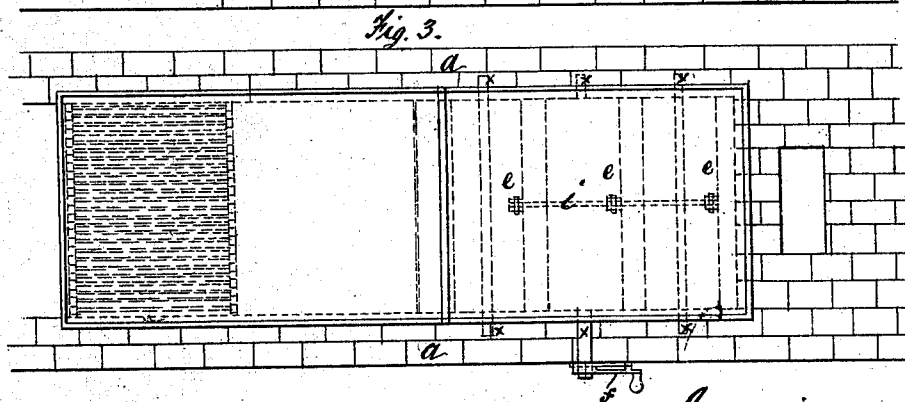
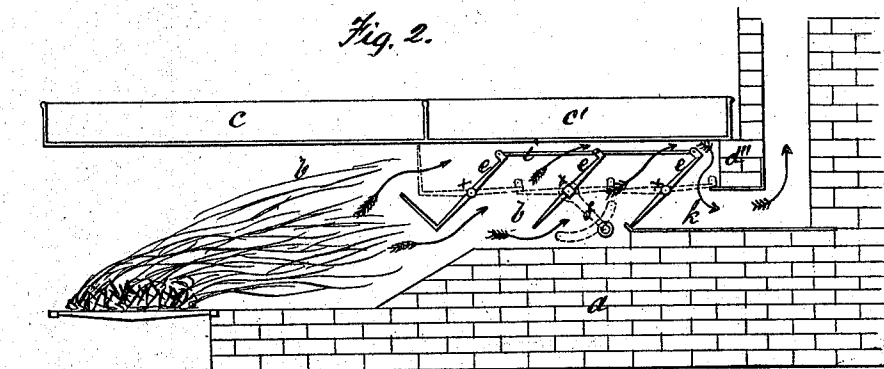
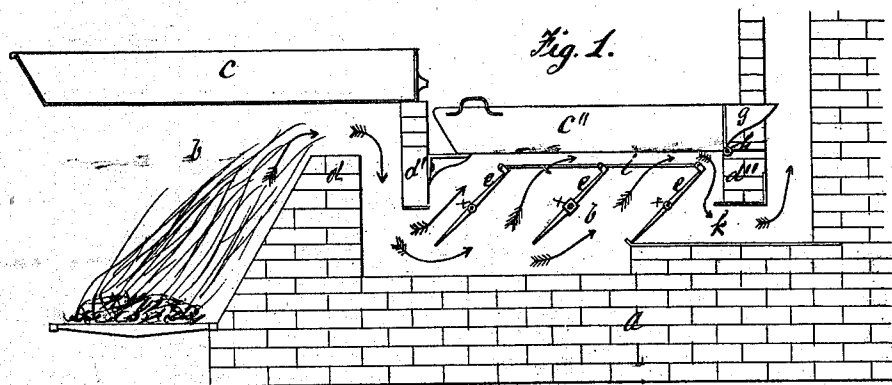


F. G. Butler,
Evaporator.

No. 112,539.

Patented Mar. 14, 1871.



Witnesses
Edw. P. Brown,
Jerome W. Shipps.

Inventor.
Francis G. Butler

United States Patent Office.

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 Bel-
lows 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 arrang-
ing two or more evaporating-pans over the fire-arch
or furnace, made either (the fire-arch or furnace) sta-
tionary or portable, one of which is or may be
hinged at the rear end of and covers a divided por-
tion of said arch, so that the sirup may be drawn
from the first pan into the second pan for finish-
ing, and, when finished, it may be drawn off or dis-
charged from the pan, by elevating one end or side
thereof in a direction toward the chimney, and al-
low 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 under-
side of the pan, and the evaporation of the first
part of the pan will be going on without interrup-
tion 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 near-
est 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 al-
ways 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 rem-
nant remaining upon the pan from burning on before

another charge or batch can be drawn in for treat-
ment; 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 modi-
fication.

Figure 3 is a top view.

The walls *a* of this arch or furnace may be con-
structed 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 ma-
sonry 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 evap-
orating-pan *c*.

The partitions *d d'* are dropped down below the top
of the wall *d*, and the fulcrums *x*, of the series of dam-
pers *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 an-
gle of forty-five degrees the direct draught *h* will be
closed or checked, and the heat extended directly up-
on the under side of the finishing-pan, and when the
finishing of the sirup or sugar is completed, by turn-
ing 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 compart-
ment *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 Pat-
ent, is—

1. A series of dampers, *e*, arranged under an evap-
orating-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.

F. G. BUTLER.

Witnesses:

EDM. F. BROWN,
JEREMY W. BLISS.