

(No Model.)

D. WELLINGTON.

SUPPLY TANK FOR WATER CLOSETS OR OTHER RECEPTACLES.

No. 413,586.

Patented Oct. 22, 1889.

Fig. 1.

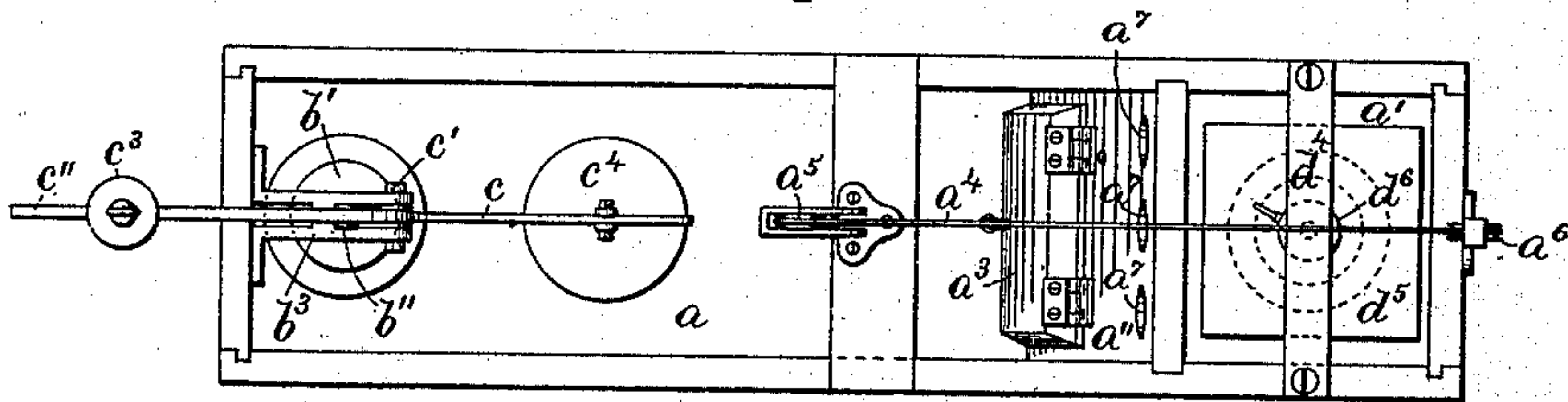


Fig. 2.

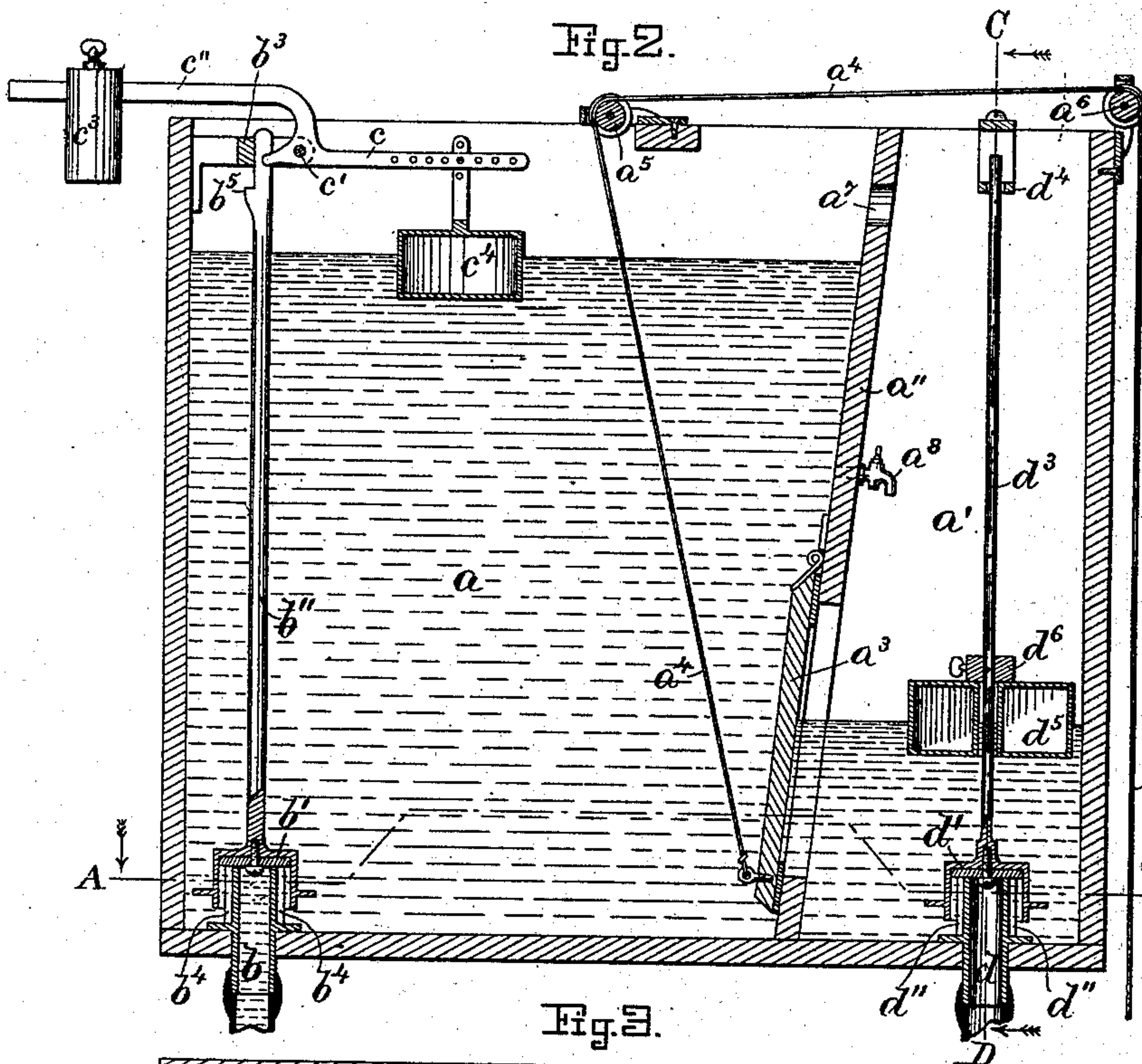


Fig. 3.

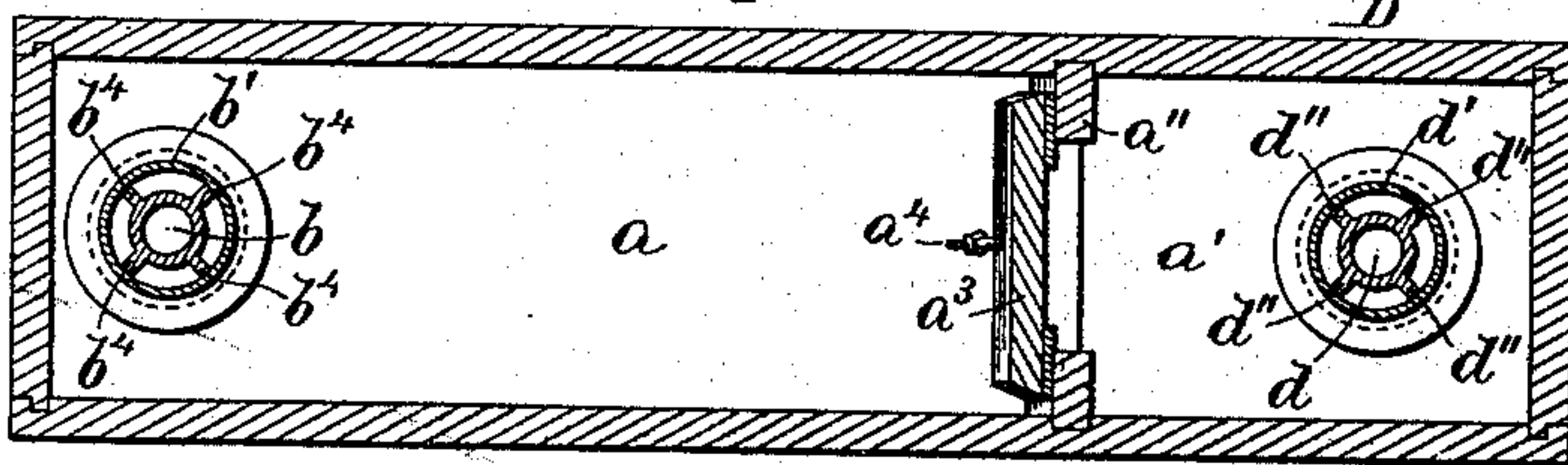
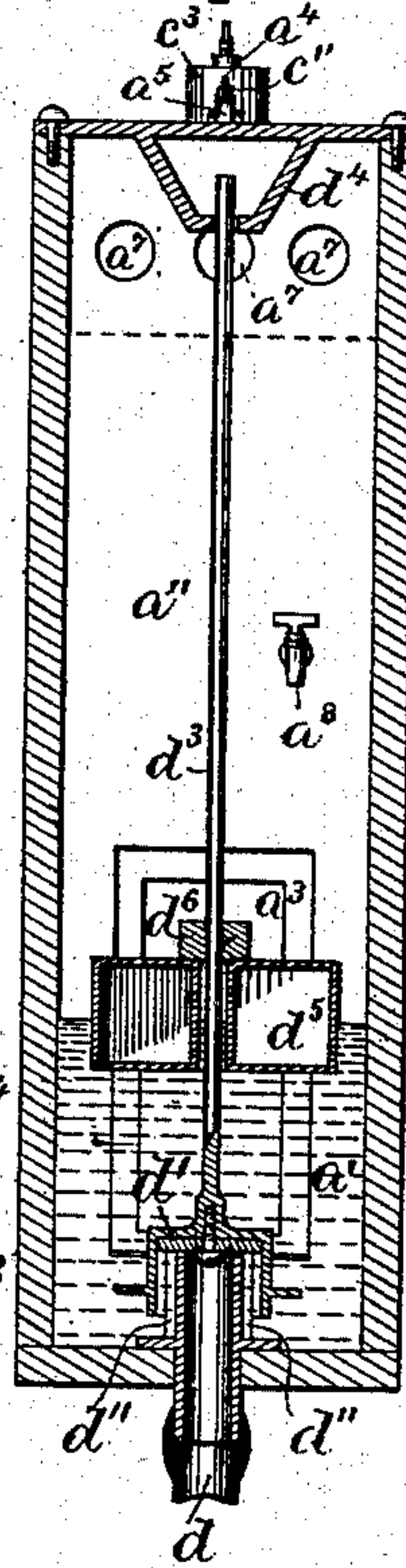


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

DARIUS WELLINGTON, OF BOSTON, MASSACHUSETTS.

SUPPLY-TANK FOR WATER-CLOSETS OR OTHER RECEPTACLES.

SPECIFICATION forming part of Letters Patent No. 413,586, dated October 22, 1889.

Application filed February 27, 1889. Serial No. 301,302. (No model.)

To all whom it may concern:

Be it known that I, DARIUS WELLINGTON, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Supply-Tanks for Water-Closets or other Receptacles, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in supply-tanks for water-closets or for similar purposes; and it consists in the features of construction and combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 represents a plan view of my improved tank. Fig. 2 represents a central longitudinal section of the same. Fig. 3 represents a horizontal section of the tank on the broken line A B, shown in Fig. 2; and Fig. 4 represents a vertical cross-section of the tank on the line C D, shown in Fig. 2.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

The tank is divided vertically into two parts, the part *a* being the supply-chamber and the part *a'* being the delivery-chamber of the tank.

a'' represents a partition which separates the parts of the tank, and *a³* represents a valve to furnish communication between the parts, the operation of which will be more fully described hereinafter.

a⁴ represents a cord or chain attached to the valve *a³*, which is guided over the pulleys *a⁵* and *a⁶* to any convenient place for operation.

b represents the supply-pipe to the tank, which is connected to the chamber *a* and enters the same at or near the bottom of said chamber.

b' represents an inverted-cup-shaped valve adapted to close the inlet or supply-pipe *b* when said valve is held against its seat on the end of the pipe *b*, which projects above the bottom of the tank. The valve *b'* has an upwardly-projecting rod *b''*, which is guided in its upper end in a suitable bracket *b³*, the

lower cup-shaped portion of the valve being guided on the vertical ribs *b⁴* *b⁴* on the end of the pipe *b*, or a coupling secured to the end of said pipe, as shown in Fig. 2. To the bracket *b³* is pivoted at *c'* the lever *c*, which is loosely connected to the upper end of the rod *b''* in such a manner that when the lever *c* is moved on its fulcrum it will cause the valve to be raised, or lowered, according to whichever way the lever is swung. The lever *c* has an arm *c''* projecting from it on the same side of the fulcrum *c'* as the rod *b''* is connected, and on said arm is placed an adjustable weight *c³*, which is adjusted so as to exert a little less pressure on the valve *b'* against its seat than is exerted by the water in the pipe *b*. On the lever *c* is hung any suitable float *c⁴*, which rises with the water in the tank and causes the lever to turn on its fulcrum, exerting sufficient pressure on the valve *b'* to close it when the water has reached the desired level in the tank.

It will be seen that as the valve *a³* is opened by pulling on the cord *a⁴* the water in the chamber *a* will flow into chamber *a'* to a common level, thereby allowing the float *c⁴* to drop and the pressure in the pipe *b* to open the valve *b'* and the water to flow from said pipe into the tank, raising the level of the water in the chamber *a* until the float *c⁴* rises and exerts sufficient force on the valve *b'* to close it.

It is obvious that the arm *c''* of the lever *c*, with the weight *c³* adjustable thereon, might be dispensed with and the same effect produced on the valve *b'* by means of a suitable weight being placed on the rod *b''* above the valve *b'* without departing from the spirit of my invention, which is to produce a valve opening inwardly into the tank, weighted so as to be held against its seat with a pressure a little less than the pressure in the supply-pipe of the tank, and controlling the opening and closing of such valve by means of a float connected to such valve, said float being controlled by the level of the water in the tank, and by so doing a very much smaller float is needed than would be necessary if I were to dispense with the weight on such valve, and by making the weight adjustable on the arm of the lever *c*, I am able to easily adjust

the valve to variations in the pressure in the supply-pipe *b*. When the level of the water in chamber *a* is lowered, the weight of the float *c*⁴ will help to open the valve *b*'.

5 By having the valve *b*' in the form of an inverted cup the water, when it enters the chamber *a*, will be deflected against the bottom of the tank and tend to clean the tank of any sediment that may have settled on the bottom of said chamber, and by having
10 the supply-pipe enter the chamber at or near the bottom it will prevent all noise of the water entering the tank, which is an objection in tanks now in common use.

15 *b*⁵ represents a projection on the rod *b*'', serving as a stop against the bracket *b*³, to limit the upward movement of the valve *b*'; but I do not wish to confine myself to this construction for limiting the movement of
20 the valve, as other well-known means may be employed to equal advantage.

By having the valve *b*' opening inward into the tank and having such valve weighted any excess of pressure in the supply-pipe *b*,
25 or other pipes connected therewith throughout the house, which would cause water-hammer, will be relieved by the valve *b*' opening. Any other shaped valve may be used in the place of the cup-shaped valve *b*'; but I prefer
30 to make it as shown in the drawings, for the purpose described.

d represents the discharge or service pipe from the chamber *a*' of the tank, said pipe projecting into the bottom of said chamber
35 and forming a seat for the cup-shaped valve *d*', which is guided in its up-and-down movement by means of the vertical ribs *d*'' *d*'' on the end of the pipe *d*, or a coupling secured to the end of said pipe, as shown in Fig. 2.

40 *d*³ represents a vertical rod extending from the valve *d*' and guided in its upper end in the bracket *d*⁴.

*d*⁵ represents a float surrounding the rod *d*³ and loosely movable up and down on said
45 rod, and *d*⁶ represents an adjustable collar or stop on said rod above said float to limit the upward movement of the float.

It will be seen that if the level of the water in the chamber *a*' is raised it will raise the
50 float *d*⁵, and as said float rests against the under side of the collar *d*⁶ said float will raise the valve *d*' and allow the water in the chamber *a*' to be discharged through the discharge-pipe *d* and flush the water-closet or
55 other receptacle to which said pipe *d* may be attached until it has lowered the float *d*⁵, and with it the valve *d*', and the valve is seated on the end of the pipe *d* and closes such pipe. Should the valve *b*' leak and there-
60 by tend to overflow the chamber *a*, or should the water in said chamber be raised from other cause, so as to tend to overflow the chamber, I provide the partition *a*'' with a perforation *a*⁷, or a series of perforations *a*⁷ *a*⁷ *a*⁷,
65 the combined area of which greatly exceeds the area of the inlet-pipe *b*, so as to allow the water in the chamber *a* to overflow into the

chamber *a*' to raise the float *d*⁵ and the valve *d*', and be discharged through the discharge-pipe *d*. Thus it will be seen that by my in-
70 vention I am able to use one pipe as a discharge or service pipe and overflow-pipe combined.

*a*⁸ represents a valve or cock in the parti-
75 tion *a*'' below the level of the water in the chamber *a*, and by means of such valve I am able to draw the water from the inlet-pipe *b* through the chamber *a* into the chamber *a*', where it will be discharged through the dis-
80 charge-pipe *d*, as described heretofore, and the amount of such discharge may be regulated by opening the valve *a*⁸, more or less, as required.

By making a tank with my improvements I am able to use a much smaller tank, on ac-
85 count of being able to use a very small float on my supply-valve, as compared with the ball-cocks now in common use, and also on account of the water entering the tank under pressure more quickly than it discharges
90 without pressure.

The operation of flushing the water-closet or other receptacle from my improved tank is as follows: The valve *a*³ is opened by the
95 cord *a*⁴, and as said valve is of a large area a sufficient quantity of the water in the chamber *a* will instantly pass through the opening in the valve *a*³ until the water in the cham-
100 ber *a*' reaches the level of the water in the chamber *a*, and by so doing the level of the water in the chamber *a* will be lowered sufficiently to lower the float *c*⁴ and cause the
105 valve *b*' to open and admit water until the water in the chamber *a* has raised, and with it the float, causing the valve *b*' to be closed, as heretofore described. The water in the
110 chamber *a*', being raised above its normal level, will cause the valve *d*' to be opened, as heretofore described, and discharge the water through the discharge-pipe *d*, and will con-
115 tinue so to do as long as the valve *a*³ is held open, as the water under full pressure in the pipe *b* will enter the tank faster than the wa-
ter will be discharged from the tank without pressure. After the valve *a*³ has been closed
120 the water in the chamber *a*' will continue to be discharged until it reaches its normal level and the valve *d*' is closed.

It will be seen that by adjusting the collar
125 *d*⁶ on the rod *d*³ any desired amount of flushing-water may be discharged after the valve *a*³ has been closed.

Having thus fully described the nature, con-
130 struction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The combination of the tank *a*, having the water-inlet pipe *b* and water-outlet pipe
135 *d*, the automatically-operated inlet-valve *b*' to the inlet-pipe, the automatically-operated valve *d*' to the outlet-pipe, the partition *a*'', dividing the tank into two chambers between the inlet and outlet pipes, a valve *a*³, hinged
140 to the partition, and a cord or chain *a*⁴, connected with the partition-valve and discon-

connected from the outlet and inlet valves for operating said partition-valve independently of movement of the said outlet and inlet valves, substantially as described.

- 5 2. The combination, with the tank *a*, having the inlet and outlet pipes *b* *d*, and an automatically-operated outlet-valve for the outlet-pipe, of a cup-valve *b'* for the inlet-pipe, having a vertical rigid rod *b''*, the lever *c*,
10 pivoted intermediate its ends in the tank and loosely attached by a joint to the upper end of and positively raising and lowering said rigid valve-rod, a float *c'* on one end of the lever and a weight *c''* on the other end of the
15 lever, a partition *a''*, dividing the tank into compartments, and a valve *a'*, hinged to said partition, and a cord or chain *a''*, for opening said valve against the pressure of the water, substantially as shown and described.

3. In a supply-tank for water-closets or 20 other receptacles, the chamber *a*, having the inlet-pipe *b* and valve *b'*, held against its seat by means of the weight *c''*, float *c'*, and lever *c*, the chamber *a'*, having the discharge-pipe *d* and valve *d'*, operated by the float *d'*, and 25 collar *d''*, adjustable on rod *d'*, and the valve *a'*, operated by the cord or chain *a''*, all combined to operate substantially as set forth and described.

In testimony whereof I have signed my name 30 to this specification, in the presence of two subscribing witnesses, on this 23d day of February, A. D. 1889.

DARIUS WELLINGTON.

Witnesses:

HENRY CHADBURN,
M. B. McMANUS.