

(No Model.)

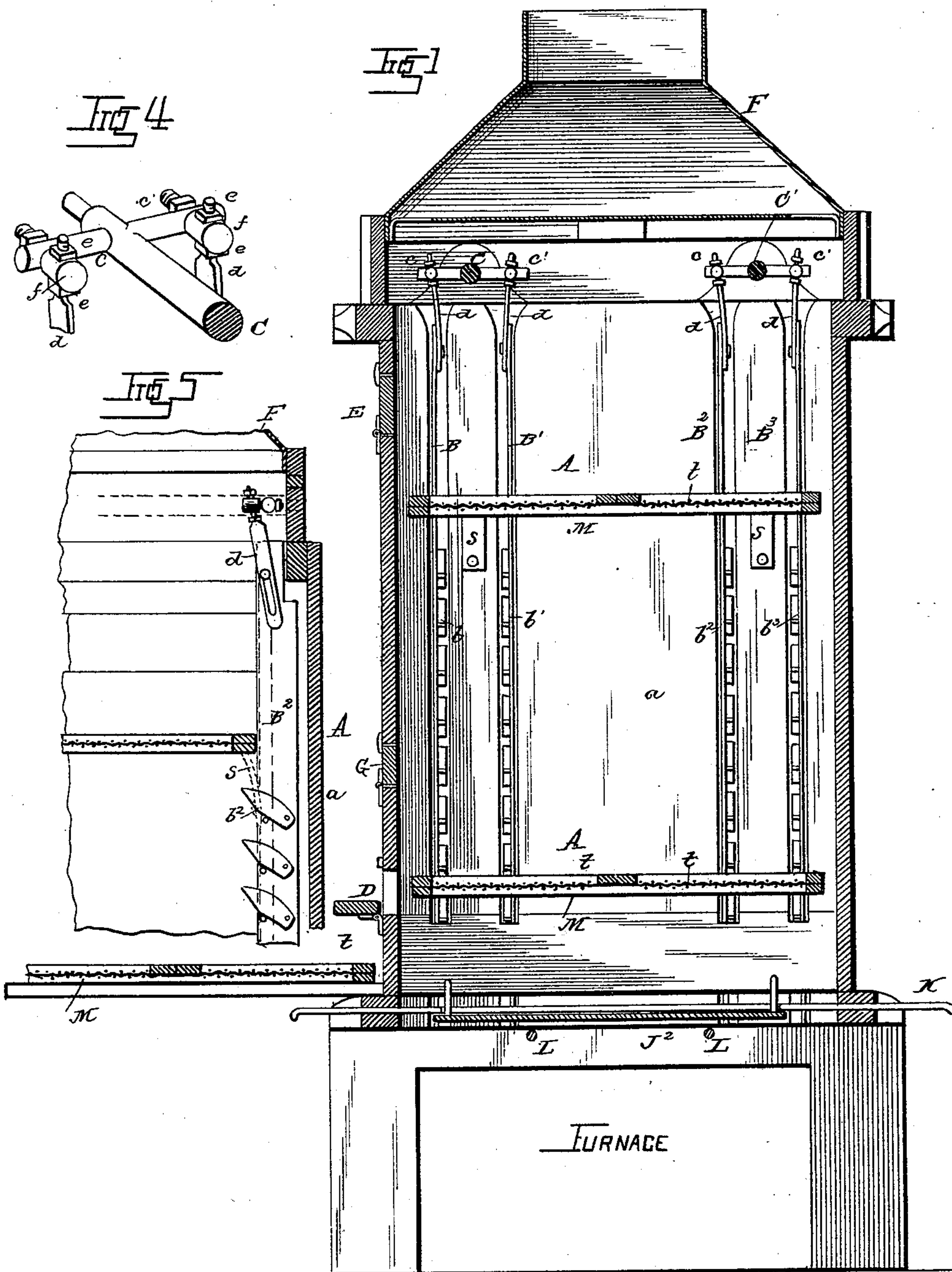
2 Sheets—Sheet 1.

G. S. GRIER.

FRUIT DRIER.

No. 284,838.

Patented Sept. 11, 1883.



WITNESSES:

Fred. G. Dieterich
Edw. W. Byrne.

INVENTOR:

INVENTOR:
Geo. S. Grier
BY *Maunt & Co*
ATTORNEYS.

ATTORNEYS.

(No Model.)

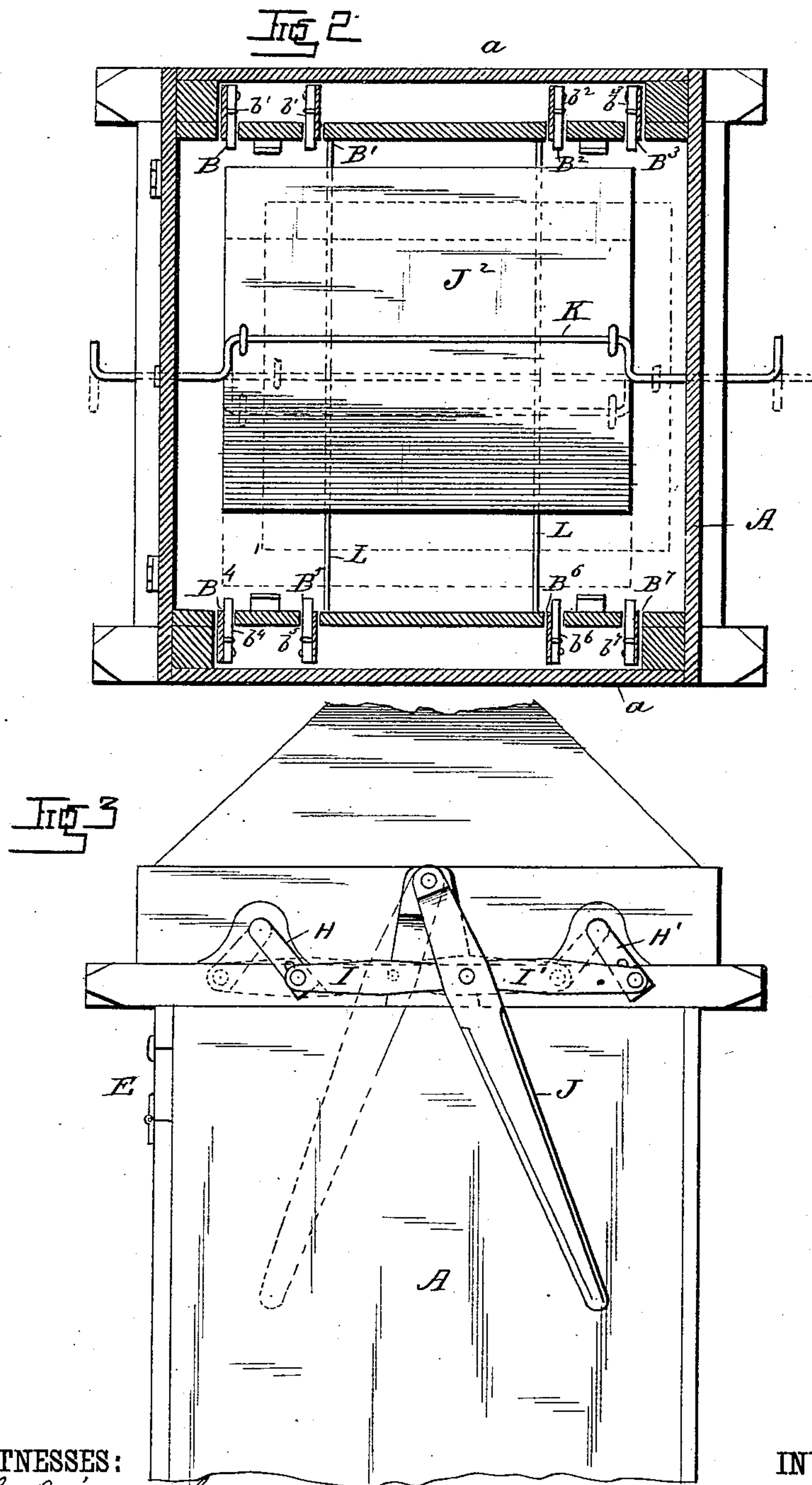
2 Sheets—Sheet 2.

G. S. GRIER.

FRUIT DRIER.

No. 284,838.

Patented Sept. 11, 1883.



WITNESSES:

Fred. G. Britenich
Edw. W. Byrn.

INVENTOR:

Geo. S. Grier
BY *Mann & Co.*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE S. GRIER, OF MILFORD, DELAWARE.

FRUIT-DRIER.

SPECIFICATION forming part of Letters Patent No. 284,838, dated September 11, 1883.

Application filed May 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. GRIER, a citizen of the United States, at present residing at Milford, in the county of Kent and State of Delaware, have invented a new and useful Improvement in Fruit-Evaporators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of the specification, in which—

Figure 1 is a vertical section of the evaporator. Fig. 2 is a horizontal section of the same. Fig. 3 is a side view of the upper exterior portion of the case, showing means for raising the trays. Fig. 4 is a detail showing the connection between the arms of the rock-shaft and the reciprocating bars carrying pawls; and Fig. 5 is a vertical sectional view at right angles to the plane of Fig. 1, and showing one of the sides of the case and the relation of the reciprocating bars and pawls to the trays.

My invention is an improvement in that class of fruit-evaporators in which series of trays are made vertically adjustable in an upright case, being placed in through a lateral opening or door near the bottom and removed at the top.

My improvement consists in the means for giving to the trays an upward progressive movement, the means for regulating the ascending current of hot air, and in the combination, with the trays and the lifting device, of a skeleton frame for sustaining the trays, all as hereinafter more fully described.

In the drawings, A represents the vertical case, which is of a square cross-section, and whose side walls, *a a*, are double, while the front and back walls are of single thickness. In vertical slots of the inner side walls there is arranged, near each corner, a pair of vertically-sliding bars, as shown at *B B' B² B³ B⁴ B⁵ B⁶ B⁷*. Each of these bars has pivoted to it a series of upwardly-pointing pawls, *b b' b² b³*, &c., which project through the slots of the inner wall into the interior space. These pairs of slide-bars are, at the top, jointed to the arms *c c'* of horizontal rock-shafts *C C'*, one bar of each pair being connected to the arm *c* of the rock-shaft on one side of said shaft, and the other bar of each pair being connected to the arm *c'* on the opposite side of said rock-shaft, so that when said rock-shafts are rocked the

bars of each pair move in opposite directions, one going down with its series of pawls, while the other rises with its series.

The trays rest in horizontal position within the case upon the pawls, and when the shafts are rocked one set of bars and pawls rise with the trays resting thereon, while the other set of pawls of the adjacent bars descend to get a new position for raising the trays farther when the first set of pawls have reached the limit of the upward movement. By this means it will be seen that the trays, which are put in laterally through the lower door, *D*, are raised progressively until they reach the top, at which point they stack themselves one under the other upon the stationary springs *s s*, and are taken out laterally through the door *E*, the fruit being dried in the trays by the passage of the hot-air currents, which rise from the heater below and pass out through the detachable roof portion *F* and on to the chimney.

G is an intermediate door, placed at or near the middle of the case, to permit the middle ones of the vertical series of trays to be drawn out and inspected.

For rocking the shafts *C C'* to cause the vertical bars and pawls to act as just described, the ends of said shaft are provided with cranks *H H'*, Fig. 3, which project downwardly and are jointed to links or connecting-rods *I I'*, which are in turn jointed to a downwardly-projecting lever, *J*, which is fulcrumed at its upper end, and extends down into convenient reach for operation.

In connecting the bars *B B'*, &c., to the arms *c c'* it is necessary to make said connection adjustable, so as to make the pawls have the proper range of movement, and to compensate for shrinkage from the heat, &c. For this purpose the upper ends of the bars *B B'*, &c., are each connected by bolts to a spring-plate, *d*, whose upper end is screw-threaded and passed through the perforation of an eyebolt, *f*, Fig. 4, and held by a nut, *e*, on each side of the eyebolt. This eyebolt passes through the arm *c* of the rock-shaft. Now, to raise or lower any one of the bars *B B'* it is only necessary to draw the screw-threaded portion of the plate *d* more or less through the eyebolt and adjust it to position by the nuts.

J² is the adjustable damper or screen for controlling the currents of hot air coming from

the heater below the evaporator-case. It sometimes happens that from changes of the wind or other causes currents of hot air will pass up on one side of the case or the other without any apparent reason, and it becomes desirable to have a screen or damper that can be shifted to throw the current into the proper position. For this purpose the screen is hung upon a crank-shaft, K, by turning which the screen may be thrown to the right or left, and which crank-shaft has a longitudinal adjustment to throw the screen back or forth. Now, the screen, which is square, rests upon subjacent cross-bars L, and is normally in the center of the case, with a space all around it, through which the hot air ascends. Now, if the hot currents have a tendency to pass up too strongly on any one of the four sides of the square, the screen may be shifted over to that place and compel the air to rise in proper position to be distributed to the trays.

M is the skeleton frame, consisting of a plain rectangular frame of the same dimensions as the interior of the case, and adapted to rest upon the pawls. On this skeleton frame, which is supported temporarily on brackets below the lower door, are placed the trays *t*, of smaller size—two, three, or more to each skeleton frame—and which, with the skeleton frame, are then slid into the case and supported upon the pawls. The object of the skeleton frame is to enable me to avoid making the trays so large, so as to handle them better, and to permit one of them to be taken out from off the skeleton frame and inspected without removing the others on the skeleton frame, and still causing

these trays of small size to be properly elevated by the pawls.

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

1. The combination of the lifting-bars B B', &c., arranged in four pairs and provided with lifting-pawls, the two rock-shafts C C', with arms *c c'*, connected to the oppositely-moving bars, the cranks H H', the links I, and lever J, as and for the purpose described.

2. The combination, with the evaporator-case, of the bars L L, the screen J², and the longitudinally-adjustable crank-shaft K, attached to and operating the screen, as and for the purpose described.

3. The combination, with the case of a fruit-evaporator, of a screen or damper arranged at the bottom thereof and between it and the heater, the said screen having an integral adjustment back or forth and to each side of its central portion, as described.

4. The combination, with a fruit-evaporator case and sets of reversely-working pawls, of a skeleton frame of the same dimensions as the interior of the case, and trays of smaller size resting thereon, as described.

5. The combination of the rock-shafts and their arms, of the pivot-bolts having eyes, and the vertically-reciprocating bars extended through said eyes and secured adjustably therein by nuts, as described.

GEO. S. GRIER.

Witnesses:

J. MIDDLETON,
EDWD. W. BYRN.