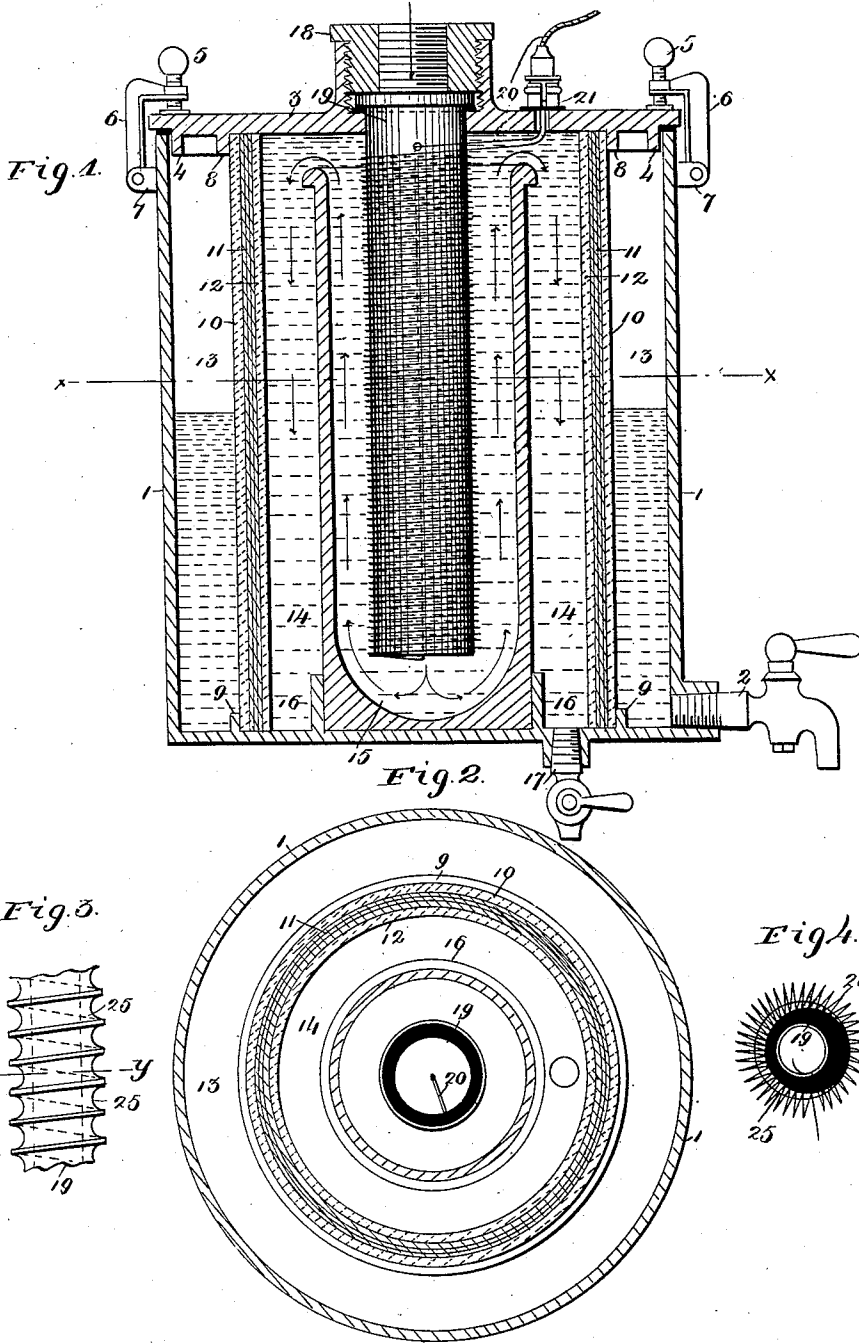


(No Model.)

H. G. STIEBEL, Jr.
WATER STERILIZING APPARATUS.

No. 564,657.

Patented July 28, 1896.



Witnesses
Alfred A. Mathey
Frank Wells

Inventor
H. G. Stiebel, Jr.
By his Attorneys,
Keller & Stueck

UNITED STATES PATENT OFFICE.

HENRY G. STIEBEL, JR., OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF
TO HENRY J. NATHAN, OF SAME PLACE.

WATER-STERILIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 564,657, dated July 28, 1896.

Application filed July 18, 1895. Serial No. 556,335. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. STIEBEL, Jr., a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Electric Water-Sterilizing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in electric water-sterilizing apparatus; and it consists in the novel arrangement and combination of parts, more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a middle vertical longitudinal section of the apparatus. Fig. 2 is a transverse section on the line $x x$ of Fig. 1. Fig. 3 is a detail elevation of a modified form of the tube conveying the water or other fluid to the filter-chamber; and Fig. 4 is a section on $y y$ of Fig. 3, with resistance-coil attached.

The object of my invention is to construct an electric water-sterilizing apparatus which will simultaneously heat and filter the water passing through the same, thereby sterilizing the water with respect to any injurious animalculæ or bacteria, destroying the latter completely and rendering the water wholesome and fit for drinking and cooking purposes.

In detail the invention may be described as follows:

Referring to the drawings, 1 represents a preferably annular casing having an outlet or delivery pipe 2 for the filtered water. The upper end of the casing is closed by a plate 3, provided with an exterior flange 4 adapted to come in contact with the inner surface of the upper end of the casing, said plate being temporarily secured by the binding-posts 5, carried by the arms 6, pivoted between suitable lugs 7 carried by the outer wall of the casing. Confined between an inner flange 8 formed with the plate 3 and a corresponding flange 9 carried by the bottom of the casing is a porous cylindrical diaphragm 10, having a series of filter-sheets 11, of paper or othersuitable material, placed adjacent thereto, said sheets being confined and held in place between said outer porous diaphragm

10 and a similar inner diaphragm 12. The clear-water chamber 13 is formed, of course, around the outer diaphragm. The filter-chamber 14 is provided with a cylindrical deflecting-cup 15 open only at the top, the bottom resting and being confined within the walls of an inner flange 16 carried by the bottom of the casing. Adjacent to the flange 16 is an outlet-pipe 17 for flushing the filter-chamber when necessary. Carried by the plate 3 and secured thereto by means of a cap-screw 18, which latter is adapted to be secured to any suitable supply-pipe, is an open tube 19, of suitable non-conducting or insulated material, through the interior of which passes one loop of a conducting-wire 20, secured by a binding-post 21 at the top of the plate 3, the return loop of the wire being coiled about the outer periphery of the tube 19, the whole forming a resistance-coil for the electric current passing through the wire.

A modification of the tube 19 is shown in Fig. 3, wherein I have formed a spiral groove 25 along the exterior of the tube, and where, as seen in Fig. 4, each loop of the conducting-wire is made in the form of a coil 26, the outer coil being wrapped around and following the outline of the outer groove, this arrangement resulting in a greater quantity of wire and a corresponding increase in resistance material.

The deflecting-cup serves to bring the flowing water in contact with the resistance-coil, the flow of the water being indicated by the arrows. The resistance-coil upon a current passed therethrough heats the water to a point where all injurious organisms are destroyed. The water thus purified passes through the filter diaphragm into the clear-water chamber, whence it is drawn for use.

I do not limit myself to the precise form or arrangement of the parts here shown. It is obvious that instead of the cylindrical form a rectangular form may be given to the casing and the other parts accordingly. It might also be possible to remove the resistance-coil from the relation it occupies in the drawings, so long as the water heated thereby were conducted to a suitable filter-chamber. It is also obvious that other liquids besides water could be passed through the present apparatus.

Having described my invention, what I claim is—

1. In a water-sterilizing apparatus, a suitable casing, a filter-chamber and a clear-water chamber in the same, a diaphragm between said chambers, suitable inlet and outlet openings for the filter and an electric resistance-coil confined within the filter-chamber, substantially as set forth.
2. In a water-sterilizing apparatus, a suitable casing, a cap-plate for the same, suitable porous diaphragms held between the cap-plate and the bottom of the casing, filtering-sheets located between the diaphragms, a filter-chamber formed within the diaphragms, a deflecting-cup secured to the bottom of the casing within the filter-chamber, a feed-tube leading into the deflecting-cup, a suitable resistance-coil carried by the tube and having the wires thereof passed through the cap-plate, means for securing the cap-plate to the casing, and suitable pipes leading respectively from the filter-chamber and the clear-water chamber, substantially as set forth.
3. In a water-sterilizing apparatus, a casing, a feed-tube projecting thereinto, an exterior spiral groove formed on such tube, a resistance-coil supported by such groove, and means within the casing for filtering the water after being heated by the coil, substantially as set forth.
4. In a water-sterilizing apparatus, a casing, a non-conducting or insulated feed-tube projecting thereinto, an exterior spiral groove formed on such tube, a suitable coiled loop supported by said groove, and means within the casing for filtering the water after being heated by the loop, substantially as set forth.

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

HENRY G. STIEBEL, JR.

Witnesses:

ALFRED A. MATHEY,
E. STAREK.