Nov. 5, 1929. E. KOBEL 1,734,135

VAPOR VACUUM PUMP CONSTRUCTION

Filed Aug. 25, 1926

Fig. 1.

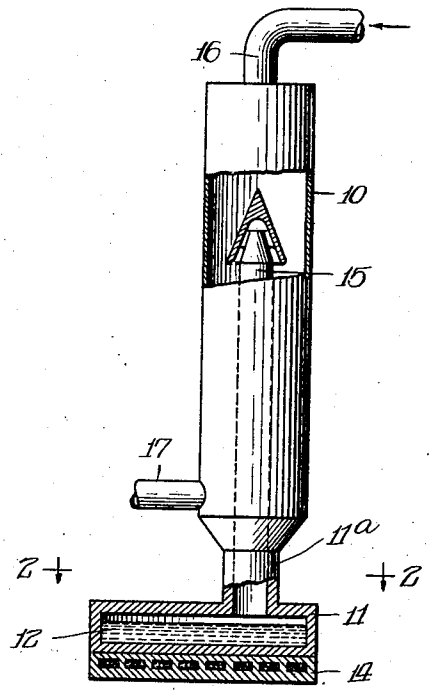
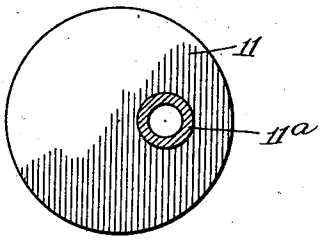


Fig. 2.



Witness:
R. Burkhardt

Inventors;
Ernst Kobel,
By Cromwell, Zeit & Warden Attys.

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UNITED STATES PATENT OFFICE

ERNST KOBEL, OF BADEN, SWITZERLAND, ASSIGNOR TO AKTIENGESELLSCHAFT BROWN BOVERI & CIE., OF BADEN, SWITZERLAND, A JOINT-STOCK COMPANY, OF SWITZERLAND

VAPOR VACUUM PUMP CONSTRUCTION

Application filed August 25, 1926, Serial No. 131,514, and in Germany September 9, 1925.

This invention relates to vacuum pumps of the types operated by pressure vapor, on the diffusion or ejector principles. It has to do primarily with construction of the vapor generator portion of the device.

The general object of the invention is the provision of a construction which is simple and robust and which will contribute to rapid generation of the operating vapor.

Another object is the provision of a construction which will accomplish these results and at the same time allow the assembly of the device in intimate association with other apparatus.

Other and further objects will be pointed out or indicated hereinafter or apparent to one skilled in the art upon an understanding of the invention.

In the drawing forming a part of this specification I show one fashion in which the invention may be embodied, but it is to be understood that the claim is not to be construed as limited to this particular form only.

In said drawing,

Fig. 1 is a part elevational and part sectional view of a mercury vapor high vacuum pump, the water jacket portions being omitted; and

Fig. 2 is a sectional view on line 2—2 of Fig. 1.

The nature of the invention will be ascertained immediately by reference to the illustrative embodiment, wherein the reference numeral 10 designates the pump casing, which is mounted on a neck portion 11ª of the boiler or generator 11. This generator is constructed to provide a shallow chamber for containing the mercury 12 which is to be vaporized to supply the actuating pressure fluid. This shallow flat generator rests directly upon the hot plate 14 which offers an extended heat transfer area and which contains the heat generating elements. The peripheral contour of the generator 11 preferably conforms to that of the hot plate, a convenient shape being one that is circular. Through the neck portion 11ª the chamber of the generator is in communication with a nozzle 15 which is housed within the casing 10 with its discharge end between the air inlet 16 and the air outlet 17, the discharge orifice of the nozzle being directed towards the latter.

In order that the device may be assembled in intimate association with other apparatus, such as the vessel which is to be evacuated, or the receiver, the neck portion 11ª is disposed eccentrically of the generator 11, so that the extent of the connection pipe 16 may be kept as short as possible with consequent reduction of pipe losses and resistance to the withdrawal of air from the evacuated vessel. By virtue of the shallow and extended form of the generator and its intimate association with the hot plate throughout its area, the vaporization of the mercury is accomplished with increased rapidity, with consequent increase in pressure and reduction in the amount of mercury requisite for operation of the device.

What I claim is:

In a vacuum pump, an uprightly disposed casing, a nozzle disposed therein, means providing a vapor generator and comprising a flat boiler portion having a horizontal cross-sectional dimension substantially greater than the horizontal cross-sectional dimension of said casing, and a neck portion disposed eccentrically with respect to said boiler portion and providing an operating connection between the same and said nozzle.

In testimony whereof I have hereunto subscribed my name at Zurich, Switzerland, on the 4 day of August, 1926.

ERNST KOBEL.