

H. PAULING.
 PROCESS FOR THE PRODUCTION OF VOLTAIC HIGH CURRENT ARCS.
 APPLICATION FILED AUG. 13, 1906.

939,442.

Patented Nov. 9, 1909.

FIG. 2

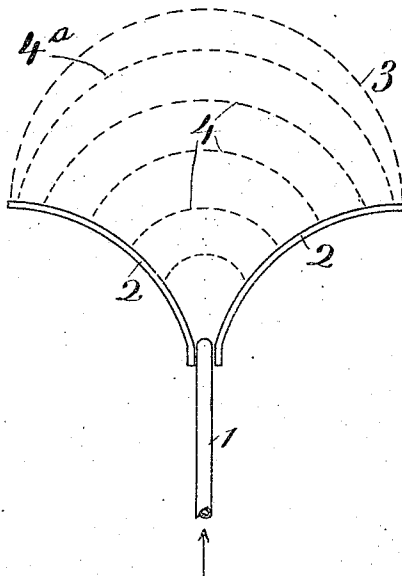


FIG. 1

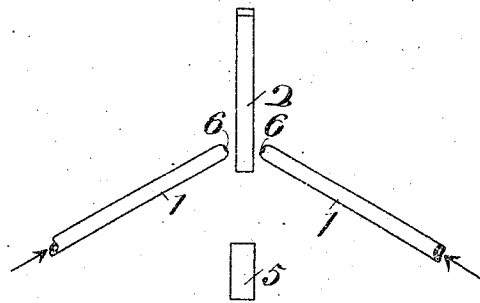
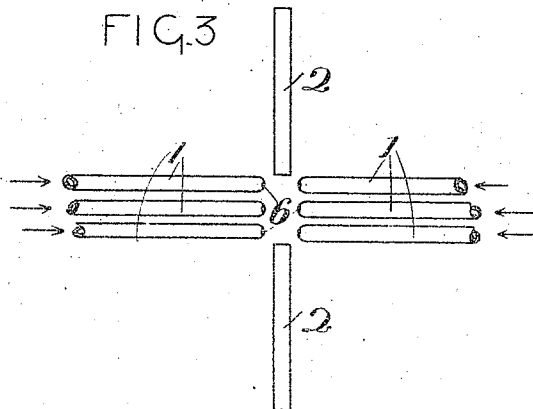


FIG. 3



Witnesses:
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Inventor:
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PROCESS FOR THE PRODUCTION OF VOLTAIC HIGH-CURRENT ARCS.

939,442.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed August 13, 1906. Serial No. 330,388.

To all whom it may concern:

Be it known that I, HARRY PAULING, a subject of the German Emperor, and resident of 85 Wilhelmstrasse, in Gelsenkirchen, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Processes for the Production of Voltaic High-Current Arcs, of which the following is a specification.

10 This invention relates to processes for the production of voltaic high-current arcs adapted to act on air or other gases, such, for example, as has previously been proposed for the production of nitric acid from air; and it is more particularly in the nature of an improvement upon those processes of this kind in which a proper rate of velocity is imparted to the current of gas that is to undergo the action of the electrical discharges, the object hereby being to enable arcs of great lengths to be produced with the avoidance of short circuits.

25 The object of the present invention is, to cause the electric discharges to effectually spread over the entire area between the electrodes, so that the available current strength shall be utilized in the most profitable manner.

30 In order to enable a ready comprehension of the new process I will hereafter describe it in connection with apparatus adapted for carrying the invention into effect, reference being had to the accompanying drawings, in which—

35 Figures 1 and 2 are two diagrammatical views, Fig. 1 being a side elevation to Fig. 2, while Fig. 3 is a diagrammatical plan view illustrating a slight modification.

40 Like numerals of reference indicate like parts in the several views.

Referring more particularly to Figs. 1 and 2, 1, 1 are two pipes designed to supply the gas to be acted upon to a place at or near the point of greatest proximity of the diverging electrodes 2, 2. This will be clear from Fig. 2. The openings 6 of such pipes are opposite each other, so that the two jets of gas discharged therefrom meet one another, the arrangement being such that the

particles of gas are caused to propagate in 50 the plane of the electrodes and in such a manner as to fill the entire area between them. To such end it will be necessary to so dispose the blast pipes that their median axis lies in the plane of the electrodes, as 55 will be seen from Fig. 1. The outline which the discharged gas will form at the place of greatest divergence of the electrodes is approximately indicated by the dotted line 4^a.

An auxiliary pipe 5 causes, by means of 60 its current of gas of an approximately high rate of velocity, the voltaic arcs produced at the point of greatest proximity of the electrodes 2 to propagate along the electrodes assuming thereby a shape such as shown by 65 the dotted lines 4. After having attained a definite length, such, for example, as indicated by the dotted line 4^a of the circle 3, they break and extinguish.

70 In some cases it may be advantageous to provide a number of pairs of blast pipes instead of one pair only; the arrangement in such event will be clear from Fig. 3.

75 Instead of the auxiliary pipe 5 as aid in the described formation of voltaic arcs, magnetical means may be arranged to cooperate with the currents of gas issuing from the blast pipes 1, that is to say, act like the auxiliary current of gas above described to elongate the voltaic arcs by causing them to 80 propagate along the electrodes until they break and extinguish.

85 It will be seen that the effect of the new process is, to cause the electric discharges to effectually spread over the entire area between the electrodes, thereby imparting upon the currents of gas to be acted upon only an approximately low pressure.

90 It is to be understood that any suitable construction of apparatus for effecting the described process may be used, the constructions illustrated being given by way of example only.

What I claim is:

95 The herein described process, consisting in elongating the voltaic arcs produced at the place of greatest proximity of the electrodes by causing them by suitable means to

propagate along the electrodes and in passing the gas to be acted upon by the electrical discharges in currents of equal quantity and velocity in inclined direction against
5 each other and meeting in the plane of the electrodes, substantially as described and for the purpose set forth.

In witness whereof I have hereunto signed my name this 23rd day of June 1906, in the presence of two subscribing witnesses,

HARRY PAULING.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.