F. G. Butler,

Evaporator.

No. 112,539. Patented Mar. 14. 1871.

Fig. 1.

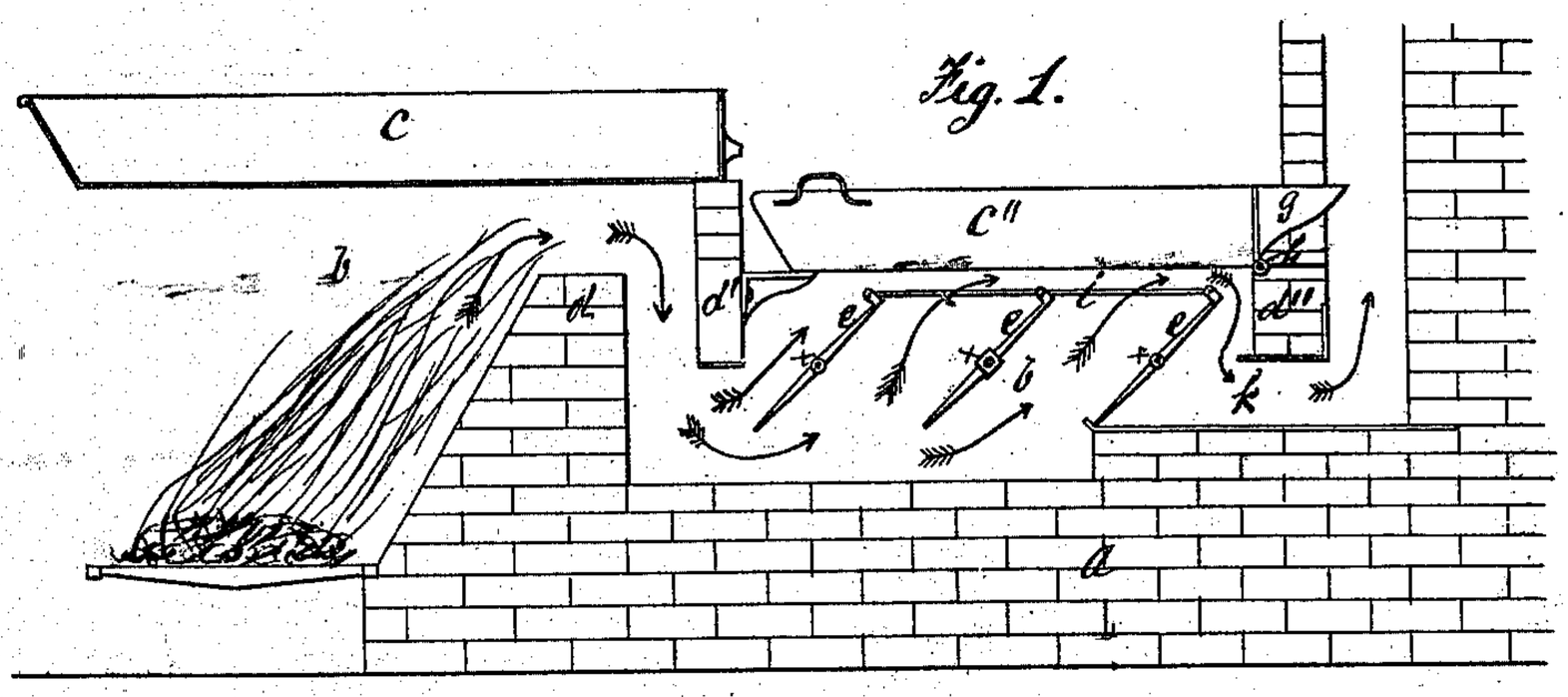


Fig. 2.

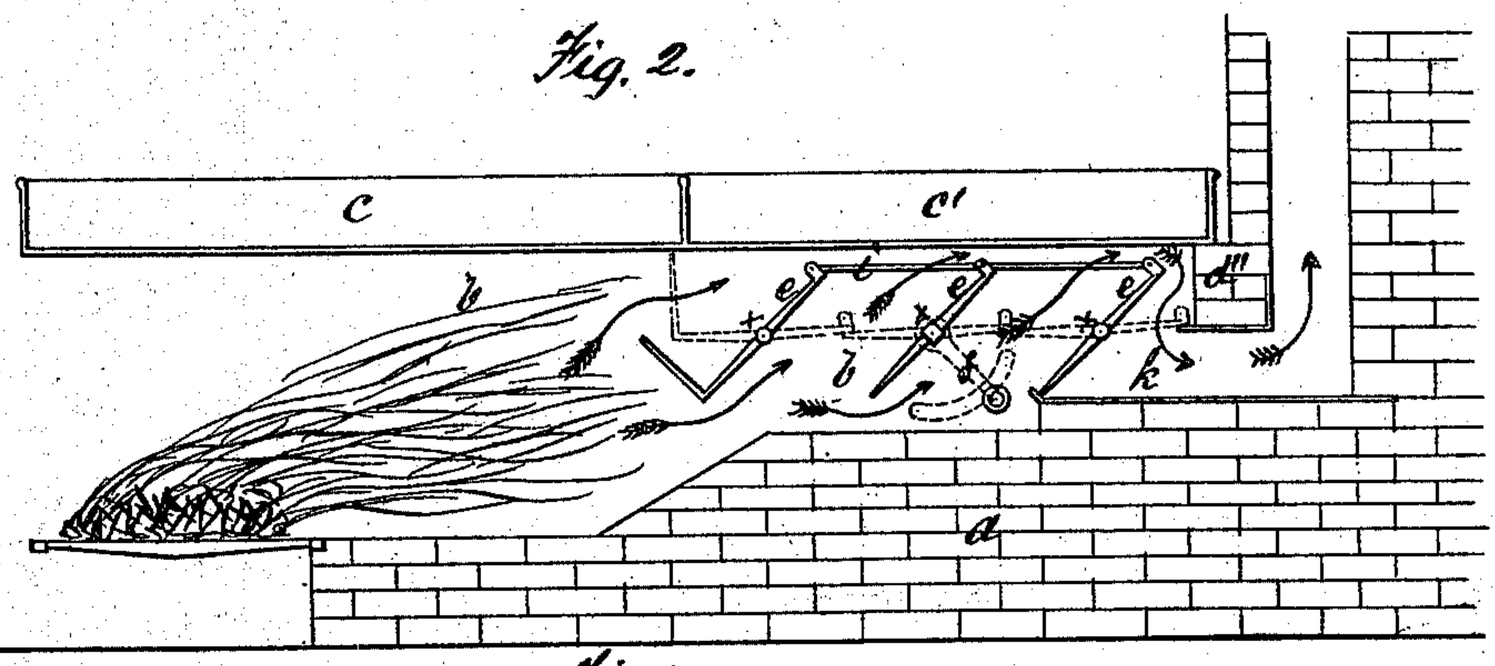
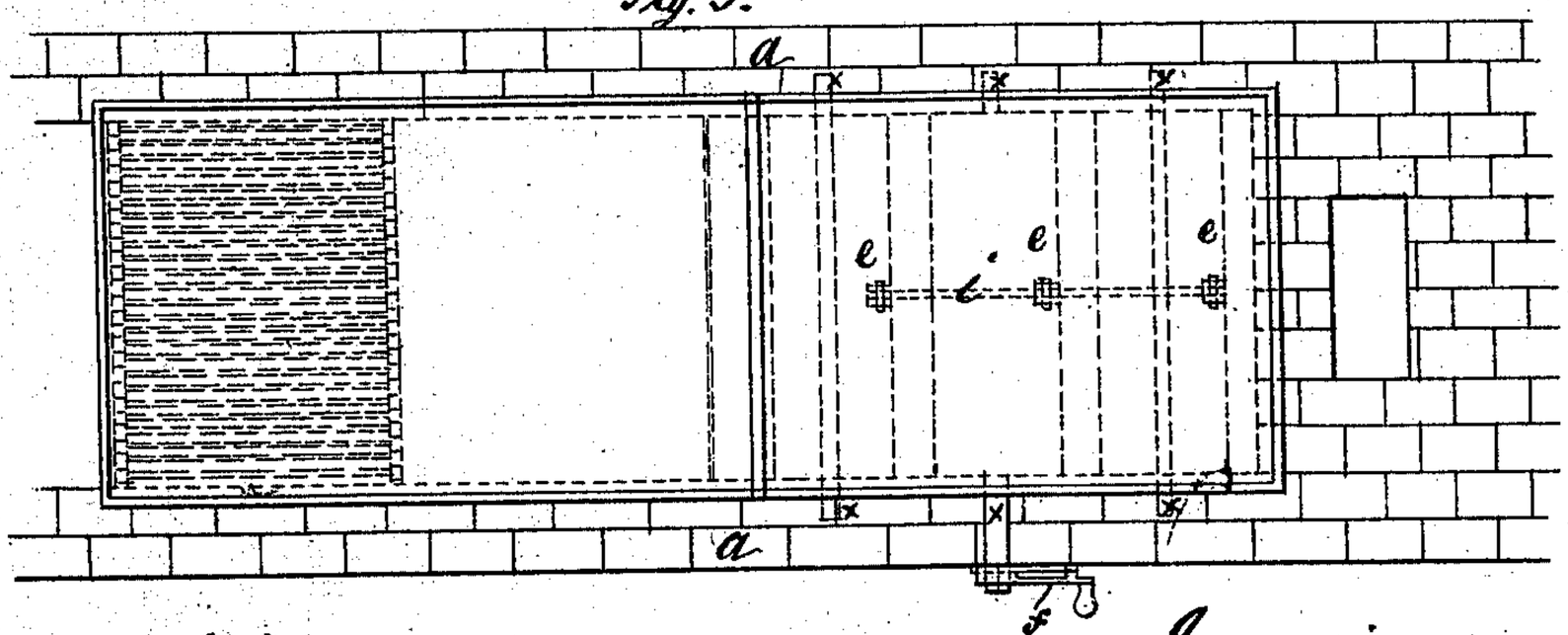


Fig. 3.



Witnesses
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FRANCIS G. BUTLER, OF BELLOWS FALLS, VERMONT, ASSIGNOR TO HIMSELF AND JAMES B. WILLIAMS, OF GLASTONBURY, CONNECTICUT.

Letters Patent No. 112,539, dated March 14, 1871.

IMPROVEMENT IN APPARATUS FOR EVAPORATING SACCHARINE LIQUIDS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, FRANCIS G. BUTLER, of Bellows Falls, county Windham and State of Vermont, have invented certain new and useful Improvement in Evaporating Apparatus; and to enable others skilled in the art to make and use the same, I will proceed to describe, referring to the drawing, in which the same letters indicate like parts in each of the figures.

The nature of this invention consists in arranging two or more evaporating-pans over the fire-arch or furnace, made either (the fire-arch or furnace) stationary or portable, one of which is or may be hinged at the rear end of and covers a divided portion of said arch, so that the sirup may be drawn from the first pan into the second pan for finishing, and, when finished, it may be drawn off or discharged from the pan, by elevating one end or side thereof in a direction toward the chimney, and allow the sirup or finished sugar to flow therefrom through the outlet-nozzle, extending back by the side of the chimney.

It consists further in the arrangement of a series of dampers directly under a finishing compartment of an evaporating-pan, or directly under a distinct hinged finishing-pan, so that, when the dampers are opened at an angle of about forty-five degrees, the direct draught will be checked, and the force of the heat will be thrown directly against the bottom of the pan, and when the sirup or sugar is finished and it becomes necessary to discharge the sirup or sugar from the pan, by simply closing the dampers the heat will be entirely closed off from the underside of the pan, and the evaporation of the first part of the pan will be going on without interruption while the finishing-pan is being discharged.

There is often much difficulty experienced with arches or furnaces, upon which evaporators are set and used, in obtaining sufficient heat at the end nearest the chimney, where the sirup or sugar is usually finished. To enable the operator to finish quickly and remove the product of evaporation without its being damaged by long exposure to heat, which always tends to darken the color of sirup or sugar, it is also highly important that the heat should be shut away from the finishing-pan or compartment at the moment the operator ascertains that the sirup or sugar is finished, without stopping or retarding the evaporation in the parts of the evaporator more immediately over the fire; also, to prevent the remnant remaining upon the pan from burning on before another charge or batch can be drawn in for treatment; also, to better enable the operator to cleanse the finishing-pan or compartment.

In the accompanying drawing—

Figure 1 is a side sectional elevation.

Figure 2 is a side sectional elevation of a modification.

Figure 3 is a top view.

The walls *a* of this arch or furnace may be constructed of metal or masonry in the common way, and may be made portable or stationary.

b is the fire-chamber.

c are evaporating-pans, arranged upon the walls of an arch or furnace.

c' is a finishing compartment of the pan *c*.

c'' is a movable or hinged pan, arranged upon a frame-work or projecting portion of the wall or masonry of the arch or furnace *a*, so that the sirup will readily flow from the pan *c* into the pan *c'*.

In fig. 1, the partition *d* is formed across the fire-chamber *b*, just in front of the back end of the evaporating-pan *c*.

The partitions *d' d''* are dropped down below the top of the wall *d*, and the fulcrums *x*, of the series of dampers *e*, are arranged nearly in a line with the bottom edges of the partitions *d' d''*, and are connected, so as to act in uniformity with each other, by a connecting-rod, *i*, so that when the dampers are open at an angle of forty-five degrees the direct draught *k* will be closed or checked, and the heat extended directly upon the under side of the finishing-pan, and when the finishing of the sirup or sugar is completed, by turning the lever or crank *f* the dampers *e* will be brought into a nearly horizontal position and the heat entirely closed off from the bottom of the pans *c' c''*, when the sirup or sugar may be drawn off from the compartment *c'*, or poured off from the pan *c''*, through the nozzle *g*, by elevating the side or end of the pan, which is or may be hinged at *h*.

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

1. A series of dampers, *e*, arranged under an evaporating-pan or compartment, *c'*, or a finishing-pan, *c''*, substantially as and for the purpose set forth.

2. In combination with the dampers *e*, constructed and arranged as described, the fixed or hinged pans *c' c''*, substantially as and for the purpose set forth.

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Witnesses:

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