(No Model.)

C. B. ROADS.

FILTER.

No. 600,451. Patented Mar. 8, 1898.

Fig. 1

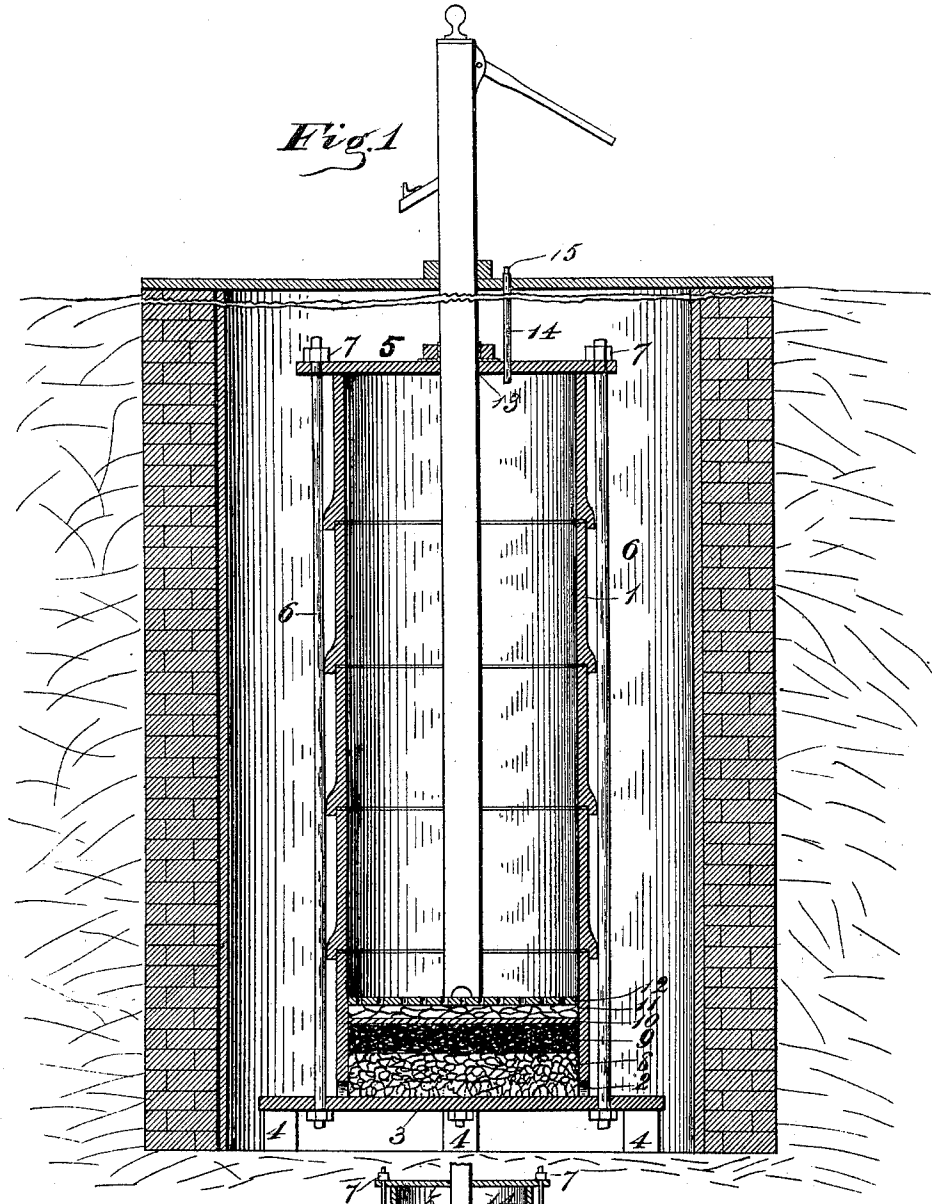
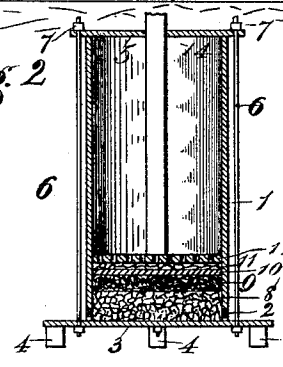


Fig. 2



WITNESSES

E. E. Overholt

A. G. Miller.

INVENTOR,

By Chas. B. Roads:

W. J. Fitzgerald & Co.,

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES B. ROADS, OF MARION, OHIO.

FILTER.

SPECIFICATION forming part of Letters Patent No. 600,451, dated March 8, 1898.

Application filed March 3, 1897. Serial No. 625,849. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. ROADS, a citizen of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in Filters; and I 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.

My invention, as will be hereinafter fully described, claimed, and illustrated in the accompanying drawings, has relation to water-filters, and more particularly relates to certain details of construction and arrangement of parts, rendering the filter especially applicable for locating in the bottom of a cistern or well and forming operative connection with the usual pump employed for raising the water, thus obviating the necessity of special attention to the different quantities of water as drawn by the pump.

My invention will also be found to be valuable when applied to the ordinary water tank or cooler for household purposes, the water being supplied, preferably, by a stand-pipe or other pressure, the water being fed up through the filtering-bed by suitable pipe connections, and while, as above stated, my invention is especially desirable when applied to a pump yet I do not wish to have such limitation set up with respect to its use.

The object of my invention is to render the filter reliably available in purifying all water drawn from the pump, dispensing with the usual expensive and complicated device now in use.

In the accompanying drawings, Figure 1 represents a sectional view of my filter complete, showing a section of the pump in combination therewith. Fig. 2 shows a varied form of filter wherein but one section of casing or tubing is employed.

Reference will be had to the various details involved by figures, the same figure designating a similar part in each of the views.

Briefly stated, my invention consists in providing an outer casing or tube of impervious material, such as glazed pottery or the like, and providing therefor a series of layers or strata of suitable filtering material and the utilization of a vacuum produced by the act of pumping.

Referring in detail to my invention, 1 represents the body or outer casing, which may consist of one or a series of glazed sewer-pipe of any preferred diameter, the lower end of which is provided with a series of semicircular or other form of openings 2. The lower end is inclosed by a bottom 3, preferably formed of wood, though it will be understood that any preferred material may be employed. To the bottom thus provided I prefer to attach a series of legs or other suitable supports 4, adapted to hold the bottom slightly above the sediment usually found in the bottom of the well or cistern. The upper end of the tube is tightly inclosed by a suitable lid 5, the lid and bottom being securely held in position by a series of retaining-rods 6, passing through the projecting edges of the top and bottom and disposed outside of the body. By this arrangement it will be seen that by tightening the nuts 7, provided upon the upper ends of said rods, said bottom and top are brought firmly into engagement with the body, preventing the contents thereof from being displaced. Within the bottom of the tubing or housing thus provided I arrange the filtering material substantially as follows, though it will be understood that any equivalent may be substituted, if preferred—that is to say, after the bottom 3 has been secured in position I place thereon a layer of coarse gravel 8 or the like, followed by a layer or stratum of crushed charcoal 9, and upon the charcoal I prefer to place a retaining medium 10, such as cloth of any preferred character. If desired, the cloth may be substituted by or supplemented with a layer of sponges 11, the object being to prevent the charcoal becoming displaced. Over all of the series of layers of material just referred to I place a rigid perforated cover 12—such, for instance, as a piece of board shaped to snugly fit within the walls of the body. Upon this perforated cover the lower end of the pump is designed to rest after first passing through a suitable opening 13, provided in the cover 5.

The opening 13, through which the pump reaches into the interior of the filter, is of such character that the pump-stock will be

tightly received, thereby rendering the chamber air-tight, and in order to admit air to the vacuum produced by the act of pumping I arrange the pipe 14, the lower end of which extends into the chamber, while the upper end reaches, preferably, above the floor-line or platform upon which the operator stands.

After thus constructing my improved filter and placing the several component parts in their proper positions the device is attached to the lower section of the pump and lowered in position in the bottom of the cistern or well. The device, it will be understood, may be of sufficient height to reach above the water-line, or it may be entirely submerged, in which case the air-pipe 14 will extend upward through the platform and be provided with a suitable closure or stopper 15.

After my improved filter has been placed in position it will be observed that the operation thereof is as follows: The stopper 15 is secured in position upon the tube 14, when the act of pumping will withdraw the air from the body, thus creating a vacuum which will operate to cause the water to percolate through the filtering-bed until the interior of the body is entirely filled. The stopper being in the pipe 14 will prevent insects or foreign bodies entering the tube, thus leaving the filter in a reliably efficient condition, obviating the necessity of further attention thereto.

It will be understood that in lieu of the series of openings 2, arranged in the lower edge of the tube forming the body, a bottom of unglazed material may be formed integrally with said tubing, rendering it unnecessary to provide the wooden bottom 3.

It will be further apparent that various other changes may be made without departing from the spirit and intent of my invention, and I do not therefore wish to be confined strictly to the actual construction and arrangement set forth.

When it is deemed unnecessary to accelerate the action of the filtering process by creating a vacuum through the action of the pump, dependence may be had alone upon percolation by gravity, as such process is going on as long as the submerged reservoir is not entirely filled. In order, therefore, to permit the free action of gravity, the stopper 15 may be replaced by a perforated cap which will allow the air to freely pass out of the reservoir as it becomes filled with water, and after it is filled an ample supply of pure water is available for withdrawal by the pump.

Believing that the advantages, operation, and construction of my invention will be made clear by reference to the foregoing specification and the accompanying drawings, further description is deemed unnecessary.

After thus describing my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An impervious filter having perforations at its bottom, filtering material above said perforations, a perforated cover thereon, a pump-barrel resting on said cover, all combined and arranged as set forth.

2. As an improvement in filters, an air-tight casing including the top and the bottom, having perforations in its bottom, filtering material arranged above said perforations, a perforated cover resting on said filtering material, a pump-barrel resting on said cover, whereby on the operation of the pump a vacuum is created in the filter, all combined as set forth.

3. A portable impervious filter having openings around its bottom, filtering material above said openings, a perforated cover on said material and a pump-barrel resting on said cover all combined as set forth, whereby the filter may be transported and placed in any suitable receptacle.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES B. ROADS.

Witnesses:
S. R. RAUHAUSER,
J. C. WALTER.