No. 777,990. PATENTED DEC. 20, 1904.

E. E. WERNER.

APPARATUS FOR THE TREATMENT OF GASES.

APPLICATION FILED AUG. 11, 1904.

NO MODEL.

Fig. 2.

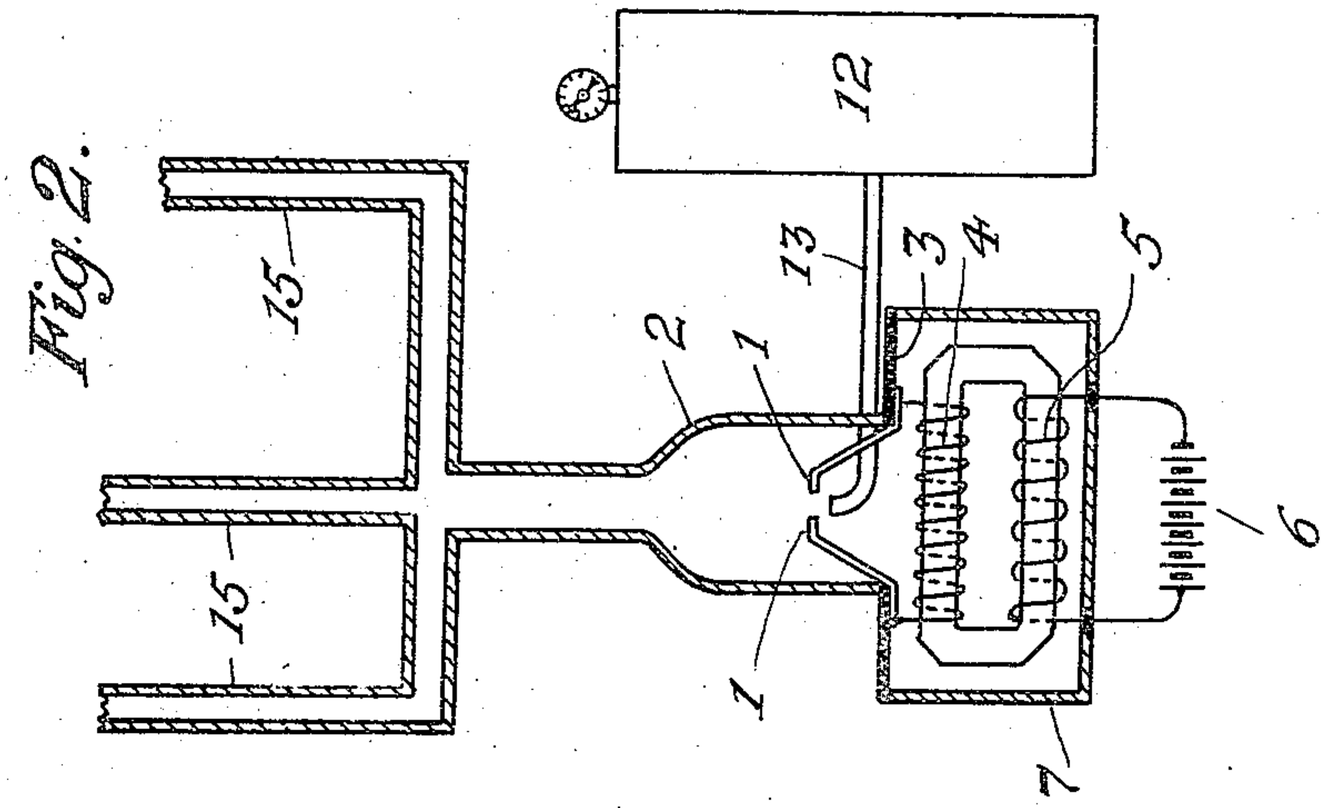
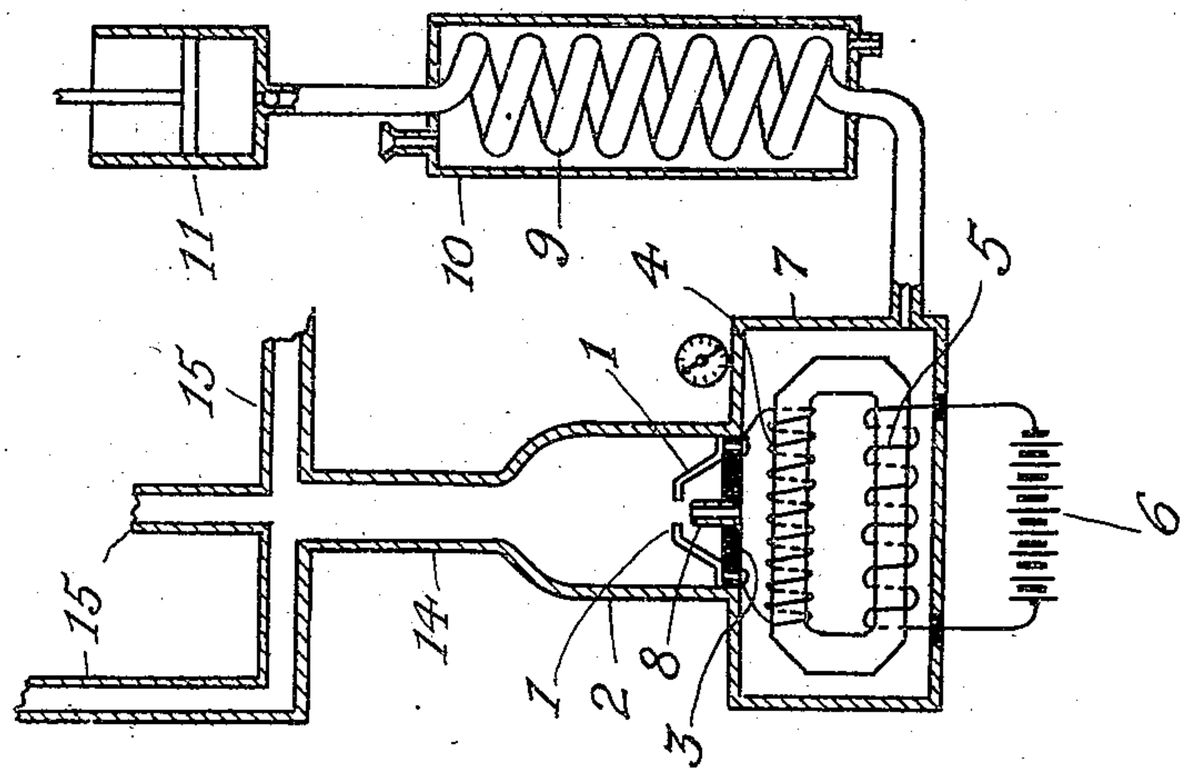


Fig. 1



Witnesses
Theo. Lagaard
H. A. Bowman.

Inventor;
Ernest E. Werner
By P. J. Gunckel
his Attorney.

No. 777,990. Patented December 20, 1904.

UNITED STATES PATENT OFFICE.

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

APPARATUS FOR THE TREATMENT OF GASES.

SPECIFICATION forming part of Letters Patent No. 777,990, dated December 20, 1904.

Original application filed June 13, 1904, Serial No. 212,316. Divided and this application filed August 11, 1904. Serial No. 229,303.

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 Apparatus for the Treatment of Gases, of which the following is a specification.

My invention relates to apparatus for treating gases by subjecting them to the action of electrical discharges; and the special purpose of the present invention is improvement of the apparatus disclosed in my pending application, Serial No. 212,316, filed June 13, 1904, of which this application is a division.

The principal object of the improvements set forth in the present application is to provide efficient means for cooling the transformer used to supply current to the terminals for forming an electric arc in the apparatus. In a general way the improvement may be said to reside in utilizing the cooling effect of the expansion of the compressed air or other gas employed in the apparatus to cool the transformer contained therein. In the apparatus a transformer is employed to supply current to terminals between which an arc is formed, and air or other gas under pressure is projected against the arc, and I utilize the cooling effect of the gas, either before or after it has been projected against the arc, to cool the transformer.

Apparatus illustrating my invention are shown in the accompanying drawings, in which—

Figure 1 shows diagrammatically the preferred form of apparatus for carrying out my improvement, and Fig. 2 shows in a similar way a modification of the apparatus.

In the drawings, 1 designates the terminals between which the arc is formed, and they are preferably formed of thin strips of metal having their ends arranged a short distance apart, so that the arc will be formed between them. They are inclosed in a chamber or casing 2 and are preferably supported by the insulating-bottom 3 of the casing and are connected to the ends of the secondary 4 of a transformer. The primary 5 of the said transformer is supplied by means of a battery 6 or any other suitable source of electrical energy. The transformer may be of any suitable form, and in practice I use the form commonly known as an "induction-coil."

Below the chamber 2 is a second chamber 7, in which the transformer is placed and which serves also as a storage-chamber for the gas under pressure before its passage into the chamber 2. In the bottom 3 of the latter chamber is a short pipe 8 in communication with the lower chamber and arranged to discharge gas therefrom into the gap between the terminals. The air or other gas is supplied to the chamber 7 through a coil 9, which is provided with a water-jacket 10 or other suitable means for cooling the gas within the coil, and the coil is supplied with air or other gas by means of an ordinary air-pump 11. The gas being thus cooled before its entrance to the chamber 7 serves to cool the transformer in passing through that chamber to the upper chamber.

In the modification shown in Fig. 2 the bottom 3 of the upper chamber is omitted and the two chambers are in free communication. In this construction a supply-tank 12, containing air or other gas under pressure, is utilized, and a pipe or conduit 13, connected thereto, is arranged to discharge into the gap between the terminals, as in the case of the pipe 8 of Fig. 1. The transformer is placed in the chamber 7, and the expansion of the gas in the communicating chambers 2 and 7 will serve to cool the transformer.

Main outlet-conduits 14 are connected to the top of the chambers 2, and they may be provided with branches 15, leading to the different points where the gases are to be used.

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

1. In an apparatus for treating gases, the combination with electric terminals, of a transformer for supplying current to the terminals, means for supplying gas to the arc be-

tween the terminals, means for cooling the gas before it is supplied to the arc, and means for subjecting the transformer ~~to~~ the action of the cooled gas.

2. In an apparatus for treating gases, the combination with electric terminals, of a transformer for supplying current to the terminals, means for supplying gas to the arc between the terminals, means for cooling the gas before it is supplied to the arc, and means for cooling the transformer by subjecting it to the action of the gas on its passage toward the arc.

3. In an apparatus for treating gases, the combination with electric terminals, of a transformer for supplying current to the terminals, means for supplying gas to the arc between the terminals, means for compressing and means for cooling the gas before it is supplied to the arc, and means for cooling the transformer by subjecting it to the action of such gas.

4. In an apparatus for treating gases, the combination with an inclosed chamber, of electric terminals in said chamber, a second chamber forming a storage-chamber for the gases, a transformer in said second chamber and connected to the terminals in said first-named chamber, and a conduit leading from said second-named chamber and discharging the gas adjacent to the terminals in said first-named chamber.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 5th day of August, 1904.

ERNEST E. WERNER.

Witnesses:

WM. A. KINNERK,

F. R. HATTERSLEY.