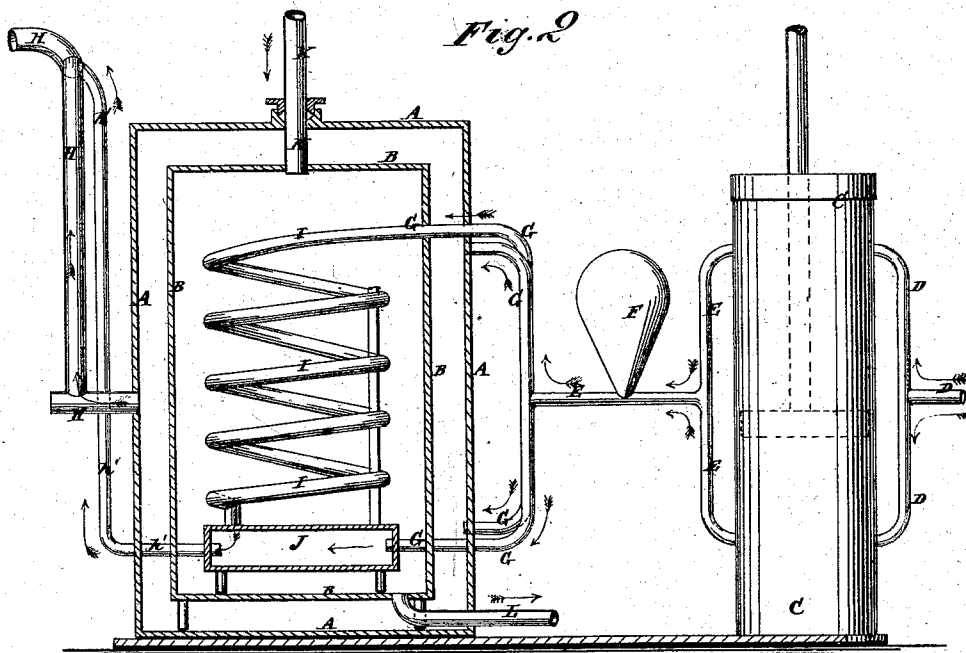
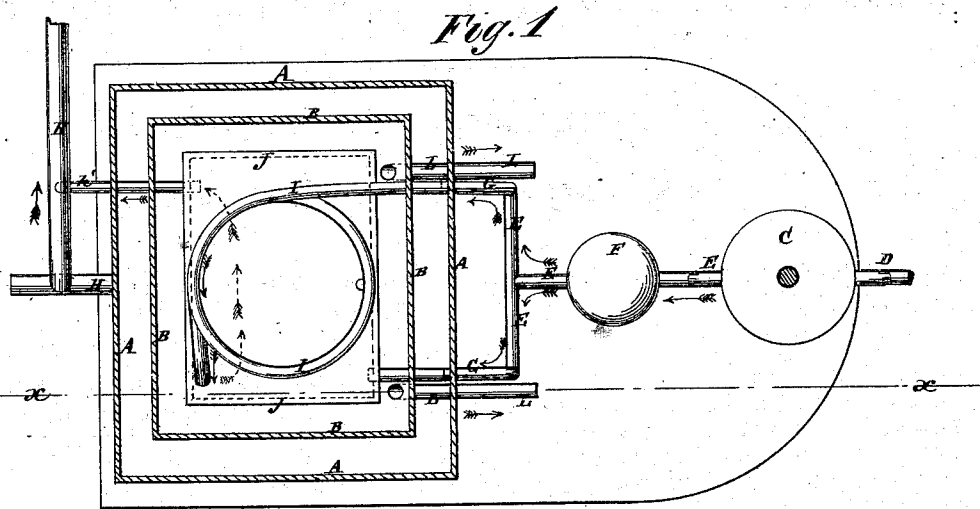


E. O. BRINCKERHOFF.
Steam-Condensers.

No. 158,397.

Patented Jan. 5, 1875.



WITNESSES:

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EDWIN O. BRINCKERHOFF, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM-CONDENSERS.

Specification forming part of Letters Patent No. 158,397, dated January 5, 1875; application filed November 30, 1874.

To all whom it may concern:

Be it known that I, EDWIN O. BRINCKERHOFF, of the city, county, and State of New York, have invented a new and useful Improvement in Steam-Condenser, of which the following is a specification:

Figure 1 is a top view of my improved condenser, the tops of the outer and inner cases being removed. Fig. 2 is a vertical section of the same, taken through the line *xx*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claim.

A and B are two steam and water tight cases or chambers, placed the one within the other, and which may be made rectangular, cylindrical, or of any other desired form. The inner case B is supported upon short legs *b'*, and is made of such a size that a space may be left between the tops, bottoms, and sides of the said cases, as shown in Figs. 1 and 2. C is a double-acting pump, the piston of which is designed to be connected with, and operated from, the walking-beam or some other part of the engine. D is the supply-pipe for the pump C, the outer end of which is designed to be connected with a well, cistern, tank, or other supply of cold water. The inner end of the pipe D is branched, and is connected with the pump C above and below its piston. With the pump C, above and below its piston, are connected the ends of the branches of the discharge-pipe E. With the discharge-pipe E is connected an air-chamber, F, to make the discharge of the water continuous. The other end of the discharge-pipe E is branched, and the ends of its branches are connected with two U-pipes, G. The upper end of one of the U-pipes G and the lower end of the other pass through the side wall of the outer case A, and discharge the cold water into the space between the cases A and B, whence it escapes continuously through the waste-pipe H. The upper end of the other U-pipe G

passes through the walls of both the cases A B, and is connected with the upper end of the coiled pipe I, placed within the inner case B, and the lower end of which is connected with the steam and water tight box J, upon which the said coil I stands, and which is supported a little above the bottom of the said inner case B by short legs, as shown in Fig. 2. The lower end of the other U-pipe G passes through the walls of both the cases A B, and enters the box or hollow table J, so as to discharge a stream of cold water directly into the said box J. From the box J the water escapes continuously through the branch waste-pipe *h'*, which passes out through the walls of the cases B A, and the outer end of which is connected with the waste-pipe H. K is the exhaust-steam pipe, which passes in through the tops of the cases A B, and discharges the exhaust steam into the upper part of the inner case B, where it is immediately condensed by the streams of cold water passing continuously through the space between the cases A B, through the coil I, and through the box or hollow table J. The water or condensed steam passes out through the pipes L, from which it passes to the feed-water chamber to be forced into the boiler.

In some cases the box or hollow table J need not be used, in which case the lower end of the coil I will be connected directly with the branch waste-pipe *h'*, and only one of the U-pipes G will be required.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination of cases A B, having intermediate water-space, the hollow table having pipes G I *h'*, and the therewith-connected pump C, having pipes D E and air-chamber F, all as and for the purpose described.

EDWIN O. BRINCKERHOFF.

Witnesses:

JAMES T. GRAHAM,
T. B. MOSHER.