

No. 652,907.

Patented July 3, 1900.

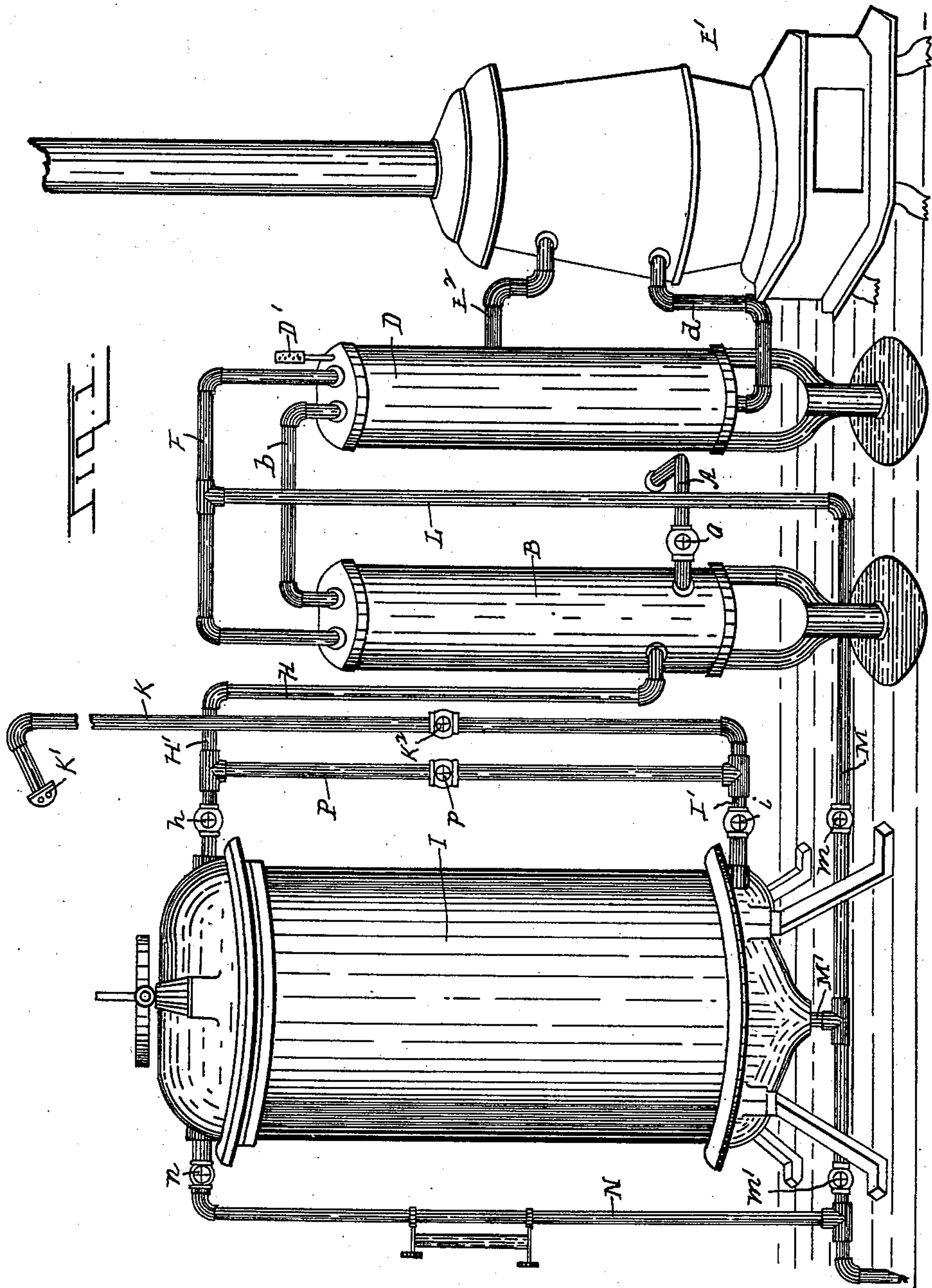
W. M. DEICHLER.

APPARATUS FOR STERILIZING AND FILTERING LIQUIDS.

(Application filed Apr. 24, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

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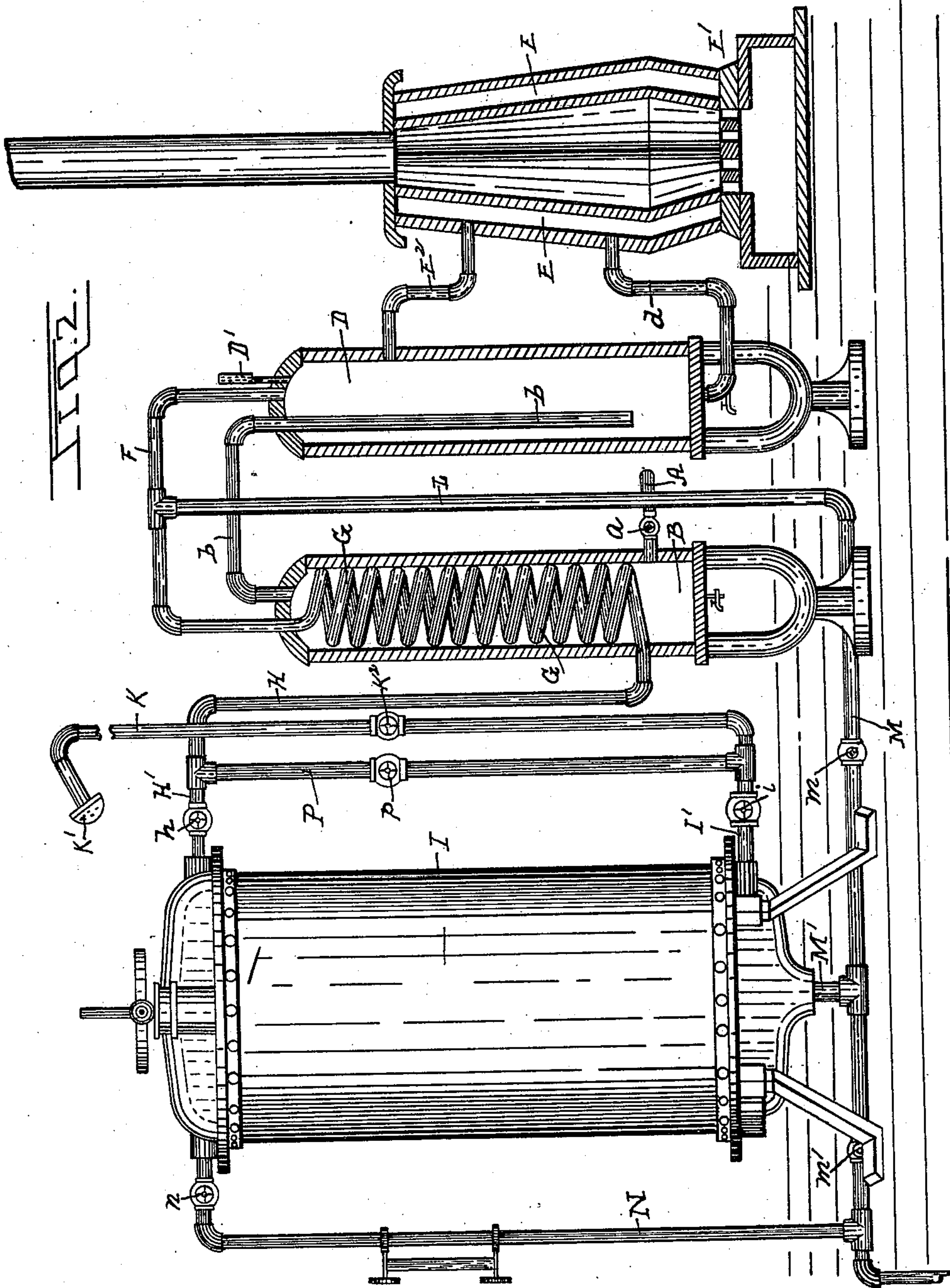
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WITNESSES.
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APPARATUS FOR STERILIZING AND FILTERING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 652,907, dated July 3, 1900.

Application filed April 24, 1899. Serial No. 714,224. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. DEICHLER, a citizen of the United States, residing at Lancaster, county of Lancaster, State of Pennsylvania, have invented certain Improvements in Apparatus for Sterilizing and Filtering Liquids, of which the following is a specification.

This invention relates more particularly to improvements in apparatus for sterilizing and filtering water; and the objects of my improvements are, first, to cut out the filter from or bring it into the course taken by the water in passing from the sterilizing apparatus to the receiving-tank; second, to cleanse the filtering medium of impurities removed thereby from the water passing through it, and, third, to remove sediment from the bottom of the filter.

The invention consists in the construction and combination of the various parts, as hereinafter fully described, and then pointed out in the claims.

A device for carrying my invention into effect is illustrated in the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a perspective view of a construction embodying my invention; and Fig. 2, a side elevation of the same, parts being in section to show the operation of the mechanism.

Similar letters indicate like parts throughout the two views.

Referring to the details of the drawing, A indicates a pipe forming the means through which the original supply of water is furnished and which feeds into a cooling-tank B, to be further described, said pipe A having a stop-cock *a*. The water passes through cooling-tank B to and through a pipe *b*, entering the upper end of a sterilizing-boiler D and extending nearly to the bottom thereof. The bottom of boiler D is connected by a pipe *d* with the lower portion of a water-back E, surrounding or connected with a stove or heater E'. Above the entrance of pipe *d* into water-back E a pipe E² enters and connects said water-back with boiler D above the bottom of pipe *b*. From water-back D, wherein the water is boiled, the course of the same is through pipe E² into sterilizing-boiler D, thence upward through said boiler D to and

through a pipe F, connecting the upper end of said boiler and the upper end of a cooling-coil G, located in cooling-tank B, and thence downward through said cooling-coil and out of said tank into an upwardly-extending pipe H, having a horizontal section H', through which pipe H H' it is conveyed and discharged into the top of a filter I, there being a stop-cock *h* in section H' of pipe H H' and adjacent to the filter. The sterilized water is filtered as it passes down through the filter to the discharge-pipe I', through which it is fed to pipe K, by which the water is conveyed to the point where it is discharged into the receiving-tank. On the discharge end of pipe K is a sprayer K', whereby the water is aerated by spraying the same into the receiving-tank. (Not shown, as it forms no part of this invention.) In pipe I' there is a stop-cock *i*, located adjacent to the filter, pipe K also having a stop-cock K². The water is sterilized by boiling in the water-back and boiler D, on which latter is a thermometer D', indicating the temperature of the water. Water-back E and heater E' may be omitted and any other suitable means be used for heating the water to a suitable degree in said boiler D.

Cooling-tank B has a twofold action—the sterilized water is cooled as it passes downward through coil G and the heating of the unsterilized water is begun as it passes upward through and around the convolutions of coil G.

It is held by scientists that water should be boiled not less than fifteen minutes to thoroughly sterilize the same; but in my sterilizing and filtering device the proportions of the construction are such that the water will be boiled for an hour or upward, the length of time being modified by the amount of water drawn off and the pressure of the supply, though in all cases the construction bears such relation to those elements that the time of boiling will greatly exceed fifteen minutes.

In order, when necessary, that the filter may be cleansed of impurities removed thereby from the water passed through it, a vertical pipe L extends downward from pipe F to a horizontally-disposed pipe M, passing beneath and beyond filter I, with which it is connected by a short pipe M'. The lower end

of an upright cleaning-pipe N is connected with pipe M beyond the filter, and the upper end of said pipe N is connected with the upper end of the filter, near which end of pipe N is a stop-cock *n*. There is also a stop-cock *m* in pipe M and located between pipe M' and pipe L, and a stop-cock *m'* in said pipe M and located between pipe M' and pipe N. Stop-cocks *a*, *h*, *i*, and *K*² are normally open, while stop-cocks *m*, *m'*, and *n* are normally closed. To cleanse the filter, stop-cocks *h* and *i* are closed and stop-cocks *m* and *n* are opened, and to remove any sediment from the bottom of the filter stop-cock *i* is closed and stop-cock *m'* opened.

Section H' of pipe H H' and discharge-pipe I' are connected by a vertical pipe P, located outside of stop-cocks *h* and *i* and having therein a stop-cock *p*, which is normally closed. This pipe P permits the filter to be cut out of the course taken by the water, so that the same can be supplied directly from the sterilizer to the tank. For this purpose stop-cocks *h* and *i* are closed and stop-cock *p* opened.

I do not restrict myself to the details of the construction herein shown and described, as it is obvious that numerous alterations can be made therein without departing from the principle and scope of my invention.

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

1. The combination, in an apparatus of the character described, of a sterilizer, a filter, a pipe extending from the sterilizer to the filter,

a stop-cock in said pipe, a discharge-pipe attached to the filter, a stop-cock in the discharge-pipe, a pipe beneath the filter and connected with the pipe extending from the sterilizer to the filter and between the stop-cock therein and the sterilizer, a connection between the bottom of the filter and the pipe beneath said filter, a stop-cock in the pipe beneath the filter and located between the filter and the connection of said pipe with the pipe extending from the sterilizer to the filter, a cleaning-pipe connected with the top of the filter, and a stop-cock in the cleaning-pipe, for the purpose specified.

2. The combination, in an apparatus of the character described, of a sterilizer, a filter, a pipe extending from the sterilizer to the filter, a stop-cock in said pipe, a discharge-pipe attached to the filter, a stop-cock in the discharge-pipe, a pipe beneath the filter and connected with the pipe extending from the sterilizer to the filter and between the stop-cock therein and the sterilizer, a connection between the bottom of the filter and the pipe beneath said filter, stop-cocks in the pipes beneath the filter, one of said stop-cocks being located on each side of the connection between said pipe and the bottom of the filter, a cleaning-pipe connected with the top of the filter, and a stop-cock in the cleaning-pipe, for the purpose specified.

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Witnesses:

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