(No Model.)

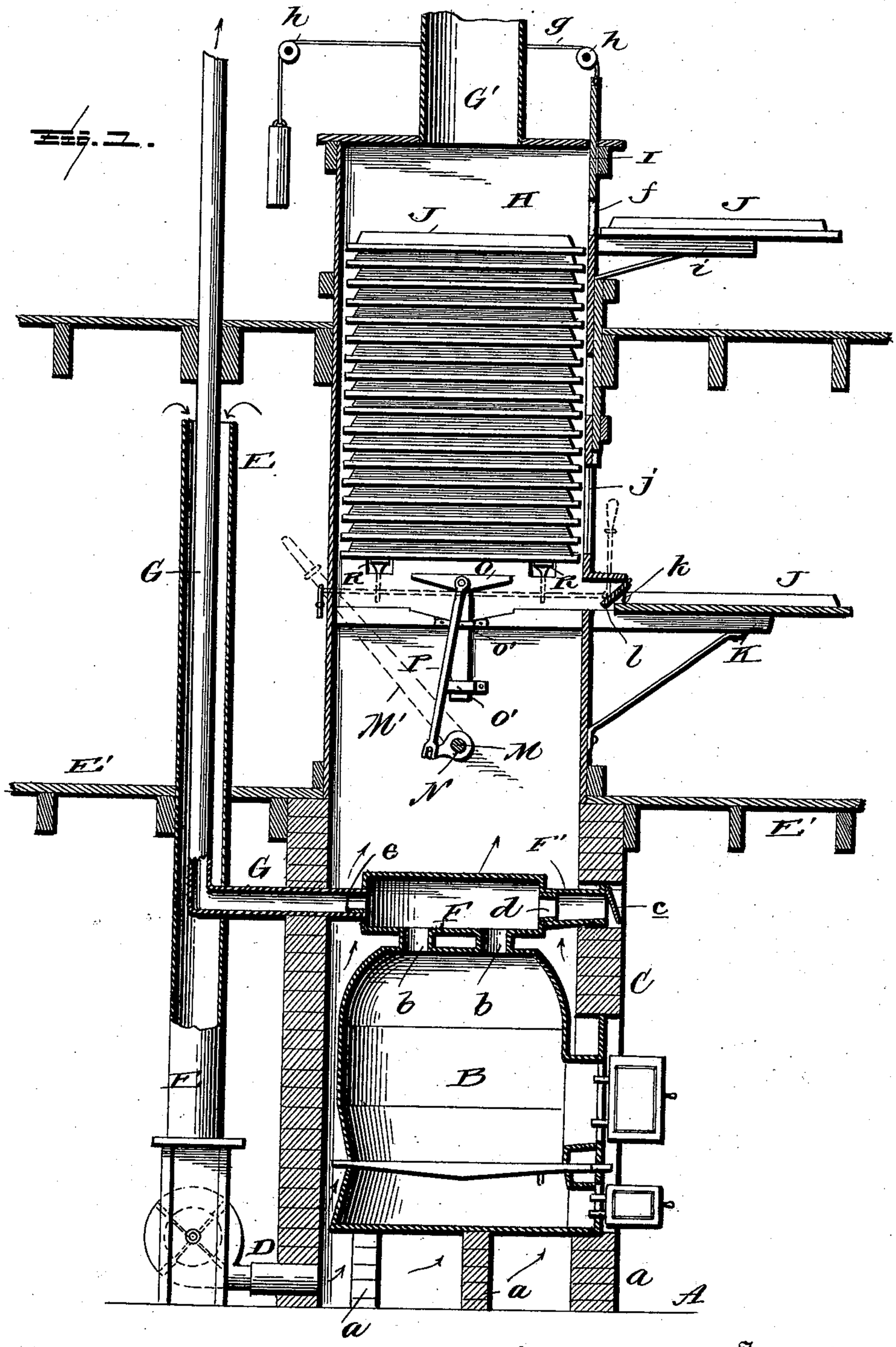
2 Sheets—Sheet 1.

C. SEBASTIAN.

FRUIT EVAPORATOR.

No. 506,377. Patented Oct. 10, 1893.

Fig. 1.



Witnesses

L. C. Hills.

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Inventor:

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(No Model.) 2 Sheets—Sheet 2.

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FRUIT EVAPORATOR.

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Fig. 2.

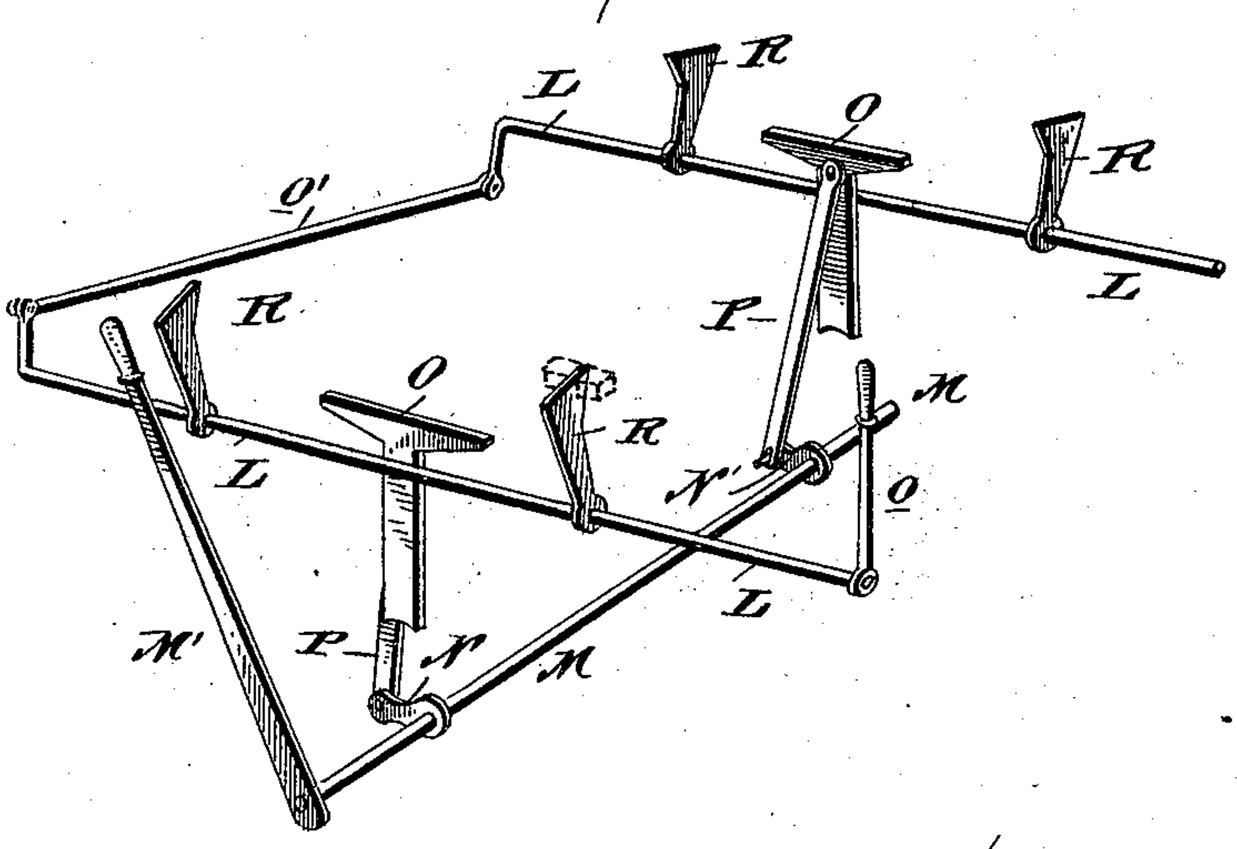
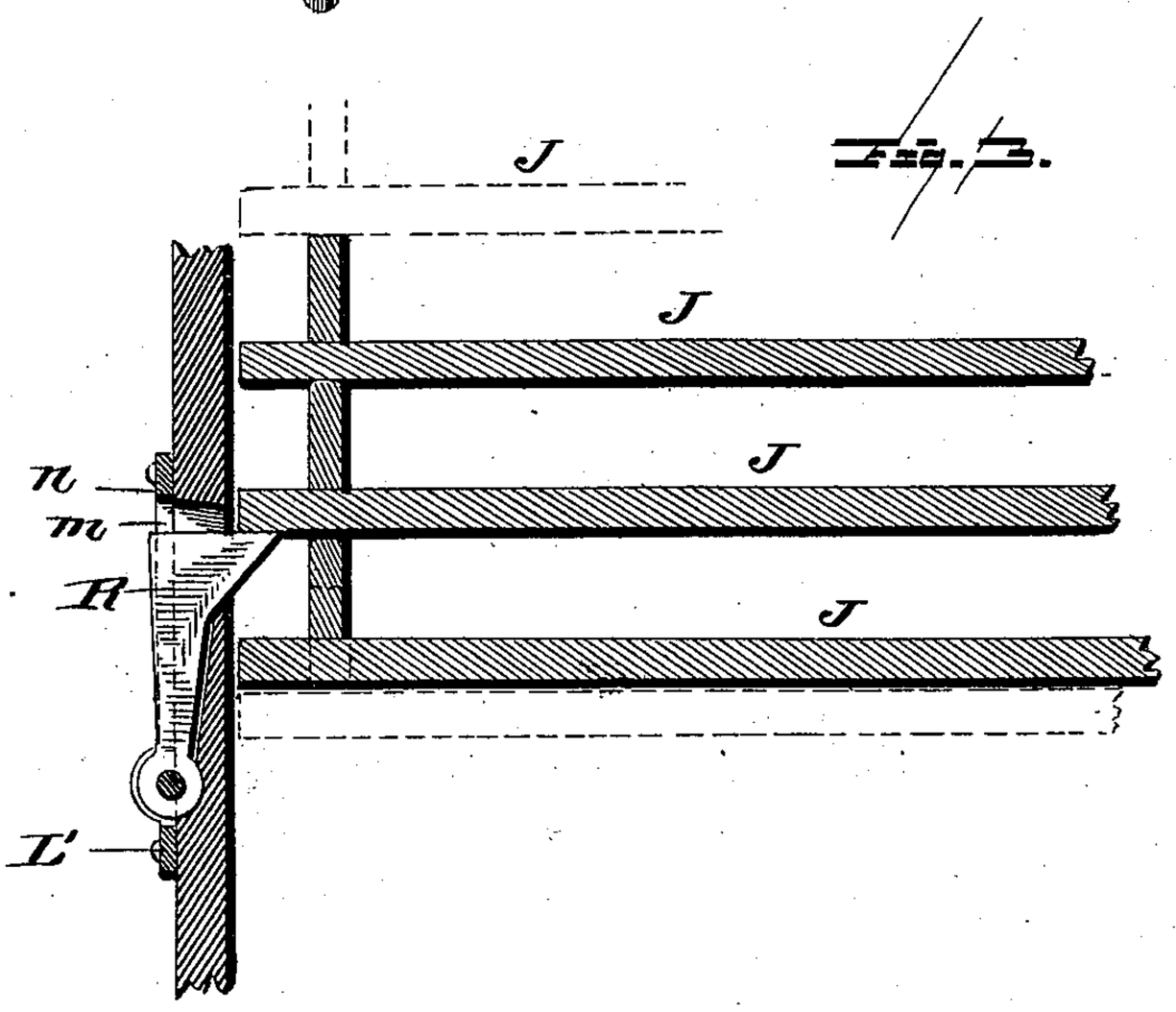


Fig. 3.



Witnesses
L. C. Hills.
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Inventor
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UNITED STATES PATENT OFFICE.

CHARLES SEBASTIAN, OF SALEM, ILLINOIS, ASSIGNOR TO ROGERS, SCHWARTZ & CO., OF SAME PLACE.

FRUIT-EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 506,377, dated October 10, 1893.

Application filed January 29, 1891. Serial No. 379,603. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SEBASTIAN, a citizen of the United States, residing at Salem, in the county of Marion and State of Illinois, have invented certain new and useful Improvements in Fruit-Evaporators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in fruit evaporators, and it has for its objects among others to provide an improved device of this character which shall be simple, cheap of construction and efficient for the purposes for which it is intended. I provide the heater with a hot air drum with an outlet pipe which passes through the ingress pipe for fresh air which is thus heated before it is introduced into the evaporator. I preferably employ a rotary blower located between the heater and the point where the outlet pipe from the hot air drum enters the ingress pipe for air. I provide simple and efficient means for supporting the trays of fruit and for elevating the same when desired to remove the lowermost tray after the fruit has been properly treated. I provide means for closing the openings through which the trays are inserted and removed so as to allow of the escape of the minimum of heated air. The various parts are compactly arranged so as to economize space and are so constructed as to be easily operated; the mechanism for raising the trays to permit of the removal of the lowermost one can be easily manipulated and the trays moved without disturbing the fruit therein.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a vertical section through an evaporator embodying my invention. Fig. 2 is a perspective view of the tray-operating mechanism detached, with parts broken away. Fig. 3 is an enlarged sectional detail showing one of the dogs that hold the trays.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the ground floor or support upon which is supported in any suitable manner, as for instance, upon the brick work *a*, or pillars, the furnace or heater B which may be of any of the known forms except as hereinafter specified.

C is brick work incasing the furnace or heater, said heater being provided with the usual feed and ash doors as seen in Fig. 1.

The bottom of the furnace or heater is elevated sufficiently above the ground floor as seen in Fig. 1, to provide a space therebeneath for the admission of air as indicated by arrows in said Fig. 1. D is a pipe communicating with said space and passed through the brick work where it communicates with the casing of a rotary blower or fan of any known or preferred form, into which casing leads the air-ingress pipe or conduit E, which may extend for any desired distance, in this instance shown as extending up through the second floor E′ and nearly to the ceiling of said second story as seen in Fig. 1.

F is a hot air drum arranged upon the top of the furnace or heater and having communication therewith through the pipes *b* as seen in Fig. 1. F′ is an air inlet pipe into the said drum, having a valve *c* which may be adjusted to regulate the ingress of air into the drum. This inlet pipe is preferably detachable and is adapted to engage a neck or other analogous provision *d* on the side of the drum as seen in Fig. 1, the drum being provided upon the other side with a neck or other like provision *e* for connection with an outlet pipe G. This pipe G extends through the air ingress pipe E and up through the roof of the building; the passage of the hot air from the drum through this pipe heats the incoming air which passes to the rotary blower and hence the air is heated when it is introduced into the space beneath the furnace or heater whereby better results are attained than if it were introduced cold. The pipe G is supported in the brick work as shown in Fig. 1.

Above the heater or furnace is the drying

chamber which may extend to any desired height and at the upper end provided with a ventilator G′, which is extended from the top of the drying chamber H through the roof of the building. The drying chamber is provided near its upper end with a feed opening *f*, which is formed in a vertically-movable slide I, or in the side wall of the said chamber and closed by the said slide; either will answer the purpose. This slide is equipped with counterbalance weight or weights connected thereto by cord or cords *g* which run over the pulleys *h* suitably journaled as shown.

Suitably supported adjacent to the feed opening is a table or other contrivance *i* suitably braced as seen in Fig. 1 and upon which the trays of green fruit are designed to be supported while they are being placed into the drying chamber through the feed opening; a tray J is shown in Fig. 1 as resting upon this support ready to be introduced through the opening. The drying chamber should preferably be provided with a glass window *j* as seen in Fig. 1 near the bottom thereof through which the condition of the fruit may be seen.

Near the lower end of the drying chamber I provide a support or table K, suitably braced as seen in Fig. 1 and upon which the trays of dried fruit are designed to be supported as they are taken from the drying chamber. An outlet opening *k* is provided at this point which is closed by a trap door *l* as seen in Fig. 1, which is hinged or otherwise secured in place.

The mechanism for actuating the trays is shown separately in Fig. 2 and in position in Fig. 1. On reference to these views it will be seen that I employ two rods L parallel to each other and journaled in suitable bearings on the drying chamber; these may be provided in any suitable way. I have shown them as on the plates L′ which are attached to the outside of the drying chamber and provided with openings *m* coincident with openings *n* in the sides of the drying chamber as seen best in Fig. 3 and through which openings the dogs are designed to work. These dogs are preferably two on each rod although this number may be increased if desired. They are affixed to the rods so as to move therewith, and one of the rods is extended at one end and provided with a suitable handle *o* by which it may be operated. The other ends of the rods are bent at right angles to their length, in opposite directions as shown in Fig. 2 and these right-angled ends are connected by the transverse rod *o′*, so that movement of the handle will cause the dogs to be moved simultaneously outward or inward according to the direction of movement of the said handle as will be clearly seen from Fig. 2.

M is a rod or bar suitably journaled in the walls of the drying chamber and extended at one end where it is provided with a suitable handle or lever M′ as seen in Figs. 1 and 2. This rod is arranged at right angles to the rods L and is provided with crank arms N which are secured thereto and which are pivotally connected with the lifters O which are adapted to slide vertically in suitable guides O′ arranged upon the inner walls of the drying chamber as seen in Fig. 1. I have shown the connection between each crank arm and its lifter as consisting of a link or rod *p* but of course do not intend to restrict myself to this particular form of connection as others may be employed with equally as good results. The dogs R are preferably of substantially the form shown in Figs. 2 and 3, that is, with a straight outer vertical edge and a flat upper end or bearing surface and the inner side inclined so that when the outer edge is vertical the preponderance of weight will be upon the inside of the vertical line and the dogs will thus be held in their position shown in Fig. 3. The inner wall of the opening in the side of the drying chamber is correspondingly inclined as seen in said Fig. 3 to form a bearing for the inclined portion of the dog.

The operation is simple and will be readily understood from the above description when taken in connection with the annexed drawings. The trays of fruit are introduced into the drying chamber and are supported one upon the other. They may be introduced through the opening *l* and elevated one by one by the dogs, or a suitable door (not shown) may be provided upon one side of the chamber, through which the trays may be placed to first fill the drying chamber, the lowermost one being supported upon the dogs R which are all thrown in as seen in Fig. 1 so that their horizontal portions will be within the chamber as seen in Fig. 3. As many trays as desired are placed in the chamber and the fire started in the furnace or heater and the blower set in operation, being designed to be driven by any suitable source of power (not shown), and as the fruit in the lower tray where the heat is the greatest is sufficiently dried the trap door *k* is opened inward by any suitable means, as for instance, a hook in the hands of the attendant, and the hook or other instrument engaged with the lowermost tray, which at this time is supported upon the dogs R. The lifters O are then elevated and engaged with the bottom of the lowermost tray and the lever M′ manipulated to raise all the trays sufficiently to permit the dogs to be thrown outward by the manipulation of the handle *o*, which is then done and the lever M′ again manipulated to lower the lowermost tray a short distance when the dogs are thrown in and engaged with the bottom of the next higher tray as seen in Fig. 3, when the dogs will support all the trays remaining and the lowermost tray, supported upon the lifters, is withdrawn through the opening provided

therefor, as seen in Fig. 1. As fast as the fruit is suffciently dried the trays are thus removed and more trays with green fruit are introduced at the top as hereinbefore described.

The drying chambers may be arranged in series if desired and the capacity of each chamber varied at pleasure.

Various modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages; for instance the air may be drawn through the evaporator instead of being forced through.

It will be observed that by my improvement the green fruit is placed in at the top of the machine instead of at the bottom and is taken out from over the fire or heater perfectly evaporated and dry, instead of at the top of the machine, damp from vapor and steam arising from fruit beneath and in an imperfectly evaporated condition. Fruit thus treated comes from the machine in better shape, will keep much longer, and will command a better price in the market.

What I claim as new is—

1. In a fruit evaporator, the drying chamber and heater combined with the air ingress pipe, a hot air drum at the top of the heater and provided with valved inlet pipes and an outlet pipe from the drum passing through the air ingress pipe, substantially as and for the purpose specified.

2. In a fruit evaporator, the heater, the drying chamber and air ingress pipe, combined with the hot air drum on the top of the heater, independent of the pipe and an outlet from the said drum passing through the air ingress pipe, the latter open at its upper end and terminating at a point below the ceiling, substantially as specified.

3. In a fruit evaporator, the parallel, rods carrying rocking dogs, a lever and connecting rods for actuating all of the dogs simultaneously, in combination with reciprocating lifters, a lever and connecting devices for independently and simultaneously operating the lifters, substantially as specified.

4. In a fruit evaporator, plates secured to the drying chamber and having openings and bearings for rods, combined with rods held in said bearings and having secured thereto dogs which work in said openings and coincident openings in the side of the chamber, as set forth.

5. The combination with an evaporator having an opening through one of its walls, said opening being provided with an inwardly inclined wall, of a dog having an inclined inner edge and a straight outer edge and pivoted within the line of the outer face and so as to be supported by the wall of the evaporator together with the trays and lifting device shown and substantially as specified.

6. In a fruit evaporator, the combination with the furnace and its inclosing structure, of the air ingress pipe, the conduit connecting the same with the space beneath the furnace, a blower or fan located between the air ingress pipe and said conduit and an outlet pipe from the furnace passed through the air ingress pipe, substantially as specified.

7. In a fruit evaporator, the combination with the drying chamber, of the rod M, journaled in the walls thereof and extended through one wall and provided with a handle, the rods L, at right angles to the rod M, and parallel with each other, crank-arms on the rod M, lifters movable in vertical guides, the rods pivotally connected with the said crank arms and lifters, the dogs on the rods L, the handle on the extended end of one of the rods L, and the rod o', connecting crank-ends of the rods L, and arranged at right angles to the said rods, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES SEBASTIAN.

Witnesses:
W. H. MORRIS,
GEO. W. FARSON.