(No Model.)

E. B. EVERINGHAM.

SUGAR EVAPORATOR.

No. 388,546. Patented Aug. 28, 1888.

Fig. 1.

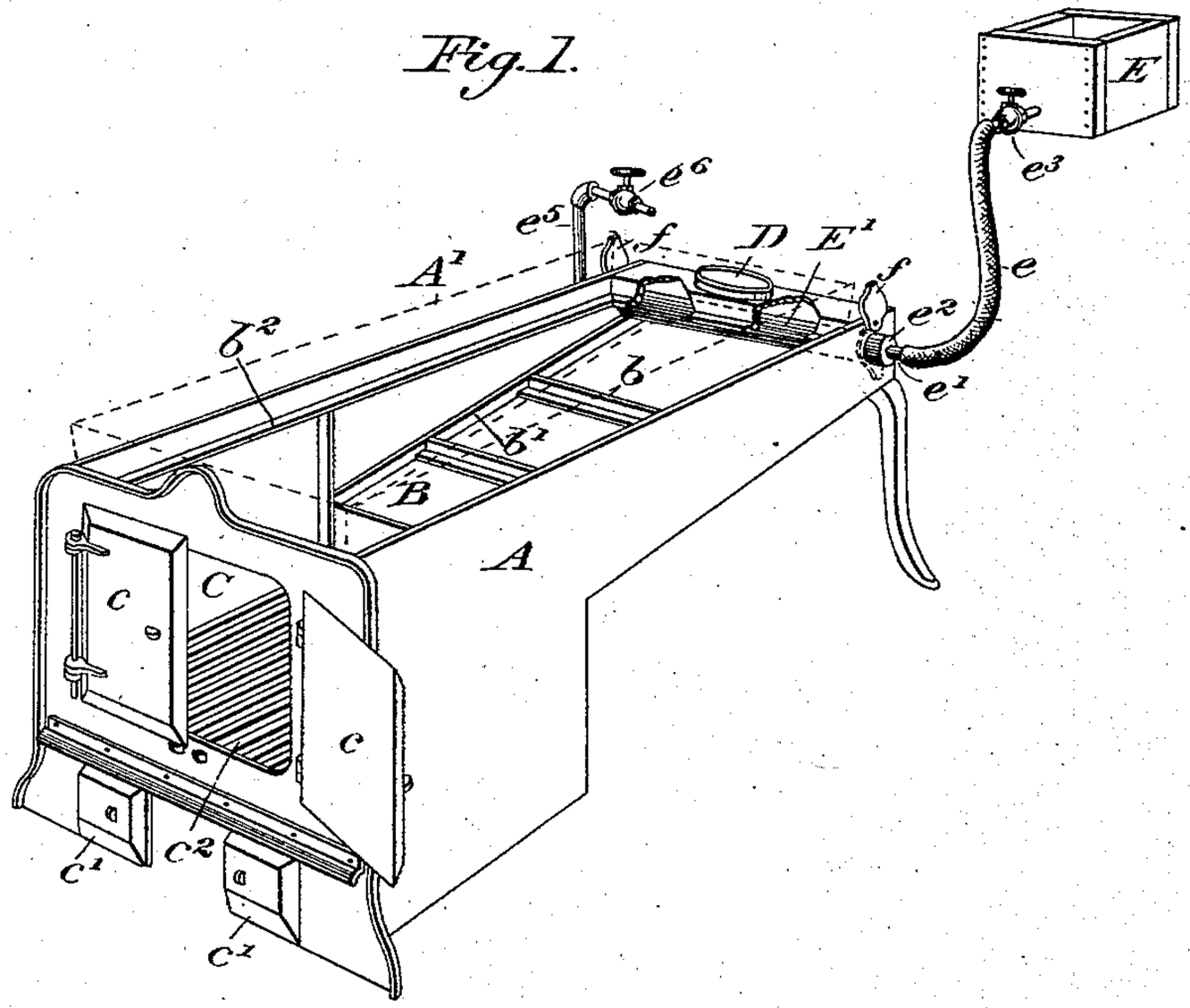
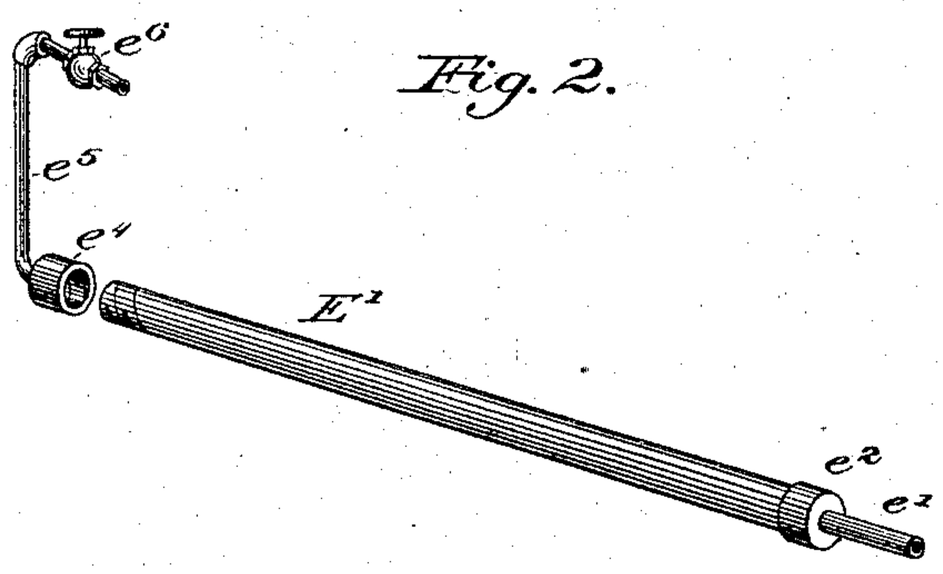


Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWARD B. EVERINGHAM, OF WARSAW, NEW YORK, ASSIGNOR TO THE VARIETY MACHINE COMPANY, OF SAME PLACE.

SUGAR-EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 388,546, dated August 28, 1888.

Application filed February 25, 1888. Serial No. 265,341. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. EVERINGHAM, a citizen of the United States, residing at Warsaw, in the county of Wyoming and State of New York, have invented a new and useful Improvement in Sugar-Evaporators, of which the following is a specification.

My invention relates to improvements in sugar-arches in which evaporating-pans are used and having the heat applied underneath the same, and being more especially adapted for employment in the production of sugar from the sap coming from maple-trees.

With these objects in view my invention consists in certain features of construction and combination of parts, which will be fully described, and particularly referred to and pointed out in the claim, reference being had to the accompanying drawings, in which—

Figure 1 is a front perspective view of the heating apparatus with the evaporating-pan in dotted lines. Fig. 2 is a detached perspective view of the supplementary heater with discharge-pipe removed.

Similar letters refer to similar parts in both views.

A represents the side walls of the heating-arch, which may be made of metal incased by a wall of brick for the purpose of retaining the heat, or the metal alone may be used.

B is an inclined bottom back of and rising above the fuel-receptacle C.

b represents cross-bars made of angle-iron, which are placed transversely of the part B, which stiffen the bottom walls and act as dampers for retarding the outflow of the heated air through the smoke-pipe attached to opening D.

b' represents angle-iron pieces secured upon the inside of the walls A and having a flange extending inwardly, upon which the bottom plate, B, rests, and to which it is secured by rivets or otherwise.

b^2 b^2 are angle-bars secured to the wall-plates A, upon the inside thereof and near the top edge of the same, upon the inwardly-extending edge of which the removable evaporating-pan A' rests, as shown in dotted lines.

c represents the fire-box doors, one of which, being open, shows the grate-bars c^2.

c' represents sliding doors, which close the openings leading into the ash-pit.

E represents the sap-storage receptacle, and *e* a flexible pipe or hose which conducts the fluid from the receptacle into the supplementary heater E' through pipe *e'*. This pipe *e'* is secured to a flanged collar or cap, e^2, which has an inside circumference equal to the outer circumference of the supplementary heater, and upon which it is screwed, so as to form a tight joint.

e^3 is a stop-cock for regulating the flow of sap from the storage-tank to the heater E'.

e^4 is another cap-collar like unto collar e^2, which is secured to the discharge-pipe e^5, having stop-cock e^6. This cap-collar is screwed or otherwise secured upon the reverse end of the heater in such manner that the parts can be disconnected when it is desired to remove the heater for a purpose presently to be described.

f represents wicket-doors secured by a pivot-pin to the longitudinal walls of the arch and upon either side thereof, the purpose of which will now be explained.

The saccharine fluid that is to be evaporated to form the sugar residue is first placed in the storing-receptacle, which is provided with a discharge-pipe having a stop-cock therein, so that the flow of sap may be regulated, or entirely cut off, as desired. To this discharge-pipe is attached a flexible hose connecting with the heater, in which heater the fluid may remain until a high degree of temperature is attained by means of the lateral location of the same beneath the smoke-exit pipe and in suspension within the course of the heated air arising from the burning fuel contained in the chamber formed by the side and bottom walls of the heating-arch and the bottom of the evaporating-pan, thereby rendering aid in the process of evaporation. Now, as the sap thickens through the agency of the heat underneath the open pan, the water passing away in steam, the stop-cock e^6 is opened and the hot fluid from the supplementary heater is allowed to flow into the pan, so that the fluid may be kept continually at a boiling or uniform heat. When a sufficient quantity of the thickened sirup is formed in the evaporating-pan and it is desired to transform this sirup into sugar, the flexible pipe is slipped off the tube in the end cap of the heater, when the said heater (after unscrewing an end cap) is removed by drawing it endwise through the openings in the arch-walls,

said openings being closed by the wicket-doors, thereby retaining the heat until the granules of sugar are formed in the pan. It is apparent that this supplementary heater may be suspended within this hot-air flue at any point between the fire and exit-pipe; but I prefer locating it underneath the said pipe, yet I do not wish to confine myself to the specific location shown.

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

The combination, with the evaporator-arch, of the supplementary heater underneath the pan at its rear end and below the smoke-exit flue, the supply-receptacle, the flexible pipe-connection, the heater inflow-pipe, the removable cap-collar screw-threaded upon the heater, the discharge-pipe attached to the collar, and the stop-cocks for regulating the flow of the fluid, all arranged substantially as described, and for the purposes set forth.

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Witnesses:

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