(No Model.)

V. M. DORSEY.

WATER PURIFIER.

No. 448,416. Patented Mar. 17, 1891.

FIG. 1.

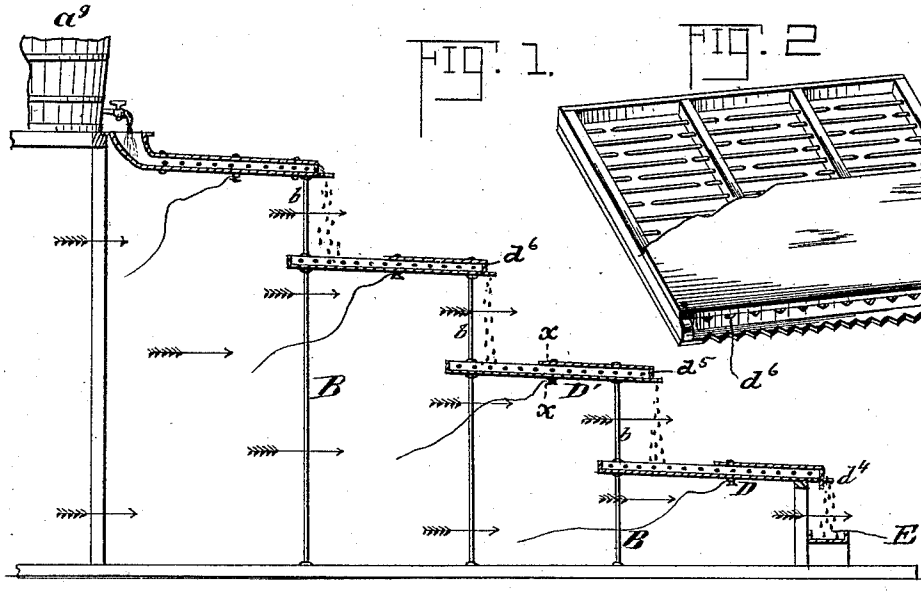


FIG. 2

FIG. 3

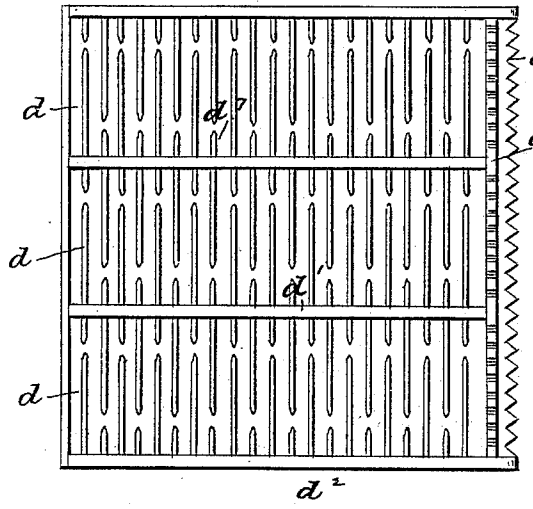
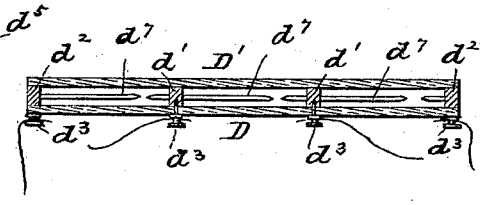


FIG. 4



WITNESSES:

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WATER-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 448,416, dated March 17, 1891.

Application filed October 9, 1890. Serial No. 367,572. (No model.)

To all whom it may concern:

Be it known that I, VERNON M. DORSEY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Purifiers; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in purifying water of its organic impurities by the oxidation thereof caused by spraying the current through a current of oxygen (either by itself or mixed with nitrogen in the form of atmospheric air) and of killing the animalcules contained in such water by the passage of an electric current therethrough; and it consists in the process thereof and in the arrangement, construction, and combination of the several parts used for carrying out the said process, as will be hereinaftor more fully described and claimed.

Referring to the accompanying drawings, in which corresponding parts are designated by corresponding letters, Figure 1 is a side elevation of an oxidizer and electric bath constructed according to this invention. Fig. 2 is a perspective view of one of the bath-pans, a portion thereof being broken away. Fig. 3 is a plan view of the pan shown in Fig. 2, the top thereof being removed. Fig. 4 is a vertical transverse section on line $x\ x$ of Fig. 1.

Two plates D D′, of glass or other insulating substance, the one above the other, rest upon each of the steps b of the frame-work B, the space between the two plates being divided into a number of longitudinal channels d by means of the metallic partitions d' and side bars d^2 each of the said partitions and side bars having a binding-screw d^3, by which it may be connected to the desired pole of a source of electricity. The lower plate D extends farther forward and backward than the upper plate D′, the rear end of the said lower plate upon one step being under the serrated forward edge d^4 of the plate D upon the step above, and as air is by suitable means forced through the staging it will be seen that the oxidation of the impurities in the water will take place, as will be hereinafter more fully described. A dam d^5 is placed between the forward ends of the plates D D′, and has perforations d^6 in its upper portion, which, as they form the only outlet for the water from between the plates D D′, cause the water to back up until it reaches a level, where it can overflow through the said perforations, and they thus cause the water to constantly cover the points d^7, projecting from the partitions d' and side bars d^2. These points are preferably constructed of some non-corrodible metal, such as aluminium, and, as shown in Figs. 2 and 3, should alternate, the lines joining their points forming a series of re-entering and salient angles. It will now be evident that if a current of electricity be passed through the wires which are connected to the two side bars d^2 of the plates D and D′ and to the opposite poles of a source of electricity, the current will pass from the non-oxidizable points d^7, projecting from the one side to the points projecting from the one side of one of the nearest partitions, and so on until the points on the opposite side bar are reached, the current jumping from the one set of points to those opposite thereto, passing through the water to be purified, and in so passing through the water will kill many of the animalcules contained therein. The plates D D′ are arranged upon the step b of the frame B, the rear open end of the one pan being below the chamfered forward edge d^4 of the plate D upon the next higher step of the frame-work, the upper pan receiving its supply from a suitable reservoir a^9, while the lower plate D upon the lowest step of the said frame-work drains into a suitable conduit E. Oxygen or atmospheric air is also forced by suitable mechanical means through the said frame-work, and, passing between the plates D D′ thereon, comes in contact with the water flowing over the chamfered or serrated edges d^4 of the said plates D, which will thus be broken up in a fine stream, permitting the atmospheric current to reach every portion thereof and to thoroughly oxidize the organic impurities contained therein. By making the

points d' of aluminium, as above described, the formation of a soluble oxide of low conductive power is prevented and the deterioration of the water by taking such an oxide into solution is obviated. It will also be obvious that as each of the partitions d' is provided with a binding-screw, if desired for any reason to cut off the passage of electricity through any one of the longitudinal channels of the several plates, it may be readily done by making the suitable connections by means of wire to the proper binding-posts.

Having thus described my invention, what I claim as my invention is—

1. The combination, with an insulating-plate having a dam upon its lower edge, of side bars upon the side of the said plates, and conducting-points projecting inwardly from the said side bars, the said conducting-points upon the opposite side bars being connected with the opposite poles of a source of electricity, as described.

2. The combination, with an insulating-plate having a chamfered lower edge and a dam above the said edge, of bars upon the side of the said plates, and connecting-points projecting inwardly from the said side bars, the said conducting-points upon the opposite side bars being connected with the opposite poles of a source of electricity, as described.

3. The combination, with two insulating-plates, the one above the other, of a dam at the lower edges of the said plates, bars at the side of the said plates, longitudinal partitions between the said plates, and conducting-points projecting from the said partitions, and side bars, the said side bars and partitions having binding-posts thereon, as described.

4. The process of purifying water, which consists in passing a current of electricity therethrough and in oxidizing the organic impurities in said water by causing it to fall over a plate having a chamfered edge, and in passing a current of oxygen through the spray thus formed, as described.

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

VERNON M. DORSEY.

Witnesses:

LEONA MAKELVEY,

L. STOERZER.