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COOLING DEVICE FOR VAPOR ELECTRIC APPARATUS.

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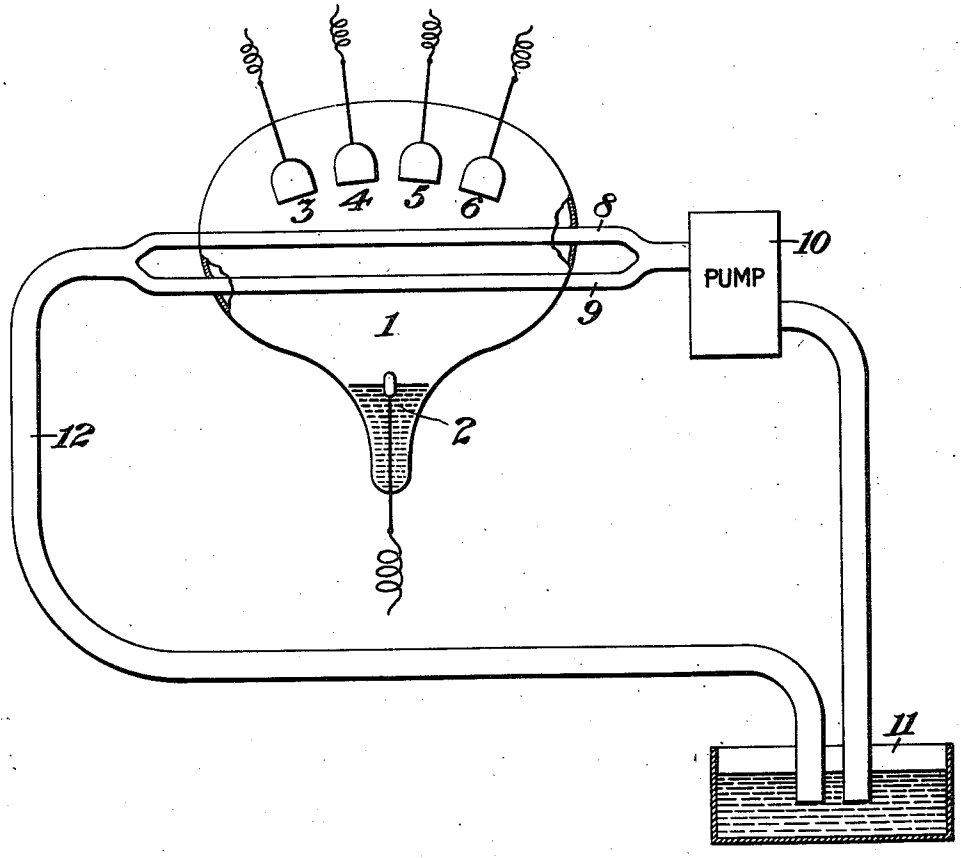
1,052,584. Patented Feb. 11, 1913.



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UNITED STATES PATENT OFFICE.

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COOLING DEVICE FOR VAPOR ELECTRIC APPARATUS.

1,052,584. Specification of Letters Patent. Patented Feb. 11, 1913.

Original application filed July 7, 1904, Serial No. 215,576. Renewed September 11, 1908, Serial No. 452,654. Divided and this application filed March 18, 1909. Serial No. 484,185.

To all whom it may concern:

Be it known that I, PETER COOPER HEWITT, a citizen of the United States, and resident of Ringwood Manor, county of Passaic, State of New Jersey, have invented certain new and useful Improvements in Cooling Devices for Vapor Electric Apparatus, of which the following is a specification.

The present invention relates to means for controlling the temperature of the vapor in vapor electric apparatus such as is represented by the well-known mercury vapor converter. The amount of condensation in such apparatus may be made subject to control by various means or devices, and the present invention is concerned with providing suitable means for the purpose indicated.

The invention will be fully understood by reference to the accompanying drawing which is a diagram of an apparatus having my invention applied thereto.

In the drawing 1 is the container of a mercury vapor converter, 2 is the negative electrode thereof, which is usually of mercury or other suitable material, the vapors of which may be condensed by cooling devices. Positive electrodes are shown at 3, 4, 5 and 6, in the number required. In the normal operation of a converter of this type a portion of the negative electrode is vaporized and a portion of the vapors are necessarily condensed in order to maintain the successful operation of the device. For this purpose I pass through the container 1, tubes 8 and 9, which are joined at their opposite ends outside the container and connected on the one hand through a suitable pumping apparatus, 10, with a tank, 11, containing water or other cooling fluid, and on the other hand through a pipe, 12, with the same cooling tank or with a suitable waste duct.

The temperature of the vapor in the container 1 may be regulated at will by operating the pump 10, the water or other cooling fluid being caused to pass through the container by way of the tubes 8 and 9. Other suitable and well-known forms of condenser surface may be used as a substitute for the tubes shown.

In another application filed by me on the 7th day of July, 1904, Serial Number 215,576, renewed on the 9th day of April, 1907, Serial Number 367,167, and again renewed on the 11th day of September, 1908, Serial Number 452,654, of which this application is a division, claims are made upon certain features of the invention described herein.

I claim as my invention:

1. The combination with a vapor device comprising a container and electrodes therein, of means for generating heat within said container, and means for removing said heat, said last named means being within the container and including a circulating cooling liquid.

2. In a vapor apparatus in which a generation of heat produces a vaporization, a liquid cooling means within the container, said means consisting of a circulating liquid adapted to condense said vapor.

3. The combination with the container of a vapor device, of electrodes therein, a cooling surface inside the container independent of the electrodes, and means for causing the circulation of a cooling material for cooling the said surface.

4. The combination with a vapor device comprising a container and electrodes therein, of a cooling pipe or pipes traversing the container and means for causing the circulation of a cooling material through said pipe or pipes.

5. The combination with a vapor device comprising a container, a negative electrode and a plurality of positive electrodes therein, of a cooling surface inside the container and independent of the electrodes, and means for causing the circulation of a cooling material for cooling the said surface.

6. The combination with a vapor device comprising a container and electrodes therein, of means for generating heat within said container, and means for removing said heat, said last named means including a cooling liquid, circulating in a closed circuit passing through said container.

7. In a vapor apparatus comprising an hermetically sealed exhausted container and a plurality of anodes and a reconstructing cathode therein in combination with means located within said container for cooling the interior of said container.

8. In a vapor apparatus comprising an hermetically sealed exhausted container and a plurality of anodes and a reconstructing

cathode therein in combination with means for cooling said apparatus during operation, said means including a circulating system comprising a portion within the container, a portion outside the container connecting with an open reservoir, a cooling liquid in said system and means for preserving a circulation of said cooling liquid.

Signed at New York, in the county of New York, and State of New York, this 17th day of March, A. D. 1909.

PETER COOPER HEWITT.

Witnesses:
WM. H. CAPEL,
THOS. H. BROWN.