No. 882,510. PATENTED MAR. 17, 1908.

A. C. WOOD.

APPARATUS FOR PRODUCING OZONE.

APPLICATION FILED MAY 12, 1906.

2 SHEETS—SHEET 1.

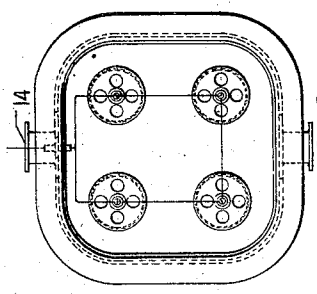


FIG. 2.

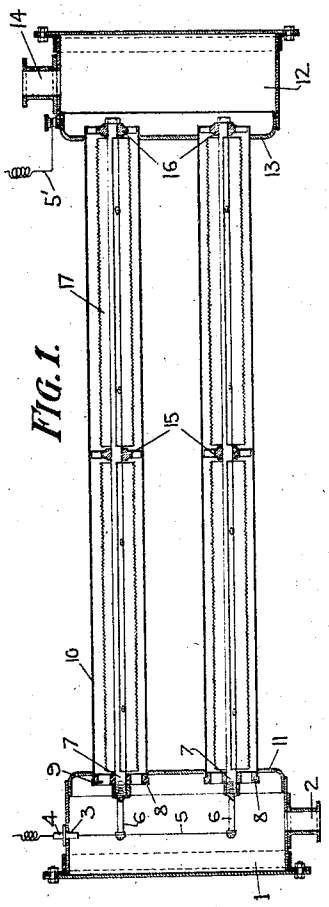


FIG. 1.

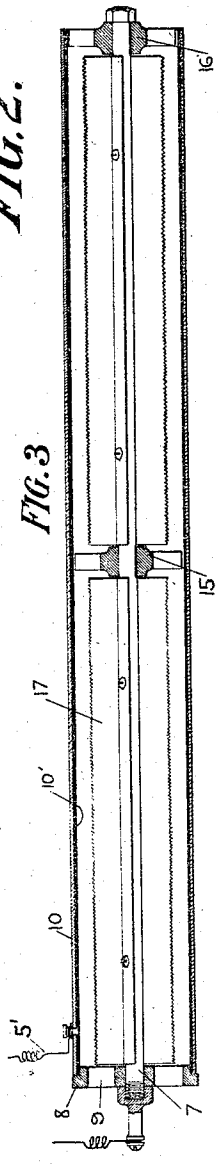


FIG. 3.

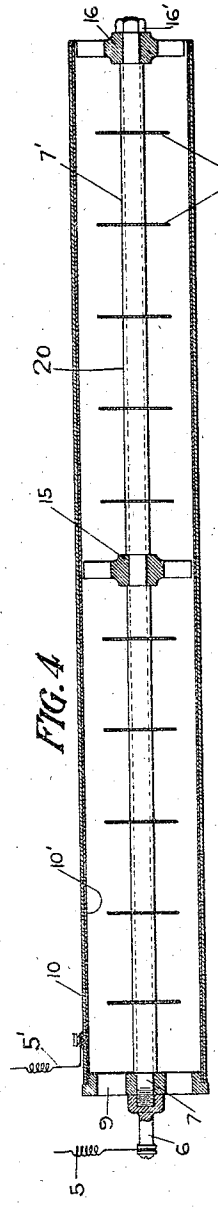


FIG. 4.

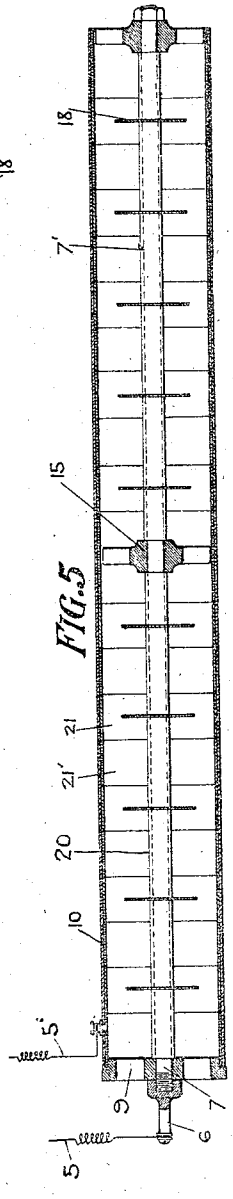


FIG. 5.

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2 SHEETS—SHEET 2.

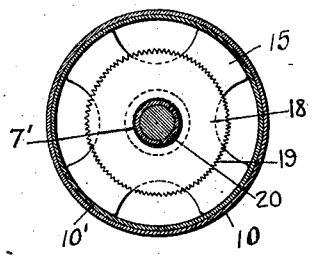


FIG. 7

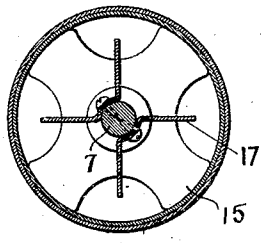
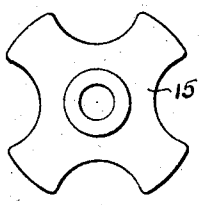


FIG. 6

FIG. 11



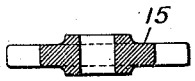


FIG. 10

FIG. 9

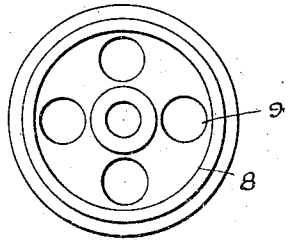




FIG. 8

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UNITED STATES PATENT OFFICE.

ALBERT C. WOOD, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR PRODUCING OZONE.

No. 882,510. Specification of Letters Patent. Patented March 17, 1908.

Original application filed October 18, 1904, Serial No. 228,941. Divided and this application filed May 12, 1906. Serial No. 316,489.

To all whom it may concern:

Be it known that I, ALBERT C. WOOD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Apparatus for Producing Ozone, of which the following is a specification.

This invention relates to the production of ozone or of ozonized air through the action of the "silent" or "brush" discharge of a high tension electric current or charge in an atmosphere of oxygen or air, and it is a division of my application dated October 18, 1904, Serial No. 228,941.

The leading objects are to produce an apparatus of high capacity and efficiency which will effect a uniformly distributed discharge of electricity into circulating air, to provide a simplified construction having parts that are self alining and reversible and that may readily be assembled and disassociated, and to provide an improved electrode having a lining of highly oxidizable metal.

In the accompanying drawings, Figure 1 represents a sectional side elevation of apparatus embodying my improvements, Fig. 2 represents an end elevation of the construction shown in Fig. 1, Fig. 3 represents a longitudinal sectional view through a detached tubular electrode having therein coacting brush electrodes with their supporting means, Fig. 4 represents a longitudinal sectional view of a second form of the invention, Fig. 5 represents a longitudinal sectional view of a modification of the construction shown in Fig. 4, Fig. 6 represents a transverse sectional view of the construction shown in Fig. 3, Fig. 7 represents a transverse sectional view of the construction shown in Figs. 4 and 5, Fig. 8 represents a sectional view and Fig. 9 a face view of the insulating caps or end supports for the brush electrodes, Fig. 10 represents a sectional view and Fig. 11 a face view of an insulating support or spider for the brush electrodes.

Referring to the drawings, the apparatus comprises a chamber 1, having an air inlet 2, and an opening 3, which receives an insulator 4 for supporting the conductor 5 secured to the several binding connections 6 in the chamber. The connections 6 respectively engage the forward ends of the rods 7, and bear against the insulating caps 8 through which the rods project. The caps 8, having the apertures 9 therein, fit into and engage the forward ends of the several tubes 10 which pass into the chamber through the wall or diaphragm 11 thereof. The opposite ends of the tubes pass into the chamber 12 through the wall or diaphragm 13 thereof, the chamber having an outlet 14. The rods 7 have loosely sleeved thereon intermediate of their length the apertured insulating disks or spiders 15 which are freely movable in the tubes and serve to center and support the ends of the brushes carried thereby. The rearward ends of the rods are centered and supported by apertured insulating disks or spiders 16 loosely fitting the rearward ends of the tubes.

As shown in Figs. 1, 3 and 6, the rods 7 support the nickel brushes 17, having their planes disposed radially and longitudinally with reference thereto. The tubes 10 are preferably of circular section and made of copper with a lining 10′ of nickel or other non-corrodible metal.

As shown in Figs. 4, 5 and 7, the rods 7 are provided with the nickel covering 7′ and have sleeved thereon the nickel brushes 18 of circular or disk form with peripheral points or serrations 19. The disks or spiders are held in position by the sleeves 20 placed on the rods in abutting relation to the disks, the end sleeves being forced in to clamp the disks by means of the binding connections 6 and the caps 8 on the forward ends and the spiders 16 and the nut 16′ on the rearward ends.

As shown in Fig. 5 the tubes 10 are provided with nickel inserts or rings 21, having a low coefficient of oxidation, which are arranged around the disks to collect the discharges therefrom, the nickel rings alternating with spacing rings 21′ which may be composed suitably of copper.

It will be understood that current from the wire 5 is distributed by the connections 6 and the rods 7 to the brushes 17 or 18 and the discharge therefrom is collected by the nickel lining, whether in the form of a solid shell or inserted rings, and carried off through the wire 5′.

From the foregoing it will be understood that air admitted into the chamber 1 by the inlet 2 is carried through the perforated insulating caps 8 and the tubes 10 as also the perforated insulating disks 15 and 16 into the chamber 12, from which it escapes by the

outlet 14. In the passage of the air through the tubes it is subjected to the action of what is known as a "silent" or "brush" discharge produced by a high tension electric current or charge of electricity discharging between the conducting rods 7 and the electrodes or conducting tubes 10 by the brushes 17 or 18, the brushes being centered so as to effect a uniform discharge of electricity (with the absence of sparking or arcing) across the air current, whose ozonification is obtained thereby.

Having described my invention I claim:

1. In apparatus of the class described a mechanism providing a conduit and an electrode through and in contact with which oxygen is passed, said mechanism having a metal body and inserts of highly refractory metal more difficultly oxidizable than the metal of said body, in combination with a second electrode and means for discharging electricity between the second electrode and the inserts, substantially as described.

2. In apparatus of the class described a mechanism providing a conduit and an electrode through and in contact with which oxygen is passed, said mechanism having a metal body with rings therein of highly refractory metal more difficultly oxidizable than the metal of said body, in combination with a second electrode and means for discharging electricity between the second electrode and said rings, substantially as specified.

3. In apparatus of the class described a mechanism providing a conduit and an electrode through and in contact with which oxygen is passed, said mechanism comprising nickel rings and spacing rings alternating therewith in combination with a second electrode and means for discharging electricity between the second electrode and said nickel rings.

4. In apparatus of the class described a mechanism providing a conduit and an electrode through and in contact with which oxygen is passed, in combination with a second electrode comprising a disk or disks between which and said first electrode electricity is discharged.

5. In apparatus of the class described, a mechanism providing a conduit and an electrode through and in contact with which oxygen is passed, said mechanism having a metal body and a lining of highly refractory metal more difficultly oxidizable than the metal in said body, in combination with a second electrode and means for effecting an electrical discharge between said second electrode and said lining, substantially as specified.

In testimony whereof I have hereunto set my name this 10th day of May, 1906, in the presence of the subscribing witnesses.

ALBERT C. WOOD.

Witnesses:
ROBERT JAMES EARLEY,
JOS. G. DENNY, JR.