

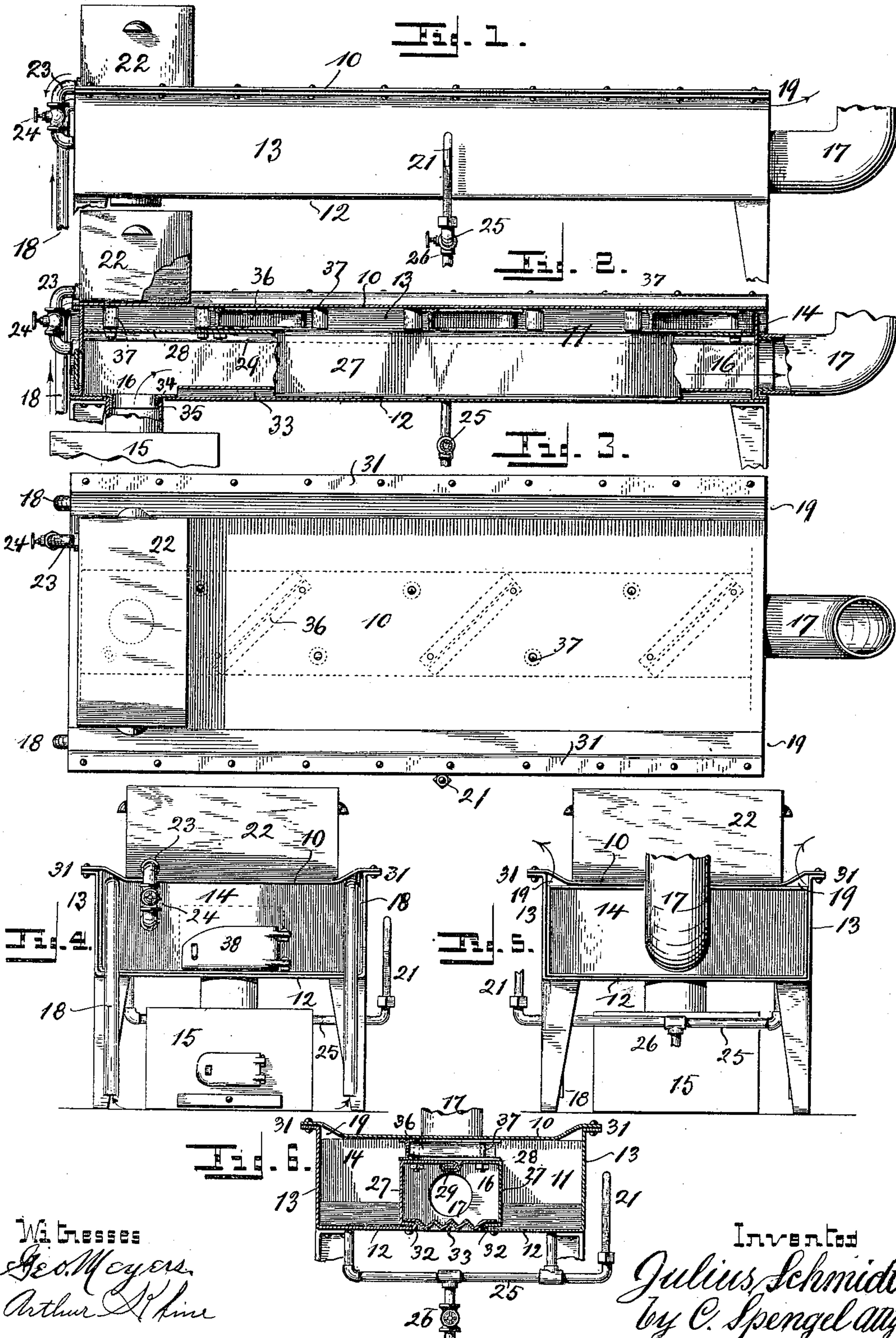
No. 663,474.

Patented Dec. 11, 1900.

J. SCHMIDT.
FRUIT EVAPORATOR.

(Application filed Sept. 29, 1900.)

(No Model.)



Witnesses
Geo. Meyers
Arthur A. Hine

Invented
Julius Schmidt
by C. Spengel atty.

UNITED STATES PATENT OFFICE.

JULIUS SCHMIDT, OF LUDLOW, KENTUCKY.

FRUIT-EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 663,474, dated December 11, 1900.

Application filed September 29, 1900. Serial No. 31,480. (No model.)

To all whom it may concern:

Be it known that I, JULIUS SCHMIDT, a citizen of the United States, residing at Ludlow, Kenton county, State of Kentucky, have invented certain new and useful Improvements in Fruit-Evaporators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form also a part of this specification.

This invention relates to drying and evaporating devices, particularly where such are used for the purpose of evaporating fruit.

The object is to produce and construct such an apparatus in a manner to impart to it a high efficiency as to heat obtainable with little expense as to fuel and causing it to operate without possibility of scorching or burning the matter under treatment.

The invention consists of a device constructed with a view to attain these objects and as described in this specification and pointed out in the claims following it, the same containing also an explanation of the various parts, their operation, and manner of use, the whole being illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the device. Fig. 2 is a longitudinal section thereof, with parts appearing in elevation in said section broken away. Fig. 3 is a top view. Fig. 4 is an elevation of the front end. Fig. 5 is a similar view of the rear end, and Fig. 6 is a vertical cross-section of the device.

The matter to be dried is placed upon the top 10 of the device, which top is depressed between its sides and to which heat is applied from the under side. This heat is furnished by steam and air heated thereby, all contained in a compartment 11, inclosed by said top 10, by a bottom 12, side walls 13, and end walls 14, the whole of sheet metal. The steam is obtained from water contained in the lower part of said compartment 11 and partly filling the same. For so heating this air and evaporating the water to generate the steam a stove or furnace 15 is provided, from which the heat and products of combustion pass through a hot-air conduit 16, horizontally

disposed lengthwise through the middle of compartment 11, and finally out through a smoke-pipe 17.

It will be observed that there is a space between the under side of top 10 and this hot-air conduit, so that scorching and burning of the matter resting on said top are prevented. Movement of the air and steam within compartment 11, which is desirable and gives better results, is obtained by admitting cold air at one end and permitting escape of heat at the end opposite thereto. For such purpose there are pipes 18, provided at one end, taking the cold air from near the floor and admitting it to the interior of compartment 11. The heat escapes through openings 19 at the other end, which outlets also guard against excessive pressure within and, further, permit a supply of water therethrough to the inside. The level of this water should be maintained nearly constant and as indicated by a gage 21. To facilitate such maintenance, I provide for a limited supply from a tank 22, which in order to cause such supply to become preheated is placed upon top 10, immediately above furnace 15, where the heat is greatest. The supply from this tank is by means of a pipe 23, controlled by a cock 24. It will be observed that the longitudinal heating-flue 16 divides the lower part of compartment 11 lengthwise, which fact requires a pipe 25 to establish communication of the two parts for the purpose of permitting equalizing of the water-supply. To this pipe I also attach an outlet-cock 26, and one end of it is extended and receives gage 21.

In order to reduce the presence of joints and seams at that part of compartment 11 which comes in contact with water and heat, I construct this particular part of the device in two sections, each containing one of the sides 13 and a part of bottom 12 of compartment 11 and also one of the sides 27 and half of the top 28 of heating-flue 16. These latter two parts are formed by bending part of bottom 12 of each section upwardly and then again part of each upturned part horizontally. The two sections come together in the middle of top 28 of flue 16, where they are joined by a longitudinal seam 29. Otherwise they also connect to top 10 along the upper longitudinal edges of the body by seams 31, which

may be soldered or riveted. Between horizontal part 12 and upright part 27 the metal in each section is bent to form a flange 32, which flanges serve as a support for the bottom 33 of the heating-flue 16. This bottom is preferably corrugated, the corrugations running lengthwise, and is removable to permit cleaning and removal of soot from the flue. While in position, it may be held down on flanges 32 by screws. This bottom does not extend throughout the entire length of the flue, but stops short of the front end thereof, where a plate 34, also removably supported on flanges 32, takes its place. This plate is perforated and provided with a nipple 35 for the purpose of making connection with the furnace.

To prevent sagging down of top 10, I provide supports 36 between its under side and the top of flue 16, which may be short pieces of I-beams of a height to fill out the open space between flue 16 and top 10 and placed as shown in dotted lines in Fig. 3. To prevent said top from bulging upwardly, I provide stay-bolts 37. Access for inspection or cleaning of flue 16 may also be had through a door 38 in the front end of the apparatus.

Having described my invention, I claim as new—

1. In an apparatus for the purpose described, the combination of a substantially box-shaped horizontally-disposed compartment 11 of extended length and adapted to receive upon its flat top the matter to be treated and within its interior water which covers the bottom thereof, a horizontally-disposed heating-flue between the two with a space between it and the under side of the top but contiguous to the bottom and lengthwise coextensive therewith, means to supply heat to the front end of this heating-flue and an outlet for the products of combustion at the rear end.

2. In an apparatus for the purpose described, the combination of a compartment 11, having a flat top adapted to receive the matter to be treated, a heating-flue passing horizontally through this compartment, means to furnish heat for it, cold-air inlets to compartment 11 at one end of it and outlets 19 for the heat at the end opposite to the end first mentioned.

3. In an apparatus for the purpose described, the combination of a compartment consisting of a top 10 and two sections connected thereto and forming each a side and part of the bottom of said compartment, each

section bent upwardly from said bottom and again inwardly so as to form also each one of the sides 27 and part of top 28, of an interior heating-flue 16, a bottom to close the under side of this heating-flue and means to supply heat thereto.

4. In an apparatus for the purpose described, the combination of a compartment 11 having a top 10, an interior heating-flue 16 below this latter and disposed lengthwise through compartment 11, a removable bottom 33 for this flue and flanges 32 projecting laterally from the bottom of compartment 11 upon which said bottom 33 rests.

5. In an apparatus for the purpose described and consisting of a compartment adapted to receive upon its flat top the matter to be treated, an interior heating-flue formed by inwardly-projecting parts of the bottom of said compartment, a bottom 33 to close the larger part of this heating-flue from below, a plate having a nipple 35 to close the balance of the heating-flue from below flanges 32 upon which both rest, and a furnace connected to nipple 35.

6. In an apparatus for the purpose described and consisting of a substantially box-shaped horizontally-disposed compartment of extended length adapted to receive upon its flat top the matter to be treated and water within its interior, a horizontal heating-flue disposed lengthwise through the center of this compartment above the bottom thereof and contiguous thereto but with a space between it and the top, means to supply heat to this flue and an equalizing-pipe connecting the parts of this compartment at each side of the central heating-flue.

7. In an apparatus for the purpose described and consisting of a compartment adapted to receive upon its flat top the matter to be treated and water within its interior, a horizontal heating-flue disposed lengthwise through the center of this compartment above the bottom thereof, and with a space between its top and the under side of the top of the compartment and means between these two to support and hold said top and maintain the distance between it and the top of the heating-flue.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

JULIUS SCHMIDT.

Witnesses:

ARTHUR KLINE,
C. SPENGEL.