T. C. BARTLE.

Evaporating Pan.

No. 49,363. Patented Aug. 15, 1865.

Fig. 1.

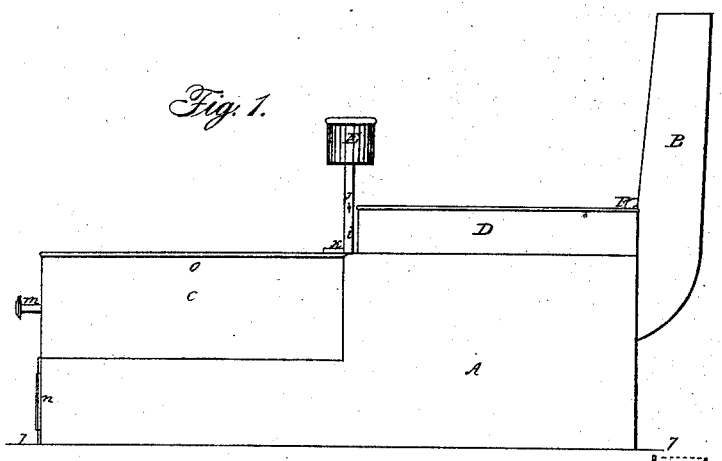


Fig. 5.

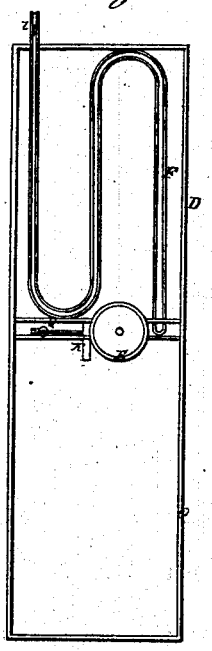


Fig. 2.

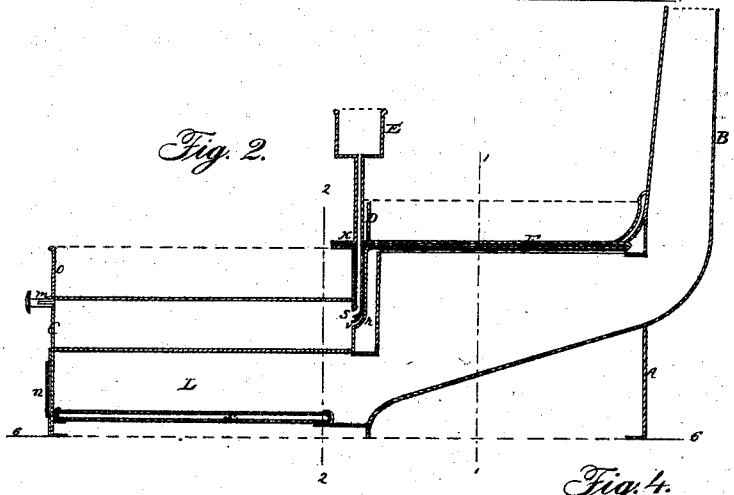


Fig. 4.

Fig. 3.

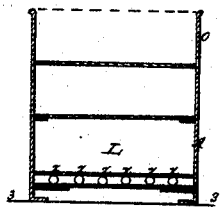
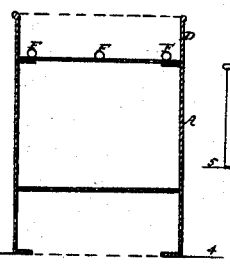
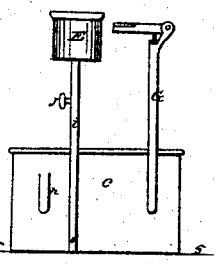


Fig. 6.





Witnesses:

Geo. L. Chapin
J. S. Fuller

Inventor:

Thompson & Bartle

UNITED STATES PATENT OFFICE.

THOMPSON C. BARTLE, OF INDEPENDENCE, IOWA.

IMPROVED SUGAR-EVAPORATOR.

Specification forming part of Letters Patent No. **49,363**, dated August 15, 1865.

To all whom it may concern:

Be it known that I, THOMPSON C. BARTLE, of Independence, in the county of Buchanan and State of Iowa, have invented an Improved Fire and Steam Sugar-Evaporator; 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 and letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a longitudinal elevation of my improved fire and steam sugar-evaporator, the ground plane of section being indicated by the line 7 7. Fig. 2 is a longitudinal sectional elevation of my improved evaporator, the ground plane of section being indicated by the line 6 6. Fig. 3 is a transverse section of my improved evaporator, the plane of section being taken through the longitudinal section of Fig. 2, at the line 2 2, the ground plane being indicated by the line 3 3. Fig. 6 is a transverse section of my improved evaporator, the plane of section being taken through the longitudinal section at the line 1 1, the ground plane being shown at 4 4. Fig. 4 is an end elevation of the boiler and pan C and O, the top of the arch being shown by the line 5 5. Fig. 5 is a top or plan view of the pans used in my fire and steam sugar-evaporator.

The object of my invention is to provide a convenient evaporator to be used in boiling any kind of saccharine juice by the aid of fire and steam.

To enable others skilled in the art to make and use my invention, I will describe its construction and the mode of operation.

First, I construct my arch in any of the styles now used for operating two pans, but prefer the pattern of the one represented at A, and generally construct it of brick or stone, but it can be made of iron. I then construct a boiler, as shown at C, of any kind of boiler-iron used for such purposes, and to the end of the boiler, as shown at G, Fig. 4, a steam safety-valve is attached and so arranged that the steam from the boiler C will blow off at any required pressure. On the top of the boiler C is constructed a pan that is used as an evaporator, and is heated by means of the steam in the boiler C.

At E is represented the receptacle that is used in filling the boiler with water, the water being conveyed from the part E to the boiler through the pipe *i*, and entering the boiler at S.

At J, on the pipe *i*, Fig. 1, is represented a stop-cock that is used for the purpose of shutting the water off from the boiler and preventing the steam from escaping. At *m* is represented the water-gage that is used to ascertain the height of water in the boiler, as will be seen at Fig. 2.

At D, even with the height of the top of the pan O, I set the second pan, the arch adjoining the chimney B being raised for this purpose. The object of setting the pan D in this position is for the purpose of draining its contents into the finishing-pan O through the pipe K.

At F, Figs. 2, 5, and 6, is represented what I denominate a "steam-coil," and is attached to the boiler C at *h*, and receives the steam at V. In small pans I usually put three lengths or two coils, but in large pans I put in six lengths or four coils of pipe. These coils of steam-pipe I secure to the bottom of the pan D, raising the end of the coil at *l*, and secure the end of the pipe with a stop-cock. Where more than two pans are required the coil F can be extended into the same.

At L, Fig. 3, is represented the fire-box constructed for burning wood or coal. X represents the grates, and *n* the door of the fire-box.

Method of using my invention: It is first necessary to fill the boiler with water, about two-thirds full. I then fill the pan D with the kind of juice that is to be evaporated, and boil the same down to the consistency of very thin sirup. I then draw off the sirup into the finishing-pan O, and complete the evaporation by means of the steam generated in the boiler C. The pan D will necessarily have to be kept partially full of juice or water while the sirup is being finished in the pan O. The fire during the process of evaporation cannot easily be made too hot, as the juice in the pan D is not allowed to get thick enough to burn, while the sirup in the pan O cannot burn, because it is heated with steam alone. The same care is necessary in examining the condition of the water in the boiler and the proper position of stop-cocks that is required in other steam-works.

It will be seen that as soon as steam is gen-

erated in the boiler, the steam-coil F will be filled with steam, thereby greatly reducing the amount of fuel required in the process of evaporation.

Having by the above description fully set forth the character of my device, what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

The combination of the steam-coil F with one or more pans, D, in connection with the boiler C, substantially as set forth.

THOMPSON C. BARTLE.

Witnesses:
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