C. S. SMITH.

FILTERING APPARATUS.

APPLICATION FILED MAY 18, 1914. RENEWED JAN. 10, 1918.

1,276,129. Patented Aug. 20, 1918.

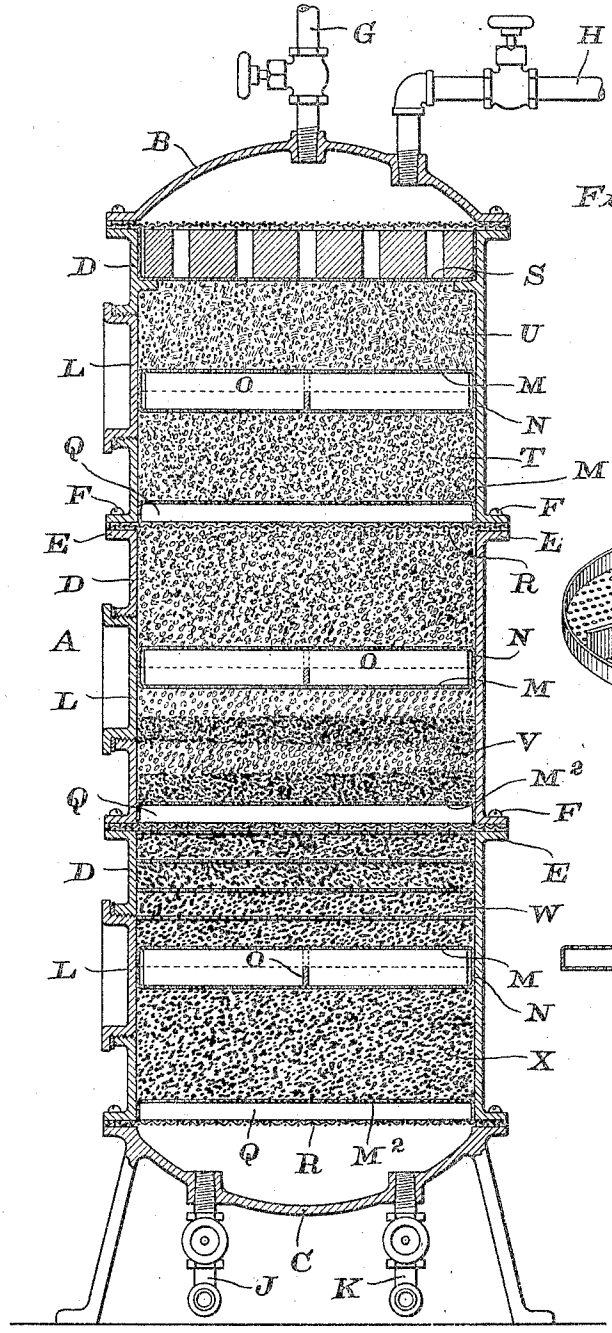


Fig. 1.

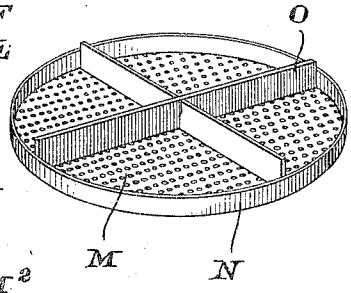


Fig. 2.

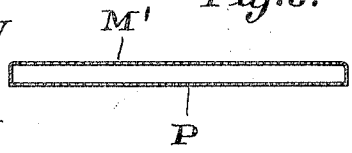


Fig. 3.

Witnesses:
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CAROLYN S. SMITH, OF BROOKLYN, NEW YORK.

FILTERING APPARATUS.

1,276,129. Specification of Letters Patent. Patented Aug. 20, 1918.

Application filed May 16, 1914, Serial No. 839,262. Renewed January 10, 1918. Serial No. 211,314.

To all whom it may concern:

Be it known that I, CAROLYN S. SMITH, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Filtering Apparatus, of which the following is a specification accompanied by drawings.

This invention relates to filtering apparatus for filtering water under pressure and the primary objects of the invention are to increase the degree of purity of the water by setting up galvanic action therein by improved means. I depend not only upon the form of transverse partitions in the tank, but also upon the character of the intermediate filling material between the partitions, which is capable of setting up galvanic action in addition to that set up by the couples forming the transverse partitions.

The invention is shown in one of its preferred forms in the accompanying drawings, in which—

Figure 1 is a vertical sectional view;

Fig. 2 is a detail perspective view of a portion of one form of partition; and

Fig. 3 is a sectional view of another form of partition.

Referring to the drawings, A represents a tank, having the top B and bottom C, between which are the sections D, provided with flanges E secured together by bolts F, so that the complete tank A may comprise as many sections as desired.

The top is provided with the outlet G for purified water, and inlet H for cleaning purposes. The bottom is provided with the inlet J for water, adapted to be attached to a house system, and is also provided with the outlet K for cleaning purposes.

Each section D is preferably provided with a man-hole L in its side for cleaning purposes and for facilitating the placing of the intermediate filling material between the partitions.

The partitions M are preferably formed of two perforated trays of different metals, such as brass and aluminum, having flanges N placed edge to edge, so that they form galvanic couples. Separators O may be placed between the trays as shown in detail in Fig. 2. If desired, the partitions referred to may be constructed as shown in Fig. 3, in which one tray M′ is placed in contact with a perforated sheet P.

The partitions Q which are located at the meeting parts of the filter sections preferably comprise the trays M² and layers of wire mesh cloth R held between the flanges of the sections and forming galvanic couples, although the partitions Q could be, if desired, constructed like that shown in Fig. 3.

The upper section D may have first a perforated tray S containing porous material such as a composition of salts of iron and sodium and other beneficial salts.

The intermediate filling between the partitions is preferably composed of various combinations of materials which are capable of setting up galvanic action, such as a mixture of carbon, and finely divided aluminum. The aluminum may be in the form of punchings, and intermixed with the carbon as shown in the layers T. The layer U may be composed of this same mixture, with the addition of flint.

The intermediate filling may, if desired, be formed of alternate layers of materials which will set up galvanic action, such as layers of carbon and aluminum punchings, shown at V, or else perforated sheets of aluminum or other suitable metal may be arranged between layers of carbon as shown at W. The lower section is preferably provided with a layer of carbon alone as shown at X.

The layers of intermediate filling between the transverse partitions M and Q may all be constructed alike, or may all be different, in accordance with the above specification. One suitable arrangement, however, is that shown in the drawings, but this arrangement may be changed as desired.

My filtering apparatus is intended, as stated, to be used in conjunction with water under pressure, by which means the best results are obtained. It is especially desirable in the construction of the filtering apparatus that means be provided as described for enabling portions of the filtering material to be removed and replaced at will, without taking apart the entire filter. It has been found that the metal exemplified by aluminum has to be more often replaced than the other materials and provision is made for this purpose. The combination of the transverse partitions which form galvanic

couples and the filling material between the partitions which is capable of setting up galvanic action keeps up the galvanic action throughout the entire filter beds.

I claim and desire to obtain by Letters Patent the following:

1. In filtering apparatus, the combination with a tank, of transverse partitions forming galvanic couples, intermediate filtering media consisting of carbon and a finely divided metal capable of setting up electrolytic action in the water, and means for forcing water under pressure through said filtering media, whereby the filtration takes place in the presence of upward percolation, pressure and electrolytic action, and the residue descends to the bottom of the tank.

2. In filtering apparatus, the combination with a tank, of transverse partitions forming galvanic couples, intermediate filtering media consisting of carbon and aluminum capable of setting up electrolytic action in the water, and means for forcing water under pressure through said filtering media, whereby the filtration takes place in the presence of upward percolation, pressure, and electrolytic action, and the residue descends to the bottom of the tank.

3. In filtering apparatus, the combination with a tank, of transverse partitions forming galvanic couples, intermediate filtering media composed of materials capable of setting up electrolytic action in the water, and means for forcing water under pressure upwardly through said filtering media, whereby the filtration takes place in the presence of upward percolation, pressure, and electrolytic action, and the residue descends to the bottom of the tank.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CAROLYN S. SMITH.

Witnesses:
A. C. PARHAM,
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