

(No Model.)

J. H. BREESE.
FLOATING FILTER.

No. 291,285.

Patented Jan. 1, 1884.

Fig 1.

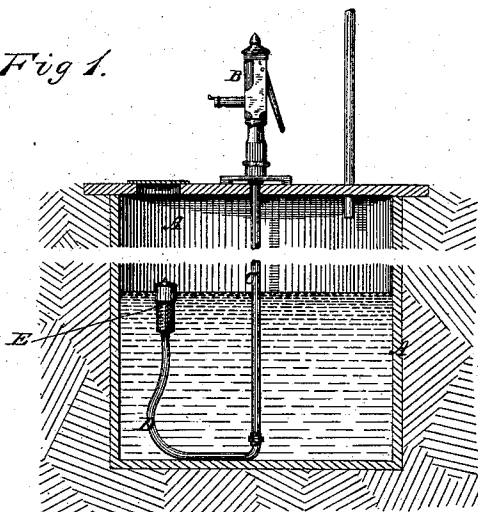


Fig 2.

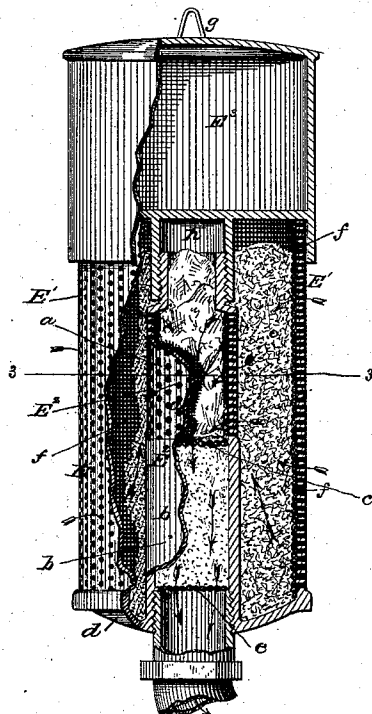
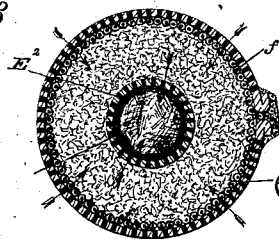


Fig 3.



WITNESSES

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FLOATING FILTER.

SPECIFICATION forming part of Letters Patent No. 291,285, dated January 1, 1884.

Application filed July 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. BREESE, a citizen of the United States of America, residing at Davenport, in the county of Scott and State of Iowa, have invented a certain new and useful Improvement in Water Drawing and Filtering Apparatus, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to apparatus for drawing water from tanks, cisterns, wells, or other vessels or bodies without surplus floatings or sediment.

The objects of the invention are to adapt the apparatus for application to narrow cisterns or wells, to enable the filter, forming a part of the apparatus, to float freely in the body of water in which it is placed and maintain an upright position therein, and to improve the construction of the filter, so as to secure a thorough filtration of the water drawn from the tank or well.

Figure 1 of the drawings is a vertical section of a tank or cistern provided with this improved apparatus. Fig. 2 is an elevation, partly in section, of the improved filter forming a part of said apparatus. Fig. 3 is a transverse section of said filter on line 3 3 of Fig. 2.

A represents a tank, cistern, well, or other body of water, located at any convenient point. A pump, B, is connected with this cistern by means of a suction-pipe, C, which extends into and near the bottom of the tank. This pump may be located directly over the body of water, or at any desired point. A flexible hose, D, of india-rubber or other suitable material, provided with couplings at both ends, is connected at one end to the lower end of the pipe C and at the other end to the lower end of the floating filter E. The floating filter E is preferably composed of an outer perforated cylinder, E', a smaller cylinder or pipe, E'', arranged axially within the outer cylinder, and divided by a wire-gauze or perforated metal diaphragm, e, into an upper perforated chamber, a, and a lower imperforated chamber, b, and an air-chamber, E³, at the upper end of said cylinders. The outer cylinder, E', is pro-

vided with a bottom, d, the inner cylinder being cast integral therewith or attached thereto. The inner cylinder is provided near its lower end with another wire-gauze or perforated metal diaphragm, e, and below said diaphragm with an interior screw-thread adapted to receive the coupling of the flexible pipe, which connects with the suction-pipe. The outer cylinder is provided with an inner lining of wire-gauze, f. This cylinder is constructed from a sheet of perforated brass and a sheet of wire-gauze laid over the same, the said sheets being bent into a cylinder, the meeting-edges of which are turned outward, the wire-gauze overlapping the joint, the parts being then united by means of solder, as clearly shown in Fig. 3. The solder enters the meshes of the gauze and readily unites the parts, forming a strong joint. The annular space between the inner and outer cylinders is filled with charcoal or any other suitable filtering material. The inner cylinder is also preferably lined in part with wire-gauze, and its upper perforated compartment, a, is filled with sponge, and its lower compartment, b, is filled with silicious sand.

The air-chamber E³ consists of a hollow cylinder, having a tight head and a tight bottom, the bottom being above the lower edge of the cylinder, and provided with a short tube or neck, h, screw-threaded to fit the upper screw-threaded end of the inner cylinder, E'; or these parts may be united in any other suitable manner. When the parts are united, the bottom of the air-chamber forms the top of the filtering-cylinders, the lower edge of the air-cylinder shutting down over the upper edge of the outer filtering-cylinder. The head of the air-chamber is provided with a handle, g, by which the filter may be readily lifted when desired.

The operation of this invention is as follows: The filter is connected with the lower end of the suction-pipe, near the bottom of the tank or well, by means of the flexible tube or hose, and floats freely in the water, being buoyed up by the air contained within its air-chamber, the amount of air being just sufficient to sustain the filter, so that the top openings in the outer cylinder will be a short distance below the surface of the water. The flexible tube allows the filter to maintain a

vertical position, which is the one best suited to the thorough permeation of the filtering material. The water enters the filter around the entire circumference of the perforated outer cylinder, and, passing through the filtering material contained within the annular chamber between the cylinders, enters the upper or sponge chamber of the inner cylinder through the perforations therein, passes thence through the diaphragm *c* into the lower chamber of the inner cylinder containing the silicious sand, and thence enters the flexible tube through the lower diaphragm, *c*, in a thoroughly-purified state. The wire-gauze lining the cylinders prevents the filtering material from clogging the perforations therein. The flexible pipe admits of the application of the apparatus to wells or reservoirs of small diameter, since it may rise vertically near the suction-pipe.

What is claimed as the invention is—

1. The combination of a cistern, well, or reservoir, a pump, a suction-pipe connecting said reservoir and pump, a floating filter consisting of an air-chamber and two concentric cylinders of different diameters, the outer cylinder being perforated throughout its circum-

ference, and the space between the cylinders containing filtering material, and a flexible pipe connecting said filter and suction-pipe, substantially as described.

2. A floating filter consisting of an air-chamber and two concentric cylinders of different diameters, the outer cylinder being perforated throughout its circumference, and the inner cylinder divided by a wire-gauze diaphragm into two chambers, one of which is perforated, the said chambers and the annular space between the cylinders being filled with filtering material of different kinds, substantially as described.

3. A filter-casing consisting of a cylinder of perforated metal having a lining of wire-gauze, the meeting edges of said cylinder being turned outward and overlapped by the wire-gauze lining, and united by means of solder, which enters the meshes of the out-turned wire-gauze lining, substantially as described.

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Witnesses:

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