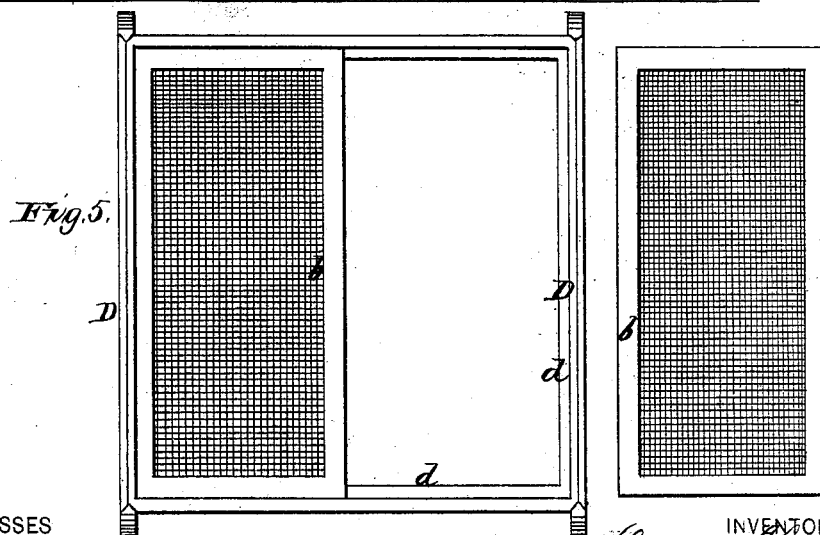
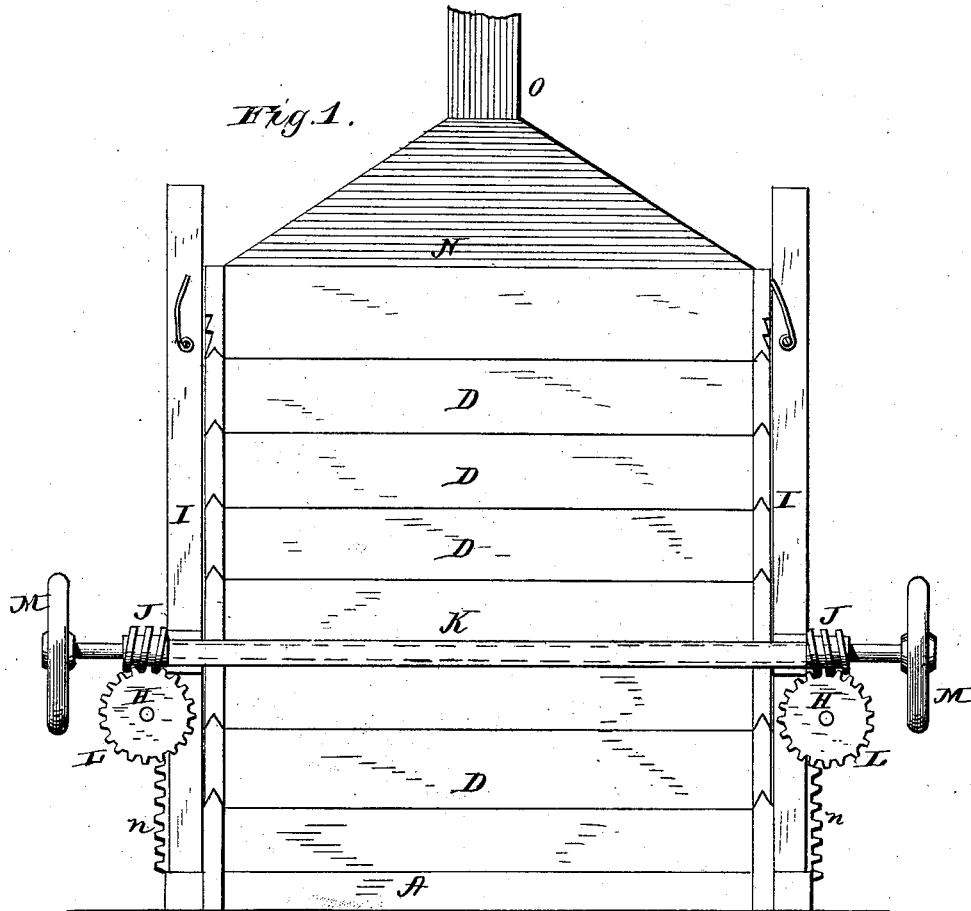


G. S. GRIER.
Fruit-Drier.

No. 221,056.

Patented Oct. 28, 1879.



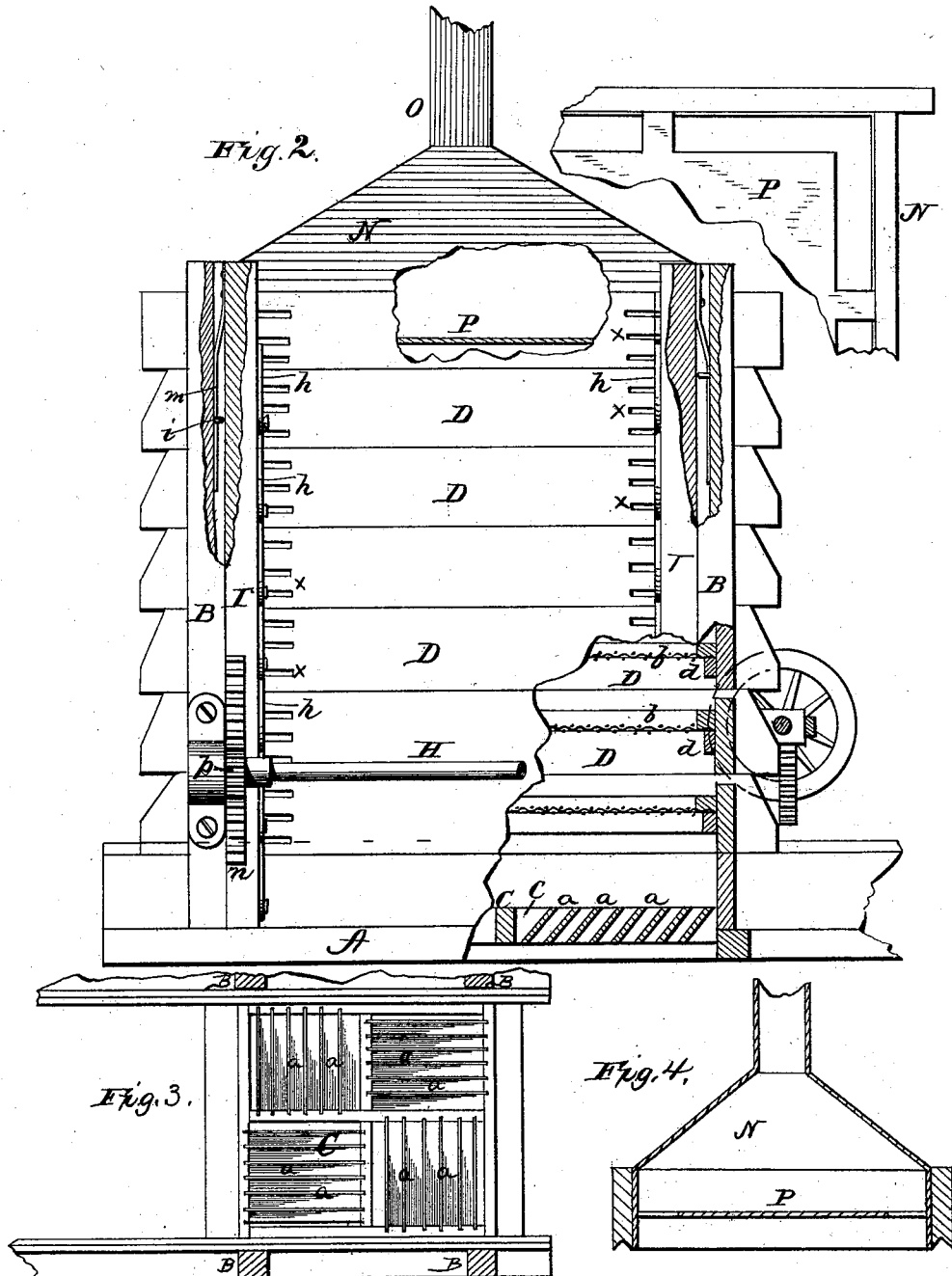
WITNESSES
F. L. O'Connell
J. J. McConthy

INVENTOR
George S. Grier
Alexander Mason
ATTORNEYS

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WITNESSES
H. L. Durand
J. J. McCarthy

INVENTOR
George S. Grier
Alexander Watson
ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE S. GRIER, OF MILFORD, DELAWARE.

IMPROVEMENT IN FRUIT-DRIERS.

Specification forming part of Letters Patent No. **221,056**, dated October 28, 1879; application filed July 17, 1879.

To all whom it may concern:

Be it known that I, GEORGE S. GRIER, of Milford, in the county of Kent, and in the State of Delaware, have invented certain new and useful Improvements in Fruit Driers and Evaporators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a fruit-evaporator, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation of my improved fruit-evaporator. Fig. 2 is a sectional view of the same. Fig. 3 shows the bottom of the drier. Fig. 4 is a vertical section of the roof. Fig. 5 shows one of the boxes with removable trays.

A represents a bed-frame, of suitable dimensions, provided with four upright posts, B B, between which the boxes are placed for forming the walls of the evaporator and holding the trays. In the bottom frame, A, are two straight bars, C C, crossing each other at right angles in the center and dividing the bottom of the evaporator into four equal divisions. In each division is arranged a series of inclined slats, *a a*, and the four series of said slats are inclined outward in the four different directions, whereby, when the evaporator is set over the furnace, the current of hot air, as it ascends, is directed to the sides of the machine.

D D represent the boxes which go to form the walls of the evaporator, and which are open at top and bottom. Each box contains one or more removable trays, *b*, which rest upon cleats *d* on the inside of the box.

The upper edges of the side bars of each box D are made V-shaped, while in their under edges are made corresponding grooves, so that the boxes will fit close together and can easily be moved back and forth. The outer sides of these side bars of the boxes have two or more horizontal notches, *x x*, at each end, into which take pivoted pawls *h h*. These pawls are piv-

oted to vertically-movable posts or uprights I I, which are connected to the stationary corner-posts B B by means of rods or bars *m*, attached to each post I, and passing vertically through eyes *i* in a groove on the stationary post B.

Each movable upright I is provided with a rack-bar, *n*, and the two rack-bars on the same side of the evaporator are operated by pinions *p* on a horizontal shaft, H. The two shafts H H, on opposite sides of the evaporator, are operated by worms J J on a shaft, K, at one end of the evaporator, said worms taking into gear-wheels L L on the ends of the shafts H H. The shaft K is provided with hand-wheels M M for turning the same.

In operation, the first box, having its tray or trays filled with fruit, is pushed in over the heater or furnace, and after being there, say, about ten minutes, more or less, as desired, it is raised up by the gearing and the pawls *h*, attached to the movable uprights I, and another or second box similarly filled with fruit pushed in under the first, and the first lowered down on the second, and so on until twenty or more boxes with trays have been arranged to form the evaporator.

It will be noticed that with my mechanism I lift each box independently of the others, so that I can lift a portion above, leaving the boxes of the lower part stationary by disengaging the pawls below. This enables the operator to examine any one or more of the boxes by sliding them out while those above are suspended.

N represents the cover with central stack O. This cover is put on the first box to cause a draft, and it is raised by resting on the top or first box, so that the evaporator is complete at all times, whether one or twenty, or more, boxes are inserted.

In the cover N is a bottom, P, which does not extend to the outer edges of the cover, thereby causing the vapor and heated air to be drawn from the middle to the sides to dry evenly; and it also aids in carrying off the fumes of the sulphur when such is used to bleach the fruit.

I am aware that a fruit-evaporator has been made with upright sliding bars or posts provided with spring-pawls, which pass under

the trays to support the same; but in such case the pawls are inaccessible, and none of them can be thrown out of the way, whereas in my case the operator can easily disengage any one or more pawls on each post, so as to lift any one or more boxes, or all the boxes together, as may be desired.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fruit-evaporator having its boxes or trays arranged to be lifted from the bottom, a lifting mechanism provided with means adapted to engage each or every box, whereby the boxes may be lifted independently of each other or all together, substantially as herein set forth.

2. In a fruit-evaporator, four movable up-rights, each having a series of pivoted pawls and arranged to slide in four stationary posts secured in a frame, in combination with a series of boxes or trays having notches on their sides, whereby the boxes may be lifted independ-

ently of each other or all together, substantially as herein set forth.

3. In a fruit-evaporator, the bottom composed of four groups or series of inclined slats, arranged as specified, to conduct the ascending current of hot air to the four sides of the evaporator, substantially as and for the purposes herein set forth.

4. In a fruit-evaporator, a series of open top and bottom boxes arranged to form the sides of the evaporator, and each box containing one or more removable trays, in combination with a lifting mechanism provided with means adapted to engage each or every box, whereby the boxes may be lifted independently of each other or all together, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

GEO. S. GRIER.

Witnesses:

H. AUBREY TOULMIN,
J. JOSEPH MCCARTHY.