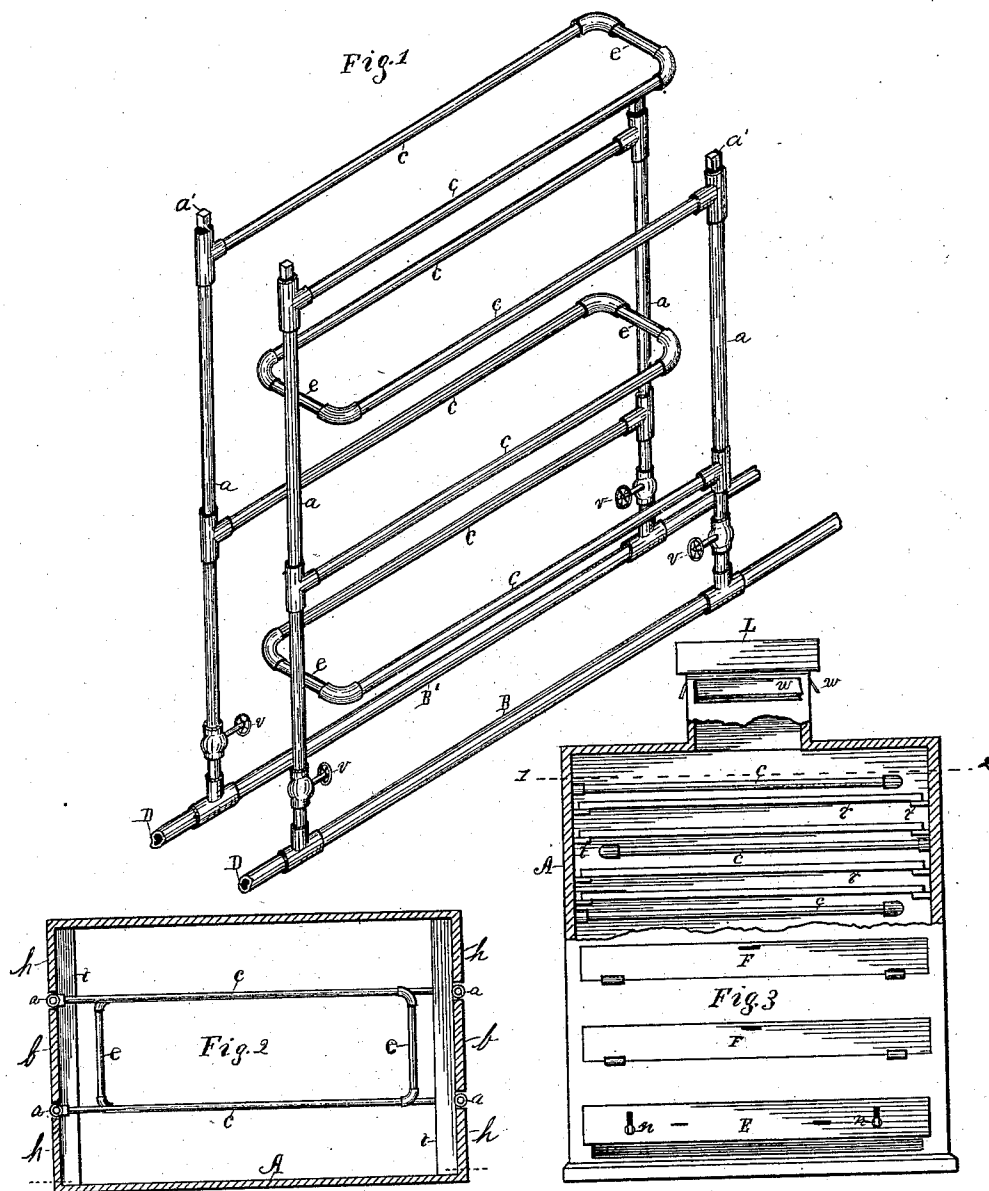


(No Model.)

J. & J. S. WILLIAMS.
FRUIT EVAPORATOR.

No. 272,927.

Patented Feb. 27, 1883.



Attest.
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UNITED STATES PATENT OFFICE.

JOHN WILLIAMS AND JAY S. WILLIAMS, OF KALAMAZOO, MICHIGAN.

FRUIT-EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 272,927, dated February 27, 1883.

Application filed March 3, 1882. Renewed December 11, 1882. (No model.)

To all whom it may concern:

Be it known that we, JOHN WILLIAMS and JAY S. WILLIAMS, citizens of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Fruit-Evaporator, of which the following is a specification.

Our invention relates to fruit-evaporators which are heated by steam.

It has for its object certain improvements in the construction and arrangement of parts, the same being set forth in the following detailed description.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of our improved pipe steam-heater; Fig. 2, a cross-section on line 1 2 in Fig. 3; and Fig. 3, a compartment to our evaporator inclosing the heater in Fig. 1, showing its relation to the fruit-racks.

B is a horizontal steam-supply pipe, shown broken at each end, the design being that it may be extended in either direction, in order that other heaters may be connected with it when forming a large evaporator containing many compartments, such as A, Fig. 3. This supply-pipe may be connected with any boiler or steam-supply desired. B' is a similar horizontal pipe parallel with pipe B, and serves as an exhaust or waste pipe for carrying away the steam from the several heaters after serving its intended purpose. With these pipes B B' are detachably coupled the four standards *a a*, formed of detachable parts of pipe, and provided with a plug, *a' a'*, in the top, showing that they may be continued by adding other joints, according to the size of the compartment A. With these standards *a a* are detachably coupled U-shaped heaters, consisting of sides *c c* and end *e*. These ends are disconnected from standard-pipes *a a*, and alternate in reverse order of location throughout the device. Standards *a a* are also provided with stop-cocks *v v*, near the lower end, where said pipes join the horizontal pipes, for the purpose of governing the supply of steam or heat for each device, and to shut the steam entirely off from the heaters of any compartments not desired to be used.

We form the evaporator with one or more

compartments, side by side, above or in front or rear, as desired, the construction of a single compartment being shown at A. The front inclosure is provided with the usual doors, F F, for taking out and putting in fruit-racks, and with doors E and *w*, for supplying the device with an air-current through it vertically. We form the end inclosures with boards *h h* at each side of pipes *a a*, and with center board, *b*, between, thus effecting economy in material and in the space otherwise occupied by said pipes, and obviating a necessity of slotting the cleats *t t* to fit around them.

In Fig. 3 fruit racks or screens *r r* are shown located on cleats *t t*, two between the heater-pipes *c c*, and alternating with them. These racks are disconnected from the heaters and from each other. The bottoms of the racks are made of wire screening or slats in the usual manner. By the use of pipe-heaters in this apparatus, the air entering at the aperture below door E in Fig. 3 passes directly up through the screens and pipes, where it is heated, and evaporates the moisture from the fruit. This is deemed a great improvement over alternating steam pans or chambers heretofore in use, which retard the air and heat the fruit unduly. The advantage of this arrangement of heater-pipes in contrast with a connected circuit or coil is that a given degree of heat may be more quickly distributed and accurately sustained in all parts of a given compartment.

What we claim is—

1. In a fruit-evaporator, a heating device consisting of the standard-pipes and the U-shaped heaters, provided with means for transmitting steam to and from said device, all substantially as set forth.

2. In a fruit-evaporator, the combination, with a steam heating device having the standard-pipes, of an inclosed compartment, the ends thereof being provided with vertical openings to receive said pipes, substantially as described and shown.

JOHN WILLIAMS.
JAY S. WILLIAMS.

Witnesses:

AL. G. WILSON,
JULIUS SCHUSTER.