H. O. AMES.

Evaporating Pan.

No. 20,687. Patented June 29, 1858.

Fig. 1.

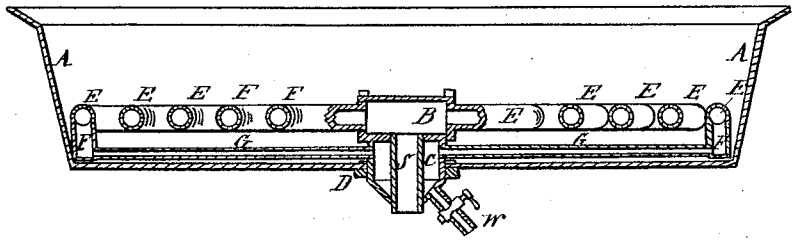
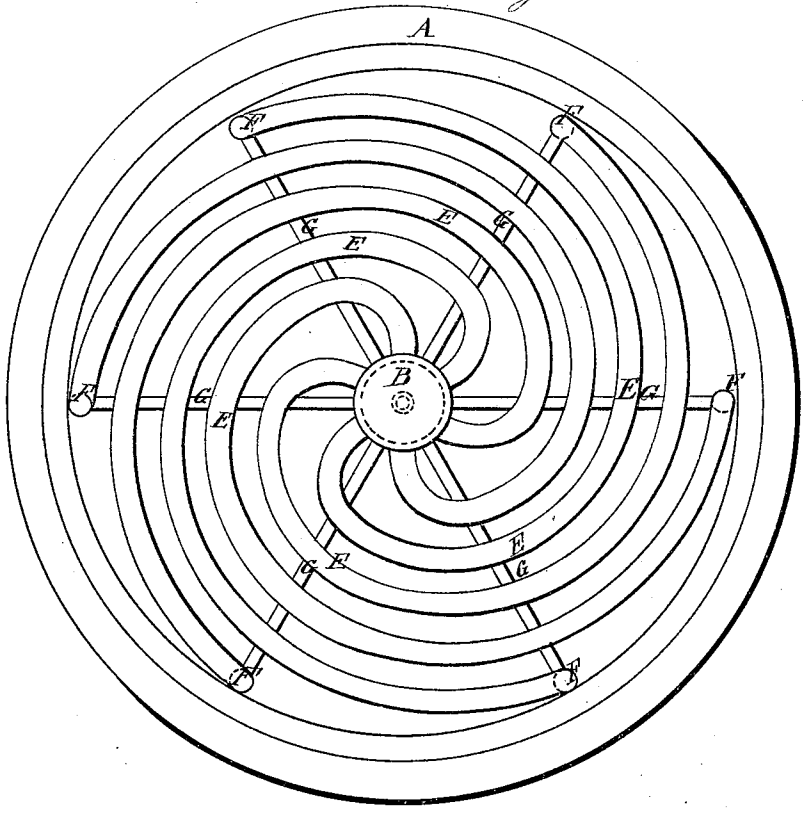


Fig. 2.



AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

H. O. AMES, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN ARRANGEMENT OF STEAM-COILS IN EVAPORATING-VESSELS.

Specification forming part of Letters Patent No. **20,687**, dated June 29, 1858.

To all whom it may concern:

Be it known that I, H. O. AMES, of the city of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Steam-Coil for Evaporating Cane-Juice and other Substances; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical central section of an evaporating-pan fitted with my improved coil. Fig. 2 is a plan of the same.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in a certain arrangement of the steam-radiating pipes with pockets to collect the water of condensation and pipes to return the same to a waste-chamber, whereby a uniform temperature is obtained over the whole horizontal area of the pan, and great facility is afforded for relieving the steam-pipes of water.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

A is the pan, in the center of which is arranged a steam-chamber, B, and a water-chamber, C, the former being attached to the top of the latter, and the latter being attached by a nut, D, to the bottom of the pan.

S is the main steam-pipe from the boiler, passing through the water-chamber and being connected with the bottom of the steam-chamber.

W is the main waste-water pipe connecting the water-chamber C with any suitable receptacle for the waste water, and furnished with a cock or steam-trap to provide for the escape of water from the chamber C as often as necessary.

E E are the steam-radiating pipes, of which there may be any suitable number, connected with the steam-chamber B at equal distances apart and curving in convolute form toward the sides of the pan, where each terminates in a pocket, F, which occupies a position below the pipe.

G G are the water-pipes, much smaller than the steam-pipes E E, and running one from each pocket to the chamber below the pipes E E. These pipes G G are straight and radial to the center of the pan, and hence take the shortest possible course through the pan.

The operation of the coil is as follows: The pan A having been supplied with the liquid to be evaporated, steam is admitted from the boiler through the pipe S to the chamber B, from whence it passes into the radiating-pipes E E, in which much is condensed by the contact of the pipes with the liquid in the pan; but the water of condensation does not remain in them to interfere with the heating of the liquid in the pan, as it runs into the pockets and thence by pipes G G to the chamber C, and owing to the short distance it has to travel from the pockets compared with the length of the radiating-pipes, it detracts but little from the heating action of the steam. The radiating-pipes E E, being at equal distances apart, heat all parts of the horizontal area of the pan as nearly as possible alike. The said pipes may descend slightly toward the pockets to facilitate the escape of the water of condensation from them.

The radiating-pipes E E should be attached to the chamber B by union-couplings, and the water-pipes G G be similarly attached to the pockets, and then any portion of the coil can be removed for repair without interfering with the other parts, which is one great advantage of this arrangement of the parts of the coil.

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

The arrangement of the convolute curved radiating-pipes E E, the pockets F F, the straight water-pipes G G, and the steam and water chambers B C, in the manner substantially as described.

H. O. AMES.

Witnesses:
JAMES D. EDWARDS,
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