

(No Model.)

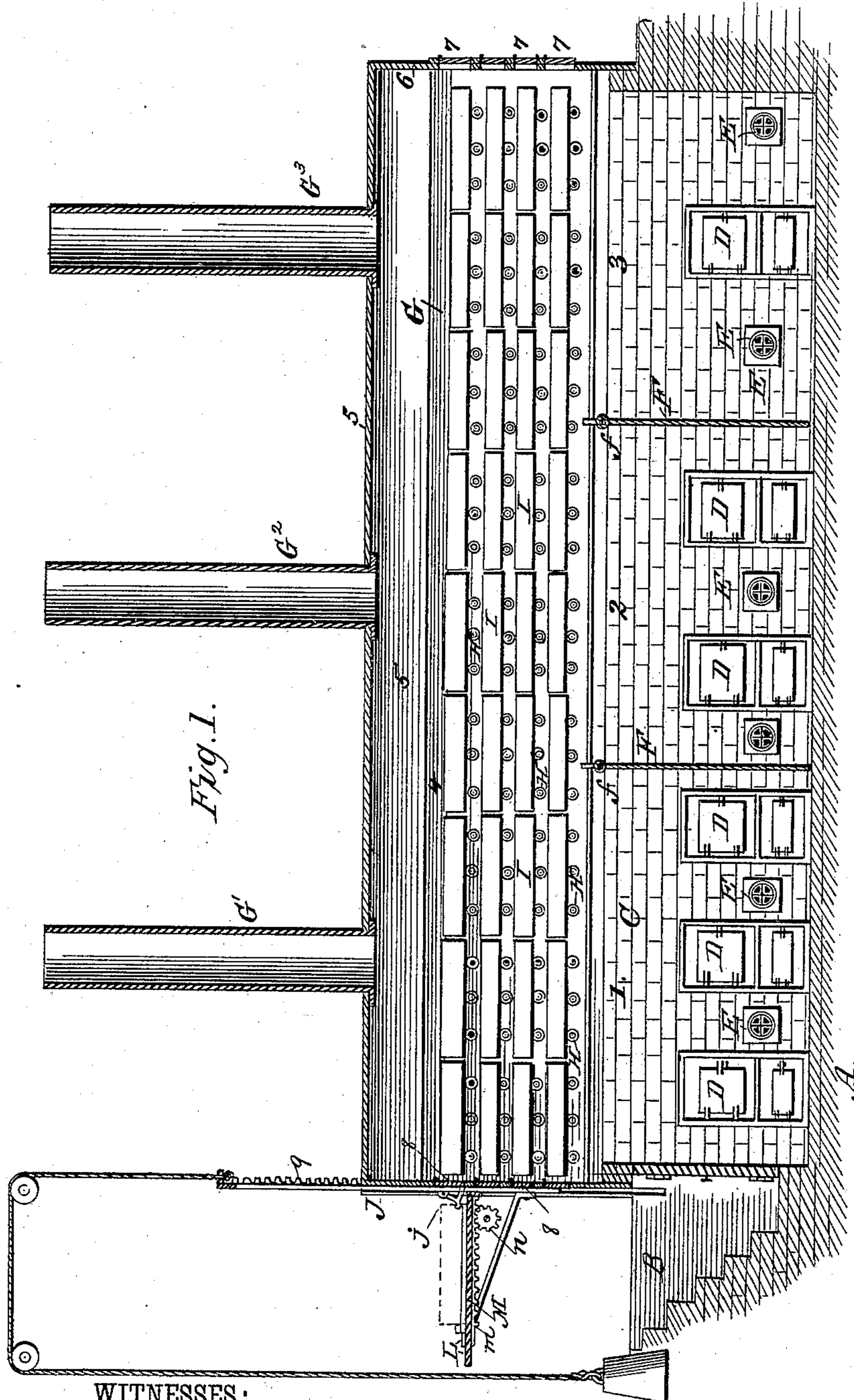
2 Sheets—Sheet 1.

W. S. PLUMMER.

FRUIT EVAPORATOR.

No. 371,785.

Patented Oct. 18, 1887.



WITNESSES:

*Fred G. Dieterich*  
*R. B. Turpin.*

INVENTOR:

*Wm S. Plummer*  
BY *Munn & Co*

ATTORNEYS.

(No Model.)

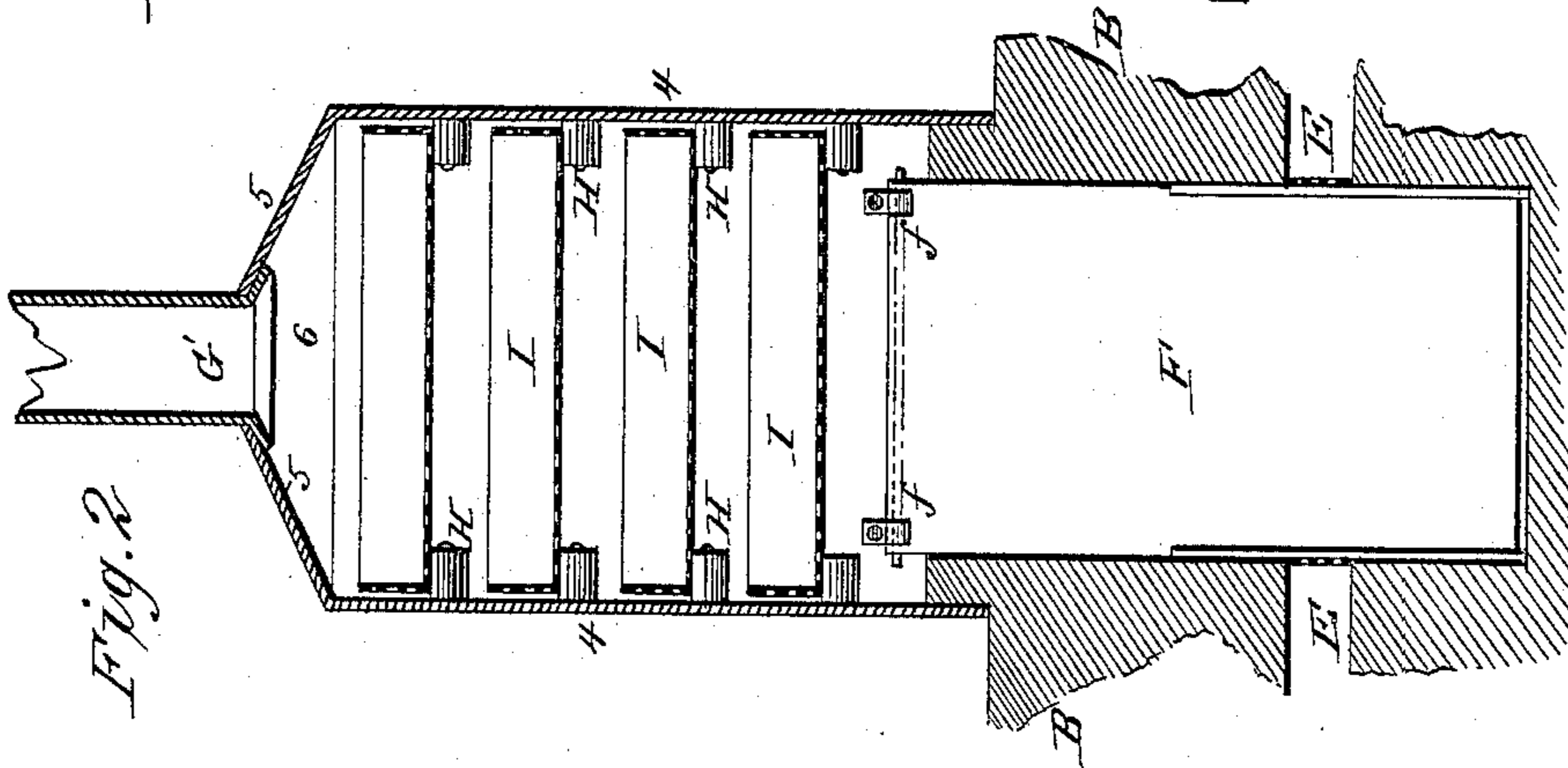
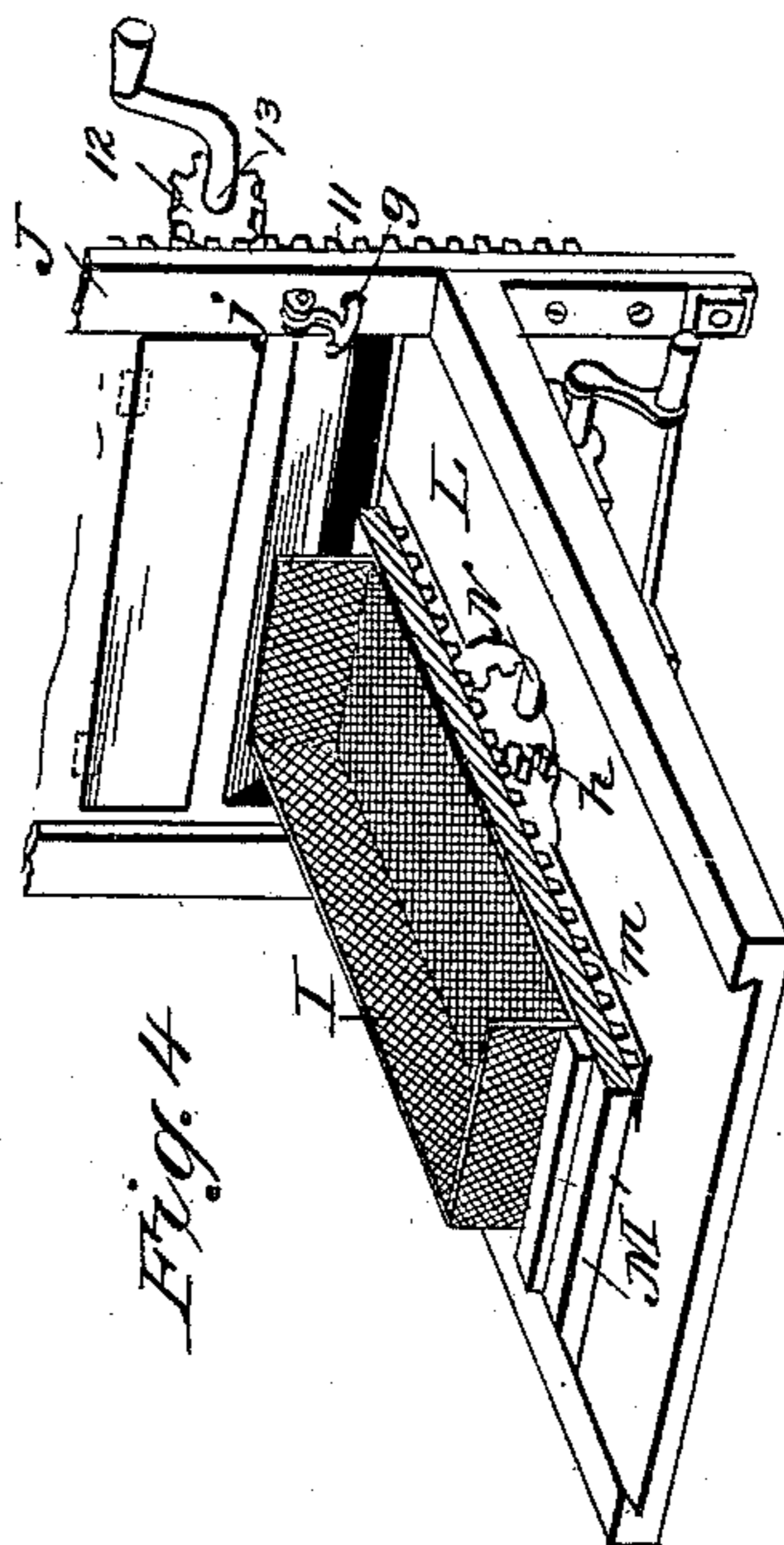
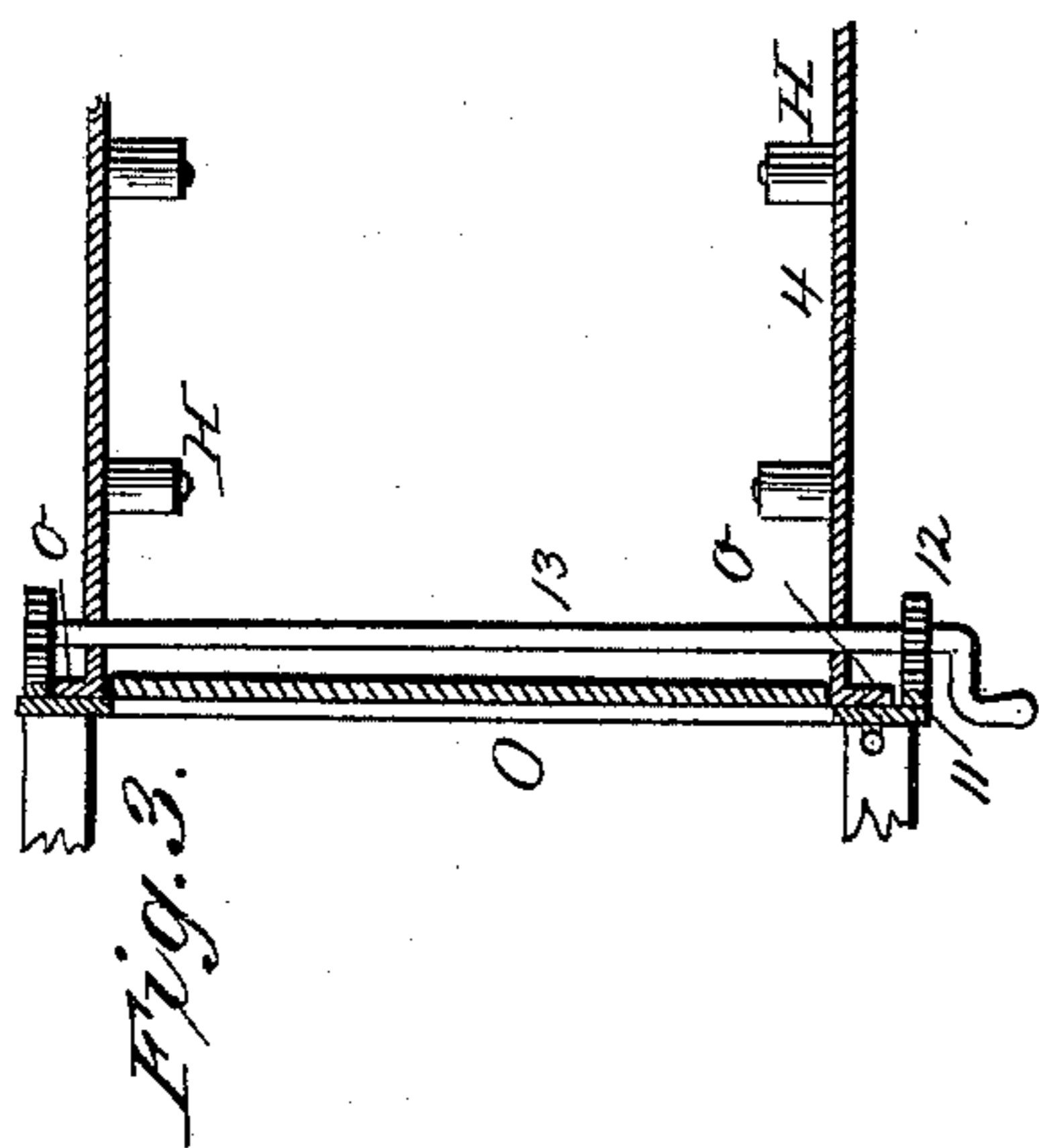
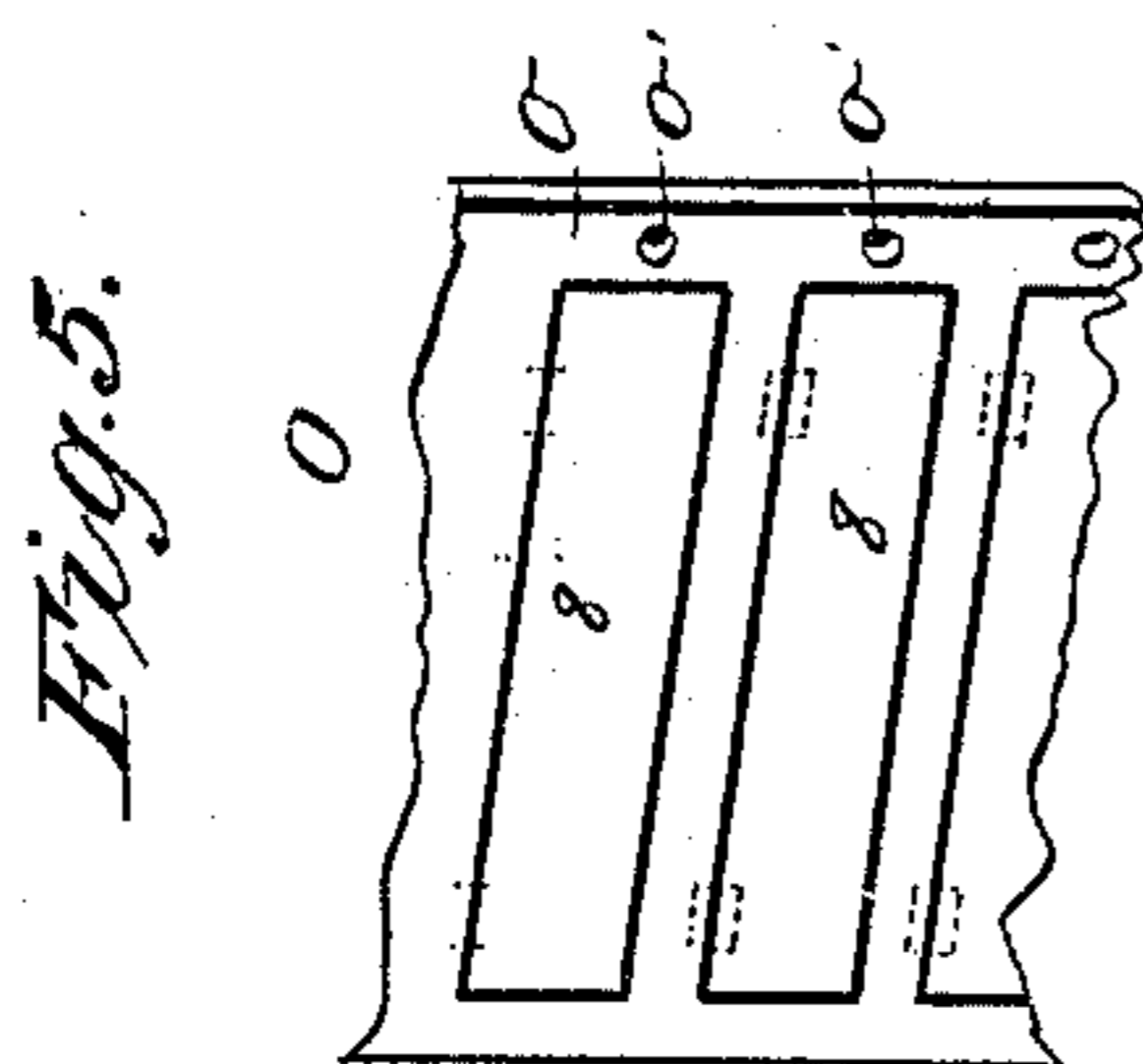
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# UNITED STATES PATENT OFFICE.

WILLIAM S. PLUMMER, OF ROCHESTER, NEW YORK, ASSIGNOR TO WILLIAM L. PLUMMER, OF LEAVENWORTH, KANSAS.

## FRUIT-EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 371,785, dated October 18, 1887.

Application filed November 4, 1886. Serial No. 217,986. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. PLUMMER, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Fruit-Evaporators, of which the following is a specification.

My invention relates to evaporators intended especially for the evaporation of fruits and vegetables; and the invention consists in certain improvements, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a longitudinal section of my evaporator. Fig. 2 is a transverse section of same. Fig. 3 is a detached horizontal section of a part of the casing. Fig. 4 is a detail view illustrating the mechanism for feeding the trays into the evaporating-chamber, and Fig. 5 is a detail view illustrating a part of the front of the casing.

In carrying out my invention I form the foundation A with side walls, B, and ends, as shown, forming a well or heater-space, C, in the opposite sides of which I build or construct heaters D, and through which are formed air-flues, E. This heater-space C is divided transversely by partitions F. These partitions, in the construction shown, are usually formed of sheet-iron, hinged at f, at or near their upper ends, so they may be swung upward at their lower ends to permit an attendant to pass from one to another section of the well. The purpose of these partitions is to prevent the air circulating from one to the others of the sections of the heater-space, so the distinct temperature of each may be preserved.

In the front well section, 1—that is, the section next the front or in-feeding end of the machine—is provided a greater number of heaters than the next or middle section, 2, and such section 2 has a number in excess of the rear section, 3. The object in such a disposition of the heaters is that the fruit to be evaporated shall, on entering the evaporating-chamber, be subjected first to the greatest degree of heat, and as such fruit proceeds toward the rear end or discharge of such chamber the temperature will be gradually decreased. In carrying out this feature of my invention I have in the construction, as shown, employed three, two, and one heater in, respectively, sections 1, 2, and 3 of the well.

Over the well I support the casing G, having sides 4 4, a roof, 5, and a rear end, 6, having gates 7, which are suitably hinged so they may open outward. These gates 7 are arranged in line with rows of rollers H, journaled to the sides of the casing, and forming guides for the trays I. I arrange these rollers in rows or sets, one above another, as shown, so a number of horizontal series of trays may be employed in the same evaporator.

Opening out of the roof of the casing G, I form uptakes G' G<sup>2</sup> G<sup>3</sup>, opening, respectively, centrally over the heater-space sections 1, 2, and 3. The front O of the casing has doors 8, arranged to open into the casing in line with the tray-guides, and has a flange, o, provided with openings o', one for each of the tray-guides.

A frame, J, is movable vertically along the front of the casing, and has a rack, 11, arranged to be engaged by pinion 12 on a shaft, 13, by turning which shaft the frame J may be adjusted up or down along the face of the frame.

An opening, 9, is formed through the frame J, and such opening in the adjustment of the frame moves into and out of register with openings o' in the front of the casing. To the frame is pivoted a pawl, j, having a point which rests normally in openings 9, and protrudes into one of openings o', when openings 9 o' come in register. This pawl forms a detent, which, entering openings 9 and o', serves to stop the frame at intervals when the platform L (presently described) comes opposite the front gates and tray-guides of the casing.

The frame J is, as shown, preferably movable vertically, and when so arranged I find it desirable to employ a counterbalancing-weight connected with such frame to facilitate its vertical adjustment.

In operation, after one or more trays has been forced onto one row of guides and it is desired to fill another row, the detent is released and the frame J moved up or down, and when another row of guides is reached the detent drops into another opening, o', and the platform L is thus stopped in position for the trays to be forced through gates or doors 8 into the casing.

To the frame J, I fix a horizontal platform,

L, adapted to support a sliding carrier, M, on which is rested the tray it is desired to insert into the evaporating-chamber. This carrier M is provided with a rack, *m*, which is meshed  
 5 by a pinion, *n*, on a shaft, N, journaled to the platform L. By turning this shaft N the carrier may be adjusted back and forth, and be operated to force a tray thereon into the evaporating-chamber.

10 The operation will be readily understood. Say one tray is inserted on each of the guide-ways of the evaporating-chamber, then a second one is so introduced, the second tray forcing the first one farther into the evaporating-  
 15 chamber, and such operation proceeds until the chamber is full, the trays which are forced into the evaporator operating to press those in advance forward until they reach the discharge end of the evaporator, when the insertion of  
 20 any additional trays on one or more guides will press the rear tray or trays of such guides out of the discharge end of the evaporator. It will be seen that the green fruit inserted into the evaporator passes first over the heater-  
 25 space section of the highest temperature, and when it has become somewhat dry it will pass over the second section of a somewhat lower temperature and then over the third section, the latter being of the lowest temperature, the  
 30 heat diminishing as the fruit proceeds toward the discharge end of the evaporator. The trays are, by preference, made of galvanized wire-cloth, so that the heat may pass up through them to the top of the evaporating-chamber,

where it will be suddenly drawn up through 35 the uptakes  $G^1$   $G^2$  or  $G^3$ , forming practically a vacuum above the fruit, up into which the heated air from below will pass with a rush, thus effecting a withdrawal and evaporation of the moisture from the fruit. 40

Manifestly the air may be heated by steam or otherwise, if desired. Now, it will be seen that by forcing the different rows of trays along in proper order I obviate the placing of  
 45 green fruit under the partially-evaporated fruit, thus providing for finishing the evaporation of the fruit without its being dampened by moisture from the green fruit.

It will be noticed that if one set of trays be evaporating faster than another, it may be  
 50 forced forward out of the evaporating-chamber without disturbing the other rows.

Having thus described my invention, what I claim as new is—

The combination of the evaporator case or 55 chamber having its front provided with inlet-openings 8 and with perforations *o'*, the frame movable along said front and having an opening, 9, movable into register with perforations *o'*, and the pawl *j*, supported on the frame and  
 60 having its point rested normally in opening 9 and movable into perforations *o'* when registered with opening 9, substantially as set forth.

WILLIAM S. PLUMMER.

Witnesses:

Z. L. DAVIS,

HOWARD H. WIDENER.