

No. 614,578.

Patented Nov. 22, 1898.

H. G. RICH, J. A. CHANDLER & W. H. DUNSHEE.

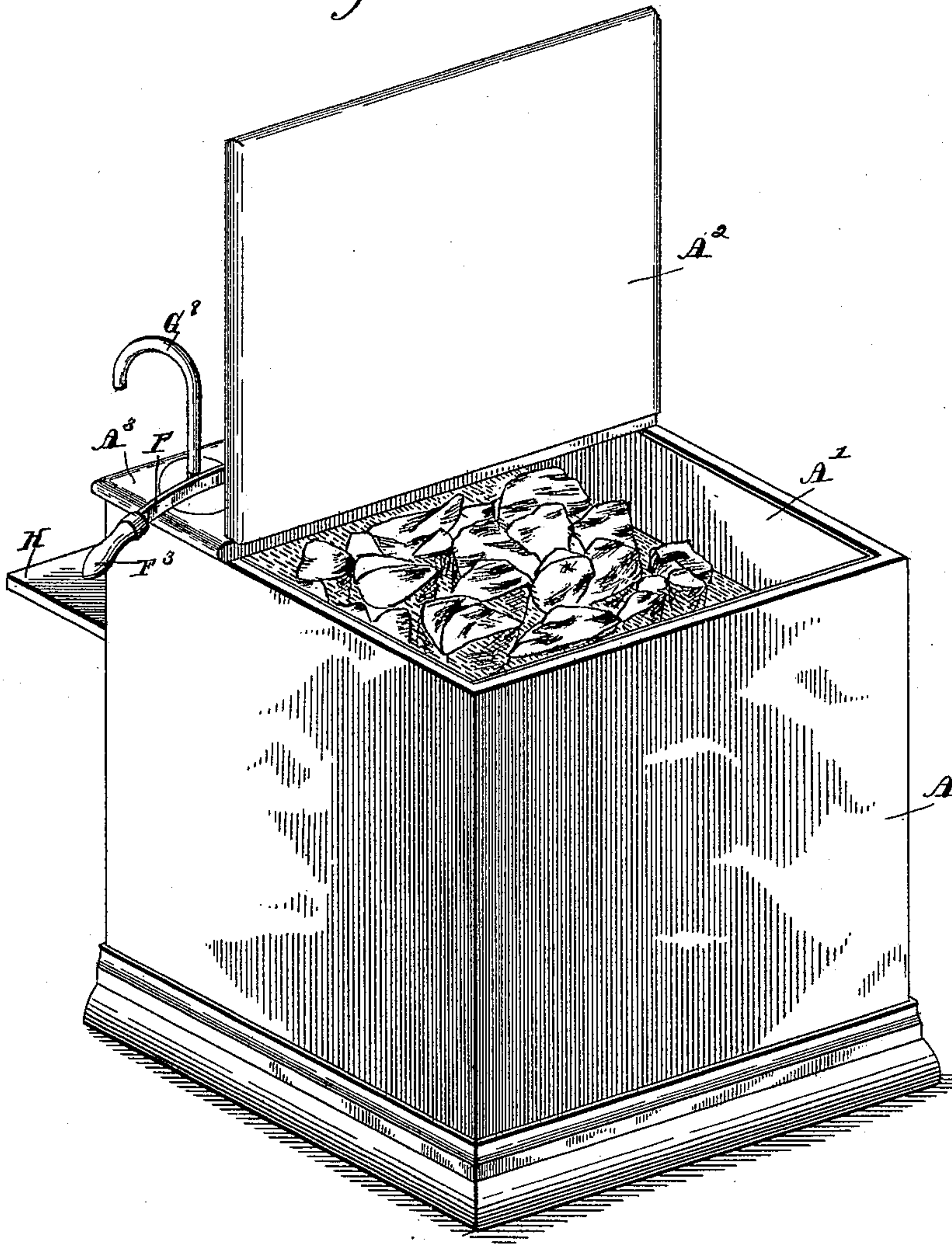
FILTER.

(Application filed Mar. 28, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1



Attest.

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Fig. 2.

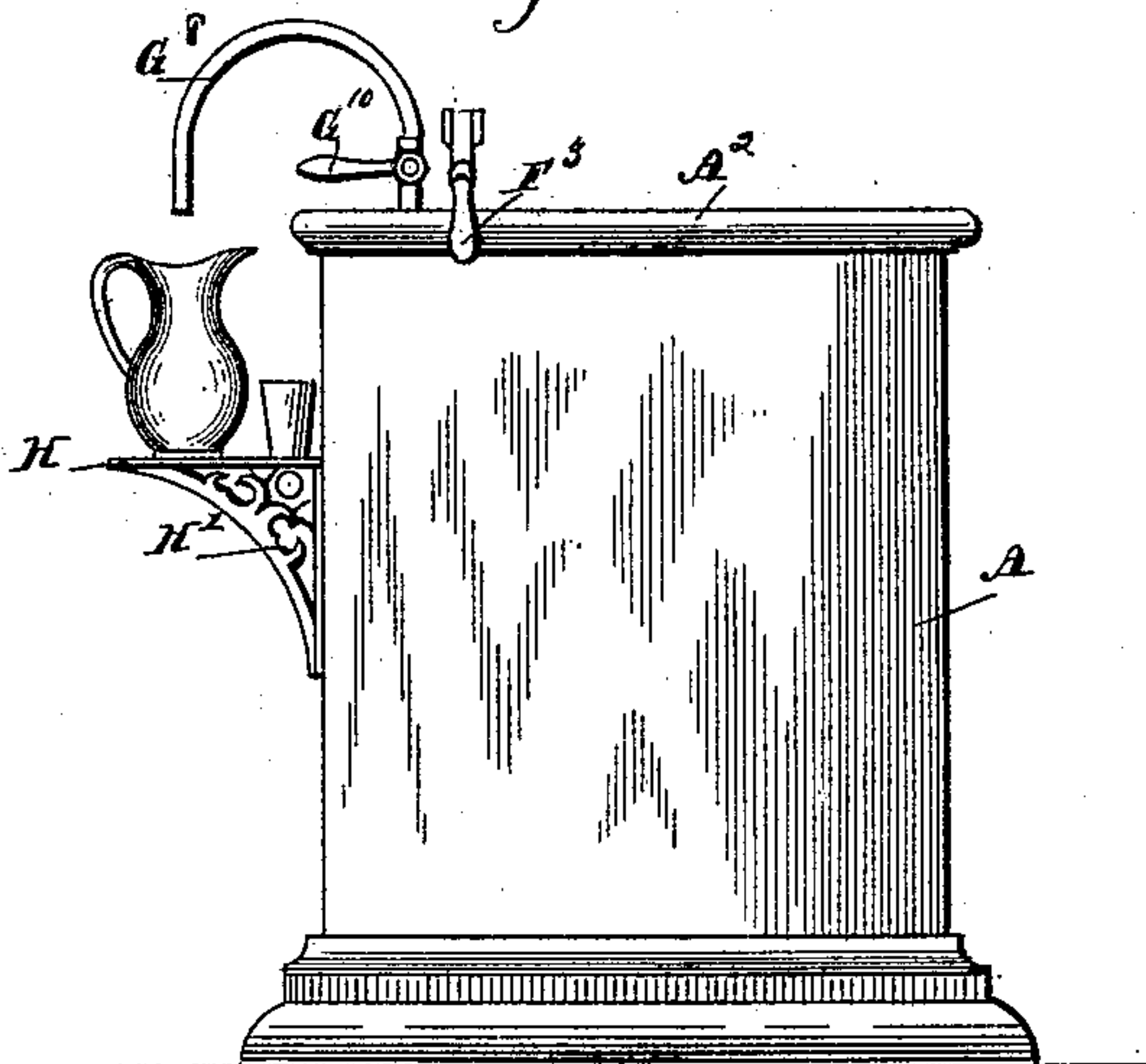
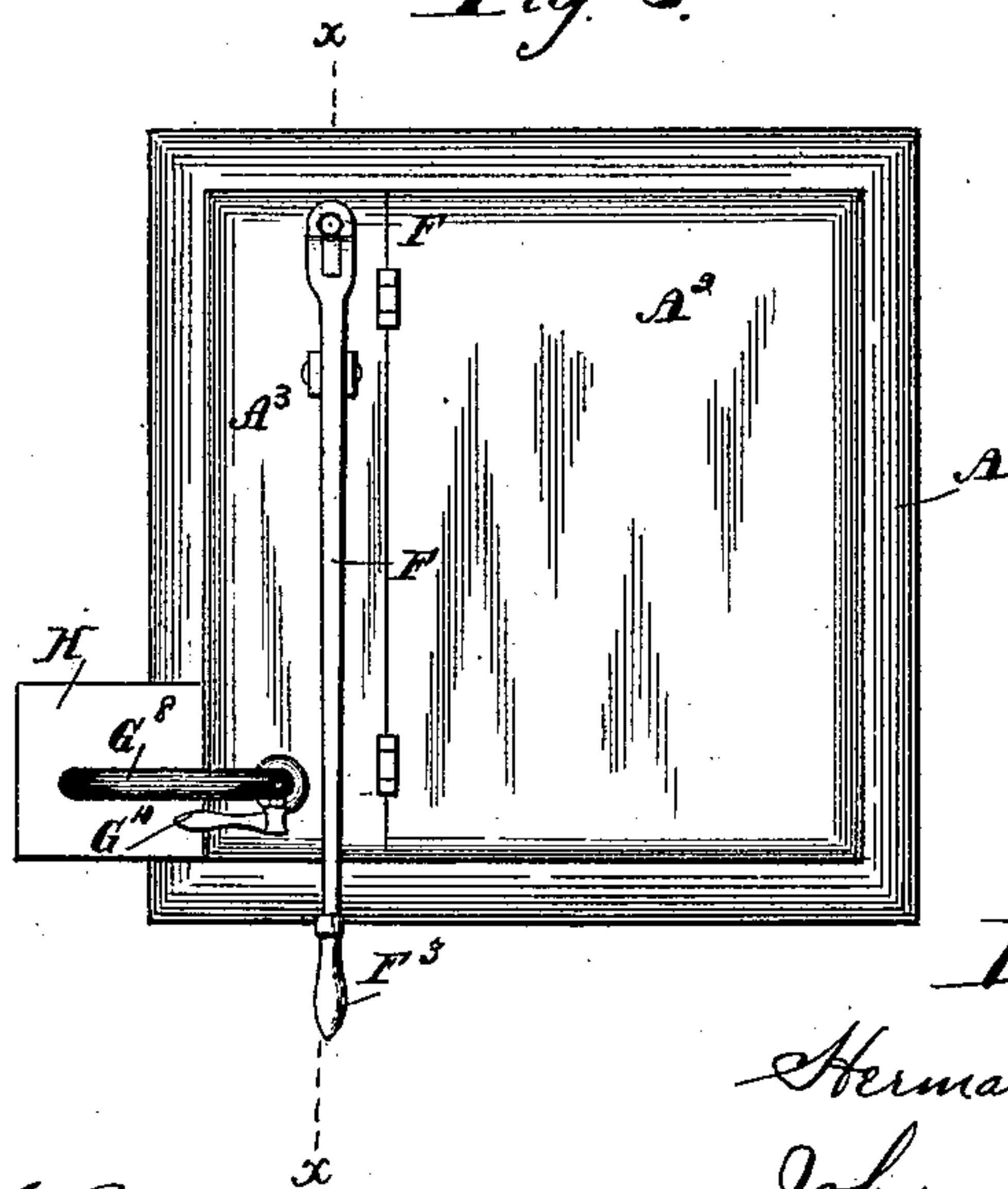


Fig 3.



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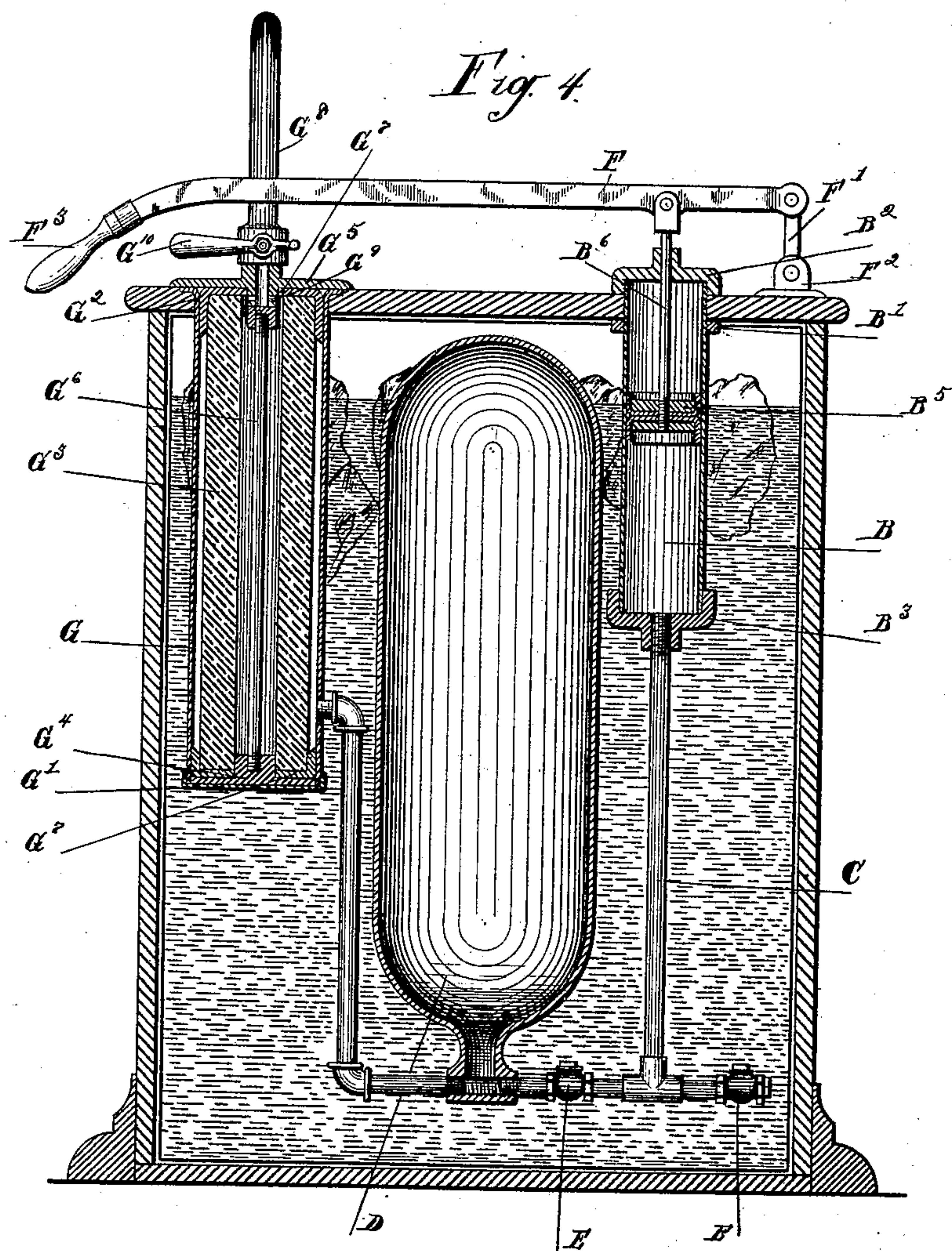
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UNITED STATES PATENT OFFICE.

HERMAN G. RICH, OF DES MOINES, AND JOHN A. CHANDLER AND WILLIAM H. DUNSHEE, OF CEDAR RAPIDS, IOWA.

FILTER.

SPECIFICATION forming part of Letters Patent No. 614,578, dated November 22, 1898.

Application filed March 28, 1898. Serial No. 675,515. (No model.)

To all whom it may concern:

Be it known that we, HERMAN G. RICH, residing at Des Moines, Polk county, and JOHN A. CHANDLER and WILLIAM H. DUNSHEE, residing at Cedar Rapids, in the county of Linn, State of Iowa, citizens of the United States, have invented certain new and useful Improvements in Filters; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide a simple and efficient filter and water-cooler for use in residences, offices, places of public resort, and the like.

The invention consists in the construction, combination, and arrangement of parts, as hereinafter fully set forth and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a view in perspective of the device embodying our invention with the lid up, showing water and ice therein. Fig. 2, Sheet 2, is a front elevation of the same. Fig. 3 is a top view of the same. Fig. 4, Sheet 3, is a sectional view of the same in a vertical plane in the line $x x$ of Fig. 3.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A designates a tank, preferably of wood and suitably lined with zinc or like non-oxidizable material A'. In practice this tank is made of suitable size to set on a table, stand, or bracket and is provided with a suitable hinged lid A², constituting a part of the top or cover thereof. To the other portion of the cover A³ the operative parts of the filter hereinafter to be described are attached. Suitable provision is made for providing the sides of the tank with some non-conducting material, such as asbestos; but as this relates to detail of manufacture according to well-known methods it has not been thought necessary to illustrate it herein.

A part of the cover of the tank is securely attached to the upper edge thereof, and to this cover, near the back side of the tank, is secured a pump-cylinder B. In practice the

upper end of this cylinder is threaded down from the top far enough to take a jam-nut B' below the board forming this portion of the tank-cover, and the upper cylinder or head B² is screwed down tightly on the upper side of said board, making a tight joint, as will be seen by reference to Fig. 4. The lower cap B³ communicates by a pipe C with an air-chamber D and is provided near the bottom of the tank with two check-valves E E, both of which of course open inwardly—that is to say, to allow the water to flow to the left, as the same is illustrated in said figure. In the pump-cylinder is fitted a suitable piston B⁵, connecting by its stem B⁶ with a hand-lever F, connecting by a link F' with a suitable pivot-plate F², attached to this part of the tank-cover back of the pump. The other end of the lever terminates in a handle F³, which for convenience is turned downwardly, as shown.

In practice the air-chamber is made in the ellipsoidal form shown, the lower end being practically as large as the upper end to near the neck, which connects with the horizontal pipes near the bottom of the tank. The object of this is to give the greatest possible capacity to the air-chamber within the comparatively small space occupied by the operative parts of the filter. One side of the outlet of the air-chamber communicates by an upright pipe with the shell of a filter G. This is preferably cylindrical and is closed by a permanent head G'. At the upper end this cylinder is flanged outwardly at G², and the flange rests in a suitable recess formed in the upper part of the board permanently attached to the top of the tank. Within this shell is placed the filter proper, G³, which in practice is a cylindrical body of porous stone somewhat smaller than the interior of the cylinder and provided with a hole lengthwise through the center thereof. To the ends of this filter-stone are attached a pair of heads G⁴ and G⁵, connected by a screw-threaded rod G⁶, screwing into suitable bosses on the heads referred to. Outside of these bosses and between the filter-cylinder and the shell containing it are placed cupped gaskets G⁷, which fit nicely between the filter-stone and the

heads adjacent to each end. An air-tight space is thus made surrounding the body of the filter and between it and the shell, in which space the water is discharged from the pump above described. Such water under the pressure exerted by the force-pump passes through the body of the filter-stone into the central orifice and escapes thence into a nozzle G⁸, connecting with the upper head of the filter through small waterways formed in the downwardly-projecting boss of this head G⁹. The nozzle is provided with a suitable stop-cock G¹⁰.

This construction of the filter is such as to admit of the filter proper being entirely and very quickly removed from the shell inclosing it, as may be necessary in cleaning it from time to time.

Under the overhanging end of the nozzle G¹⁰ is placed a small shelf H, resting on suitable brackets H', attached to the side of the tank, affording a convenient resting-place for pitcher, glass, or other water vessel.

The filter apparatus is designed to occupy a comparatively small portion of the interior space of the tank and is preferably placed at one side, as indicated in the drawings. The remainder of the tank affords room for a considerable body of water and ice, as appears by reference to Fig. 1.

The operation of the device is so simple as to require little explanation. It is evident that by working the hand-lever in the ordinary way water from the tank will be drawn into the pipe through the right-hand check-valve and thence forced into the annular receptacle, between the filter-stone and the filter-shell. This water is gradually forced through the filter-stone into the central hole ready to be discharged on opening the stop-cock G¹⁰. The purpose of the air-chamber is of course to give a steady flow to the stream issuing from the nozzle or bib. It will be evident also that this air-pressure acts continuously even after the cessation of pumping, thus always keeping the central part of the filter full of water ready to be discharged on opening the bib. It is thus not always necessary for the operator to pump in order to obtain a drink of water, though of course but a limited amount of water will flow out unless the pump is used.

It will be evident that the air-chamber might be dispensed with; but in such case the water from the bib would flow intermittently and only in response to movement of the pump-lever.

A special purpose aside from the convenience in detaching the filter, as already described, in attaching the parts to the tank-cover is to avoid the possibility of leakage incident to the fastening of any parts to the bottom of the tank.

The device is intended to take the place of the ordinary water-cooler and serve the same purpose of supplying a cool refreshing draft

and also to secure the further advantage of rendering the water perfectly pure and wholesome by filtration.

The position of the filter inside the tank and wholly or partly submerged in ice-water is such as to keep the water issuing from it cold at all times. This is a very desirable feature as compared with apparatus in which the filter is exposed to the air, giving forth lukewarm water in hot weather.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a filter, the combination with a tank adapted to hold ice-water, and having a cover partly fixed to said tank, a force-pump cylinder attached to said fixed cover, an air-chamber adjacent thereto, and a filter attached to said cover, suitable pipe communicating with the filter, air-chamber and pump, and suitable check-valves, substantially as and for the purpose set forth.

2. In a filter, the combination with a receptacle for ice and water, of a force-pump attached to a fixed portion of said tank-cover, a detachable filter mounted in said cover, a water-pipe communicating with the pump and filter, and suitable check-valves, substantially as and for the purpose set forth.

3. In a filter, the combination with a tank having a portion of its cover permanently attached thereto, a filter mounted in said cover, and a force-pump having the upper end of its cylinder threaded and provided with a jam-nut to take the under side of the cover, and a cap or upper head to screw down thereon, substantially as described.

4. In a filter, the combination with a tank adapted to hold ice and water, and having a portion of its cover secured thereto, and also a portion thereof hinged, of a force-pump cylinder fastened to the fixed portion of the cover, a hand-lever pivoted above the cover and connecting with the piston of said pump, a filter attached to the same part of said cover, pipe connecting with the pump and filter, and suitable check-valves near the bottom of the tank, substantially as described.

5. In a filter, the combination of a tank provided with a shelf at one side for a water vessel, a suitable cover for said tank, a portion of which is secured permanently to the tank, a force-pump cylinder secured to said fixed portion of the tank-cover and provided with a suitable piston and hand-lever, a filter composed essentially of a cylinder closed at the lower end, and flanged at its open upper end, seated in the same portion of the cover, and a detachable filter-stone and connecting nozzle or bib adapted to be placed in said open cylinder, substantially as described.

6. In a filtering apparatus, substantially as described, the herein-described filter consisting essentially of a cylindrical shell closed at its lower end, with its upper end outwardly flanged and seated in a suitable supporting

part of the tank-cover, a cylindrical filter-
stone mounted therein, and provided with a
central, axial hole, a pair of heads and gas-
kets clamped over the ends of said filter-stone
5 by means of a central rod screwing into bosses
on said heads, the upper gasket serving to
close the annular space between the filter-
stone and the containing-shell, waterways in
the upper head communicating with the cen-
10 tral orifice in the filter-stone, and a bib com-

municating with said waterway, substantially
as described.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

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WILLIAM H. DUNSHEE.

Witnesses:

EMMA F. DUNSHEE,

J. M. ST. JOHN.