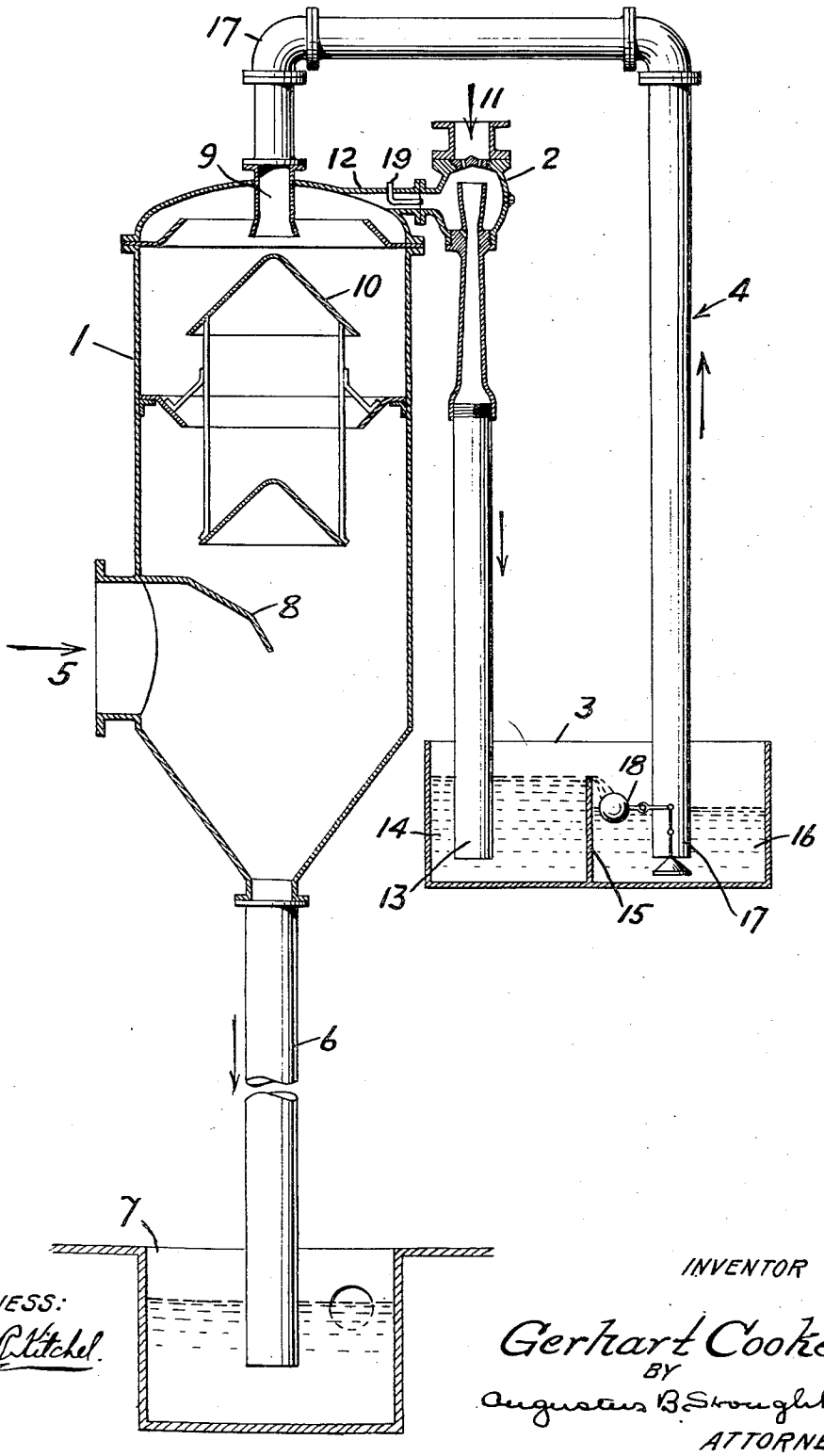
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VAPOR CONDENSER

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WITNESS:
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VAPOR CONDENSER

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1 Claim. (Cl. 183—2.5)

Objects of the present invention are to effect an economy in the application and use of water applied for operating the exhauster which withdraws non-condensible gases from the condenser, to increase the efficiency of the exhauster by operating it with cool water, and to utilize the same water which operates the jet of the exhauster in the condenser.

Other objects of the invention will appear from the following description at the end of which the invention will be claimed.

Generally stated, the invention comprises a vapor condenser having a jet exhauster adapted to remove non-condensible gases from the interior of the condenser, an air separating device adapted to remove the non-condensible gases from the jet water, and means for introducing the jet water from which the non-condensible gases have been removed into the interior of the condenser.

The invention also comprises improvements to be presently described and finally claimed.

In the following description reference will be made to the accompanying drawing forming part hereof and in which the single figure illustrates principally in central section a vapor condenser embodying features of the invention.

In the drawing, 1 indicates a vapor condenser having a jet exhauster 2 adapted to remove non-condensible gases from the interior of the condenser. 3 indicates an air separating device adapted to remove the non-condensible gases from the jet water discharged from the exhauster. 4 indicates means for introducing the jet water, from which non-condensible gases have been removed in the air separating device 3, into the interior of the condenser. The fluid to be treated by the condenser 1 enters the same at 5 and this fluid usually contains condensible vapors as steam and non-condensible gases as air. The fluid passes by the discharge pipe 6 to the sump 7. The vapors and gases pass around the baffle plate 8 and rise in the condenser. Water entering at 9 flows over the baffle device 10 and condenses the condensible vapors which it carries by way of the pipe 6 into the sump 7. The exhauster 2 receives a supply of water with or without steam at 11 and this water with or without steam provides a jet or jets which operate the exhauster drawing along with them non-condensible gases from the interior of the condenser by way of the pipe 12. The jet water carrying with it the non-condensible gases passes from the lower end of the dip pipe 13 into the air separator 3. The air separator 3 contains in the compartment 14 a supply of water containing non-condensible gases. This water flows over the dam 15 into the compartment 16. The vessel 3 is open at the top to the atmosphere and the non-condensible gases escape from the water. 17 is a pipe included in the connections 4 and it dips into the water in the compartment 16 and communicates with the inlet 9 of the condenser. 18 is a float valve for closing the open lower end of the pipe 17 in the event of a lack of supply of water in the air separating device 3. The purpose is to oppose the inlet of air through the pipe 17 to the interior of the condenser.

The mode of operation of the invention will be described in connection with the device or apparatus shown in the drawing. The pressure within the condenser 1 is less than atmospheric pressure. The water in the air separating device 3 is exposed to atmospheric pressure and this difference in pressure causes the same water which has operated the exhauster 2 and after the escape of non-condensible gases to flow through the pipe 17 and be discharged into the interior of the condenser 1. It may be remarked that the water which operates the exhauster 2 is cool and that the same water after the removal of non-condensible gases is introduced into the condenser 1 and employed for condensing condensible vapors. A steam jet exhauster can be employed between the condenser and the water jet exhauster in order to act as a vacuum booster, and this is important. A steam jet exhauster is indicated at 19 in the pipe connection 12.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and arrangement without departing from the spirit of the invention which is not limited in respect to such matters or otherwise than as the prior art and the appended claim may require.

I claim:

A condenser having a water jet exhauster connected with its interior and adapted to remove non-condensible gases from the inside of the condenser thereby keeping the pressure in the condenser below atmospheric pressure, a tank open at its top to the atmosphere and exposed to atmospheric pressure and into which water from the exhauster discharges and from which non-condensible gases escape a dam in the tank, a pipe connection from the exhauster dipping into the water in the tank on the high side of the dam, a pipe from the low side of the dam to the interior of the condenser and dipping into the water in the tank, and a float valve for the dipping end of said pipe.

GERHART COOKE.