

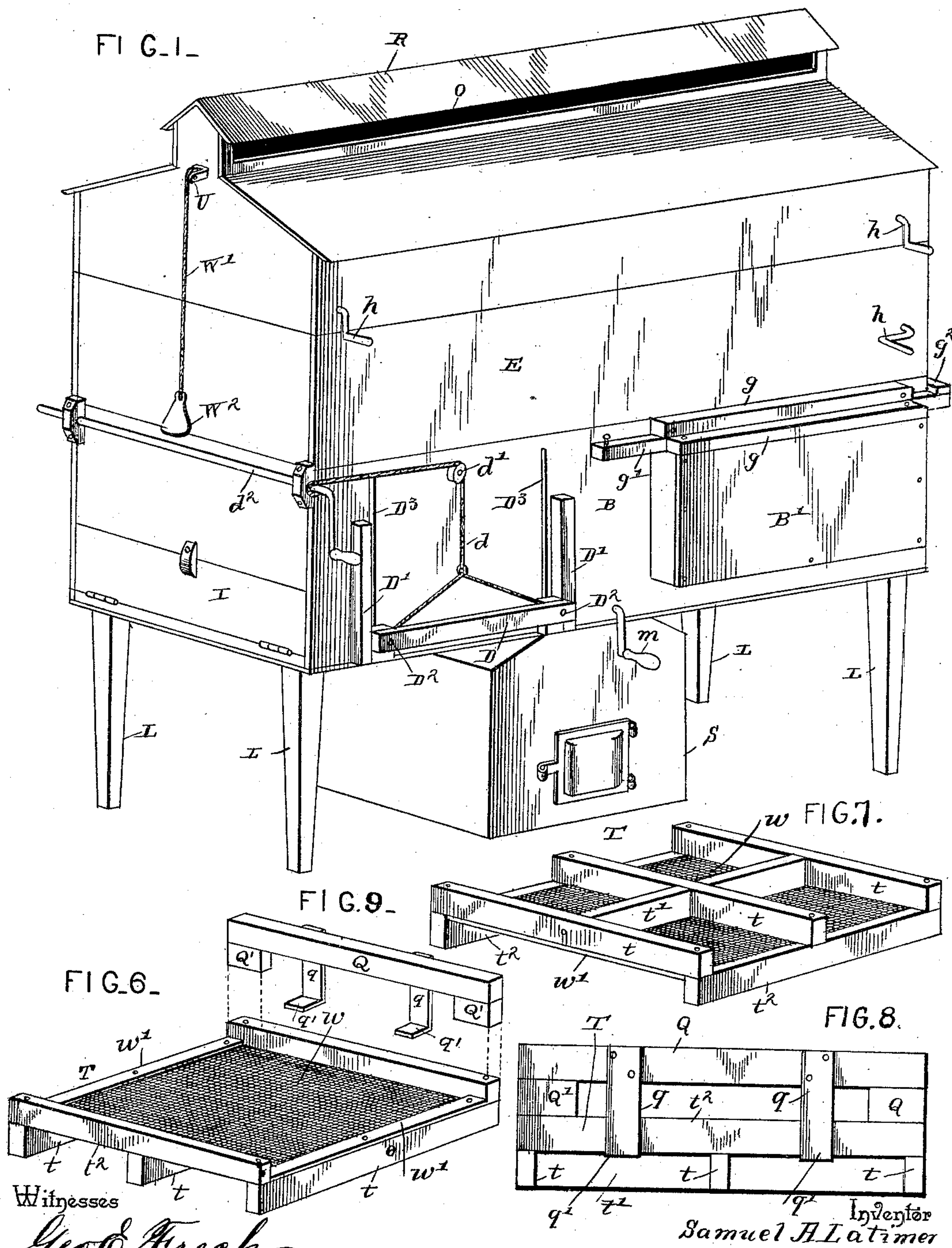
(No Model.)

2 Sheets—Sheet 1.

S. A. LATIMER.
FRUIT EVAPORATOR.

No. 462,144.

Patented Oct. 27, 1891.



Witnesses

Geo. C. Freck.

N. J. Collamer.

By his Attorneys,

C. A. Snow & Co.

Inventor
Samuel H. Latimer

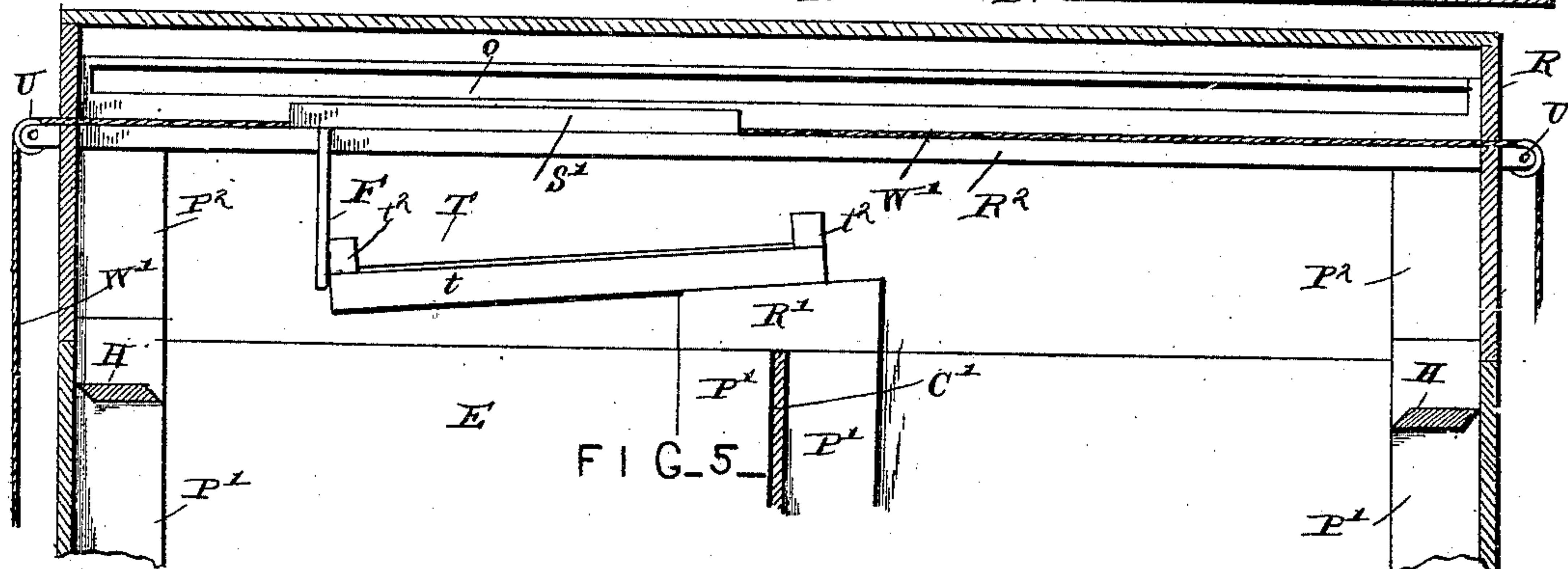
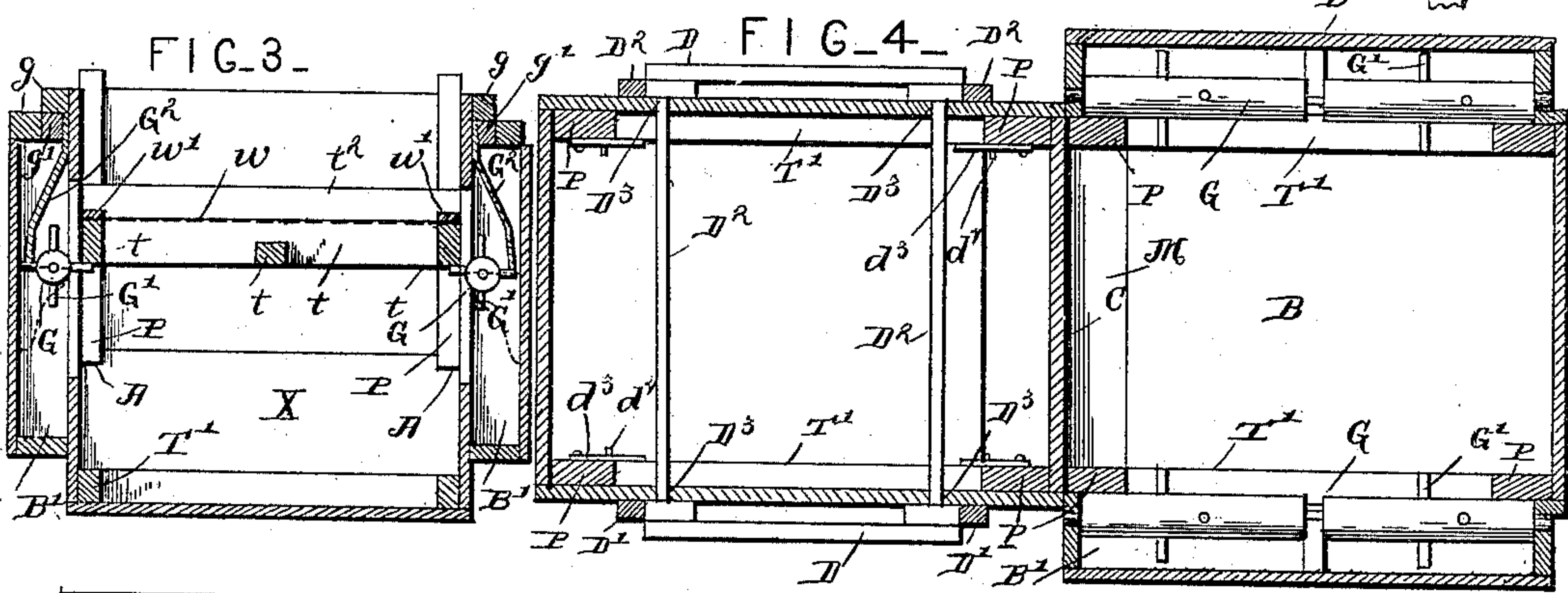
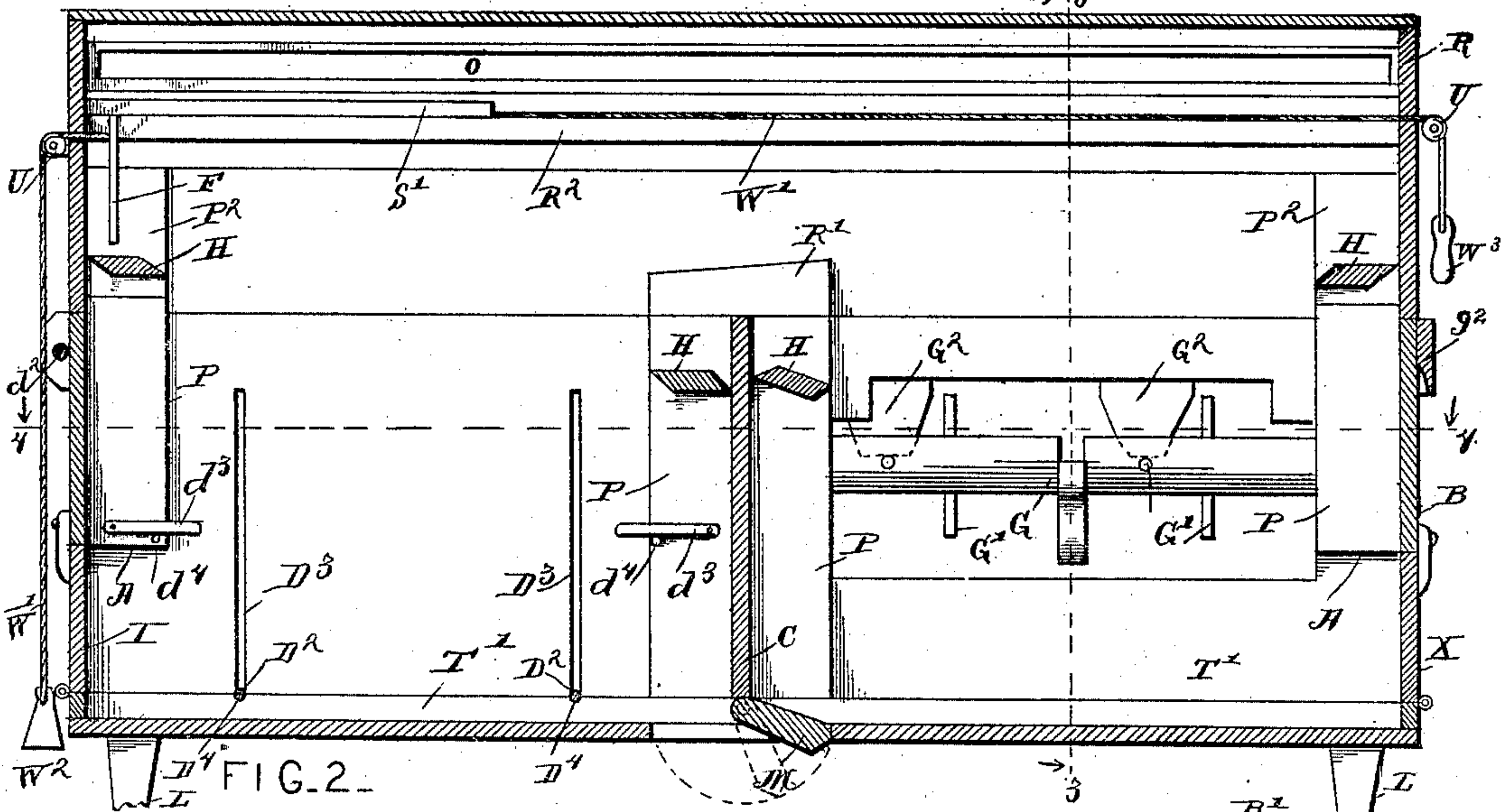
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UNITED STATES PATENT OFFICE.

SAMUEL ANDREW LATIMER, OF LONG LANE, MISSOURI.

FRUIT-EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 462,144, dated October 27, 1891.

Application filed December 8, 1890. Serial No. 373,935. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL ANDREW LATIMER, a citizen of the United States, residing at Long Lane, in the county of Dallas and State of Missouri, have invented a new and useful Fruit-Evaporator, of which the following is a specification.

This invention relates to fruit-evaporators; and the object of the same is to provide a device of this character wherein the fruit-holding trays are inserted at one end, passed gradually through the device, and taken out at the other end, during all of which time they are subjected to regulated degrees of heat.

To this end the invention consists of devices for permitting this movement of the trays, as well as of the detailed construction of parts, all as hereinafter more fully described and claimed, and as illustrated on the two sheets of drawings, wherein—

Figure 1 is a perspective view of this device complete. Fig. 2 is a central longitudinal section, omitting the extension. Fig. 3 is a transverse section on the line 3 3 of Fig. 2. Fig. 4 is a horizontal section on the line 4 4 of Fig. 2, showing the lowering devices, and also showing a plan view of the raising-frame. Fig. 5 is a longitudinal section of the roof member supported by an extension and showing one tray in the act of being moved longitudinally in the device. Fig. 6 is an upper side perspective, and Fig. 7 a lower side perspective of a tray, in its preferred form. Fig. 8 is a side elevation of a tray with a spacing-bar attached, and Fig. 9 is a perspective detail of one of the spacing-bars.

Referring to the said drawings, the letter B designates the body of this device, which is supported by legs L at a suitable distance from the ground, and S is a stove or other heating device arranged beneath the body and delivering hot air into the same at about the center of its length.

The letter R designates the roof member, which is of about the construction shown in Fig. 1 and has exit-openings O for the hot air rising from the stove, and this roof member is detachably supported by the body member B or by an extension member E, which is of the same rectangular shape and dimensions

of the body B and is for use when it is desired to make the device larger.

The body B is provided with an inlet-door I at its front end and an exit-door X at its rear end, near the bottom. In plan the body is rectangular in shape, being somewhat longer than twice its width, and is divided by a central vertical partition C, below which is the main damper M, standing above the inlet-tube from the stove, and by means of which the hot air can be passed into one half, the other half, or both halves of the body, as seen in Fig. 2 and as will be readily understood.

Within the body B are eight vertical posts P, arranged at the four corners of each of the halves of the body, which posts are longer in cross-section than they are broad, so that the distance longitudinally of the device between two posts in one-half the body will be equal to the distance transversely of the body between the sides of the body. The four end posts are cut away, as at A, above the doors above mentioned, and upon the floor of the body are secured side tracks T', which extend from the ends of the body inwardly along the sides thereof beneath the cut-away portions A to the central posts P.

The extension member E is simply a rectangular body open at top and bottom and having a central partition C' and extension-posts P' standing above and in alignment with the above-mentioned posts P. The roof member R is another rectangular body open at its bottom and closed at the top, except where the above-mentioned openings O occur, and it has four corner-posts P², resting on the corner-posts in the body member, or in the extension member, if it be used. Above the four inner posts, at each side of the roof member, is a rider-block R', whose upper edge rises toward the rear end of the device to prevent the trays striking against the trays in the rear half of the body while the trays are being moved rearwardly. Extending longitudinally of the roof member is a ridge-pole R², upon which slides a shifter S', having fingers F depending from its front end at each side of the ridge-pole. Connected to this shifter are cords or wire ropes W', extending through holes in the ends of the roof over

pulleys U and having a weight W^2 at the front end and a handle W^3 at the rear end, also for a purpose to appear hereinafter.

The letters T designate square trays constructed preferably as shown in Figs. 6 and 7—that is to say, there are three cross-bars t , connected by a single central cross-bar t' at right angles thereto, and two side bars t^2 are secured upon the upper sides of the cross-bars t at their ends. Upon the several cross-bars is placed a wire gauze or netting w , which is secured to the end cross bars t by strips w' , which are held in place by nails or screws. These trays are of a size to pass through the doors I and X and to move vertically in the square openings between four end posts and the sides of the members.

The raising-frame consists of plates D, moving between cleats D' on the sides of the body B and connected with each other by rods D^2 , which extend through vertical slots D^3 in the sides of the body in the front half thereof and normally rest in notches D^4 in the tracks T' . Rising from the plates D are cords or wire ropes d , which pass over pulleys d' in the sides of the body and lead to a crank-shaft d^2 , journaled across the front of the device, and when this crank-shaft is rotated the raising-frame will be elevated, as will be understood. Within the body and pivoted to the posts P are catches d^3 , normally supported in horizontal position by pins d^4 , so that their free ends will extend inwardly beyond the posts. A tray T being inserted through the front door I and moved rearwardly on the tracks T' over the notches D^4 , wherein rest the rods D^2 , the crank-shaft d^2 is rotated and the raising-frame begins to ascend. The rods D^2 strike beneath and raise the tray, and the latter strikes beneath and raises the catches and continues upwardly. The catches d^3 dropping to their horizontal position onto the pins d^4 when the raising-frame descends, the tray is held suspended upon the catches. The next tray that is raised in a similar manner will operate in substantially the same way, except that the tray already inserted will be raised upon the one in question.

The lowering devices consist of rollers G, journaled at their ends and at their centers in bearings in laterally-extending boxes B' on the sides of the body at the rear end thereof. Through these rollers are passed pins G' , arranged in pairs, which are at right angles to each other and slightly spaced longitudinally of the rollers, as shown, the pins extending into the square openings between the four posts and the sides of the body B. Sliding longitudinally in guides g above the boxes B' are rods g' , which are connected across the rear end of this body by a handle g^2 , and depending from the rods g' are plates G^2 , whose sides taper to their lower ends, which are narrow but flat. Several trays resting upon the pins G' and it being desired to remove one from the exit-door X, the handle g^2 is moved so that the plates G^2 will be moved. Such

movement of the plates carries their lower ends from above the outer ends of the pins G' , which then stand horizontal to points over those which are vertical, and as soon as this occurs the weight of the several trays causes to rollers G to make a quarter-revolution and one tray is dropped onto those which stand on the tracks T' , and the lowermost of the pile may be removed through the exit-door at the operator's convenience.

As the trays are inserted in the front of the device and raised in the manner above described, after a series of them has been piled up in the front end of the device it becomes desirable to provide means for moving them rearwardly, so as to permit them to be lowered at the rear end of the device. Such means comprises the shifter S' , having the depending fingers F. By drawing upon the cord W' the shifter is slid rearwardly on the ridge-pole R^2 , as above described. The depending fingers F bear against the front cross-bar t^2 of the top of the uppermost tray T and slide it on the tray next below over the rider-blocks R' and onto the uppermost tray at the rear end of the device against the rear roof-posts P^2 . When the handle W^3 is released, the weight W^2 at the front end of the rope W' returns the shifter to its original position, and another tray T as it is raised is brought into engagement with the fingers F. The handle g^2 must be operated to lower the trays in the descending pile before another tray is shifted, as just described.

Journaled between the posts P, P' , and P^2 are dampers H, having operating crank-handles h on the outside of the body B, the extension E, and the roof member R, and these dampers may be set so as to cause the heat, rising from the stove S and passing through the main damper M (which, I should have said, has a crank-handle m at one end) to take a tortuous or zigzag course through either or both halves of the device until it finally escapes through the openings O in the roof.

This device is intended to be constructed on a large scale, and, as above described, is susceptible of enlargement as to its drying and holding capacities by the insertion of one or more extension members E. The trays are successively filled with the fruit to be dried or evaporated by placing the same on the wire-netting, and as they are filled by one operator they are passed through the inlet-door I, the door closed and held by its button i , and the raising-frame operated to lift the tray into the ascending pile. The other operator, who stands at the rear end of the device, then operates the tripping-handle g^2 to lower a frame from the descending pile, opens the door X and removes such tray, again closes the door, draws upon the handle W^3 to move the shifter and bring the uppermost tray from the ascending pile over onto the descending pile, and then turns and removes the dried fruit from the tray which has been withdrawn from the device, packing such fruit in suitable storing-vessels

or otherwise disposing of it. During this operation the heat rising from the stove has access to the trays while they are ascending, shifting, and descending, and it will be obvious that the greatest degree of heat strikes the trays last put in and those next to be removed, the heat on the shifting trays being the least. It will thus be seen that the fruit is subjected to a high degree of heat when it is first inserted, gradually-decreasing and then gradually-increasing degrees of heat as it moves through the device, and finally another high degree of heat just before it is withdrawn. The main damper M is preferably set so that the first high degree of heat will be greater than the last, because it is obviously desirable that the fruit receive the most heat when it is in its natural and damp-est condition.

If the fruit is cut into small pieces before it is dried or evaporated, the ordinary trays will answer; but if larger pieces are to be dried it becomes necessary to have the side bars t^2 higher from the wire-netting in order that the fruit upon such netting will not come in contact with the cross-bars t and t' of the tray next above. To accomplish this I provide the detachable spacing-bars Q. (Best seen in Figs. 8 and 9.) Each of such bars consists of a side bar proper Q, having blocks Q' beneath its ends, and secured to said side bar are two L-shaped hooks q , whose feet q' extend inwardly. These spacing-bars are secured to the side bars t^2 of each frame by resting the blocks Q' thereon at each end and engaging the feet q' beneath the said side bars, whereby the spacing-bars are caused to stand above the side bars, as shown. The result is that the side bars of each tray are virtually caused to rise higher above the wire-netting, and hence when the fruit is placed on the netting it will not be struck by the cross-bars of the tray next above.

A device of this character can be cheaply constructed and will be very durable and efficient in operation. The various dampers H may be set so as to deflect the heat in any desired direction across the trays or through the netting thereof, and the result will be found most satisfactory. Experience may induce me to make considerable change in the minor details of construction, all of which can be done without departing from the spirit of the present invention.

What is claimed as new is—

1. In a fruit-evaporator, the combination, with a body and guides within the same, of a series of trays T, each comprising cross-bars t , side bars t^2 , secured upon the same, and wire-netting w , mounted in said tray, detachable spacing-bars Q, having blocks Q' beneath

their ends, resting upon said side bars, and L-shaped hooks q , whose feet q' pass under said side bars, and means for moving said trays within the body, substantially as described. 65

2. In a fruit-evaporator, the combination, with a body having inlet and outlet doors in its opposite ends, a central partition, a series of trays, and means, substantially as described; for raising the trays in front of said partition, shifting them over the same, and lowering them in rear thereof, of a single damper in the bottom of the body below said partition, a source of heat having a flue leading to said damper, dampers across the body in front and rear of said trays and having operating crank-handles extending through the body, and a roof member having heat-outlet openings, as and for the purpose set forth. 75

3. In a fruit-evaporator, the combination, with a body having an outlet-door near its lower end, vertical posts within the body, cut away opposite said door, and a series of trays resting upon each other and moving between the sides of the body and between said posts, of boxes on the sides of the body, communicating with the openings therethrough, rollers journaled in the ends of said boxes, pins through said rollers at right angles to each other and in pairs near the ends of the boxes, rods sliding in guides above said boxes and connected by a tripping-handle across the end of the body, and plates carried by said rods and having converging sides with narrow flat lower ends standing above the pins on the outer sides of the rollers, those on the inner sides extending beneath the side bars of a tray, as and for the purpose set forth. 85

4. In a fruit-evaporator, the combination, with a body having inlet and outlet doors, vertical posts within the body, cut away opposite said doors, a central partition across the body, a series of trays adapted to pass through said doors, means for raising the trays in a pile in front of said partition, and means for shifting them from said pile over said partition into the other end of the body, of rollers mounted in bearings opposite openings in the sides of the body at its rear end, pins through said rollers at angles to each other and in pairs, plates above the pins which extend outwardly from said rollers, and means for moving said plates alternately to engage different pairs of the pins, as and for the purpose hereinbefore set forth. 100

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses. 105

SAMUEL ANDREW LATIMER.

Witnesses:

T. F. LOCKWOOD,

T. U. GOURLEY.