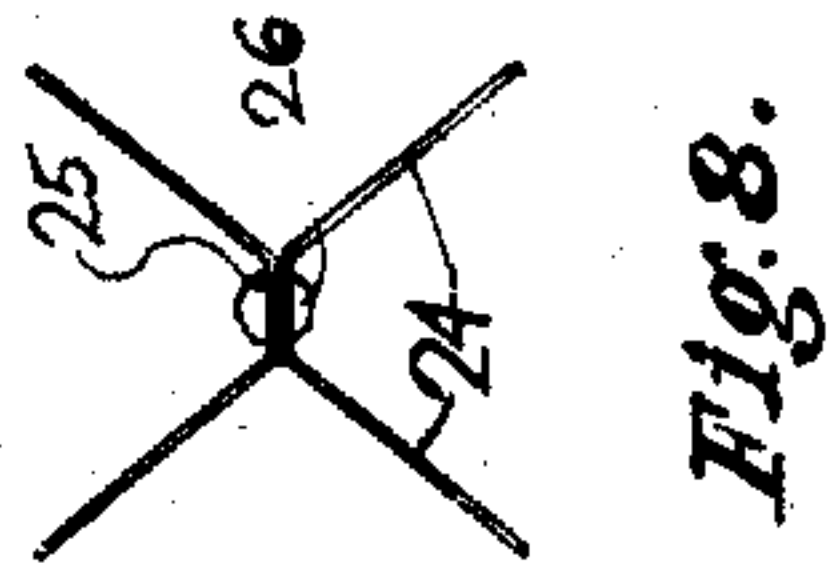
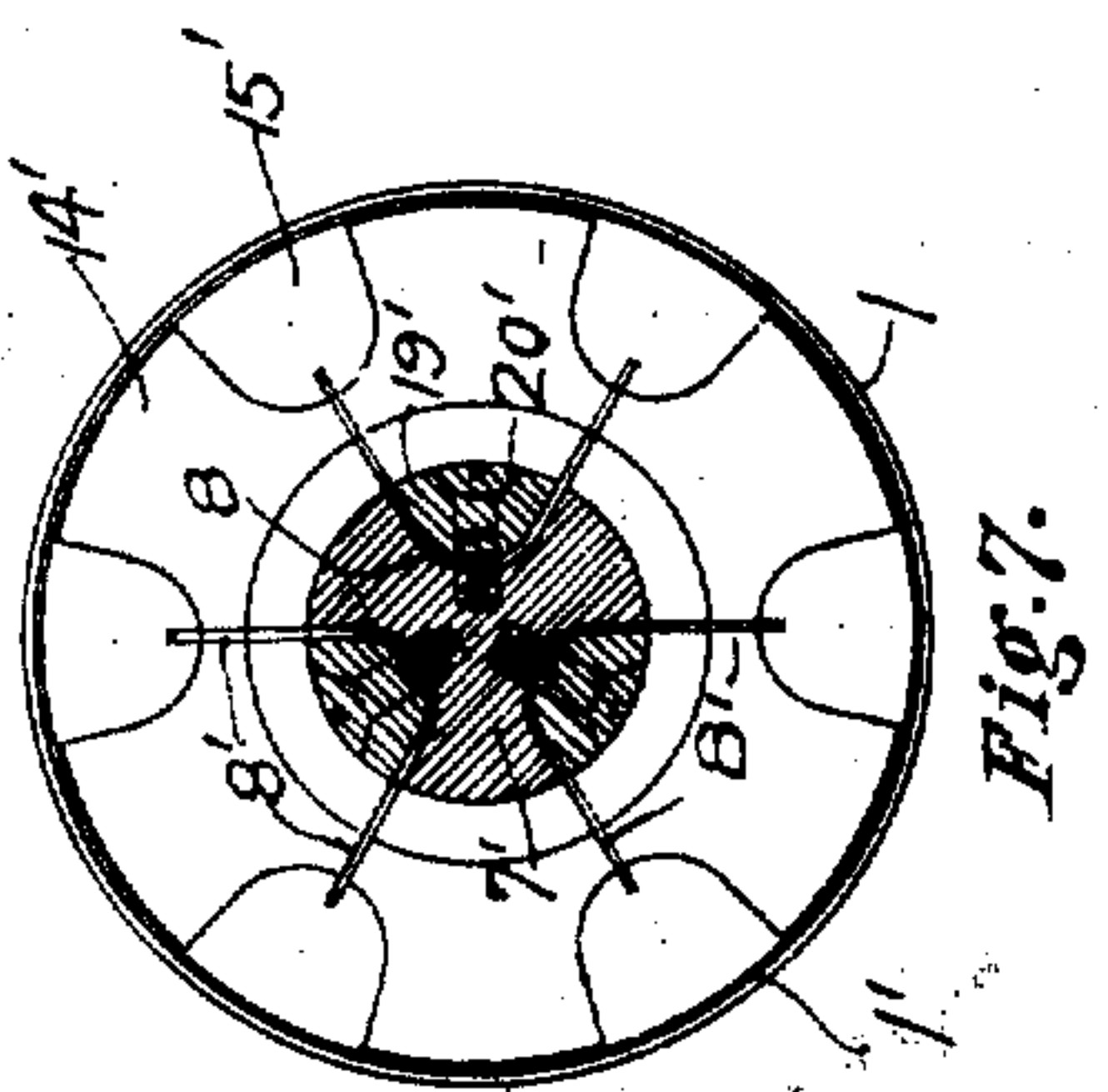
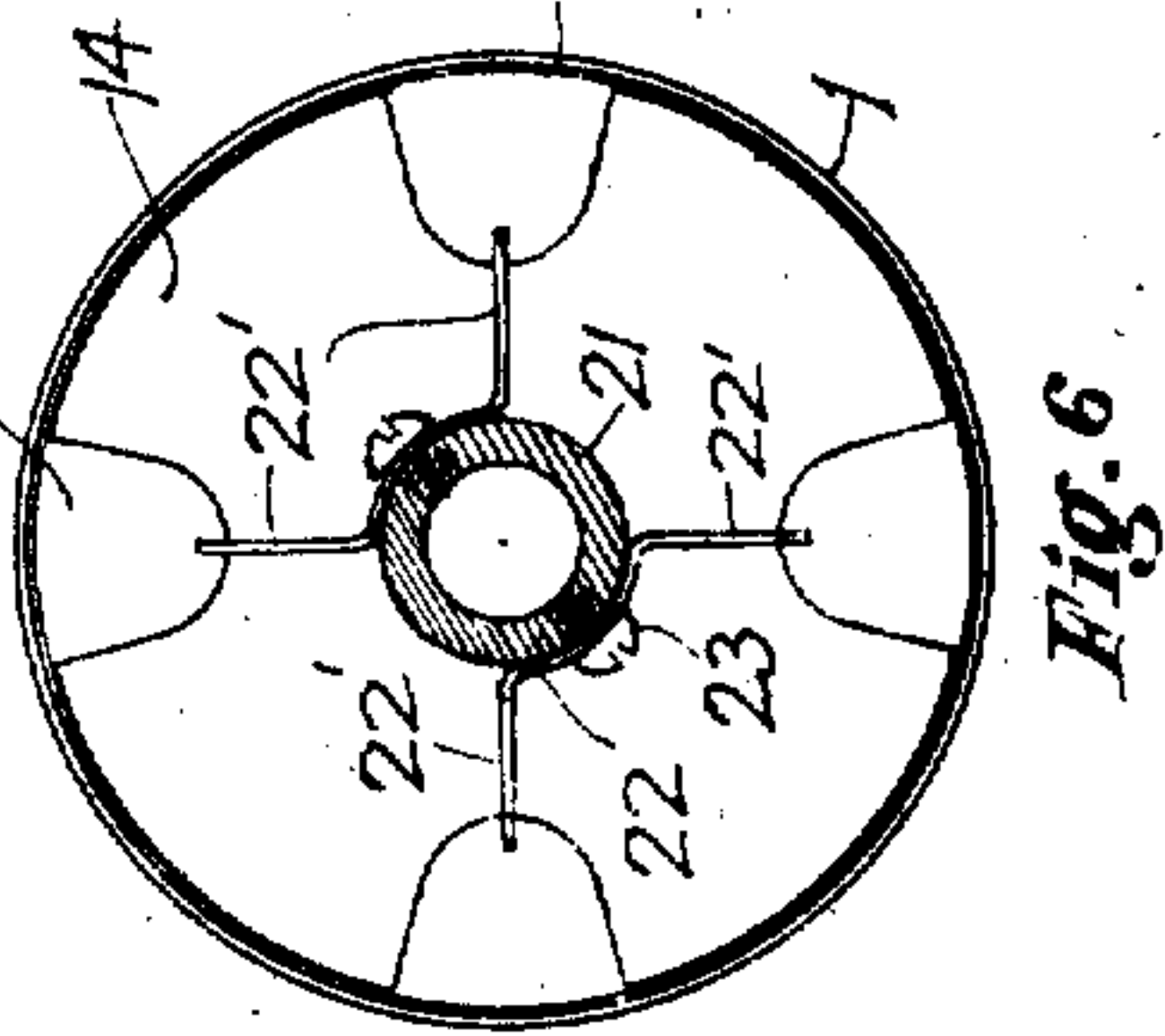
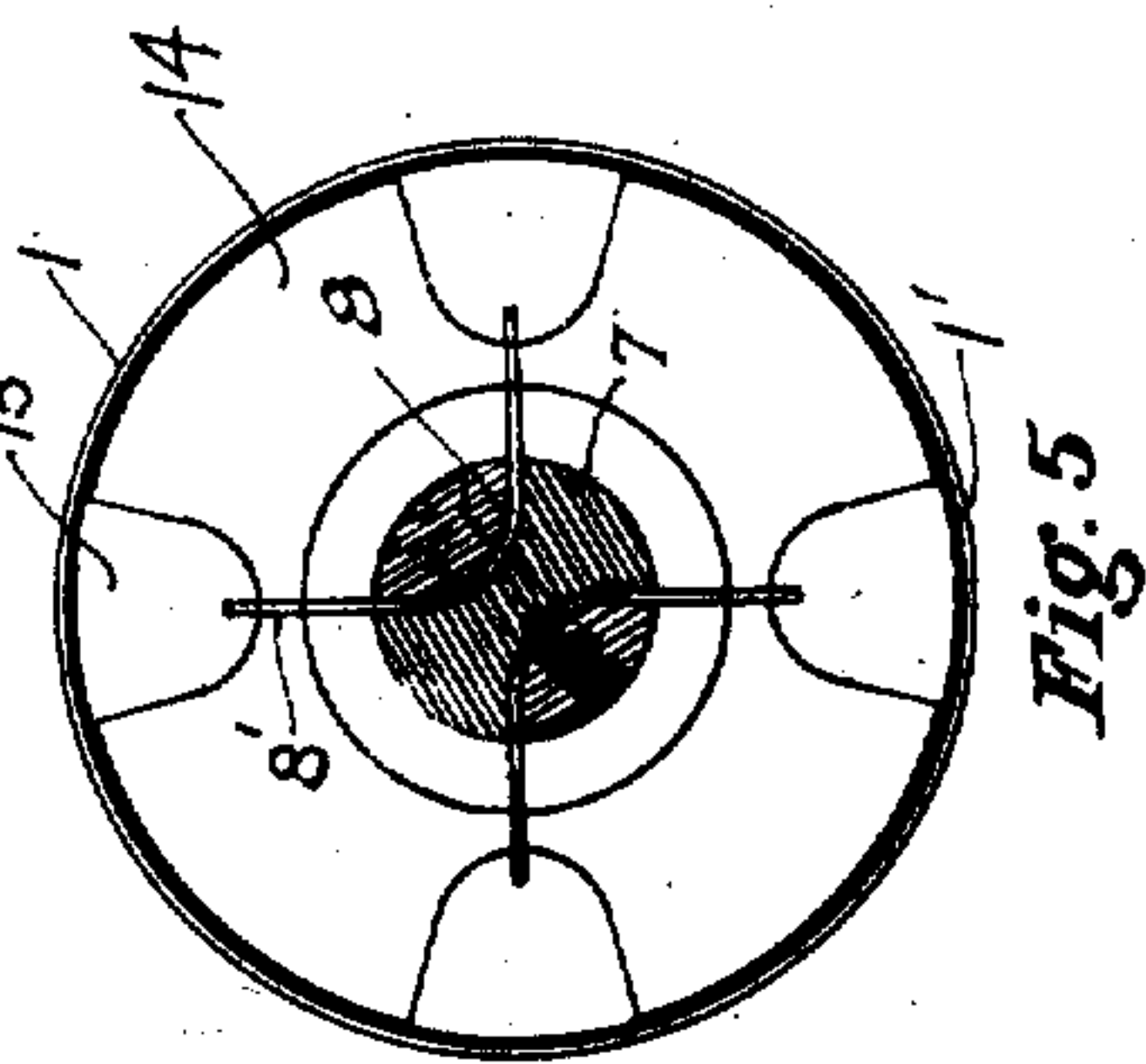
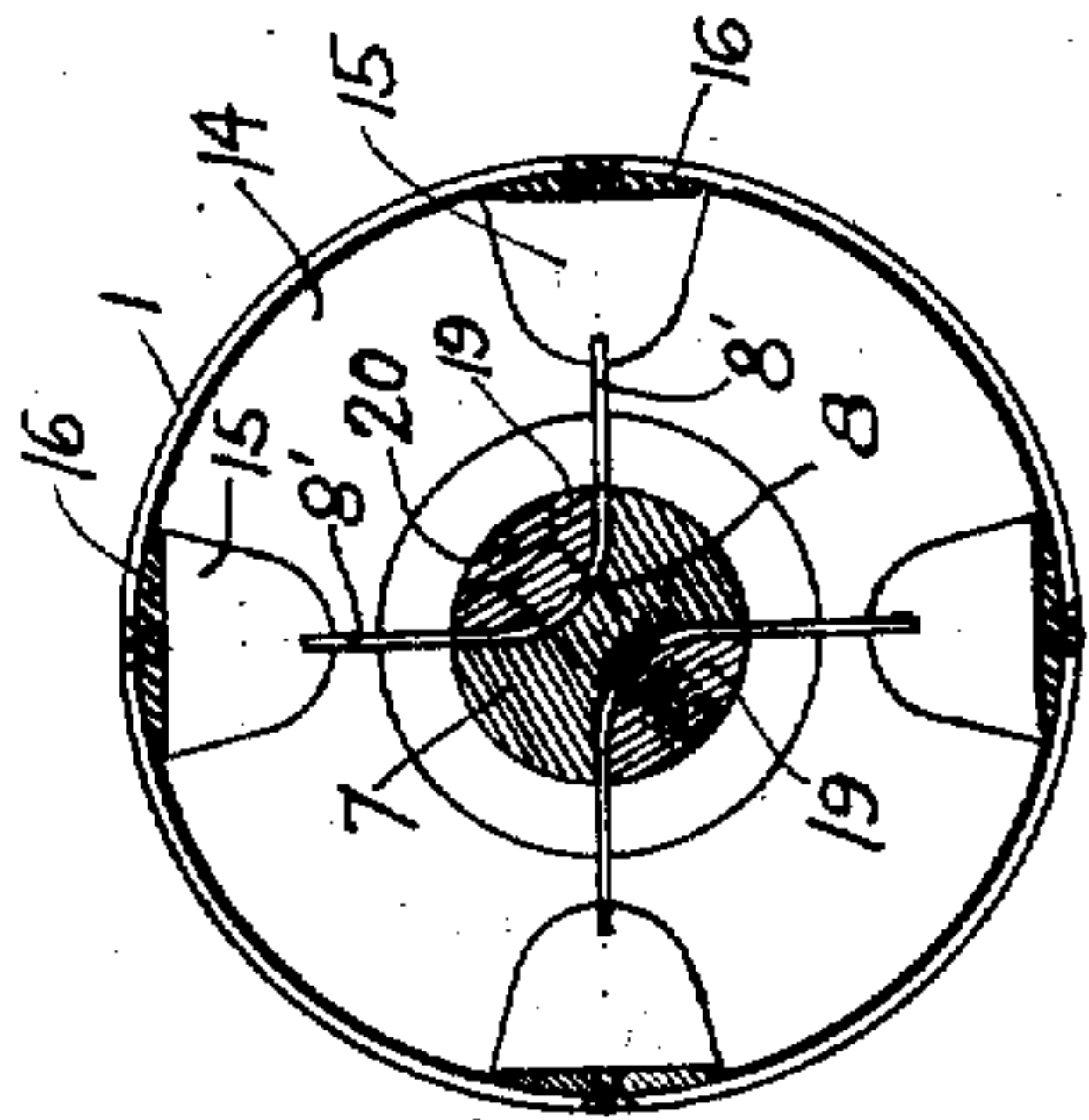
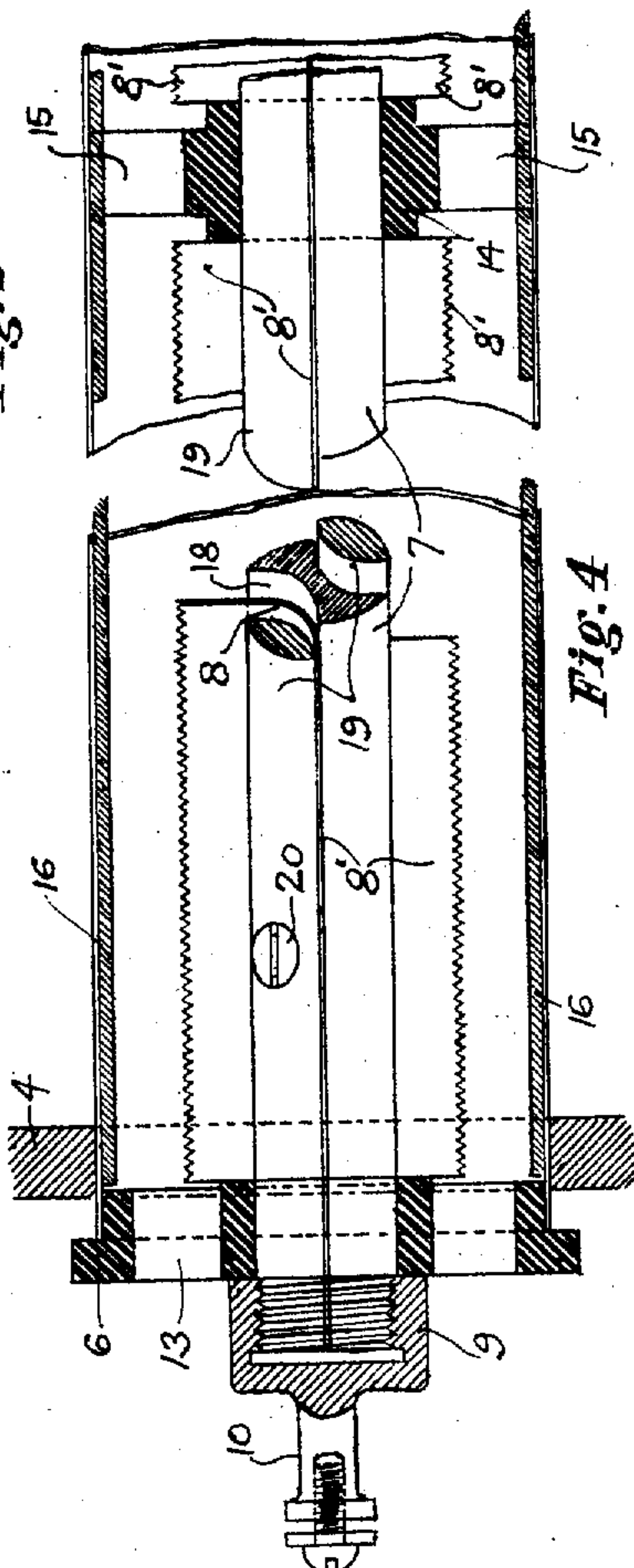
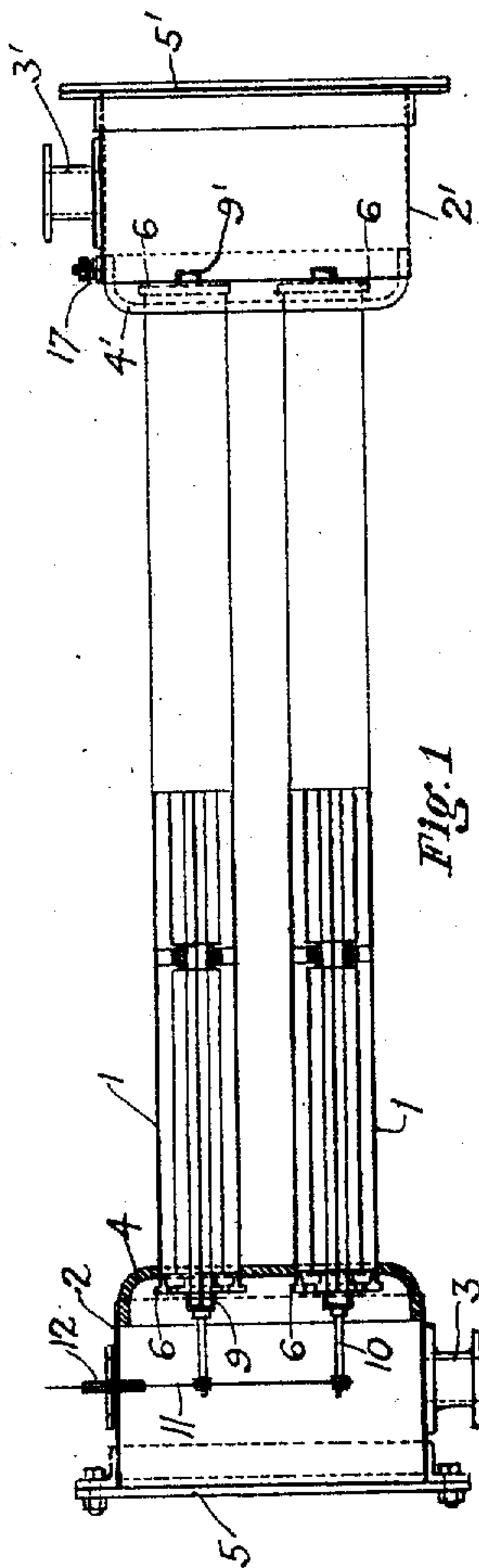
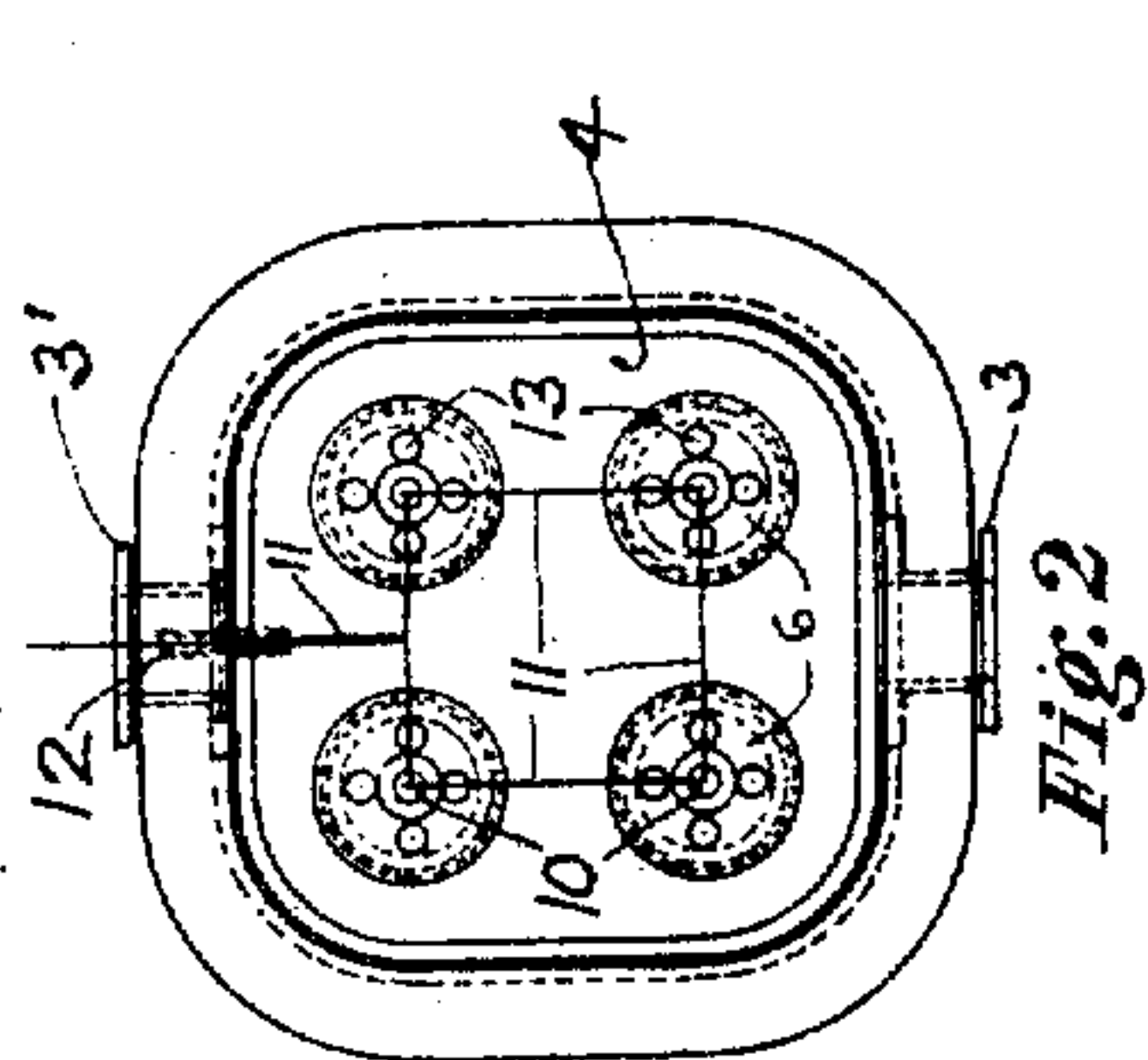


A. C. WOOD.
ELECTRICAL APPARATUS FOR PRODUCING OZONE.
APPLICATION FILED FEB. 17, 1905.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ALBERT C. WOOD, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRICAL APPARATUS FOR PRODUCING OZONE.

No. 804,291.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed February 17, 1905. Serial No. 246,026.

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 Electrical Apparatus for Producing Ozone, of which the following is a specification.

This invention is designed to provide improved means for producing ozone by discharging a high-tension electric current in an atmosphere of oxygen, and particularly to produce an apparatus having improved electrodes and holders therefor.

The nature and characteristic features of the invention will more fully appear by reference to the following description and the accompanying drawings in illustration thereof, of which—

Figure 1 represents a side elevation, partially in section, of an apparatus embodying my improvements. Fig. 2 represents an end elevation of the structure shown in Fig. 1, the cover of the air-inlet chamber being removed to illustrate the interior construction. Fig. 3 represents a transverse sectional view taken through a conduit containing electrodes and connections made in accordance with my invention. Fig. 4 represents a broken longitudinal sectional view of the structure illustrated in Fig. 3. Fig. 5 represents a transverse sectional view of a structure analogous to that shown in Figs. 3 and 4, showing a modified electrode for collecting the charge from the dischargers; and Figs. 6, 7, and 8 show transverse sectional views of several modified forms of dischargers and supports therefor.

As shown in the drawings, tubular conduits 1 are connected to the chambers 2 and 2', having, respectively, the passages 3 and 3', the conduits being set in the tube-sheets 4 and 4' of the chambers and being accessible by removing the covers 5 and 5' thereof. In the ends of the conduits are fitted or frictionally engaged the insulating-caps 6, which engage the ends of rods 7 for carrying the electrodes 8, having the branches 8', the caps being sleeved on the ends of the rods and held thereon against the electrodes by the clamp-nuts 9 and 9'. The nuts 9 are provided with the binding-posts 10 for making electrical connection between the conductor 11, passing into the chamber 2 through the insulation 12, and the electrodes 8, which are electrically connected with the binding-posts through the

rods 7. The caps have the openings 13 there-through arranged in line with the several branches or brushes 8'. Insulating-spiders 14 are sleeved on the rods and are freely movable in the conduits, being disposed between the ends of adjacent electrodes 8 and having openings 15 therein in line with the several electrode branches, it being the purpose to dispose the electrode branches and passages in the several conduits so that the air-currents and electric discharges will intersect each other. As shown in Figs. 3 and 4, the apertures 15, through the spiders, register with the longitudinal conducting-strips 16, fastened to the conduit 1 in the plane of the respective branches 8', the strips serving as guides for the spiders and as receiving-electrodes, discharging through the binding-post 17, electrically connected therewith.

The rod 7 is provided with the longitudinal concavities 18, which are formed therein to provide seats for the discharging-electrodes, which are formed by bending sheets of metal to fit the seats and provide the branches 8', disposed radially with relation to the conduit, these electrodes being clamped to the rod by the strips 19, placed in the concavities thereof, and by screws 20, passed through the strips and the electrodes.

As shown in Fig. 5, the rod 7 holds the brushes 8' in line with the apertures 15 of the spiders 14, freely movable in the metal conduit 1, having a nickel lining 1' in place of the strips 16.

As shown in Fig. 6, the conduit 1, with the nickel lining 1', has the hollow rod 21 supported therein by the spider 14, the rod having the sheet-metal strips 22 fixed to the exterior thereof by the screws 23, the strips having the brushes 22' turned up from the foot thereof in the direction of the radii and in line with the apertures 15.

As shown in Fig. 7, the metal conduit 1, with the nickel lining 1', contains a spider 14, having an increased number of apertures 15' therein. The rod 7', supported by the spider, has an increased number of electrodes 8 with radiating branches 8', which are held by strips 19' and screws 20 in line with the apertures through the spiders and the caps.

As shown in Fig. 8, the electrode contained in the conduit may consist of a plurality of brushes 24, formed in pairs connected by webs 25, fixed together by rivets 26 and supported in the conduits in any suitable manner.

It will be understood that air is carried

through the conduits 1 from the chamber 2 and inlet 3, and the ozonized air therefrom is discharged into the chamber 2' and thence through the outlet 3'. As the air flowing
 5 through the conduits must pass through the openings in the caps and spiders, the most active currents of air are found in the lines thereof, and as the radially-disposed brushes or branches of the electrodes project in planes
 10 that are coincident with these currents it will be understood that the bulk of the discharges from the brushes to the strip-electrodes carried by the conduits or to the conducting material of the conduits themselves intimately
 15 mingles with the bulk of the air. As the caps and spiders have merely frictional engagements with the conduits, it will be understood that by removing the cover of an air-chamber and detaching the caps at one end of the rods
 20 these rods, with the electrodes and spiders thereon, can readily be withdrawn and as readily inserted.

The structure is efficient in operation, simple and economical in construction, and readily assembled and dissociated.

Having described my invention, I claim—

1. In apparatus of the class described, a tubular conduit, an electrode composed of sheet metal bent along its length intermediate of its
 30 edges to provide a plurality of discharges, and insulating-supports for holding said electrode in said conduit.

2. In apparatus of the class described, a tubular conduit, a rod in said conduit, insulating-supports for holding said rod in said conduit,
 35 and an electrode bent along its length intermediate of its edges to provide a plurality of diverging members fixed to said rod.

3. In apparatus of the class described, a conduit, a rod in said conduit, insulating-supports having apertures therethrough for holding
 40 said rod in said conduit, and an electrode composed of sheet metal bent to form a plurality of diverging branches fixed to said rod, said branches and apertures being in line.

4. In apparatus of the class described, a con-

duit, a rod and one or more insulating-supports on said rod fitted in said conduit, the supporting mechanism having apertures therein for the passage of air through said conduit,
 50 an electrode secured to said conduit, and an electrode composed of sheet metal bent to provide a plurality of diverging branches connected to said rod.

5. In apparatus of the class described, a tubular conduit, and an electrode having a plurality of diverging branches formed by bending and fastening sheets of metal together.

6. In apparatus of the class described, a tubular conduit comprising an electrode, a rod
 60 and insulating-supports therefor fitted in said conduit, said supports having apertures therein for providing an air-passage through said conduit, and an electrode comprising a plurality of bent metal sheets fixed to said rod
 65 and having diverging branches in line with said apertures.

7. In apparatus of the class described, a tubular conduit, an electrode in said conduit composed of sheets of metal bent to form diverging
 70 branches, an insulating-support for said electrode freely movable in said conduit and having apertures therethrough, insulating-supports for said electrode fitting in the ends of said conduit and having apertures there-
 75 through, and a conductor connected with said conduit.

8. In apparatus of the class described, a tubular conduit, electrodes extending longitudinally of and fixed in said conduit, an insulating-electrode support freely movable in said
 80 conduit and having apertures fitting said electrodes, and an electrode sustained by said support and having branches extending parallel to and in the direction of said first electrodes.

In testimony whereof I have hereunto set my hand, this 15th day of February, A. D. 1905, in the presence of the subscribing witnesses.

ALBERT C. WOOD.

Witnesses:

ROBERT JAMES EARLEY,
 UTLEY E. CRANE, Jr.