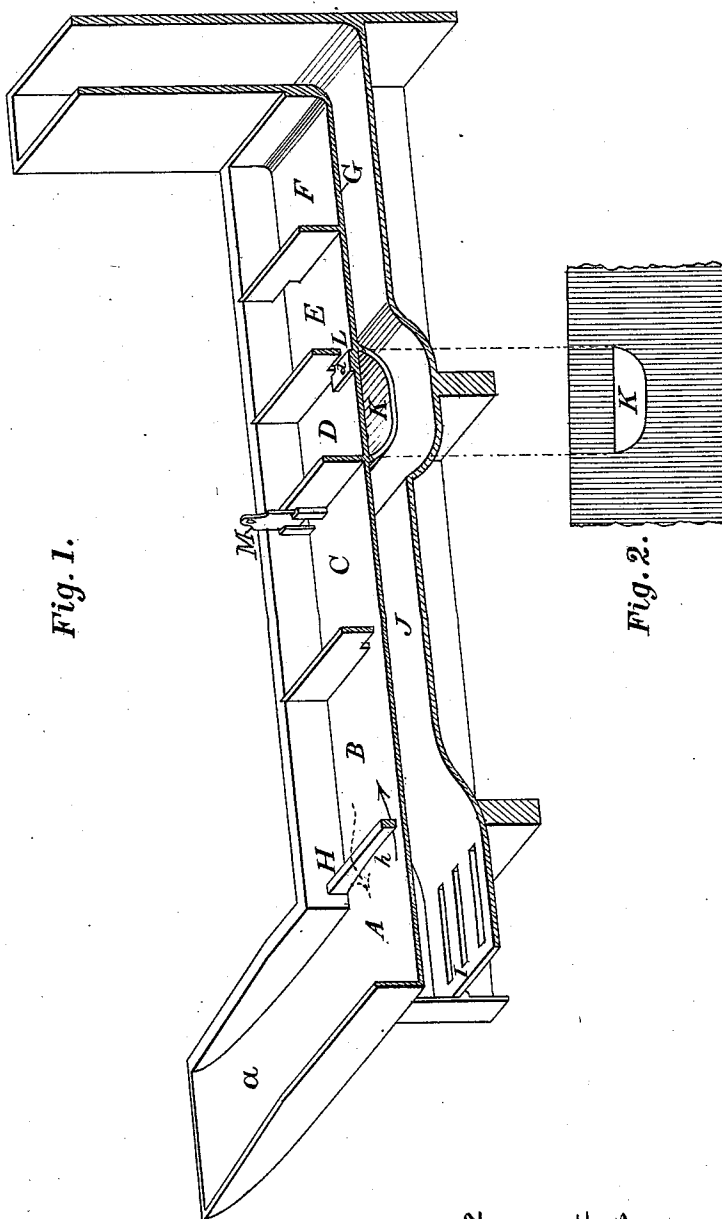


T. McQUISTON.
EVAPORATING-PAN.

No. 179,124.

Patented June 27, 1876.



Attest
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UNITED STATES PATENT OFFICE.

THOMAS McQUISTON, OF MORNING SUN, OHIO.

IMPROVEMENT IN EVAPORATING-PANS.

Specification forming part of Letters Patent No. **179,124**, dated June 27, 1876; application filed March 27, 1876.

To all whom it may concern:

Be it known that I, THOMAS McQUISTON, of Morning Sun, Preble county, Ohio, have invented a new and useful Sorghum-Evaporator, of which the following is a specification:

This is an improvement in those apparatus for boiling the crude sap of sorghum and kindred sugar-canes which consists of a series of shallow and connected pans or compartments, arranged horizontally, or nearly so, over a furnace; and my invention comprises a provision of one or more intermediate compartments in which active ebullition is prevented by the interposition of an opening or chamber for air or other non-conductor between the pan bottom and the furnace-flue at that part.

My invention further comprises a check or impediment to catch and retain the sediment within such insulated compartment, and prevent its passage into the finishing-compartment.

In the accompanying drawings, Figure 1 represents, by perspective longitudinal section, one-half of an evaporator embodying my invention. Fig. 2 is a side elevation of that part of the evaporator which contains my insulating-chamber.

A, B, C, D, E, and F constitute a series of compartments, of which the metallic sheet G constitutes the bottom. Of these compartments, the compartment A, immediately over the fire, is open on one side of it, its floor extending outward and upward to constitute a bay or shoal, *a*.

The partition H which separates compartments A and B is low and has an opening, *h*, between it and the bottom to allow the liquor to flow forward and the scum to flow backward, as per heavy and dotted arrows.

I represents the furnace, and J the flue leading from the same underneath the series of compartments.

One or more of the intermediate compartments D is insulated from the flue by an opening or chamber, *k*, that, extending from side to side and communicating with the atmosphere at each end, or being filled with any suitable non-conductor, at all times effectually arrests ebullition at this part.

The floor of insulated compartment ("dead

sea") D, in front of the opening L into the next compartment E, has an elevation, bar, or impediment, *d*, which prevents the passage of dregs into said compartment E from the said insulated compartment.

Each compartment communicates with that on each side of it by customary gated passages, of which one is clearly shown at L.

A battery to work the sap produced by a mill of two-horse power I usually make about thirty-four feet long, with a fall, toward the finishing end, of one and a half inch, and with one dead sea, while one to work the juice of a three-horse power mill I make forty-eight feet long with a fall of two inches, and with two dead seas.

The situation of the shoal *a* to one side of the battery places it completely out of contact with the furnace-heat, and enables the scum to be pulled back and removed without scorching, and also permits the attendant to operate without interfering with the operations of the furnace-hand and without exposure to fire.

The contents of the dead sea being isolated from the fire are free from ebullition, and, being often depleted by skimming, remain constantly at a lower elevation than those in the neighboring compartments, both in front and in rear, and hence the scum from the latter perpetually flows into said dead sea, and in turn reaches a condition for skimming, so as to enable the attendant to remove all the scum which accumulates at this stage of operation.

I claim as new and of my invention—

1. One or more intermediate non-boiling compartments, D, insulated from the furnace-heat by non-conducting portion K, and communicating with the boiling-compartments both in front and rear of it, substantially as and for the purpose explained.

2. In combination with the insulated compartment D and partition having opening L, the bar or impediment *d*, for the purpose designated.

In testimony of which invention I hereunto set my hand.

THOMAS McQUISTON.

Attest:

GEO. H. KNIGHT,
JOHN C. HEALY.