(No Model.) 2 Sheets—Sheet 1.

M. H. ALLEN.

FILTER.

No. 590,031. Patented Sept. 14, 1897.

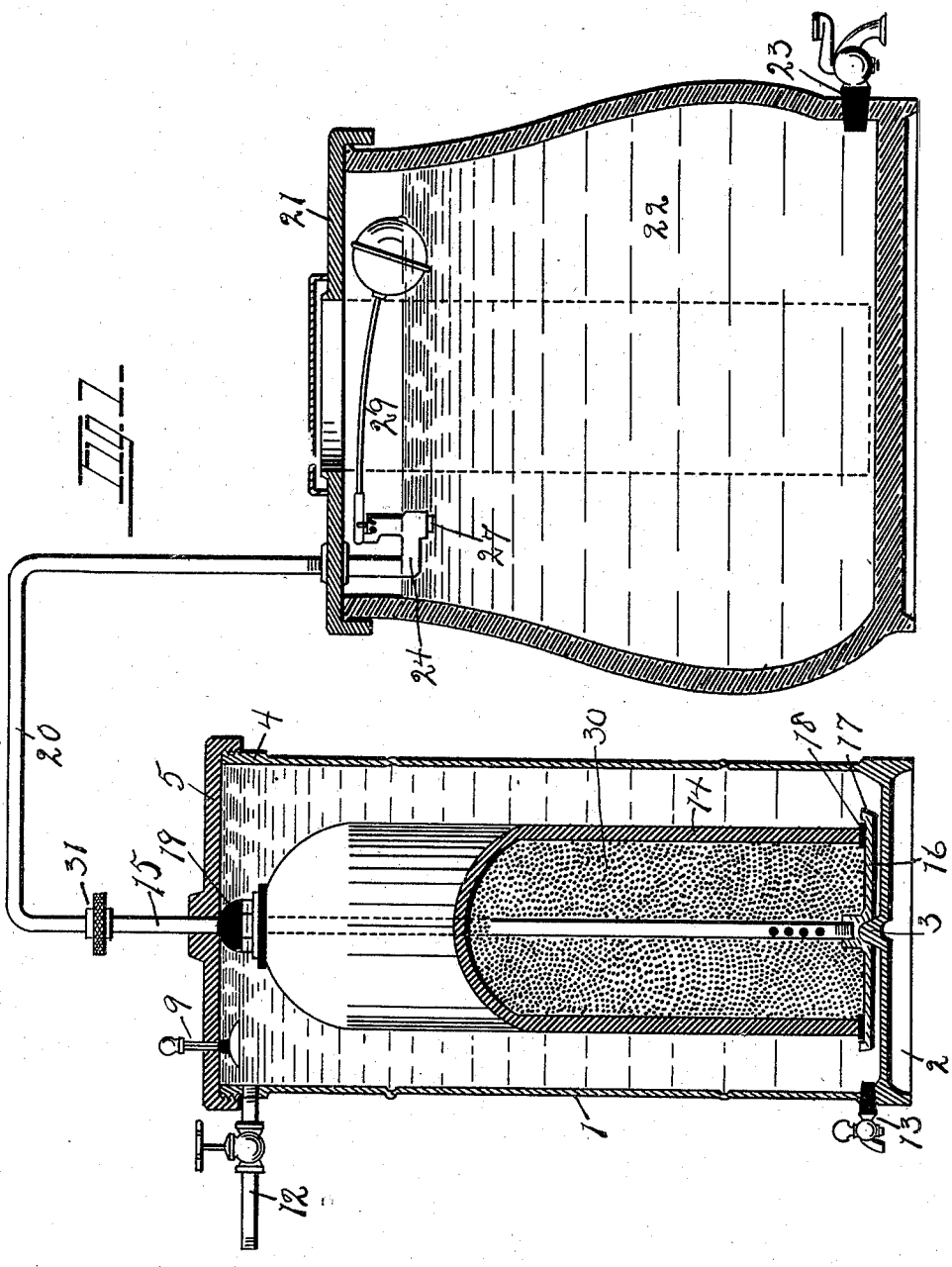


FIG. 1.

WITNESSES.
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(No Model.) 2 Sheets—Sheet 2.

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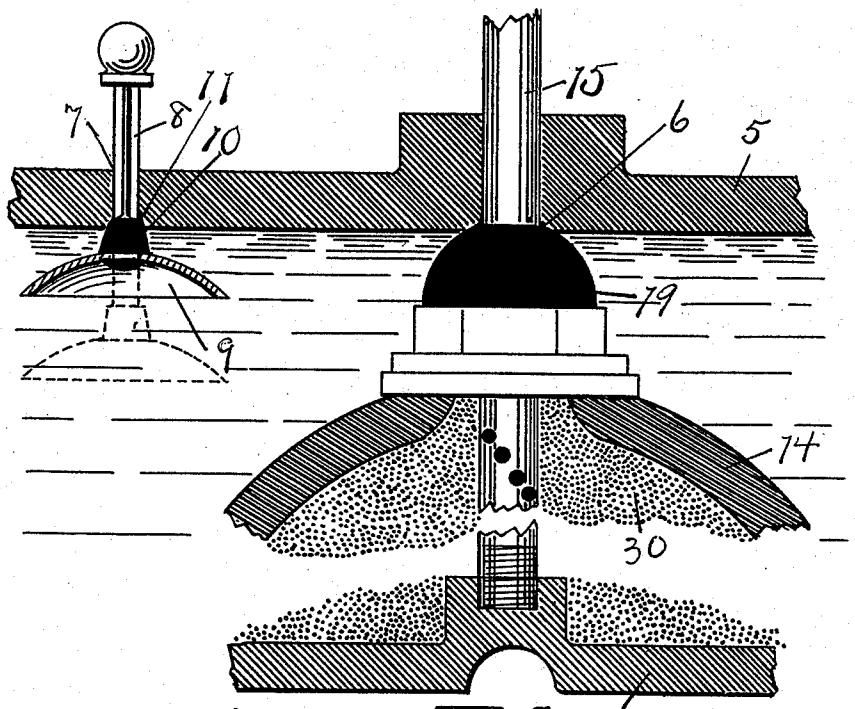


FIG. 2.

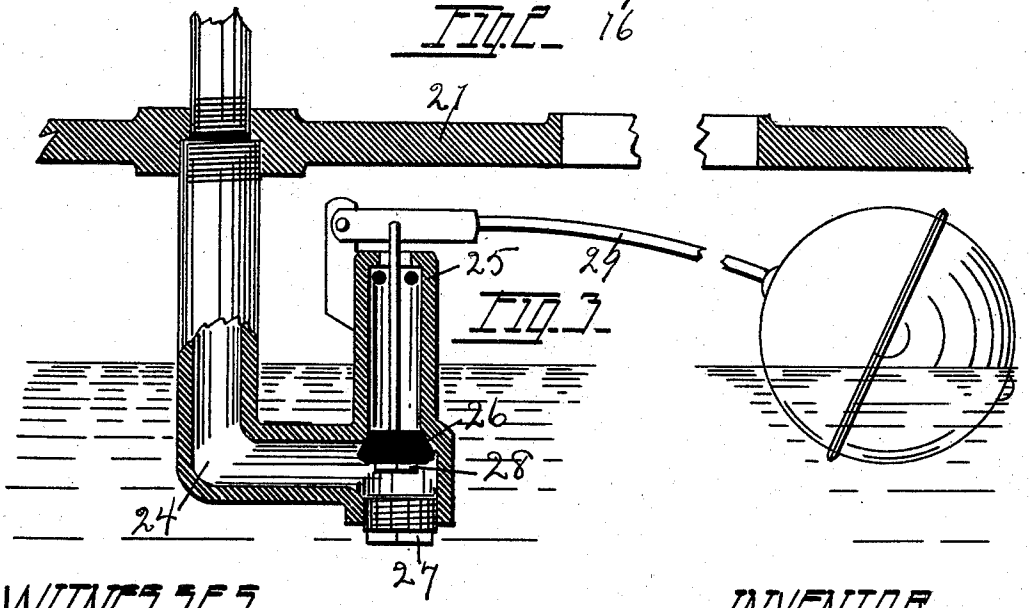


FIG. 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

MORTIMER H. ALLEN, OF TOLEDO, OHIO, ASSIGNOR OF ONE-HALF TO HENRY C. ELLIS, OF SAME PLACE.

FILTER.

SPECIFICATION forming part of Letters Patent No. 590,031, dated September 14, 1897.

Application filed June 20, 1895. Serial No. 553,398. (No model.)

To all whom it may concern:

Be it known that I, MORTIMER H. ALLEN, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Filters; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to a filter, and has for its object to form a filter of compact construction with convenient means for removing the filtering-chamber for the purpose of cleaning the same with a novel control of the discharge of filtered water into the final receptacle.

A further object is to secure the filtering-tube upon its base-plate by means of a compressible packing and the screw-cap for the water-jacket.

With these objects in view the invention consists in the parts and combination of parts hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a longitudinal vertical section of a preferred form of filter. Fig. 2 is a detached vertical sectional view of the same; and Fig. 3 is a sectional detail view showing the automatically-closing valve in the filtered-water receptacle, the last two figures being drawn on an enlarged scale.

I have particularly described my invention as applied to a pressure-filter, although I wish it distinctly understood that I may adapt the same to a gravity principle, if desired.

1 designates the casing, formed with a bottom 2, having an upraised pivotal center 3 and a screw-threaded top 4. Upon the top 4 is screwed a cap 5, having a slightly-conical recess 6 upon the under side and a perforation 7, in which tightly fits a stem 8, adapted to slide therein, and a bell-float 9, the bell-float 9 having a conical rubber valve 10, which when seated fits snugly into a slight concavity 11, formed in the under side of the cap. This bell-float allows the air in the casing 1 to freely escape around the stem 8 while the casing is filling with water, but prevents the water from escaping through the opening in the top of the casing when the casing is filled by rising against the top of the casing and closing the air-hole 7.

At the upper end of the casing 1 is introduced the water-pipe 12 and at the lower end of the casing is a draw-cock 13, by which to remove any sedimentary deposit.

14 designates the filtering-tube, formed of a fine porous plastic composition, preferably of cylindrical form, (in which instance the case is also cylindrical,) and with a closed top having an opening to receive a perforated pipe 15, which extends to the bottom of the tube and is screw-threaded. Upon the lower end of pipe 15 is screwed a metal plate 16, having an annular upturned rim 17, between which and the tube is introduced a rubber gasket 18 to render the same water-tight, the center of the plate having a concavity to seat upon the projection 3 and center of the top within the casing. At the upper end of tube 14 and upon pipe 15 there is arranged a conical rubber packing 19, which when the cap 5 is screwed firmly in place seats into the concavity 6 of the cap and renders the union water-tight.

Pipe 15 is coupled with a pipe 20 (by proper unions) which leads to and is screwed into a cover 21 of a porcelain filtered-water receptacle 22, having a draw-off cock 23 at the bottom portion.

In order to control the supply of water from the filtering-tube into receptacle 22, I have arranged a float-valve upon an L-shaped downwardly-projecting pipe introduced into the bottom of the cover 21, whereby when water is turned through cock 23 the valve will drop and allow a fresh supply of filtered water to be introduced into receptacle 22 until a certain height is attained, when the valve will float and close the inflow of water thereto. This arrangement comprises an L-shaped pipe 24, screwed into the bottom of cover 21 and having a valve-casing 25 extending vertically from a conical valve-seat 26, below which is threaded a nut 27 to allow of introducing the valve 28. Upon the vertical casing 25 is pivoted a float-lever 29, attached to

the valve-stem of valve 28, whereby, as has been heretofore suggested, the inflow of water will seal valve 28 when at a proper height.

Within tube 14 is a carbon granular packing 30, whereby the water primarily filtered through the porous tube is passed through the carbon filling, thereby deodorizing the same and removing all noxious gases that may have escaped the interstices of the porous tube.

It will be seen that I have arranged for the greatest convenience in cleansing the filter, as in the act of removing tube 14 for this purpose it is only necessary to unscrew coupling 31 and cap 5, when the tube may be removed and properly cleansed, and in inserting the same the conical projection 3 will center plate 16 and the conical recess 6 will center rubber packing 19 and closely seal the same from leakage when the cover is screwed to place. This arrangement also allows for a convenience of cleansing receptacle 22, as when coupling 31 is unscrewed to cover 21 with the float-valve and its connections are raised from the receptacle 22, thereby allowing of convenient access for cleansing.

I have shown in Fig. 1 in dotted lines a convenient means of cooling the water in receptacle 22, which comprises a receptacle-flange to rest upon the cover 21 when introduced therethrough into which the ice may be put, thereby cooling the water without conducting the ice therewith.

I have described minutely several details of construction preferred by me. What I wish is to be understood as simply diagrammatic of a preferred form, as I may vary this construction greatly without departing from the spirit of my invention.

It will be seen that by the arrangement of the closure of the tube it is convenient to remove the carbon filling for the purpose of sterilizing the same when desired.

What I claim is—

1. In a filter, an outer casing having its bottom provided with an upward-projecting bearing, a cap screwed onto the upper portion of the casing and having its under surface provided with a conical recess, a plate on the said bearing, a filtering-tube supported on the plate, and flexible seals located respectively at the upper portion of the tube and engaging the conical recess, and between the tube and plate.

2. The water jacket, or casing, provided with a screw-cap, combined with a filtering-tube, open at its bottom and provided with an opening through its top, a plate for closing the end of the tube, the water-pipe extending up through the tube, and a compressible packing placed between the top of the tube and the screw-cap, whereby when the cap is screwed into place the tube is held in position by the packing, substantially as shown.

3. The water jacket or casing, provided with a raised projection upon its bottom, and a screw-cap for its top, a metallic plate provided with a recess in its bottom to receive the projection upon the bottom of the casing, and a socket upon its top, the water-pipe having the said plate screwed upon its lower end, combined with the filtering-tube, closed at its lower end by said metallic plate, and up through which tube the water-pipe extends, and a compressible packing placed between the top of the filtering-tube and the screw-cap, whereby the filtering-tube is centered and secured in position by the cap and packing, substantially as described.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

MORTIMER H. ALLEN.

Witnesses:
WILLIAM WEBSTER,
GEO. L. LEWIS.