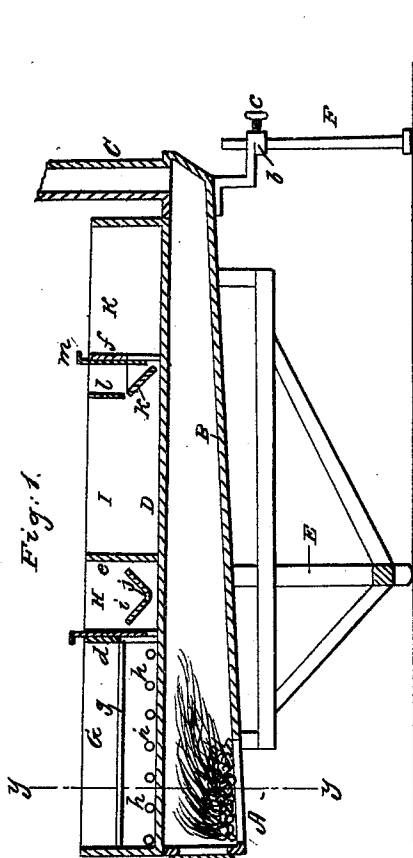
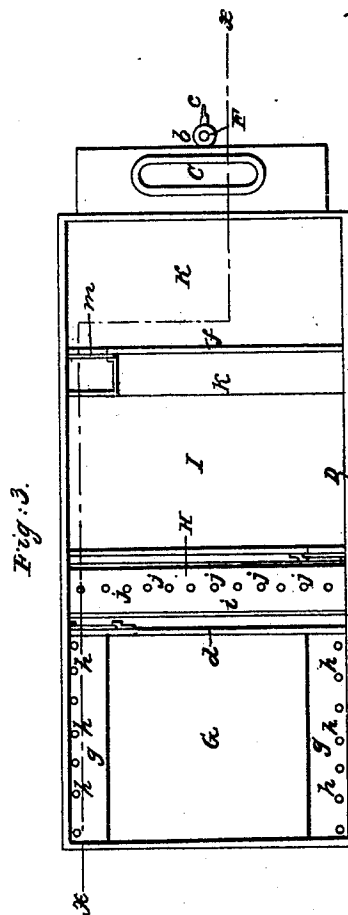


J. & S. W. LITTLE.

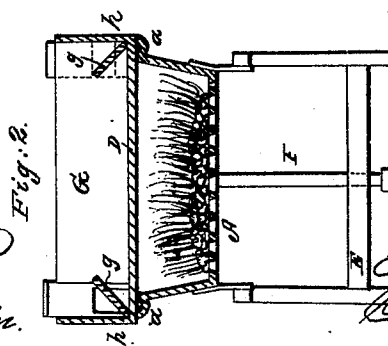
Evaporator.

No. 57,523.

Patented Aug. 28, 1866.



Witnesses:
C. M. Livingston
William E. Brewin.



Inventors:
James Little,
S. W. Little.
Per Mumf. & Co.
attys.

UNITED STATES PATENT OFFICE.

J. LITTLE AND S. W. LITTLE, OF PATOKA, INDIANA.

IMPROVED EVAPORATOR.

Specification forming part of Letters Patent No. 57,523, dated August 28, 1866.

To all whom it may concern:

Be it known that we, JAMES LITTLE and S. W. LITTLE, of Patoka, Gibson county, and State of Indiana, have invented a new and Improved Evaporator; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention, the line *x x*, Fig. 3, indicating the plane of section. Fig. 2 is a transverse vertical section of the same, taken in the plane indicated by the line *y y*, Fig. 1. Fig. 3 is a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention relates to an evaporator for saccharine juices and for other liquids. It is placed on an arch of gradually-diminishing size, and supported at one end by an adjustable rod, whereby the inclination of the pans can be regulated to suit circumstances.

The several compartments of the evaporator are provided with inclined skimming-shelves, whereby the scum is readily separated from the liquid and the operation of boiling saccharine and other liquids is materially facilitated.

A represents the furnace or fire-place of our evaporator, from which extends an arch, B, to the chimney or smoke-stack C. The sides of the arch are flaring outward, and the arch itself diminishes in depth as it approaches the chimney, the flaring sides being for the purpose of increasing the actual heating-surface of the pan with the greatest possible economy in fuel, and the object of the diminution of the arch being to concentrate the flame and the heated products of combustion as the same pass from the fire-place to the smoke-stack.

D is the evaporating-pan, which is placed on the arch, and, in order to produce a tight joint between the edges of the arch and the bottom of the evaporator, said edges form grooves *a*, capable of receiving mortar or other suitable luting, as shown in Fig. 2.

The arch is supported mainly near its center by a frame-work, E, in such a manner that the balance is toward the chimney, and is pro-

vided with a leg, F, which is adjustable in its socket *b* by a set-screw, *c*, so that the arch can be inclined in either direction or adjusted in a horizontal position, and the flow of the liquid through the pans can be regulated.

The pan D is divided into four (more or less) compartments, G H I K, which are separated from each other by transverse partitions *d e f*.

The compartment G, which is situated over the fire, is provided with two inclined shelves, *g*, extending upward from the corners, as shown in Fig. 2, and provided with holes *h* near their lowest parts. As the juice or other liquid is boiled the scum which rises to the surface passes over the edges of said shelves, and is retained there, the juice or liquid being allowed to pass back through the holes *h*, and by these means the scum is readily separated from the liquid. The second compartment, H, is also provided with skimming-shelves, *i*, which are arranged in the shape of a V, extending clear across the compartment, and provided with holes *j* in its corner, as shown in Figs. 1 and 3. The scum still retained in the juice is caught by the V-shaped shelves, *i*, and the clear juice is passed to the next compartment, I. This compartment is provided with a straining-shelf, *k*, rising in an inclined direction from the corner, between the partition *f* and the bottom of the compartment I, and extending from one side of the pan clear across to a box, *l*, which incloses the gate *m*. Said shelf is open at its bottom edge, and it communicates with the box *l* through an aperture extending all the way across the bottom edge of said box, thus allowing the juice or liquid to pass freely from the compartment I to the compartment K, while the scum which may still float on the juice is retained by the straining-shelf *k* and box *l*.

K is the finishing-pan, in which the juice is finally boiled down to the desired consistency.

By this apparatus the operation of evaporating or boiling saccharine or other liquids is rendered easy. It can be conducted with great economy in fuel, the flame being allowed to come in contact with the entire bottom of the pan, and the scum is readily and easily separated from the juice without requiring particular attention.

We do not claim as our invention, broadly, the arrangement of an adjustable leg in an

evaporator for the purpose of regulating the flow of the liquid; neither do we claim an arch which gradually diminishes from the furnace toward the chimney; but

What we claim as new, and desire to secure by Letters Patent, is—

1. The central supporting frame-work, E, in combination with the arch B, pan D, and adjustable leg F, constructed and operating substantially as and for the purpose described.

2. The flaring sides of the arch, with recesses or grooves *a*, in combination with the pan D, substantially as and for the purpose set forth.

3. The skimming-shelves *g* in the pan G, as described.

4. The V-shaped shelves *i* in the compartment H, as set forth.

5. The straining-shelf *k* and box *l* in the compartment I, as and for the purpose described.

JAMES LITTLE.
S. W. LITTLE.

Witnesses:

DAVID DICKSON,
J. C. FISHER.