The specification is illegible as was the case with

B. T. BABBITT.

CONDENSER.

No. 39,709. Patented Sept. 1, 1863.

Fig: 1.

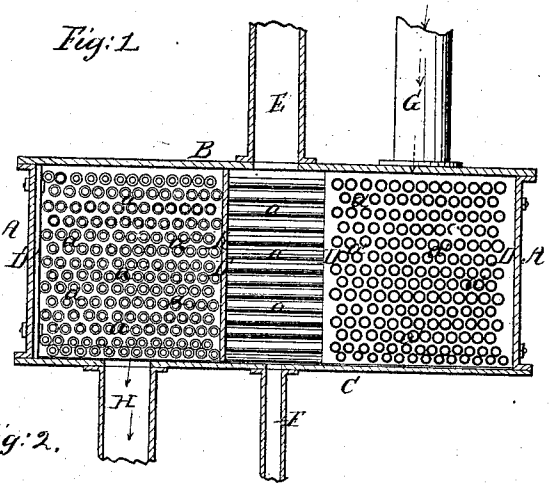
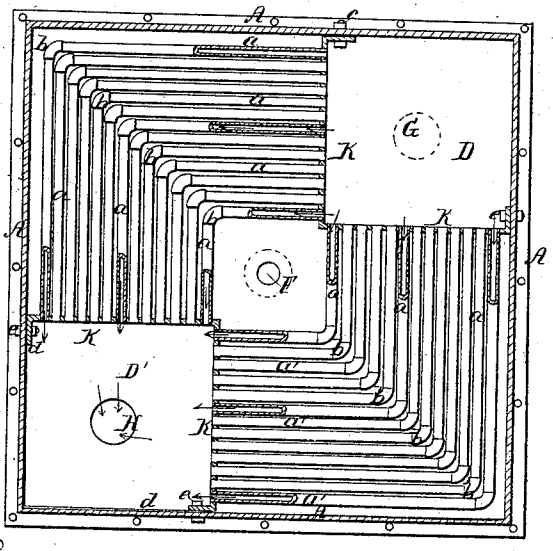


Fig: 2.



Witnesses;

Edwin H. Hamilton

Chas. A. Reed

Inventor;

B. T. Babbitt

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN T. BABBITT, OF NEW YORK, N. Y.

CONDENSER.

Specification of Letters Patent No. 39,709, dated September 1, 1863.

To all whom it may concern:

Be it known that I, BENJAMIN T. BABBITT, of the city, county, and State of New York, have invented a new and useful Improvement in Condensers and Liquid-Coolers; and I do hereby declare that the following is a full, clear, and exact description of the same reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a central vertical section of a condenser or cooler constructed according to my invention. Fig. 2 is a horizontal section of the same.

Similar letters of reference denote like parts in each of the figures.

This invention relates to what are known as tubular condensers and coolers and its object is to provide for the longitudinal expansion and contraction of the tubes without allowing any play in their joints in a longitudinal direction, thereby obviating the difficulty of keeping the joints tight and reducing the cost of construction and repair; and it consists in the arrangement within a suitable casing, of two chambers arranged in opposite corners of the casing and connected by two series of bent or elbow tubes substantially as hereinafter described.

A B C, is the casing represented as of parallelopipedal form.

D D′ are two chambers of corresponding form arranged in opposite corners of the casing. Each of these chambers has two of its sides formed by the sides A A of the casing and two formed of an upright angle plate K which is flanged as shown at *d d* in Fig. 2 and bolted to the sides A A by bolts *e e* passing through its flanches *d*, *d*. The tops and bottoms of these chambers are formed of the top and bottom plates B and C of the casing by the interposition of suitable packing at their upper and lower edges to prevent any communication between them and the chamber constituted by the other portion of the casing. The casing may be of cast iron as may also be the angle plates K K but it will perhaps be better to make the latter of wrought iron as it is desirable to have them as thin as is consistent with proper strength of the tube joints.

a a and *a′ a′* are two series of elbow tubes connecting the two chambers D D′ and arranged to conform to the two opposite corners of the casing not occupied by the chambers D D′. The elbows of these tubes may be formed of separate elbow pieces *b b* as represented or by simply bending the tubes, and their joints with the chambers D D′ may be made by fitting them into holes in the angle plates K K and driving in thimbles or in any other way that will secure them and prevent leakage.

E is a pipe connected with the top of the casing A B C at the center thereof to admit the steam or the water to be cooled, and F is a pipe connected with the bottom of the said casing for the egress of the water of condensation in the case of a condenser, or of the cooled water in the case of a cooler.

G is a pipe connected with the chamber D for the admission of cold water for effecting the condensation or cooling, and H is a pipe connected with the chamber D to carry off the said water after it has performed its duty and become warm.

The steam to be condensed or the water to be cooled circulates in the interior of the casing A B C between, around and among the tubes *a*, *a*, *a′*, *a′*, and over the surfaces of the chambers D D′ and the condensing or cooling water circulates from the chamber D through the tubes *a a* and *a′ a′* to the chamber D′, and in the expansion and contraction of the tubes which takes place they bend in such manner as to make them form more or less acute angles from their elbows without disturbing their joints in the chambers D D′.

It is obvious that instead of admitting the steam to be condensed or the water to be cooled, to circulate around and over the tubes *a a a′ a′* and chambers D, D′, and the cooling water to circulate through the said tubes and chambers the operation may be reversed, that is to say the steam or the water to the cooled may be allowed to circulate through the said tubes and chambers and the cooling water to circulate around and over the exteriors thereof.

What I claim as my invention and desire to secure by Letters Patent is—

The arrangement of the two chambers D, D′, in opposite corners of the casing A B C, and of the two series of bent or elbow pipes connecting the said chambers in the other opposite corners substantially as and for the purpose herein described.

B. T. BABBITT.

Witnesses:

EDWIN H. CRAMPTON,

GEO. A. REED.