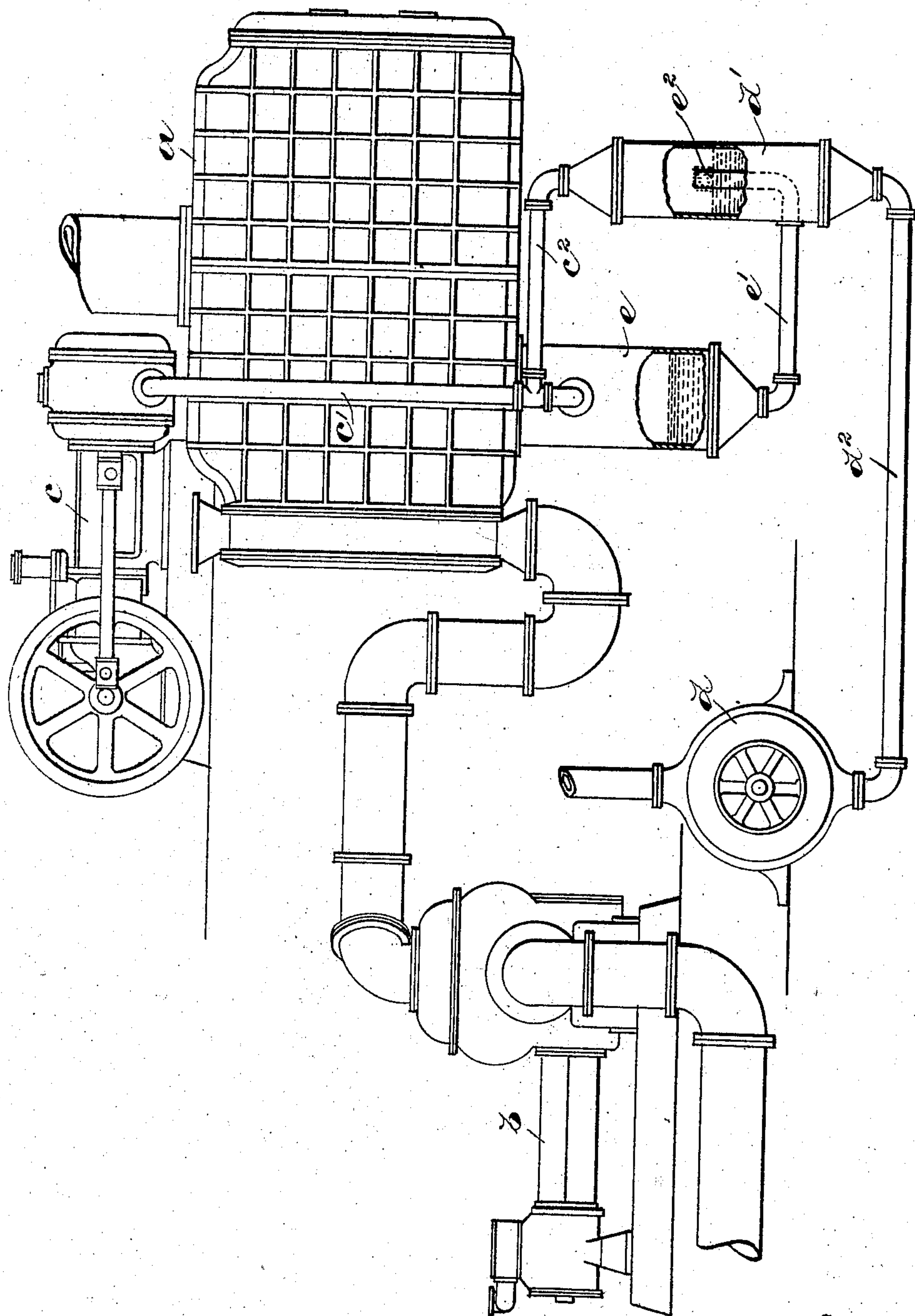


No. 806,132.

PATENTED DEC. 5, 1905.

A. GIESLER.
SURFACE CONDENSING PLANT.
APPLICATION FILED JULY 28, 1905.



Inventor

Arthur Giesler

By

Staley & Bowman
Attorneys

Witnesses

F. DeWitt Walker
Chas. J. Welch

UNITED STATES PATENT OFFICE.

ARTHUR GIESLER, OF DAYTON, OHIO, ASSIGNOR TO THE PLATT IRON WORKS COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

SURFACE-CONDENSING PLANT.

No. 806,132.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed July 28, 1905. Serial No. 271,568.

To all whom it may concern:

Be it known that I, ARTHUR GIESLER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Surface-Condensing Plants, of which the following is a specification.

My improvement relates to improvements in surface-condensing plants, and especially relates to improvements in the means by which the water of condensation is handled and separated from the air and other non-condensable vapors, the water of condensation being efficiently removed from the surface condenser no matter what variation occurs in the amount of said condensed water. I attain these objects by the construction shown in the accompanying drawing, in which the figure is an elevation, partly diagrammatic, of a plant embodying my invention.

It has been found in practice that a much greater efficiency is secured by removing the water and air from the surface condenser by means of separate pumps, one of which is generally called the "dry-air" pump and the other the "wet" pump. The use of a rotary or centrifugal pump for removing the water of condensation is also desirable, owing to the fact that said pump will remove the water in varying quantities without affecting the speed of said pump, which speed may be uniform with varying quantities of the water. In my improved device I have so arranged the centrifugal pump that it will become effective and operate under varying conditions and in a manner in which all the air and non-condensable vapors are separated from the water of condensation before they are led to the centrifugal pump, which otherwise would prevent the operation of the pump by means of the expansive force of said air or vapors being allowed to pass into the centrifugal pump with the water.

In the accompanying drawings, *a* represents the surface condenser, which may be of any improved form.

b is the water-circulating pump.

c is the dry-air pump, and *d* the wet pump, which is of the centrifugal type.

e is the hot-well, into which the water of condensation is discharged, and *c'* is the suction-pipe leading from the dry-air pump to the hot-well, through which the air and non-condensable gases are drawn in the usual way.

To provide for effectively supplying the centrifugal pipe *d* with the water of condensation and also remove all the air and other non-condensable gases or vapors therefrom, I provide an intermediate chamber *d'*, from the bottom of which leads a supply-pipe *d''* to the centrifugal pump *d*. The water of condensation is led from the bottom of the hot-well *e* through an overflow-pipe *e''*, which is preferably turned upwardly within the intermediate chamber *d'*, as shown at *e''*, the top of this pipe being at a sufficient level to cause the water from the hot-well to overflow through the top of said pipe and pass into the bottom of the intermediate chamber *d*. The intermediate chamber *d'* is placed upon such a level that the water will remain in the bottom of said chamber; but a sufficient head to cause it to pass into the centrifugal pipe *d* may be gathered without submerging the end of the pipe *e''*. From the top of the intermediate chamber *d'* there leads a pipe *c''*, which connects with the suction-pipe *c'* of the dry-air pump, and thus secures a vacuum in the top of the chamber *d'* equal to that within the hot-well *e*, thus allowing the water to pass by gravity through the pipe *c'* and overflow-pipe *e''* into the intermediate chamber *d'*, at which point all gases or non-condensable vapors therein will be discharged and removed through the branch pipe *c''*. The use of this intermediate chamber in the manner described produces an efficient working of the centrifugal pump *d*, which cannot be secured when connected direct to the hot-well.

Having thus described my invention, I claim—

1. In a condenser plant, a centrifugal pump for removing the waters of condensation, an intermediate chamber between the hot-well and said pump, and a dry-air pump connected to said intermediate chamber and said hot-well, substantially as specified.

2. The combination with a condensing plant of a dry-air pump, a centrifugal pump for removing the waters of condensation, an intermediate chamber between said condenser and said pump, and an overflow-pipe in said intermediate chamber, and a connection from the top of said intermediate chamber to said dry-air pump, substantially as specified.

3. The combination with the centrifugal pump, the intermediate chamber, the condenser and hot-well as described, of a pipe lead-

ing from said hot-well to said intermediate
chamber and adapted to overflow into said in-
intermediate chamber, said intermediate cham-
ber being extended above and below the cen-
5 ter of the centrifugal pump to maintain the
water-level below the top of said overflow-
pipe, substantially as specified.

In testimony whereof I have hereunto set
my hand this 24th day of July, A. D. 1905.

ARTHUR GIESLER.

Witnesses:

A. G. DAUGHERTY,
HENRIETTA STRAUB.