(No Model.)

R. T. ISBESTER.

CONDENSER.

No. 349,103. Patented Sept. 14, 1886.

Fig. 1

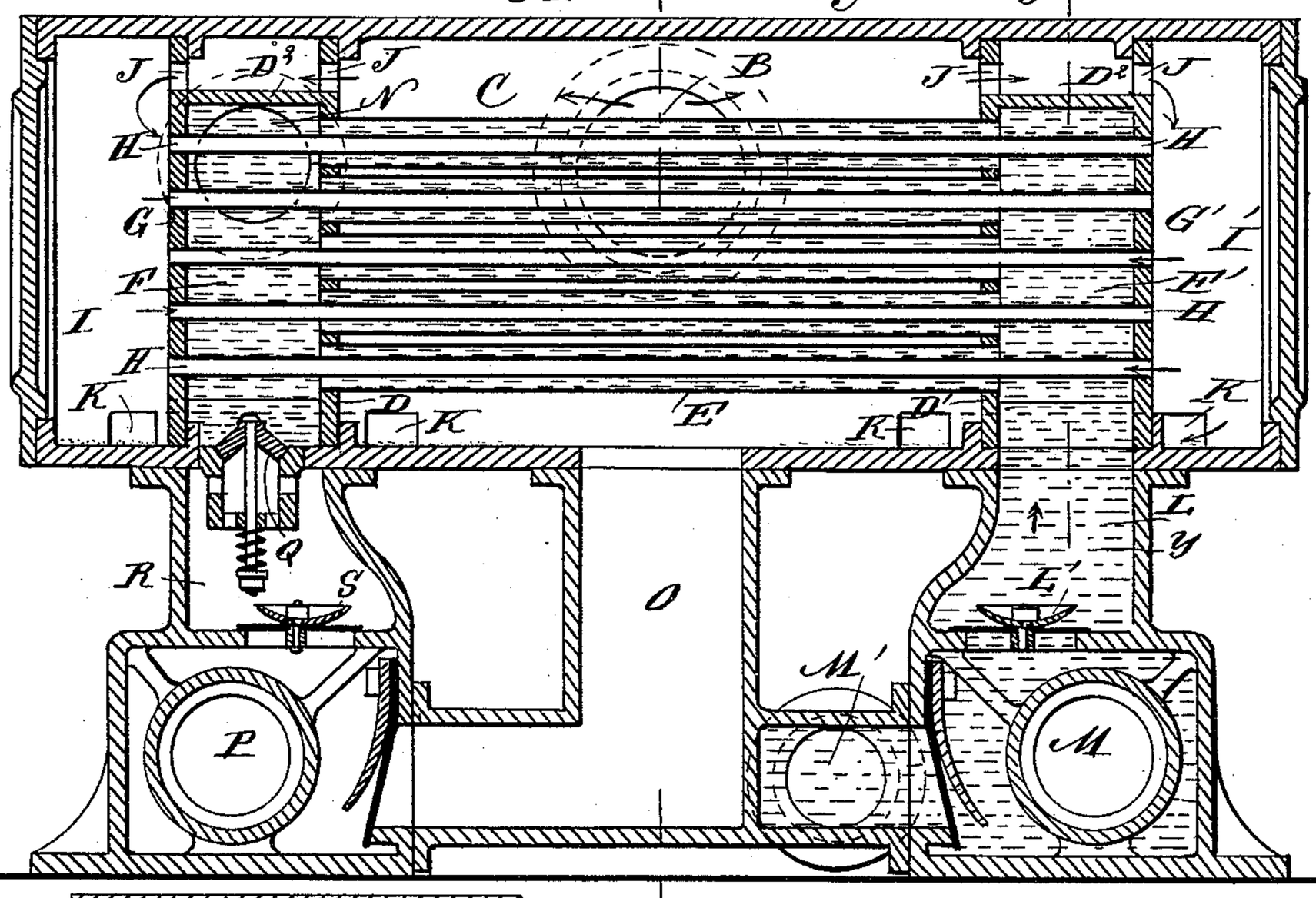


Fig. 2

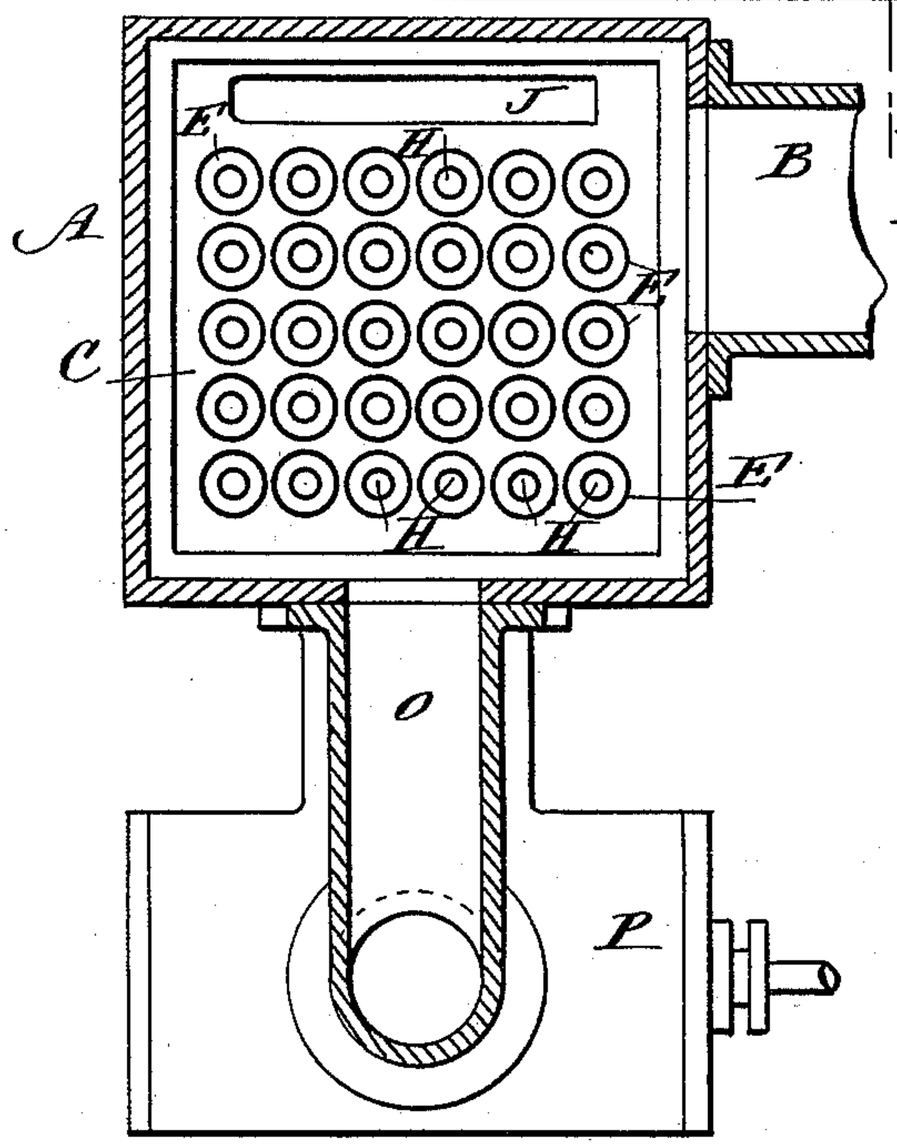
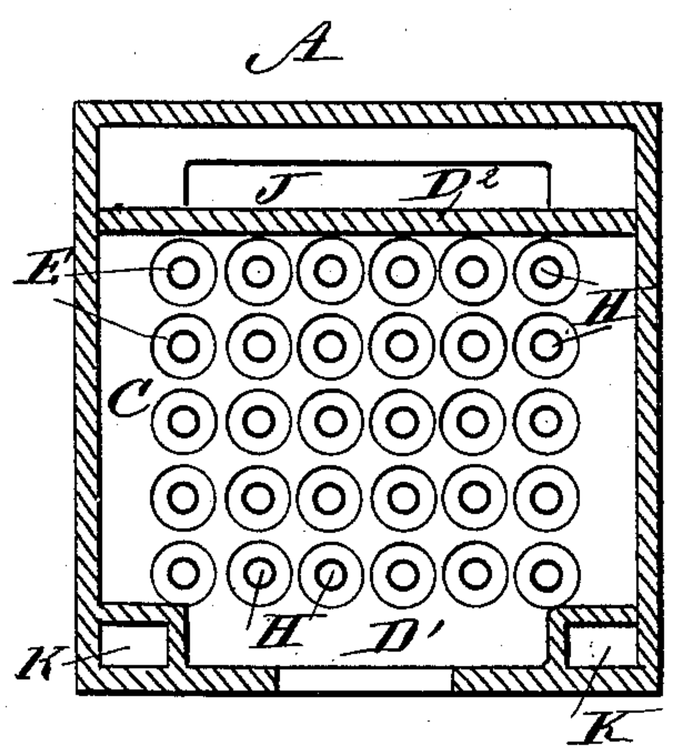


Fig. 3



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UNITED STATES PATENT OFFICE.

RICHARD T. ISBESTER, OF CHATTANOOGA, TENNESSEE.

CONDENSER.

SPECIFICATION forming part of Letters Patent No. 349,103, dated September 14, 1886.

Application filed June 8, 1886. Serial No. 204,472. (No model.)

To all whom it may concern:

Be it known that I, RICHARD T. ISBESTER, of Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and Improved Condenser, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved condenser, which is compact in form and very effective in operation.

The invention consists of various parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improvement. Fig. 2 is a vertical cross-section of the same on the line *x x* in Fig. 1, and Fig. 3 is a vertical cross-section of the same on the line *y y* in Fig. 1.

The condenser A is provided with a steam-inlet pipe, B, which opens into the central compartment, C, having the partitions D D′, which are connected with each other by the tubes E, opening at each end into the water-compartments F F′, formed by the said partitions D and D′, the top plates, D², and the partitions G and G′, respectively, which are connected with each other by the steam-pipes H, passing axially through the tubes E, forming annular spaces in the same and open at each end into the end compartments, I and I′, which are connected by the apertures J in the upper ends of the partitions D and D′ and G and G′, with the central compartment, C, and the lower part of each compartment I or I′ is connected by the channel K with the central compartment, C.

The water-compartment F′ is connected at its bottom with the chamber L, containing the delivery-valve L′, which connects with the circulating-pump M, of the usual construction, and which receives its supply from the pipe M′ and forces the water up into the chamber L, the compartment F′, and through the tubes E into the other compartment, F, from which it passes into the outlet-pipe N. The central compartment, C, is connected at the bottom by means of the pipe O with a discharge-pump of the usual construction. A relief-valve, Q, connects the bottom of the water-compartment F with the chamber R, containing the valve S, which opens to the pump P.

It will be seen that the steam entering the inlet-pipe B is first brought in contact with the water-tubes E, and part of it is condensed, the other part passing through the apertures J into the end compartments, I and I′, and into the tubes H, which are surrounded by the fresh water passing through the tubes E, and the steam in the pipes H is thus condensed and drips from the ends of the pipes H into the compartments I and I′, and then flows from the same through the channels K into the central compartment, C, which delivers all the condensed water by the pipe O to the discharge-pump P. It will thus be seen that the steam is rapidly condensed, and by passing the steam-pipes through the fresh-water pipes and the fresh-water compartments the condenser is made very compact. The condenser can of course be adapted for abstracting the heat from any fluid or gas in a very effective and rapid manner.

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

1. In a condenser, the central compartment, E, the end compartments, I and I′, connected with the central compartment by the apertures J and the channels K, and the steam-pipes H, in combination with the water-compartments F and F′, and the pipes E, through each of which passes centrally a steam-pipe, H, substantially as shown and described.

2. In a condenser, the central compartment, C, having the inlet-pipe B, the outlet-pipe O, connected with the pump P, the end compartments, I and I′, connected with the central compartment, C, by the apertures J and the channels K, in combination with the compartments F and F′, the pipes E, connecting the said water-compartments F and F′, the chamber L, containing the valve L′, and the circulating-pump M, substantially as shown and described.

RICHARD T. ISBESTER.

Witnesses:
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