

J. STEYNIS.

OZONIZER.

APPLICATION FILED SEPT. 15, 1909.

997,339.

Patented July 11, 1911.

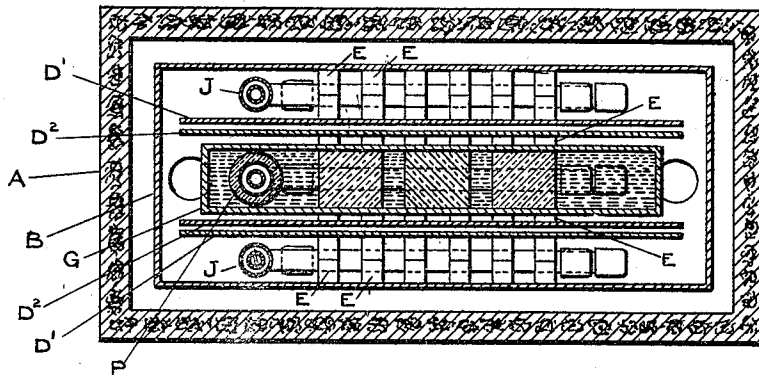


FIG. 1

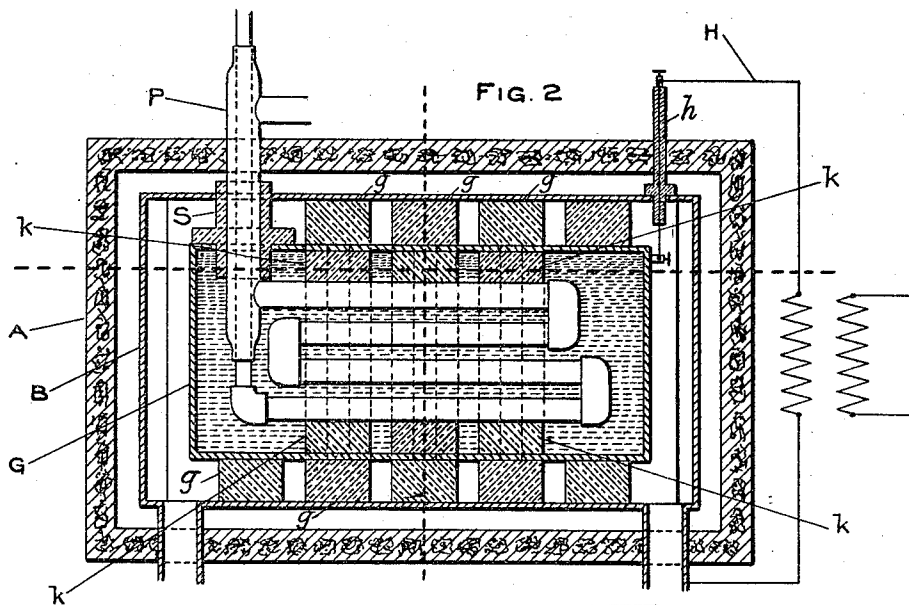


FIG. 2

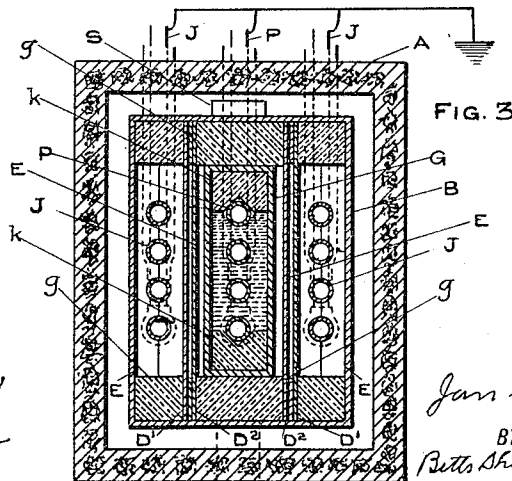


FIG. 3

WITNESSES:

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OZONIZER.

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Specification of Letters Patent.

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To all whom it may concern.

Be it known that I, JAN STEYNIS, a subject of the Queen of the Netherlands, and residing in the city, county, and State of New York, have invented certain new and useful Improvements in Ozonizers, the following being a full, clear, and exact disclosure of the one form of my invention which I at present deem preferable.

For a detailed description of the present form of my invention, reference may be had to the following specification and to the accompanying drawings forming a part thereof, in which—

Figure 1 is a plan; Fig. 2 is a central longitudinal section; Fig. 3 is an end elevation inside the casing.

The main purpose of my invention is to eliminate an important part of the insulation heretofore required in ozonizers and provide for grounding one side of the high tension circuit and also grounding the cooling apparatus.

It also includes certain features herein-after described and claimed.

Referring to the drawings, A is the external casing, B is a box of thin metal connected to the grounded side of the circuit. On each of the longer sides of box B and on the inside thereof are a series of vertical metallic bars E, E, etc., which constitute the discharge points of the electrode. The bars E are perforated at intervals in a direction parallel to the longer side of the box, and through these perforations extend a series of metallic pipes forming a cooling coil J such as is shown the section of the central electrode appearing in Fig. 2 for receiving a gasified liquid, or in some cases cold water, or brine. Since the said box B is grounded, the pipe coil need not be insulated as heretofore. Against the faces of the discharge bars E is placed a thin sheet of glass or micanite D¹ which is separated a slight distance from a parallel sheet of like material resting against the faces of similar discharge bars on the outside of the central electrode. Between these sheets passes the gas to be ozonized.

The central electrode consists of an internal metallic box G, having as aforesaid, the vertical discharge bars E, E, etc., on its outer sides. This box is insulated from the surrounding box by blocks g, g, etc., and is connected to one side of the circuit by a wire

H, passing through an insulating tube h in the top side of box B. Within the central metallic box G is a cooling coil P, like the coils J. It is however, insulated by oil or other liquid insulator from the box G in which it is contained, being supported in the box by insulating blocks k, k, etc., and where it passes through the top side of the box, the outgoing end is enlarged to receive within it the incoming end, and thereby call for only one insulating bushing S. The coil P will be connected to the coils J and to ground, so that the only insulation required in my apparatus is that for the central electrode. It will furthermore be observed that the oil layer between box G and the grounded pipe coil P creates a condenser shunting each discharge gap between the central electrode and the outer one. Hence at each impulse of alternating current there will follow a series of oscillating discharges from the condenser, and also that this condenser is formed by the interior construction of the apparatus itself and is, moreover, cooled by the same means which cools the other parts. This will add materially to the output of the machine. This also involves an exact equalization of the discharge capacity of the gaps on opposite sides, which are connected in multiple to the transformer or other source of electrical energy. The term "grounded" is used herein, in its comprehensive sense.

What I claim as new and desire to secure by Letters Patent is:

1. An ozonizer containing a central insulated electrode, a grounded electrode on each side thereof and a grounded cooling device inside of and insulated from the central electrode.
2. In an ozonizer a hollow electrode containing an insulating liquid and a cooling pipe therein insulated from the hollow electrode.
3. In an ozonizer, the combination with a hollow electrode of a cooling pipe therefor insulated therefrom and having one part inside the other at the point where it passes through the wall of the electrode.
4. An ozonizer containing a hollow electrode with external discharge surfaces thereon at intervals and a cooling pipe within the electrode but insulated therefrom.
5. An ozonizer containing an electrode having a series of discharge surfaces thereon spaced at intervals and an insulating

sheet resting against said discharge surfaces and forming one side of the space containing the gas to be ozonized.

- 5 6. An ozonizer containing two electrodes each having a series of discharge surfaces spaced thereon and oppositely disposed and insulating sheets resting against the respective discharge surfaces and forming a space between them for the gas to be ozonized.
- 10 7. An ozonizer electrode forming one plate of a condenser shunting the discharge gap between said electrode and an opposite electrode.
- 15 8. A cooling device for an ozonizer electrode forming with the electrode a condenser shunting the discharge gap between said electrode and an opposite electrode.
- 20 9. An ozonizer electrode forming also a plate of a condenser shunting the discharge gap between said electrode and the opposite one, and a cooling device for said condenser.
10. An ozonizer containing two discharge

gaps in multiple, the said gaps having substantially equal discharging capacity, and a shunting condenser.

11. An ozonizer having two electrodes, a condenser within the ozonizer shunting the discharge gap between said electrodes and a cooling device for said condenser.

12. An ozonizer comprising a grounded metal tank, the opposite walls of which constitute electrodes, a second metal tank inside of and insulated from said grounded tank and having oppositely disposed walls constituting electrodes, and a grounded cooling device in said inner tank surrounded by a non-conducting liquid.

In witness whereof I have hereunto set my hand before two subscribing witnesses this 7th day of September, 1909.

JAN STEYNIS.

Witnesses:

WALTER S. JONES,
L. T. SHAW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."