

No. 777,991.

PATENTED DEC. 20, 1904.

E. E. WERNER.

DEVICE FOR PROJECTING AIR AGAINST ELECTRIC DISCHARGES.

APPLICATION FILED AUG. 29, 1904.

NO MODEL.

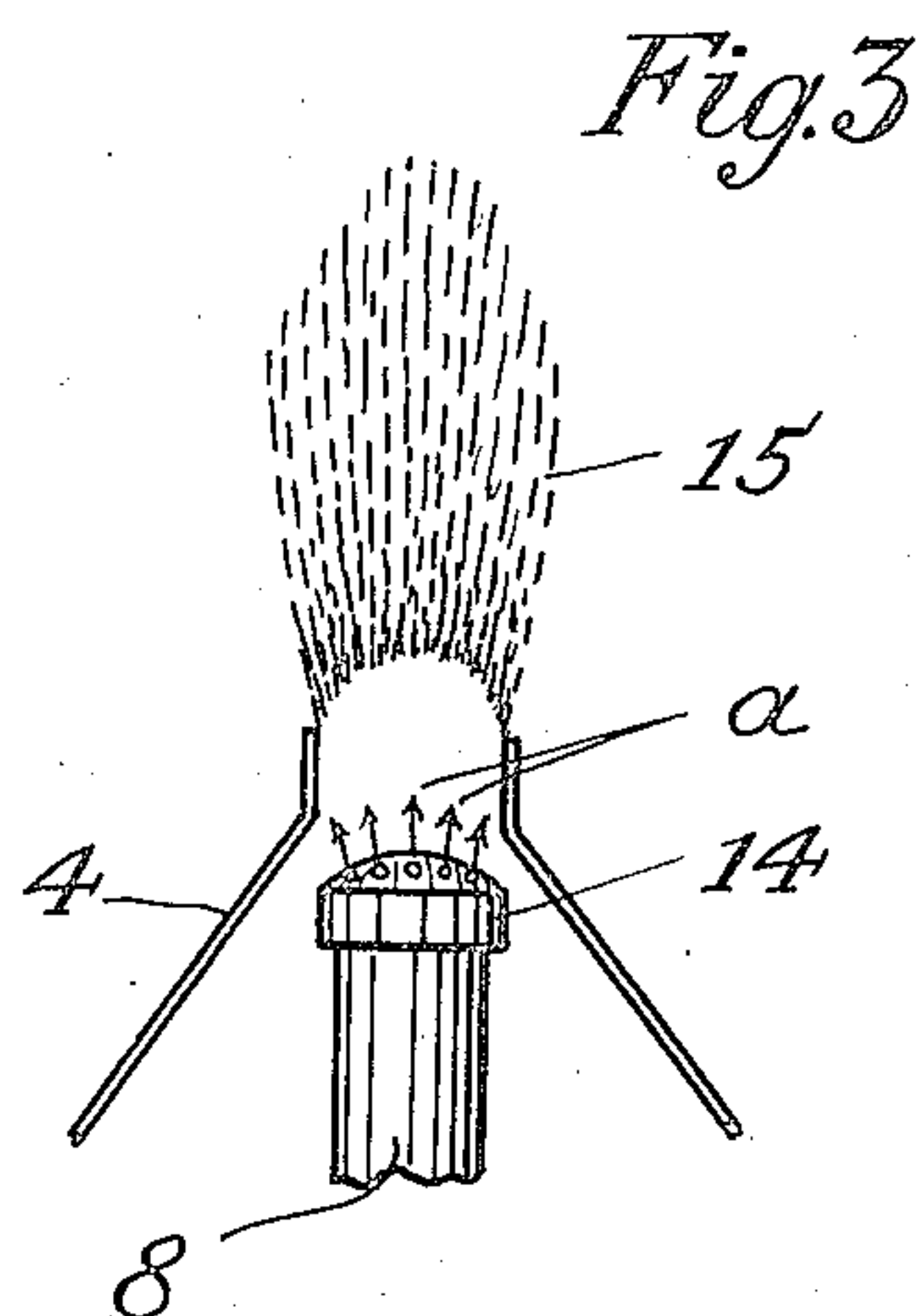
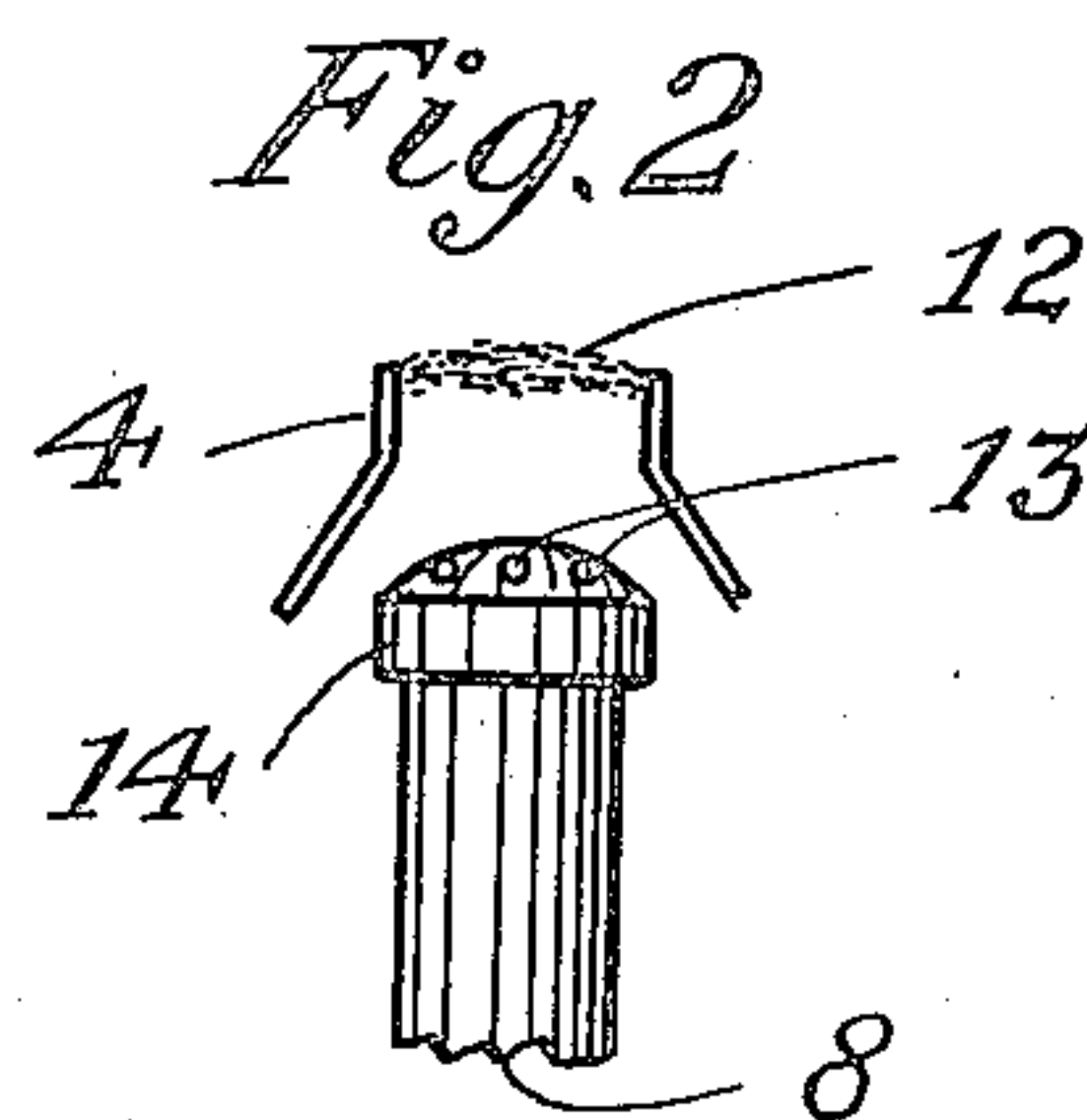
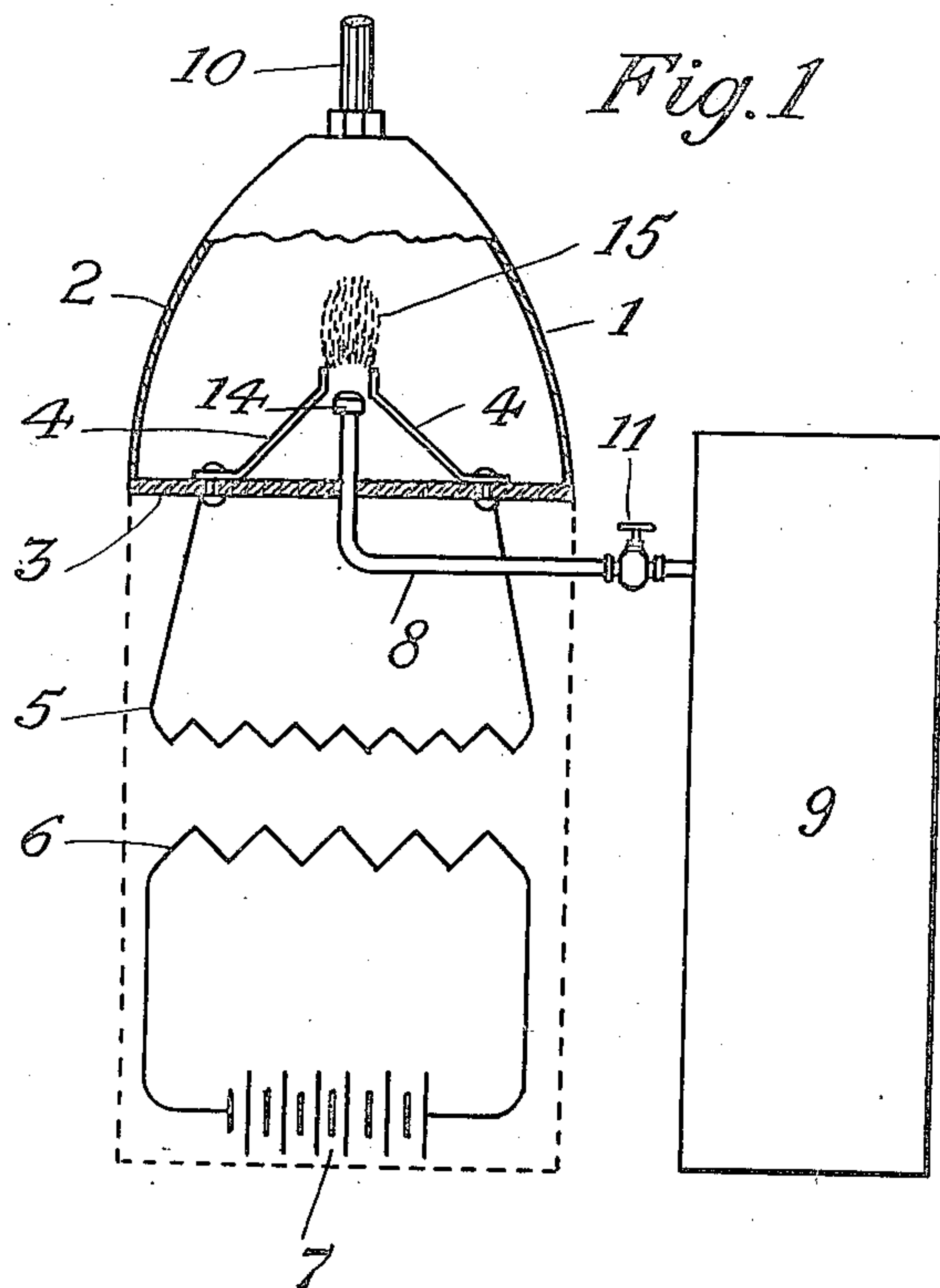
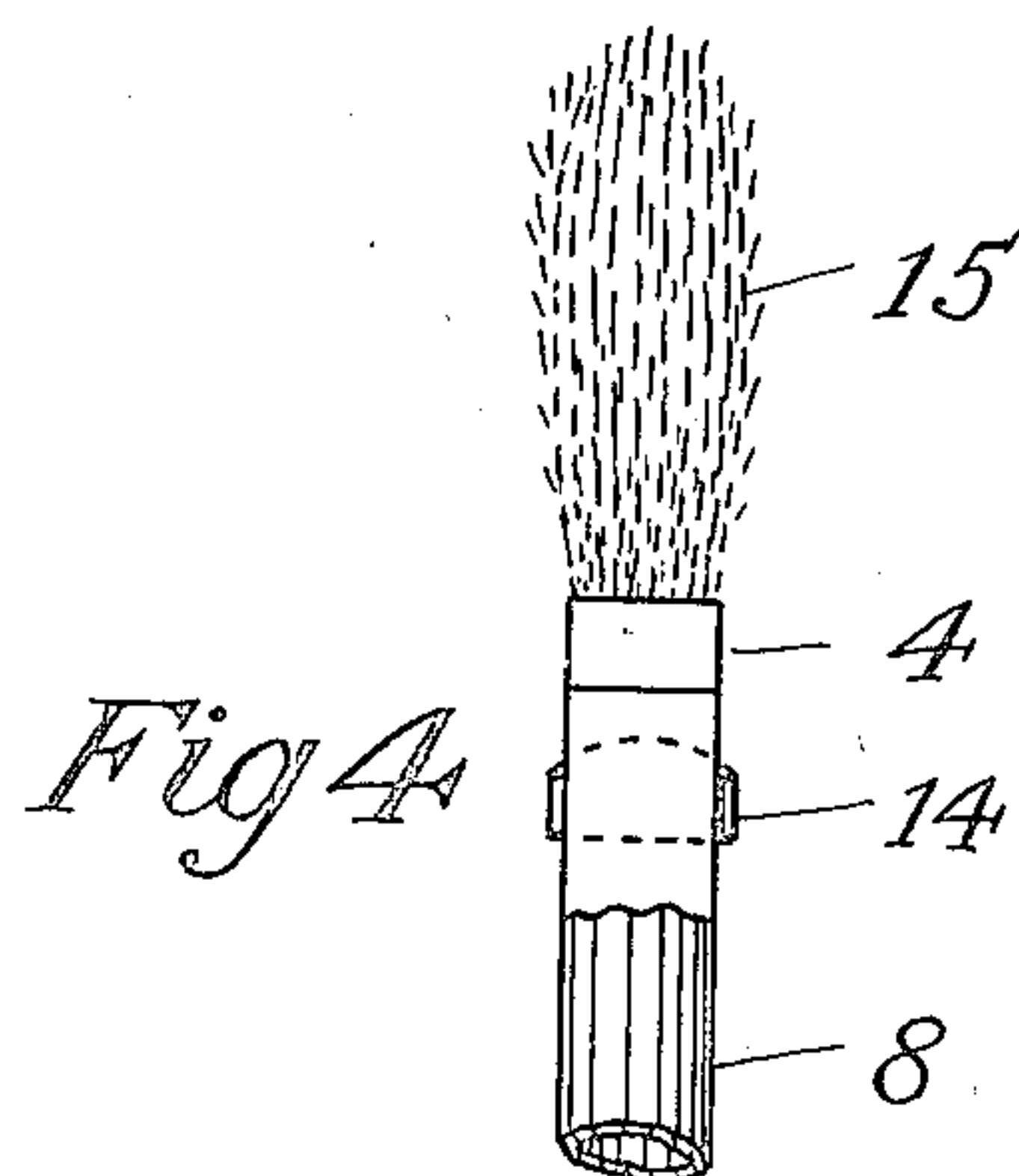
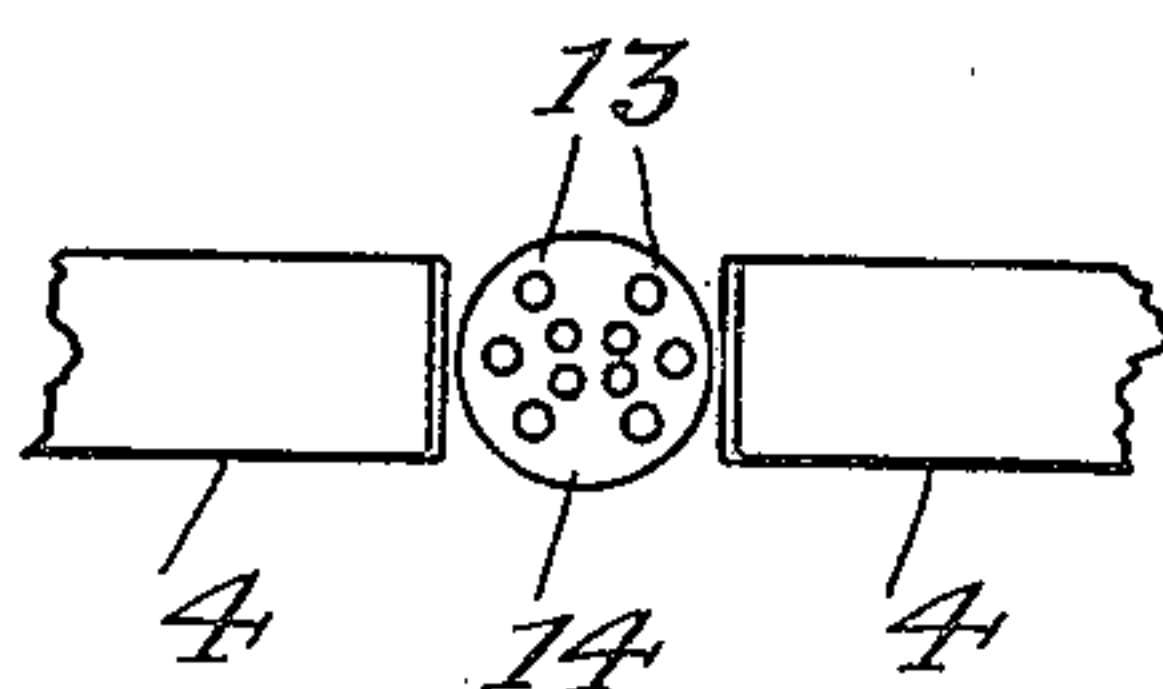


Fig. 5



Witnesses:
Theo. Laqaard.
H. A. Bowman.

Inventor
Ernest E. Werner
 By *P. H. Gunkel*
his Attorney.

UNITED STATES PATENT OFFICE.

ERNEST E. WERNER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO ELECTRICAL PURIFYING COMPANY, OF STAFFORD, KANSAS, A CORPORATION OF KANSAS.

DEVICE FOR PROJECTING AIR AGAINST ELECTRIC DISCHARGES.

SPECIFICATION forming part of Letters Patent No. 777,991, dated December 20, 1904.

Application filed August 29, 1904. Serial No. 222,550.

To all whom it may concern:

Be it known that I, ERNEST E. WERNER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Devices for Projecting Air Against Electric Discharges, of which the following is a specification.

My invention relates to apparatus employed in generating gases from air by the action of electrical discharges; and its object is improvement of the devices for injecting air under pressure into the path of the discharge.

My present improvement consists, essentially, in providing on the end of the air-induction pipe of the apparatus a rose or cap or equivalent device arranged adjacent to the gap between the terminals and having a number of small openings for discharging compressed air into the gap for the purpose of more effectively deflecting and spreading and spraying or disintegrating the arc or discharge, whereby the air is brought into more intimate contact with and is more effectively acted upon by the electric discharge. Furthermore, by means of such device the cooling effect of the expanding air can be better utilized in keeping down the temperature of the terminals than when but a single air-jet is employed.

In order that my improvement may be fully understood, I have shown in outline and in part diagrammatically apparatus of the character referred to and a practical form of specific device for introducing the air to the arc.

In such drawings, Figure 1 shows an apparatus equipped with my improvement and adapted to carry out the plan of my invention. Fig. 2 shows the pair of terminals and indicates approximately the normal course of the electric discharge between them when not subjected to lateral air-pressure. Fig. 3 shows in front elevation the devices of the improvement detached and approximately a form of the discharge when it is subjected to the action of the air-jets. Fig. 4 shows the same parts as Fig. 3 viewed from either side, and

Fig. 5 is a top view of the terminals and the air-injecting device.

In the drawings, 1 indicates a casing inclosing an air-tight chamber 2 and having an insulating-bottom 3. On this bottom are supported the terminals 4, preferably formed of thin strips of metal and having their ends arranged a short distance apart, so that an arc may be produced between them. The terminals are connected to the ends of the secondary 5 of a transformer. The primary 6 of the transformer is supplied with current from any suitable source of electric energy—as, for illustration, by means of a battery 7. The transformer may be of any suitable form, and in practice I preferably use the form commonly known as an “induction-coil.”

For supplying air under pressure to the arc formed between the terminals a supply-pipe 8, which enters through the bottom 3, is arranged with its discharging end adjacent to and preferably below the ends of the terminals 4. The pipe 8 leads from a supply-tank 9, in which the air to be subjected to the action of the discharge is contained under pressure, preferably from twenty to fifty pounds. A discharge-pipe 10 is connected to the top of the chamber for conducting away the treated air, and a valve 11 in the pipe 8 enables the passage of air through the pipe to the arc to be controlled. When this valve is closed, the course of the arc or discharge between the terminals will be normal and practically direct, and its visible form will be about as indicated by the group of broken lines 12. (See Fig. 2.)

To effectually divert the course of the arc or discharge and spread its body or at least its visible portions, I provide a suitable number of small openings 13 in a rose or cap 14 on the end of the inlet-pipe 8 and arrange the rose preferably below and close enough to the extremities of the terminals to cause the air-jets to be projected against the arc and some of them to be projected against or very near to the terminals, as indicated by the arrows *a*. By this means the arc or discharge is deflected and elongated laterally and is spread or

sprayed somewhat, and the air being free to expand in the body of the discharge tends to further spread and disintegrate it, and the air is thus subjected to a maximum degree of electrical action, and the cooling effect of the expansion of the compressed air is highly beneficial in reducing the temperature of the terminals and the gases contained in the chamber 2.

10 The form of the visible arc or discharge when thus acted upon by the air pressure and expansion is approximately as indicated by the groups of broken lines 15 in Figs. 1, 3, and 4.

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

1. In an apparatus for generating gases from air, the combination with electric terminals, of a device for injecting a plurality of

jets of compressed air into the gap between the terminals.

2. In an apparatus for generating gases from air, the combination with electric terminals, of a device for projecting compressed air in divided streams against the side of the arc. 25

3. In an apparatus for generating gases from air, the combination with electric terminals, of a device for projecting compressed air in divided streams against the side of the arc and against the terminals. 30

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 22d day of August, 1904.

ERNEST E. WERNER.

Witnesses:

F. D. LARABEE,
F. S. LARABEE.