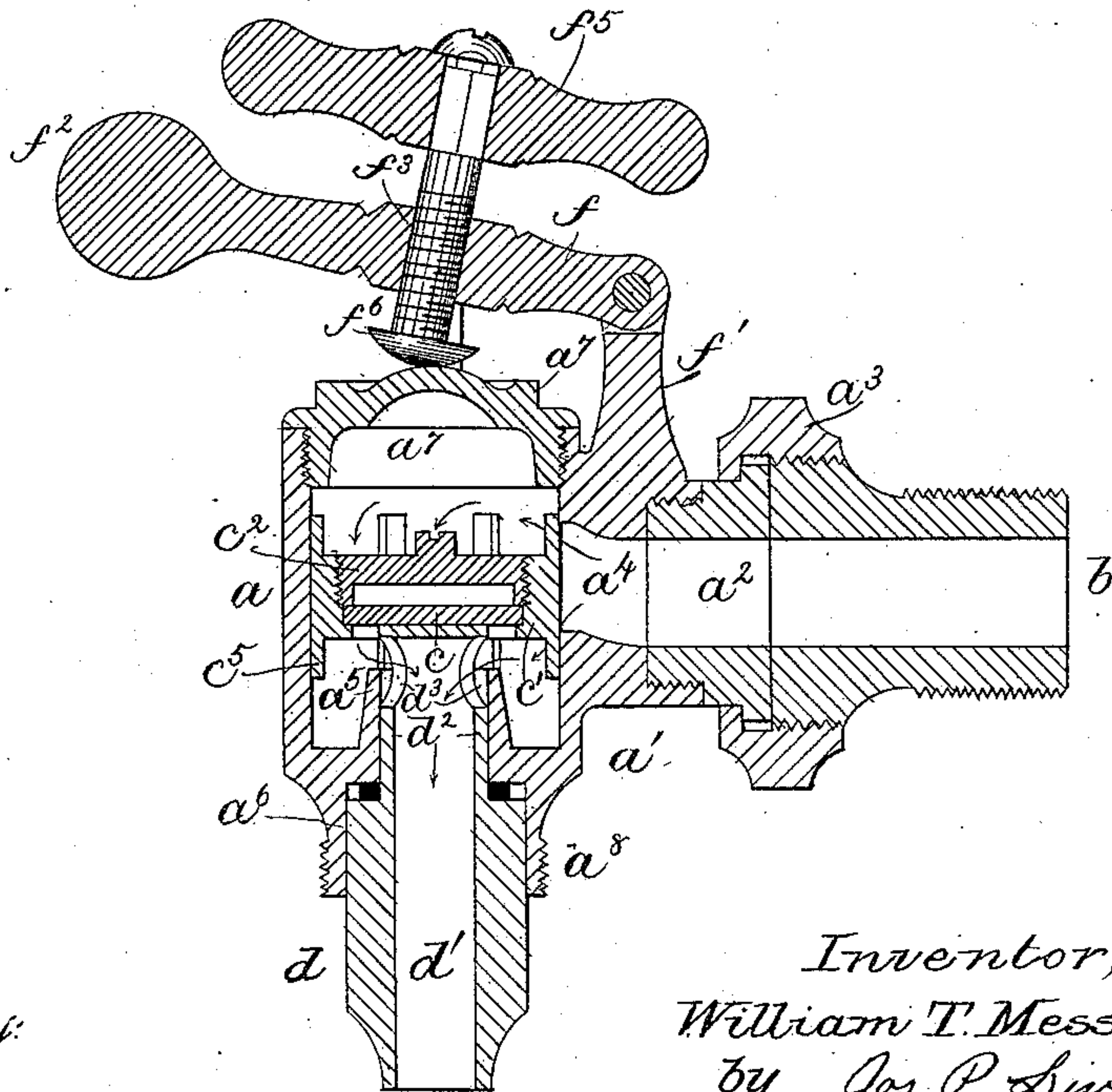


Fig. 2.



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WILLIAM T. MESSINGER, OF CAMBRIDGE, MASSACHUSETTS.

FLUID-DISCHARGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 351,454, dated October 26, 1886.

Application filed October 12, 1885. Serial No. 179,624. (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 relates to a fluid-discharging apparatus or faucet in which the flow of fluid is controlled by a check-valve seated by the pressure of the fluid, and unseated to permit the fluid to escape by a valve-actuating device having a delivery-passage through which the fluid is discharged. A fluid-controlling apparatus of this nature is described and the main combinations claimed in another application, No. 179,623, filed by me October 12, 1885; and the invention forming the subject of the present application consists, mainly, in details of construction of the various parts, especially the operating mechanism for the valve-actuating device. In the other application the valve was shown as working in a valve-chamber having an inlet-passage at one end and a valve-seat and outlet-passage at the other end, and the valve-actuating device was operated and controlled by mechanism at the forward or delivery end of the valve-chamber.

The present invention is embodied in an apparatus comprising a valve-chamber having a lateral inlet communicating with the supply of liquid, and a valve-seat and outlet-passage at its lower end, (the said valve-chamber standing in a vertical position,) and a valve-actuating device movable in a passage at the lower end of the valve-chamber, and operating mechanism for the said device above and external to the valve-chamber. The apparatus is so constructed that the valve may be self-closing, requiring the presence of the operator as long as the fluid is intended to escape, or may be retained open as long as desired without the presence of an attendant, in which case a special operation will be required to close the valve.

The invention consists in details of construction hereinafter pointed out.

Figure 1 is a side elevation of a fluid-discharging apparatus or faucet embodying this invention, showing the parts in the position assumed when the valve is seated or closed; Fig. 2, a vertical section thereof, showing the

valve as unseated or open; Figs. 3 and 4, a side elevation and plan view of the valve detached.

The valve-chamber *a* is provided with a lateral extension, *a'*, having connected with it a coupling-head, *a''*, and nut *a'''*, by which the said chamber may be connected with a fitting, *b*, adapted to be connected with the pipe or receptacle containing the fluid, the discharge of which is to be controlled by the apparatus, the said fluid entering the valve-chamber *a* through the inlet-passage *a''*. The said valve-chamber, which is cylindrical and intended to stand in a vertical position, as shown, is provided at its lower end with a raised valve-seat, *a''*, controlled by the valve *c*, and having a delivery-passage from the chamber *a*, through which the fluid may escape when the valve is unseated, the said valve being normally retained on its seat both by its weight and by the pressure of the fluid in the valve-chamber.

The valve *c* is shown as consisting of a flexible disk or diaphragm having its edges confined in a ring, *c'*, by a nut, *c''*, having openings *c'''*, (best shown in Fig. 4,) through which the fluid is admitted to the surface of the disk *c*, the ring *c'*, having guide-arms *c''*, which project radially beyond the ring, and are also longer than the width of the ring, as best seen in Fig. 3, the said arms fitting within the valve-chamber *a*, and guiding the valve in its lengthwise movement in the said chamber, and permitting the fluid to flow through the spaces between the inner wall of the said chamber and the outer surface of the ring *c'* between the arms *c''*. The valve, with its supporting-ring and guide-arms, does not in itself constitute a separate part of the present invention, and is not specifically claimed except in combination with the other parts of the apparatus.

The valve may be unseated to permit the fluid to escape from the valve-chamber by means of a valve-actuating device, *d*, working in a guide-passage, *a''*, connected with the valve-chamber below the valve-seat, the said actuating device *d* having a fluid-delivery passage, *d'*, and an extension, *d''*, fitted to move longitudinally in the passage of the valve-seat *a''*. When the actuating device *d* is moved upward, the extension *d''* engages the valve and lifts it from its seat, as shown in Fig. 2, permitting the fluid to flow between the valve-seat and valve, where it will enter lateral ports

d^3 in the valve-actuating device and pass out through the delivery-passage d' thereof.

The valve-chamber a is shown as provided at its upper end with a removable cap, a^7 , to enable the valve to be inserted in the chamber. 5 The valve-actuating device d is connected by links e with an arm or lever, f , pivoted upon a projection, f' , from the casting which forms the valve-chamber a , and preferably provided with a handle, f^2 , by which it may be raised 10 when desired to move the valve-actuating device d upward, so as to open the valve and permit the fluid to escape. The handle f^2 and connected valve-actuating device d will naturally return to their lowest position under the 15 action of gravity, except when supported by the operator, thus making the valve a self-closing one. When, however, it is desired to permit the fluid to escape continuously without requiring the operator to hold the handle 20 raised, the arm f may have a threaded socket or nut, f^3 , containing a threaded spindle, f^4 , provided with a suitable handle, f^5 , and with a foot, f^6 , which rests on the cap a^7 , so that by 25 turning the handle f^5 the nut f^3 and connected arm f will rise up on the spindle f^4 , and will be sustained by the said spindle, which constitutes a supporting device for the valve-actuating device d , holding it raised and keeping 30 ing the valve open as long as desired, after which the valve may be permitted to close by turning the spindle f^4 in the opposite direction until the arm f and valve-actuating device d arrive at their lowest position and the 35 valve rests on its seat.

It is obvious that the supporting device may be omitted when it is desired to have the valve a self-closing one, or that the handle f^2 may be omitted when the arm f is provided with 40 a thread-spindle having a handle, as the valve may thus be opened either by lifting directly on the said handle or by turning it, according as it is desired to open the valve for a short time or to leave it open when the hand of the 45 operator is removed.

If it should be desired at any time to render the apparatus inoperative or unavailable for withdrawing the fluid without, however, 50 wholly disconnecting it from the pipe or receptacle containing the fluid, the valve-actuating device d and its operative mechanism may be readily removed by merely withdrawing the pivot of the arm f , and the mouth of the guide-passage a^6 may, if desired, be closed 55 by a suitable cap, it being shown as provided with external screw-threads a^8 to receive such a cap.

I claim—

1. The combination of the following elements, namely: a cylindrical valve-chamber 60 having a lateral inlet-opening and a raised seat integral with the casting, forming the chamber and projecting upward into the chamber from the lower end thereof, and having a 65 guide-passage through it which constitutes the outlet for the valve-chamber, and the cap forming the upper end of the valve-chamber,

a valve consisting of a flexible disk and holding-frame therefor working in the said valve-chamber lengthwise thereof and guided wholly 70 by the walls of the said chamber, and a tubular valve-actuating device working in the guide-passage through the valve-seat disconnected from the valve, but engaging the same in its 75 movement toward the valve-chamber, a pivoted arm at the top of said chamber, and connecting-links between it and the valve-actuating device, the said arm being normally supported on the cap which closes the upper end 80 of the valve-chamber, substantially as described.

2. The cylindrical valve-chamber having a lateral inlet-opening, and a raised seat integral with the piece forming the chamber projecting inward at the lower end of the said 85 chamber coaxial therewith and having a guide-passage within it, and a removable cap for the upper end of the said chamber, combined with the valve, consisting of a flexible disk and frame confining the same at its edges provided 90 with guide-arms having a working fit in the cylindrical chamber, and a tubular valve-actuating device working in the passage in the valve-seat and disconnected from the valve, substantially as described. 95

3. The cylindrical valve-chamber having a lateral inlet-opening, and a raised seat integral with the piece forming the chamber projecting inward at the lower end of the said 100 chamber and having a guide-passage within it, and an extension of larger diameter than the said guide-passage external to the chamber, and a removable cap at the upper end of the said chamber, combined with the valve, consisting of a flexible disk and frame-work 105 therefor guided wholly by the walls of the said chamber, and a tubular valve-actuating device working in the extension of the valve-chamber, and having a projection of reduced diameter working in the passage in the valve-seat, and operating devices for the said valve-actuating device, the valve-chamber, valve, 110 and valve-actuating device having a common axis, substantially as described.

4. A cylindrical valve-chamber provided 115 with a valve-seat and outlet-opening at the lower end thereof, and a valve movable in the said chamber coaxial therewith, and guided wholly by the walls of the said chamber, combined with a valve-actuating device external 120 to the chamber operating in the outlet-opening thereof, a pivoted arm at the other end of the said chamber, links connecting it with the valve-actuating device, and a supporting device connected with the said arm and engaging 125 the top of the valve-chamber, substantially as described.

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

WM. T. MESSINGER.

Witnesses:

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H. P. BATES.