No. 649,318. Patented May 8, 1900.

J. L. LARSON.

FRUIT DRYING APPARATUS.

(Application filed Apr. 1, 1899.)

(No Model.) 2 Sheets—Sheet 1.

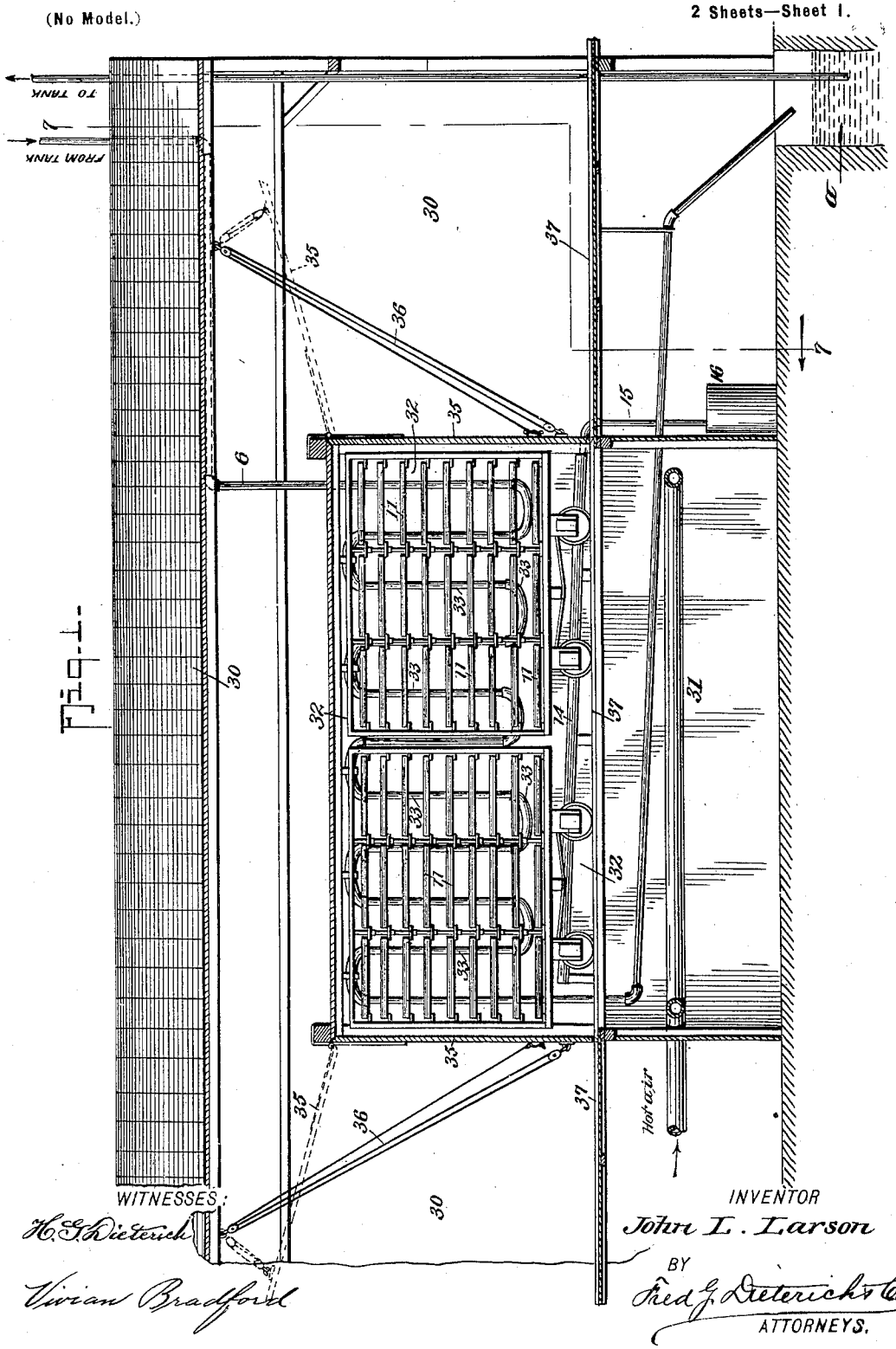

Fig. 1.

WITNESSES:

H. E. Dieterich

Vivian Bradford

INVENTOR

John L. Larson

BY

Fred J. Dieterich & Co.

ATTORNEYS.

No. 649,318. Patented May 8, 1900.

J. L. LARSON.

FRUIT DRYING APPARATUS.

(Application filed Apr. 1, 1899.)

(No Model.) 2 Sheets—Sheet 2.

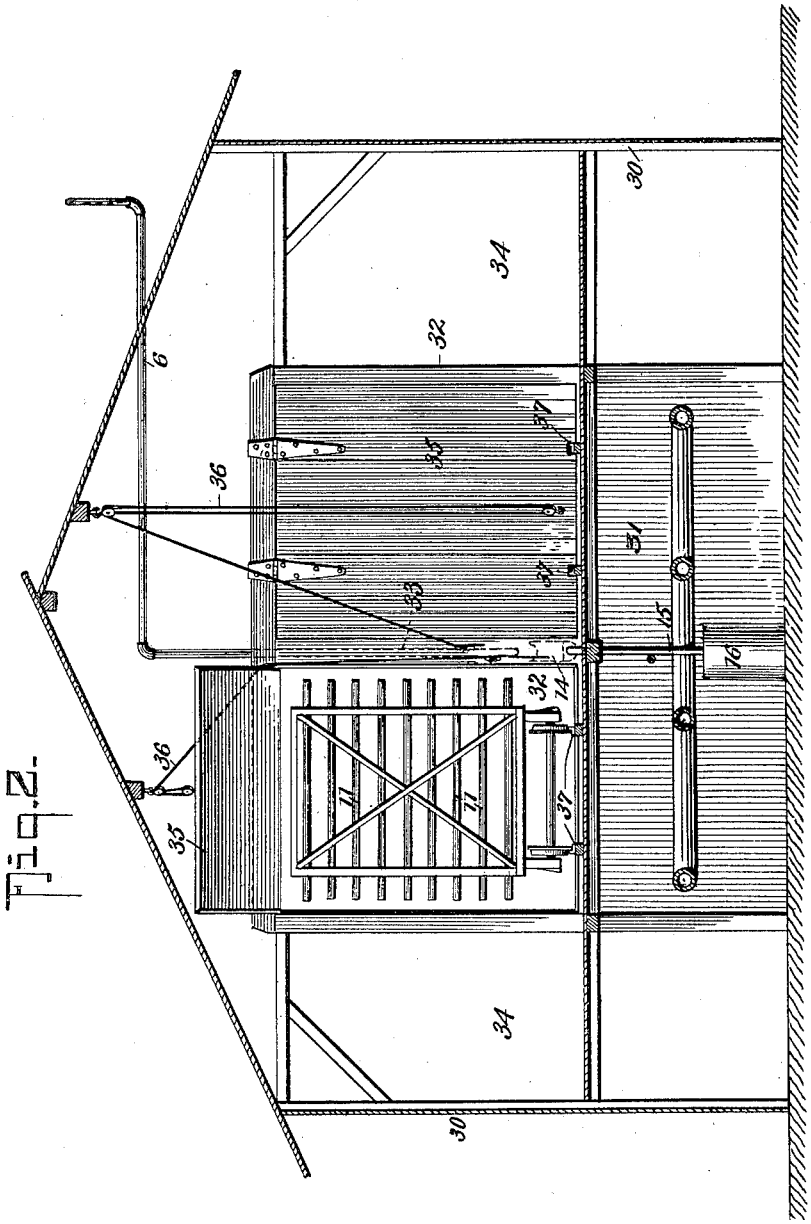

Fig. 2.

WITNESSES:

H. G. Dieterich

Vivian Bradford

INVENTOR

John L. Larson

BY

Fred J. Dieterich & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN LEMUEL LARSON, OF SHAW, OREGON.

FRUIT-DRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 649,318, dated May 8, 1900.

Application filed April 1, 1899. Serial No. 711,455. (No model.)

To all whom it may concern:

Be it known that I, JOHN LEMUEL LARSON, residing at Shaw, in the county of Marion and State of Oregon, have invented a new and Improved Fruit-Drying Apparatus, of which the following is a specification.

This invention relates to an improved means for drying fruits, vegetables, hops, &c., and it relates to that class of driers in which the article to be dried is held within a drying-room under dead heat and dried by condensing the vapor drawn off therefrom and carrying the products of condensation to a point outside of the drying-chamber.

The invention consists in certain details of construction and combination of parts, all of which will hereinafter be fully described, and particularly pointed out in the appended claim.

Referring to the accompanying drawings, Figure 1 is a longitudinal section of a drying apparatus constructed in accordance with my invention. Fig. 2 is a transverse section of my improved drying apparatus, taken practically on the line 2 2 of Fig. 1.

In the practical construction of my invention I provide a drying-house which is built with an externally-arranged housing 30 and an interior or supplemental housing comprising an air-tight lower heating-compartment 31, which may be heated by hot-air pipes circulating therein or in any other well-known manner, and an upper air-tight drying-chamber 32, which is centrally and longitudinally divided by a single coil of condensing-pipes 33, which coil is fed by a main supply-pipe and discharges into a well *a*, as clearly shown in Fig. 1.

It will be noticed by reference to Fig. 2 the supplemental or main housing portion of the apparatus is so arranged that provision is made for alleys 34 between the ends and sides of the inner housing and the walls of the outer housing, and to produce an economical as well as effective structure when made of wood the heating compartment or cell is put up of strips of suitable thickness and width and double surfaces, one piece being nailed directly on the top of another.

By running the condenser-coils centrally of the drying-chamber divides such chamber into two longitudinal sections, the ends of which have heavy drop-hinged doors 35, capable of being hoisted by suitable elevating-ropes 36, as shown, and when down are adapted to close the openings air-tight. A trackway 31 is disposed in each drying-room section and the said trackways extend beyond each end of the drying-room and in practice in a plane with a trackway on which the cars holding the fruit-trays are run to and from the drier.

14 indicates a collecting-trough disposed under the condensing-coils, which trough collects the products of condensation and discharges through a pipe 15 into a collector 16, disposed outside of the internal chamber.

In operation the water or other cooling agent is caused to constantly flow through the condensing pipe-coils 33, which contracts the vapor thrown off by the fruit, causing the same to condense on the pipe-surfaces, from whence it drops into the collecting-trough 14 and is conveyed outside of the drier-house, it being understood that when the condensed liquid ceases to flow the fruits will have been sufficiently dried and be ready to be taken out.

By my improved construction of drying apparatus the full effect of the dead heat is obtained with a minimum consumption of fuel. Furthermore, in my form of apparatus the fruit after being placed in the drying-chamber need not be changed from corners to center, as is necessary in the common form of driers. Again, the quality of the fruit is increased, as the same is dried even, and by reason thereof dripping is reduced to a minimum, and in consequence the sugar sap of the fruit, which mostly goes to waste in dripping, is retained and the merchantable value of the product thereby much enhanced.

By arranging the drying-chamber and the heating-cellar compartment as shown the same can be economically constructed to withstand an ordinary internal pressure produced by fruit evaporation or expansion. As this pressure in my apparatus is uniform at all points of the heating-chamber, it prevents the fruit from bursting and then dripping, as is the case in the ordinary forms of driers now in use. Furthermore, this internal pressure also acts as a powerful energy for forcing the sap from the fruit without bursting it, and thereby providing for a quick evaporation

thereof, thereby effecting the drying of the fruit in a much less time than can be effected by the ordinary process of drying fruit and absorbing the vapor by hot air, for the reason in my apparatus the vapor is drawn off from the drying-chamber instead of being dried out within the said chamber, as is ordinarily done.

It is obvious that by providing a supplemental internal housing or drying-chamber divided centrally to form a plurality of car-mounted tray-holders a means for quickly setting in place a large amount of fruit in the drying-chamber and removing the same therefrom is provided.

The apparatus involves a very simple construction and arrangement of parts, and while I have shown an internal housing formed with a single coil and two car-receiving compartments it is obvious the structure may be made on a larger scale of, say, three or more compartments, into which the cars may run, it being understood that each pair of compartments can be divided by a condensing-coil.

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

An improved fruit-drying apparatus, comprising an external housing having closed sides and open ends; an internal housing having an air-tight heating-compartment at the bottom, a drying-compartment at the top and a slotted floor dividing the two compartments, the internal housing being of less width and length than the external housing, the external housing having trackways forming continuations of the slotted floor of the internal housing; the internal housing having two drop-doors at each end, each door having independently-operating opening means; a condenser-coil disposed centrally of the internal housing and running lengthwise thereof, whereby to divide the housing into two separate sections each having a door at each end, and an independent trackway in a plane with the external track-platform of the outer housing; the tray 14 for collecting the dripping from the condenser-coil; means for supplying a cooling agent to the condensing-coil, said condensing-coil having its discharge disposed outside of the internal housing, substantially as shown and for the purposes described.

JOHN LEMUEL LARSON.

Witnesses:
W. F. DARBY,
C. R. PATTON.