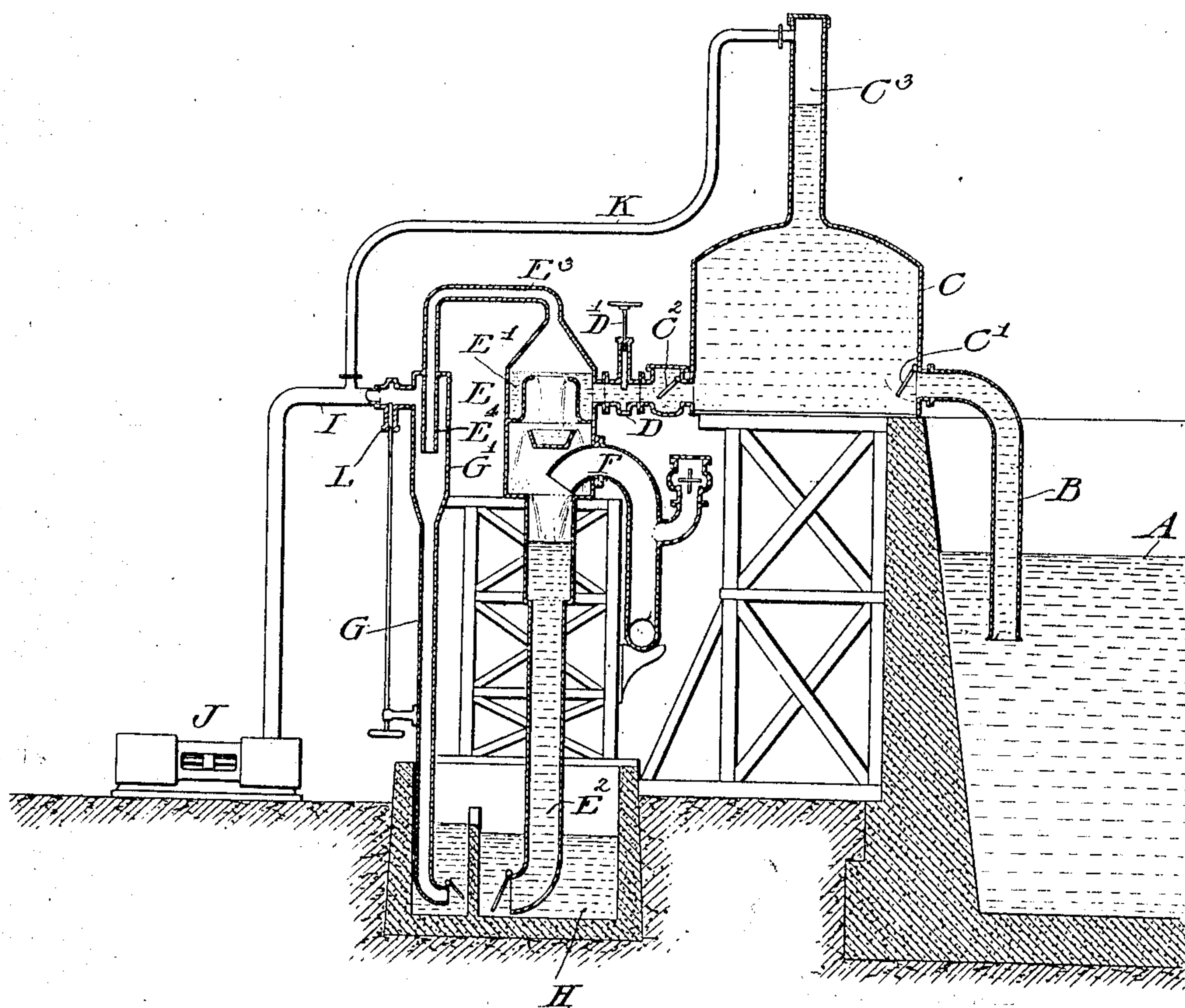


No. 885,285.

PATENTED APR. 21, 1908.

G. B. PETSCHÉ.
CONDENSER.

APPLICATION FILED JUNE 6, 1906.



WITNESSES:
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CONDENSER.

No. 885,285.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed June 6, 1906. Serial No. 320,396.

To all whom it may concern:

Be it known that I, GUSTAV B. PETSCHÉ, a subject of the Emperor of Germany, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Condensers, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to condensers in which a vacuum is normally maintained in the condenser body by means of an air pump and is especially applicable to cases where the water intake into the condenser body is situated at a level above that of the water supply, the object of my invention being to provide means whereby under such conditions there will always be a sufficient quantity of water available to maintain the condenser in proper operation and my invention consists in providing in the conduit between the water supply and the water intake of the condenser, the water supply tank having a part or extension at a greater height above the water supply than that to which the water can be drawn by suction or vacuum, this upper part of the tank being connected with the air pump and a non-return valve being situated in the in-take passage from the tank to the condenser.

The nature and details of my invention will be best understood as described in connection with the drawing in which they are illustrated and which is an elevation partly in section of a condenser apparatus embodying my invention.

A, indicates the water supply, B, a conduit leading from the water supply to the tank, C, a non-return valve C', being supplied in the connection between the pipe B and the tank C, and the second non-return valve C'', being provided in the in-take pipe D, leading from the bottom of the tank to the condenser body E, D', indicating a gate valve by which the intake passage can be permanently closed at will. An extension C'', of the tank C, carries the effective height of the tank above the level of thirty feet from the surface of the water supply, that is, to a greater height than the water can be drawn by suction or vacuum.

The condenser body E, is of usual form, and the condensing apparatus, as a whole, of the general type, known as the Weiss coun-

ter-current condenser, as described, for instance, in the reissued patent to Weiss No. 11591 dated 2nd March 1897. An annular water chamber E', receives the water from the intake conduit D, and showers it through the usual internal mechanism in the steam space of the condenser. The lower part of the condenser body connects with the barometric column indicated at E², while the upper part communicates with the pipe or conduit E³, the end E⁴, of which projects down into the enlarged end G', of the barometric pipe G. Both the stand pipes E², and G open into a water reservoir indicated at H, and from the upper part of the enlarged conduit portion G', leads the pipe I, which connects it with the air pump J. The gate valve L, is provided for closing the opening of the pipe I, into the chamber G', and in the rear of this valve a conduit K, connects the air pump pipe I, with the upper end C³, of the tank. F, indicates the pipe through which the exhaust steam is led to the condenser.

In starting my improved condenser the gate valve L is closed and the air pump set in operation, exhausting the air from the tank C, with the result that the water is drawn up into it through the pipe B, and until the water level in the tank and its extension approximates thirty feet from the surface of the water supply A. While the tank is filling the non-return valve C'', will of course remain closed, or if there is any difficulty with the proper closure of this valve at the beginning of the operation, the intake passage D, can be positively closed through the valve D'. As soon as the tank C, is charged with water, the valve L, and, if it has been closed, the valve D', also, are opened; the air pump is then in direct communication with the condenser body, a proper vacuum being formed therein and of course under these conditions the valve C'', will open, permitting the free flow of water into the intake of the condenser which then assumes its normal mode of operation, the proper vacuum being maintained in the tank to insure its being always approximately filled so that any temporary interruption in the vacuum in the condenser will not result in the cutting off of the water supply, ample reserve of water being always present in the tank to make any mere temporary fall ineffective as affecting the water supply.

Having now described my invention, what

I claim as new and desire to secure by Letters Patent is

1. In combination with a condenser having an air pump connected to the head of the condenser body and a water supply situated at a lower level than the condenser intake, a water supply tank situated above the water intake of the condenser and connected thereto and to the water supply, a non-return valve located in the connection from the tank to the intake, said valve being arranged to close when the vacuum in the condenser body is broken and a conduit leading from the air pump connection to the top of the tank.

2. In combination with a condenser having an air pump connected to the head of the condenser body and a water supply situated at a lower level than the condenser intake, a water supply tank situated above the water intake of the condenser and connected thereto and to the water supply, a non-return valve located in the connection from the tank to the intake, said valve being ar-

ranged to close when the vacuum in the condenser body is broken, a conduit leading from the air pump connection to the top of the tank and a normally open valve whereby the connection between the condenser body and air pump can be closed at will.

3. In combination with a condenser having an air pump connected to the head of the condenser body and a water supply situated at a lower level than the condenser intake, a water supply tank situated above the water intake of the condenser and connected thereto and to the water supply, a non-return valve located in the connection from the tank to the intake, said valve being arranged to close when the vacuum in the condenser body is broken, a conduit leading from the air pump connection to the top of the tank and a non-return valve in the intake of the tank.

GUSTAV B. PETSCHKE.

Witnesses:

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