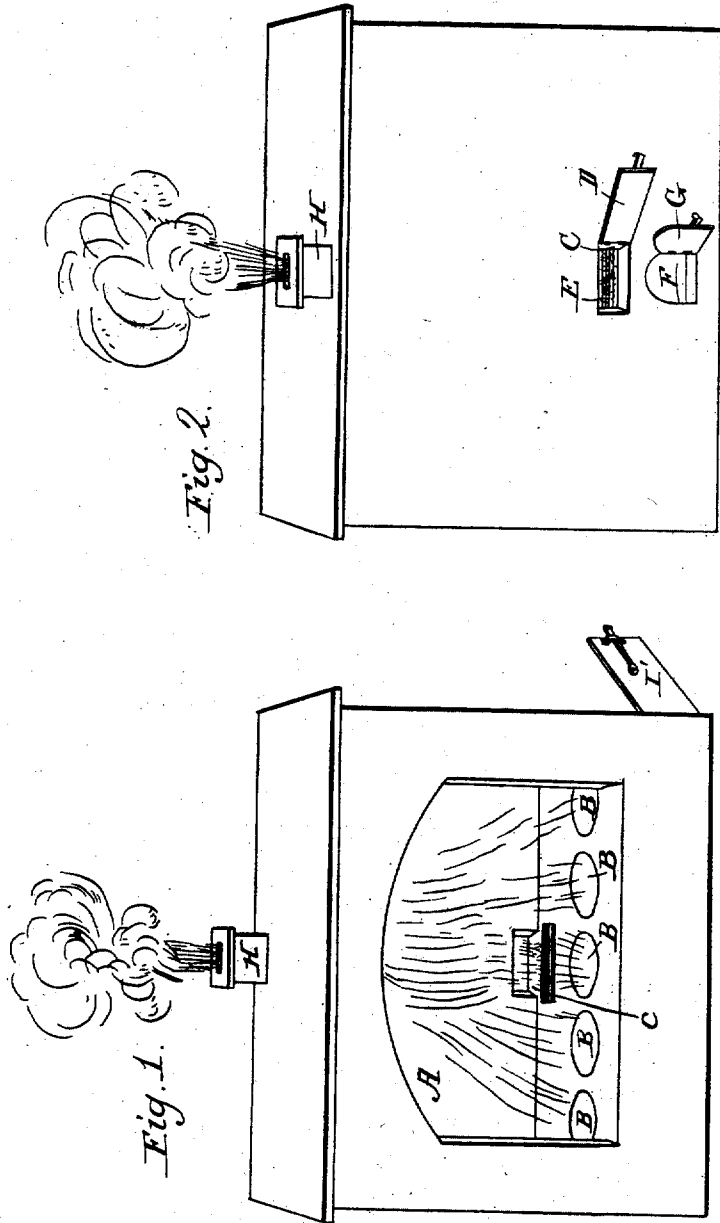


W. HENEY.
Evaporating Pan.

No. 1,061.

Patented Jan'y 8, 1839.



UNITED STATES PATENT OFFICE.

WILLIAM HENEY, OF LA PORTE, INDIANA.

IMPROVEMENT IN THE MODE OF EVAPORATING LIQUIDS.

Specification forming part of Letters Patent No. 1,061, dated January 8, 1839.

To all whom it may concern:

Be it known that I, WILLIAM HENEY, of La Porte, in the county of La Porte and State of Indiana, have made a new and useful improvement, being a speedy method of evaporating liquids and lessening the expense of the process, which is described as follows, reference being had to the annexed drawings, making part of this specification.

The nature of this improvement consists in so rarefying the air in the boiling-apartment by means of fires lighted therein at the back, creating a strong draft through a flue or flues above the fires, which conducts off the steam rapidly from the surface of the liquid in the boiler, causes the evaporation to go on more expeditiously than heretofore, removes the inconvenience and nuisance arising from the steam in the manufactory, saves fuel, lessens the number of boilers required, and improves the quality of the sugar, salt, or other article manufactured.

Figure 1 represents the front of the boiling-apartment. Fig. 2 represents the back of said apartment.

A is the boiling-apartment; B, the boilers in which the liquid is boiled; C, the fire-place at the back of the boiling-apartment, of which there may be one or more, and in which the additional fires are made; D, doors of the fire-place; E, grate; F, ash-pit, which also serves to admit air to the fire above; G, door for closing the front of the ash-pit when required; H, the chimney above the fire-place, in which a flue is constructed for creating a draft for carrying off the smoke from the fires and the steam from the boilers, which it will draw rapidly from the surface of the liquid; I, door of the furnace.

When the fuel can be had of a dry and inflammable nature, it would be better to have the air admitted at the front and pass off with the steam over the boilers to the fire at the back through the flue, in which case the doors D and G at the back must be closed.

If any sugar, or salt, or other manufacturer carrying on his business extensively should still further wish to shorten the time or process of manufacturing, he can do so by adding another fire-place in the space behind

the boilers and increasing the fires in them, he can regulate the time of boiling entirely to his wish, and can effect a great saving of fuel, for every pound of wood or coals used in rarefying the air behind the boilers in the boiling-chamber will save more than four times its quantity used in the furnace under them.

Besides the before-mentioned advantages to be derived from this invention for producing quick evaporations, there might be mentioned several others, such as the beautiful crystals of a pure and delicate white imparted to the salt, the grain being determined by the rapidity of the evaporation and the degree of heat, which can be regulated as desired; and in sugar-making on large plantations quick boiling in a dry atmosphere is of the greatest consequence, as it will prevent the loss at present sustained by the planter, arising from the juice becoming tainted or acid before it can be exposed to the fire, for the purest cane-juice will not remain twenty minutes in the receiver without fermenting.

Cane-juice, after being pressed from the cane, almost immediately commences an acid fermentation, which soon destroys the saccharine matter and renders it unfit for making sugar, and although boiling and lime nearly stops that great inclination to turn acid, yet it does not so entirely stop it as to be most desirable to convert the juice in as short a period as possible into sugar.

The sweet or saccharine matter remaining for a long time in a hot and fluid state incorporates the molasses and sugar together, so that the sugar will never granulate or crystallize perfectly nor part freely with its molasses after a long process of boiling.

The method of evaporation by rarefied-steam ventilators will be a considerable saving in the wear of boilers, as in this method as much will be boiled in two hours as heretofore in three with the same boilers set in the usual manner.

This apparatus requires no alteration of boilers or any appurtenance belonging to them. Its principal recommendations are simplicity and cheapness and the ease with which it can be carried on.

In a great many cases this method will enable planters that had to use two sets of boilers to take off their crops in one, and a consequent saving of six or seven working hands in the busiest time of the year.

The invention claimed and desired to be secured by Letters Patent consists in—

The before-described method of evaporating liquids by rarefying the air in the boiling-rooms, as before described.

WILLIAM HENEY.

Witnesses:

WM. P. ELLIOT,
EDMUND MAHER.