

(No Model.)

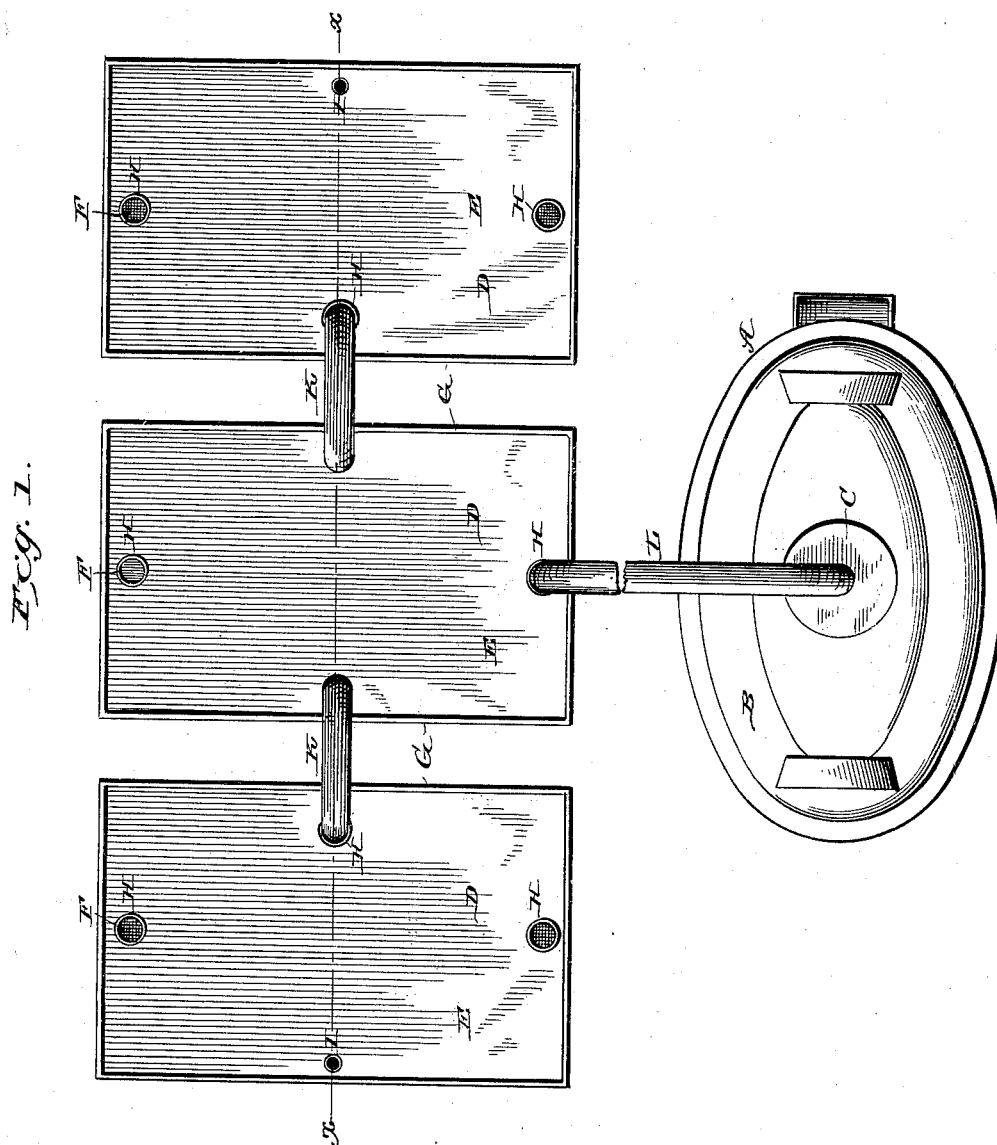
2 Sheets—Sheet 1.

J. L. PHELPS.

FRUIT DRIER.

No. 383,245.

Patented May 22, 1888.



Witnesses,

Jos. A. Ryan
 J. W. Garner

Inventor,
James L. Phelps.

By His Attorney,

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Fig. 2.

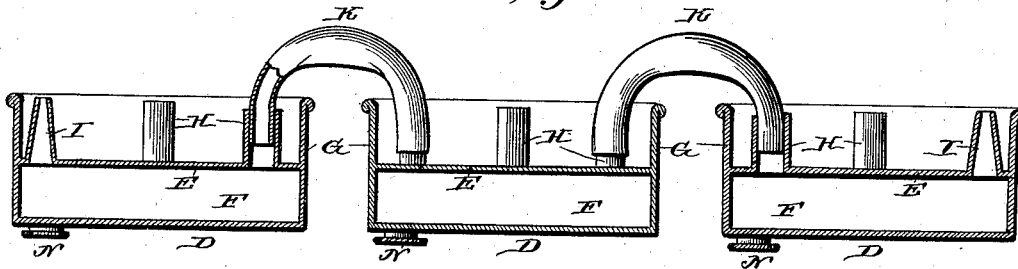


Fig. 3.

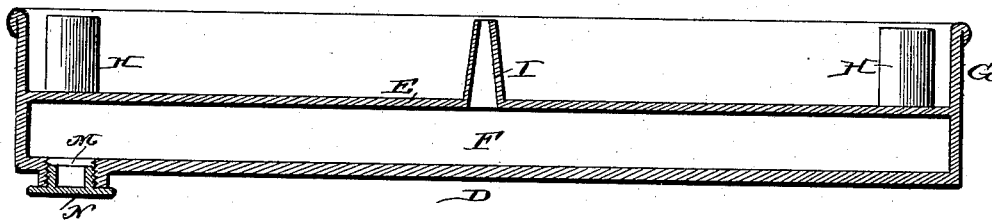


Fig. 4.

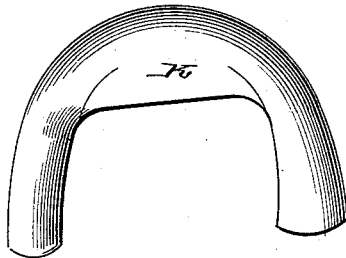
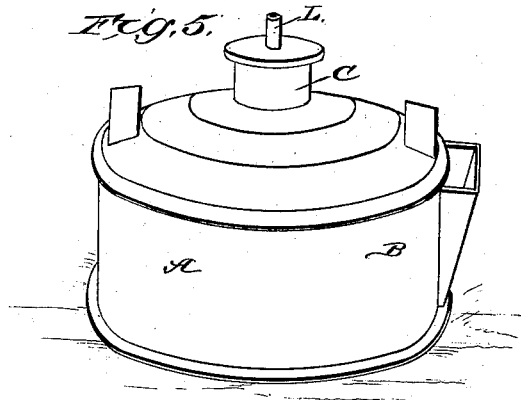


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES LEWIS PHELPS, OF MEADVILLE, PENNSYLVANIA.

FRUIT-DRIER.

SPECIFICATION forming part of Letters Patent No. 383,245, dated May 22, 1888.

Application filed March 29, 1887. Serial No. 232,903. (No model.)

To all whom it may concern:

Be it known that I, JAMES LEWIS PHELPS, a citizen of the United States, residing at Meadville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Fruit-Driers, of which the following is a specification.

My invention relates to an improvement in fruit-driers; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claim.

In the drawings, Figure 1 is a top plan view of an evaporator embodying my improvements, showing the relative arrangement of the evaporating-trays. Fig. 2 is a vertical sectional view of the same, taken on the line *xx* of Fig. 1. Fig. 3 is a detailed vertical longitudinal sectional view of one of the trays. Fig. 4 is a detailed perspective view of one of the coupling-pipes to connect the trays together. Fig. 5 is a detail view of the boiler.

A represents a boiler, which is similar in general construction to a wash-boiler, and is adapted to be placed on an ordinary cook-stove. The cover B of the boiler is secured steam-tight in the upper side thereof, and the said cover is provided at its center with a vertical upwardly-extending steam-dome, C.

D represents a series of rectangular evaporating-trays, each of which is provided at a suitable distance from its lower side with a false bottom or diaphragm, E, and thereby a steam-chamber, F, is formed in the lower side of the tray. The sides and ends of the tray project upwardly for a slight distance above the diaphragm E and form flanges G, adapted to retain the fruit on the diaphragm. From the upper side of the diaphragm projects a series of vertical nozzles, H, which are arranged near the ends and sides of the tray, and the tray is also provided with a blow-off nozzle, I, through which steam from the steam-chamber F may escape.

K represents U-shaped pipes, which are adapted to fit snugly over the nozzles H, so as to connect the trays together in series. Any number of trays may be thus coupled together, according to the capacity of the boiler and the quantity of fruit to be dried in a given length of time. From the upper side of the steam-dome C extends a steam-pipe, L, which

is connected to one of the nozzles H of one of the evaporating-trays. The said trays are supported on a suitable table or platform arranged at a convenient distance from the stove.

The operation of my invention is as follows: When steam is generated in the boiler, it passes through the pipe L to the steam-chamber in one of the trays, and from the latter through the series of coupling-pipes and the series of steam-chambers in the trays, finally escaping from the blow-off nozzle I in the last tray of the series. In practice I connect the steam-pipe L directly to the central tray of the series, so that the steam will pass from the said tray in opposite directions to the trays on both sides of it, and thus secure a more uniform distribution of the steam throughout the series of trays. Fruit placed on the diaphragms E of the trays will be speedily dried by the heat radiated from the steam in the steam-chambers F.

The steam-dome C, with which the boiler is provided, causes the steam to be delivered when comparatively dry to the steam-chambers in the evaporating pan or tray; but inasmuch as a portion of the steam will necessarily condense in the said steam-chambers of the trays, I provide each tray with a discharge-opening, M, in its lower side at one corner, and a screw-cap, N, to cover the said opening. By removing the screw-caps the water of condensation which accumulates in the trays may be drawn from them from time to time.

Particular stress is laid on the construction of an evaporator comprising a series of evaporating-pans connected together and to the boiler by a detachable coupling-pipe, K. Said coupling-pipe serves to hold the pans together, and also permits communication therewith to allow the passage and flow of steam. Being detachable, the pans can be separated from one another, as desired.

It will be seen that the trays are entirely separated from each other and are not dependent on one another for support. They can thus be separated from each other at will without disturbing the equilibrium of the apparatus. Another feature of special importance is the arrangement of the nozzles H and the detachable couplings K, whereby the latter can be attached to the nozzles at the sides or ends of the trays, and thus the trays can be arranged

side to side or end to end, as occasion may demand.

Having thus described my invention, I claim—

- 5 The improved fruit-drying apparatus herein described, consisting of the boiler A, adapted to be placed on a cook-stove, and the independent evaporating-trays having the diaphragms E, whereby a steam-space, F, is
10 formed between the diaphragms and the bottom of the tray, the nozzles H near both the sides and the ends of the trays, the said trays being all arranged in the same horizontal plane and entirely separated from each other, and
15 having independent supports, the steam-pipe L, having one end connected to the boiler and

the other end attached to one of the nozzles H, and the U-shaped coupling-pipes K, having their ends connected to the nozzles H of adjacent trays, whereby the coupling-pipes K 20 can be connected to the nozzles H either near the ends or the sides of the trays, and thus the latter may be placed end to end or side to side, as may be desired.

In testimony that I claim the foregoing as my 25 own I have hereto affixed my signature in presence of two witnesses.

JAMES LEWIS PHELPS.

Witnesses:

GEO. M. BISHOP,
HARRY L. JONES.