

J. M. A. LACOMME.
DEVICE FOR THE PURIFICATION OF WATER.

(Application filed Dec. 7, 1900.)

(No Model.)

Fig. 1.

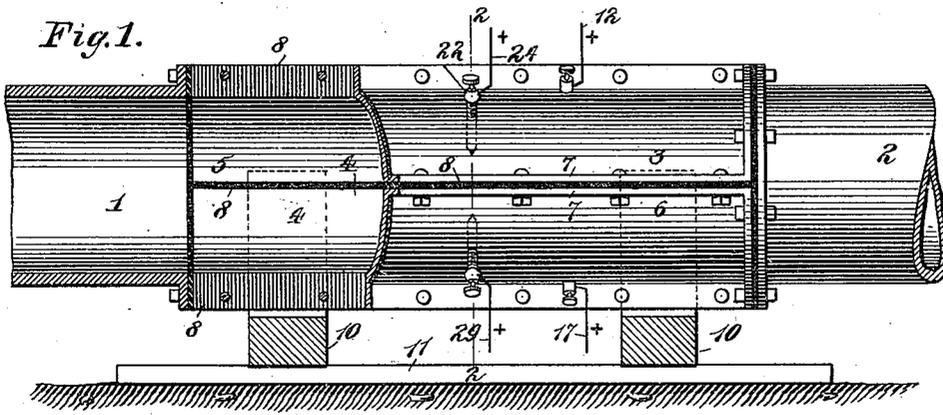


Fig. 4.

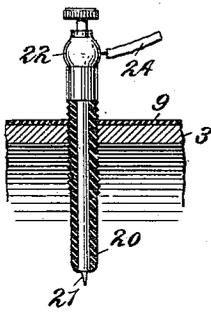


Fig. 2.

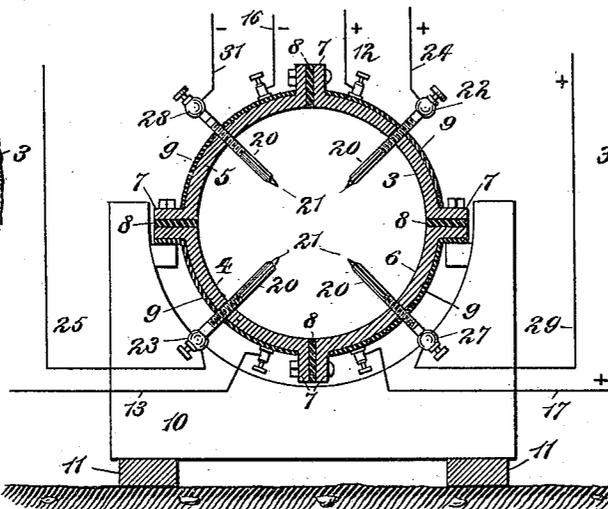


Fig. 5.

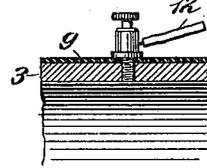
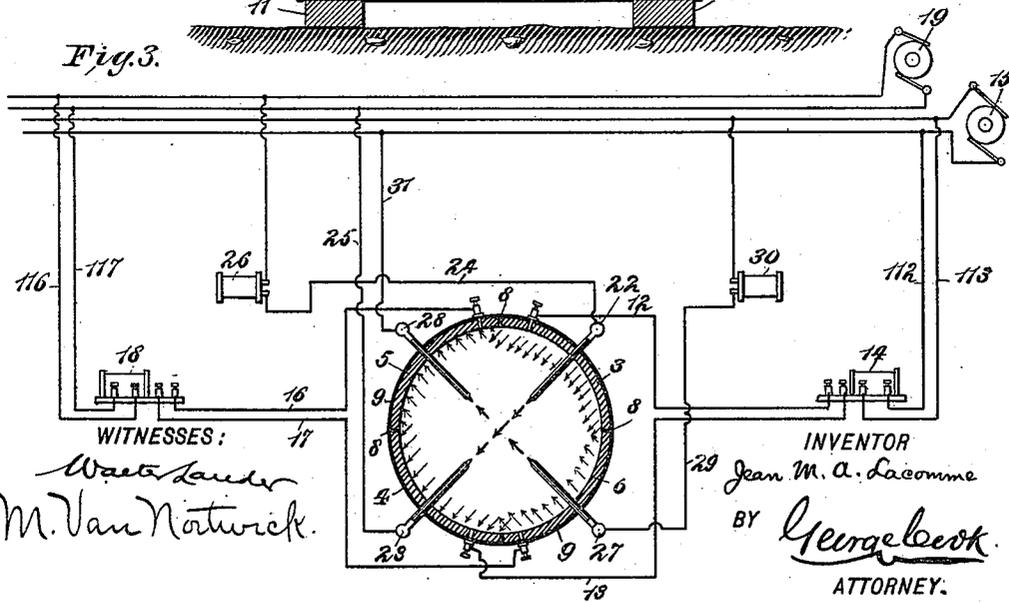


Fig. 3.



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UNITED STATES PATENT OFFICE.

JEAN MARIE AUGUSTE LACOMME, OF BROOKLYN, NEW YORK, ASSIGNOR
OF ONE-HALF TO WALTER LAUDER, OF SAME PLACE.

DEVICE FOR THE PURIFICATION OF WATER.

SPECIFICATION forming part of Letters Patent No. 672,231, dated April 16, 1901.

Application filed December 7, 1900. Serial No. 39,003. (No model.)

To all whom it may concern:

Be it known that I, JEAN MARIE AUGUSTE LACOMME, a citizen of the Republic of France, and a resident of New York, in the borough
5 of Brooklyn, in the county of Kings and State of New York, have made and invented certain new and useful Improvements in Devices for the Purification of Water, of which the following is a specification.

10 My invention relates to an improvement in devices for the purification of water, the object of the same being to provide suitable means whereby the water may be treated in large quantities as it flows, for instance,
15 through the city pipes or mains, and at the same time be effective in the destruction of microbes, bacteria, and in fact all organic life, and thereby render the water pure and desirable for introduction into the human
20 system.

With these and other ends in view my invention consists in certain novel features of construction and combination of parts, as will be hereinafter fully described, and pointed
25 out in the claims.

In the accompanying drawings, Figure 1 is a view, partly in section and partly in elevation, of a portion of a water-main, showing my improved device applied thereto. Fig. 2
30 is a sectional view taken on the line 2 2 of Fig. 1. Fig. 3 is a diagrammatic view showing the arrangement of the electric conductors. Fig. 4 is a detached sectional view showing the attachment of a sparking-rod to the electrode.
35 Fig. 5 is a view showing the attachment of an electric conductor to the electrode.

Referring to the drawings, 1 2 represent sections of a city water-main, between the ends of which is connected my improved apparatus, preferably of tubular form and of the same diameter as that of the main 1 2, my device therefore forming practically a continuation of said main or one portion or section
40 of the same. As will be seen by the drawings, I have so constructed and arranged my device that I employ what I term "cross-currents of electricity"—that is, currents which flow or travel in a direction across other currents flowing in another direction—
50 the number of these cross-currents depending

entirely upon the number of pairs of sections into which my tubular device is made. In order to utilize currents thus traveling or flowing in different directions, I connect the several pairs of electrodes with several dyna- 55 mos or sources of electricity, the current to each separate pair of electrodes flowing from a separate and distinct source.

In the drawings I have illustrated my device as consisting of two pairs of electrodes, 60 the first pair consisting of the sections 3 4 and the second pair consisting of the sections 5 6, as two pairs are the least number of which my improved device can be constructed, although it will be evident that the number of 55 pairs may be increased to three, four, five, or as many as may be desired, it being distinctly understood, however, that each pair of electrodes must be supplied with electricity from a separate source. These electrodes 3, 70 4, 5, and 6 are bent or shaped to form a pipe or main when properly combined, the edges of each electrode being provided with flanges 7, which when the parts are properly assembled are bolted or otherwise secured together, 75 with a suitable insulating material 8 between them. These electrodes will of course be constructed of metal, iron being preferred by reason of its conductivity and cheapness. In order to prevent the escape of the current 80 from these electrodes, I prefer to cover the same with porcelain 9 or other suitable insulating material, the device resting upon brackets or supports 10, which in turn rest upon blocks of insulating material 11, as 85 illustrated in Fig. 2.

As illustrated in the diagram, Fig. 3, the pair of electrodes 3 4 are connected by the wires or electric conductors 12 13 to the poles of an induction-coil 14, from which the wires 90 or conductors 112 113 lead to a dynamo 15, and from the pair of electrodes 5 6 lead the wires 16 17 to the poles of the induction-coil 18, whence the wires or conductors 116 117 lead to the dynamo 19, the effect being that 95 when the main is filled with water the currents of electricity will flow from one electrode to the other (constituting a pair) in one direction, while a current will also flow from one electrode to the other (constituting a sec- 100

ond pair) in a direction at right angles to the flow or travel of the first current, the direction of the flow or travel of the cross-currents being illustrated in Fig. 3 by means of arrows. By this construction and arrangement of parts it will be seen that the entire body of water within the pipe which completes the circuit from electrode to electrode will be acted upon by the currents of electricity, which would not be the case were the pipe or main made of less than two pairs of electrodes, for in that instance, especially in the case of large pipes or mains, the current of electricity would simply jump across the insulating material between the edges of the sections from one electrode to the other. The same effect would also follow should the several pairs of electrodes be supplied from the same source of electricity, but which I have entirely obviated by connecting the diametrically opposite sections forming each pair of electrodes with a suitable and distinct source of electricity, thereby utilizing a number of cross-currents flowing in different directions through the water, a feature which, so far as I am aware, has never before been employed in devices constructed for similar purposes. In addition to these induced cross-currents I also employ electric sparks, which materially assist in oxygenizing the water by decomposing the same into its gases, and at the same time decomposing all organic matter that may be present in the water, and thereby assist the induced currents in the production of a small amount of carbonic-acid gas. These sparking devices, as shown in Fig. 4, consist of an outer casing of vulcanite, porcelain, or other insulating material threaded in the electrode-sections and extending inwardly into the pipe to any extent. Through this casing 20 extends the conductor 21, preferably pointed at its end.

In the drawings I have illustrated two pairs of these sparking rods, one rod extending through each electrode-section, although it is evident that they may be multiplied as desired. They may be made of any suitable material, platinum being preferred. In Figs. 2 and 3 it will be seen that the sparking rods 22 23 extend through the electrode-sections 3 4, respectively, and are connected with the wires 24 25, the wire 24 leading to the sparking coil 26, and thence to the dynamo 19, and the wire of the conductor 25 also to said dynamo 19. The sparking rods 27 28 extend through the electrode-sections 6 5, respectively, constituting the second pair of electrodes, said sparking-rod 27 having the wire or conductor 29 leading therefrom to the sparking coil 30, and thence to the dynamo 15, the diametrically opposite sparking rod 28 having a wire or conductor 31 leading therefrom to said dynamo 15, the effect being that a spark will flow through the water in one direction from one pair of sparking rods, while a second spark will flow through the water in a direction at right angles to the first, it be-

ing understood that the several series of induced cross-currents of electricity and the several crossing sparks will in no way interfere with or influence each other by reason of the fact that said induced currents come from different sources and that the several sparks also come from different dynamos or sources.

I am aware that others have attempted to treat liquids by means of an electrode of tubular form and having electrode-points extending inwardly into the tube, and hence I make no claim thereto, such being devised for the treatment of liquids in small quantities and wholly unadapted for the treatment of liquids in large quantities and in which a current of electricity from one source escapes from point to point. I am also aware that it is old to construct an apparatus for this purpose having sinusoidal electric conducting sides, these sides being connected to a single source of electricity, and hence I make no claim thereto, the gist of my invention lying in the employment of two or more pairs of electrodes, the several pairs being supplied with electricity from separate and independent sources, whereby several currents of electricity will flow through the water in different directions and in directions across each other.

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

1. An apparatus for the purification of water, consisting of a section of water-main made up of two or more pairs of electrodes as described, each electrode being insulated from the others, induction-coils electrically connected with said electrodes and with separate sources of electricity, each pair of electrodes being electrically connected to one of said induction-coils, whereby cross-currents of electricity will be completed through the water in said main, substantially as described.

2. An apparatus for the purification of water, consisting of a section of a water-main, which section is made up of two pairs of electrodes, each electrode insulated from the others, said section of water-main being covered on its outer surface with insulating material, two induction-coils, each electrically connected with an independent source of electricity, and each electrically connected with one pair of electrodes, whereby cross-currents of electricity are caused to flow diametrically through the water in said main and in directions at right angles to each other, substantially as described.

3. An apparatus for the purification of water, consisting of a section of a water-main, which section is made up of two or more pairs of electrodes, each electrode being insulated from the others, induction-coils electrically connected with said electrodes and with separate sources of electricity, each pair of electrodes being electrically connected to one of said induction-coils, whereby cross-currents of electricity will be completed in the water

in said main, and two or more pairs of sparking rods, said sparking rods passing through said electrodes and insulated therefrom, the diametrically opposite or alternating rods being electrically connected with the same source of electricity and the intermediate rods with another source of electricity, substantially as described.

Signed at New York, in the county of New York and State of New York, this 6th day of December, A. D. 1900.

JEAN MARIE AUGUSTE LACOMME.

Witnesses:

GEORGE COOK,
M. VAN NORTWICK.