

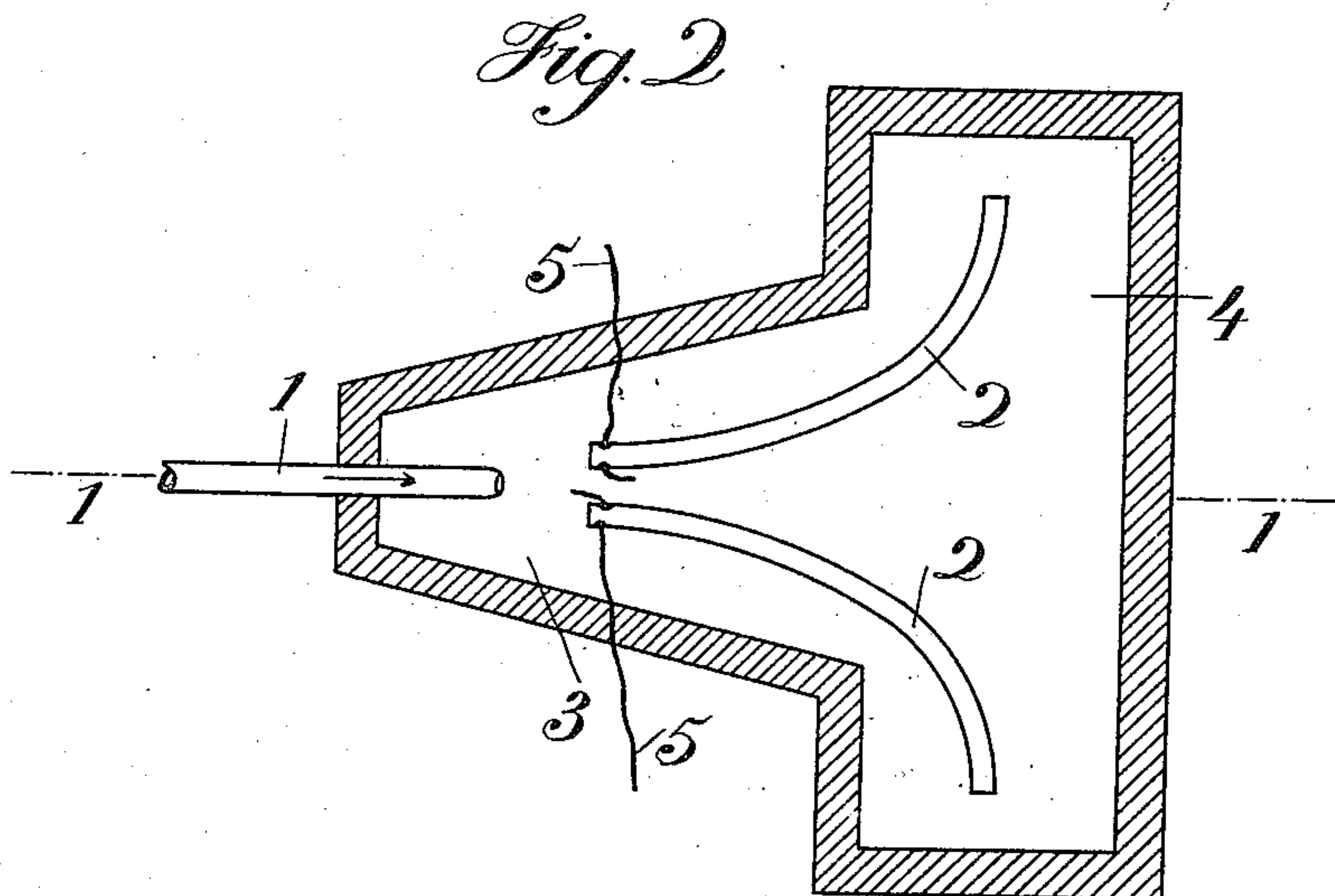
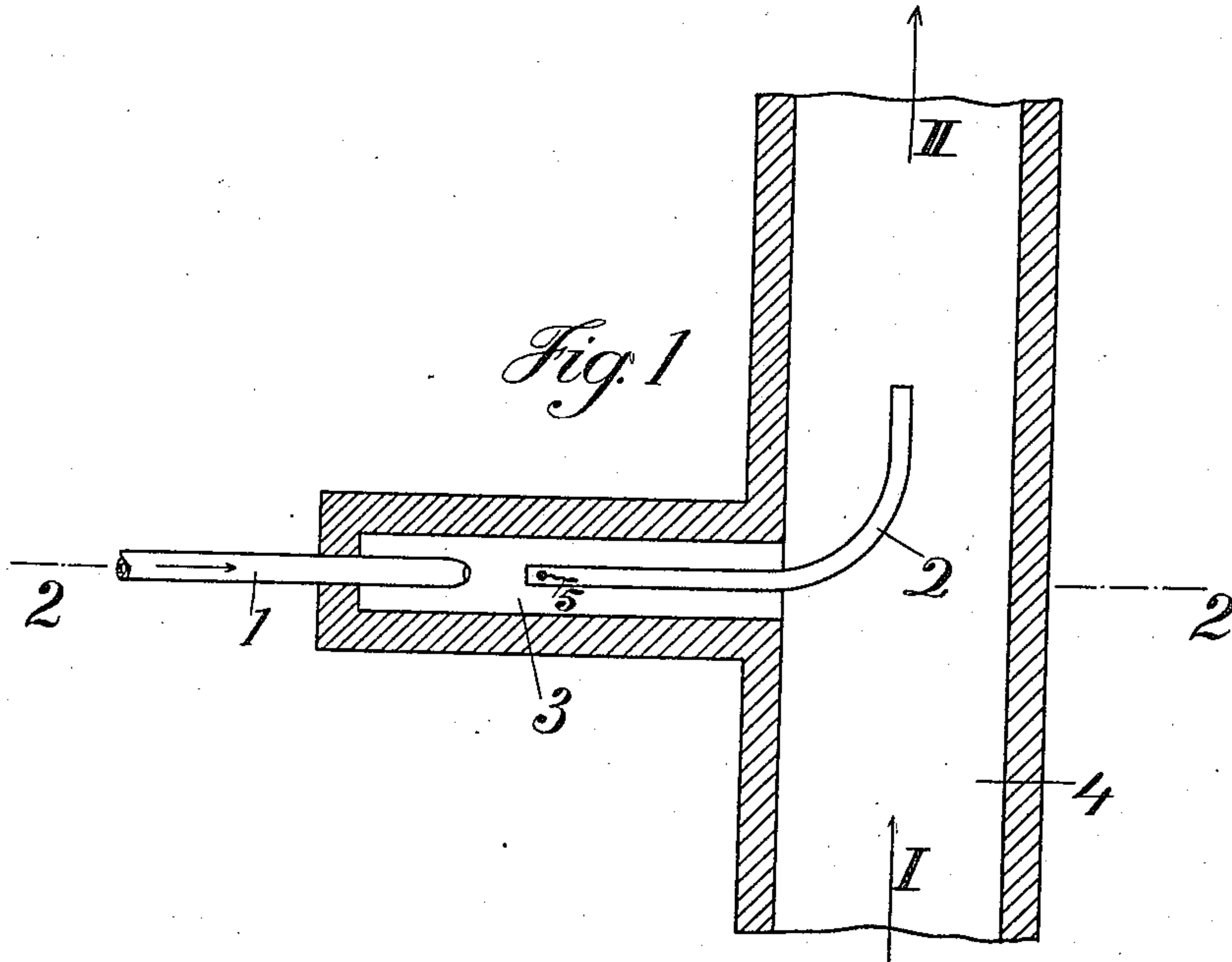
No. 877,448.

PATENTED JAN. 21, 1908.

H. PAULING.

PROCESS FOR THE PRODUCTION OF VOLTAIC STRONG CURRENT ARCS.

APPLICATION FILED JUNE 30, 1906.



Witnesses:

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PROCESS FOR THE PRODUCTION OF VOLTAIC STRONG-CURRENT ARCS.

No. 877,448.

Specification of Letters Patent.

Patented Jan. 21, 1908.

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To all whom it may concern:

Be it known that I, HARRY PAULING, a subject of the German Emperor, and resident of 84 Wilhelmstrasse, in Gelsenkirchen, in the Province of Westphalia, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Processes for the Production of Voltaic Strong-Current Arcs, of which the following is a specification.

This invention relates to processes for the production of voltaic strong-current arcs such are adapted to act on air or other gases, or on mixtures of air with such gases.

My improvements will be useful in connection with the production of nitric acid from air, for example, by means of voltaic arcs, as has previously been proposed.

It has been found that the application of electricity to the treatment of air or analogous gases necessitates voltaic arcs of a considerable length, but of a comparatively small dimension in cross section. The great length of such arcs requires a very high tension, and high tensions, as is well-known, have a tendency to effect sudden short circuits between the electrodes forming the arcs.

The object of this invention is to avoid such short circuits.

To such end it consists in certain features of novelty which will appear from the following description, reference being had to the accompanying drawing which shows diagrammatically a form of construction of an apparatus for effecting the new process.

Figure 1 is a vertical section on the line 1—1 of Fig. 2, and Fig. 2 is a horizontal section on the line 2—2 of Fig. 1.

In these drawings, 1 denotes a pipe which is employed to blow a current of the air, or other gas to be acted upon, between the diverging electrodes 2, 2 and in the direction of divergence thereof. The electrodes 2, 2 are arranged to diverge in lateral and upward

directions from pipe 1, and they are contained partially in a channel 3, and partially in a channel 4 disposed preferably at right angles to the former and communicating therewith. The electrodes are connected to the source of current by wires 5 at the point of their convergence. The channel 4 is to receive another current of the gas, this current entering in the direction of the arrow I.

The current of gas passing along the channel 4 acts in its turn on the portion of the electrodes 2, 2 projecting into the channel 4 so as to blow between them and convey, in connection with the current of gas leaving the pipe 1, the discharges along the electrodes so as to form arcs of the desired lengths with the avoidance of short circuits.

A certain definite length, as is well-known, will cause the arcs to break and hence extinguish. The velocity of the current of gas in the channel 4 is less than that of the current arriving in the channel 3. These velocities must be ascertained by experiment.

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

What is claimed is:

The herein described process, consisting in passing a gas to be acted upon by electrical discharges, in two currents between a pair of electrodes, the latter diverging in two different directions, one of the said currents passing in one of these directions, the second current in the other direction, substantially as set forth.

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

HARRY PAULING.

Witnesses:

ULYSSES J. BYWATER,
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