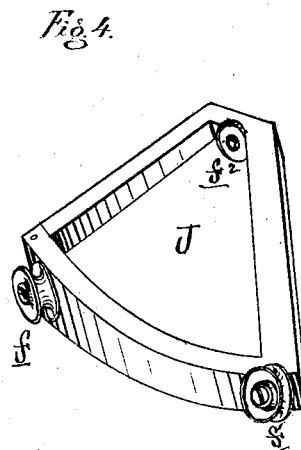
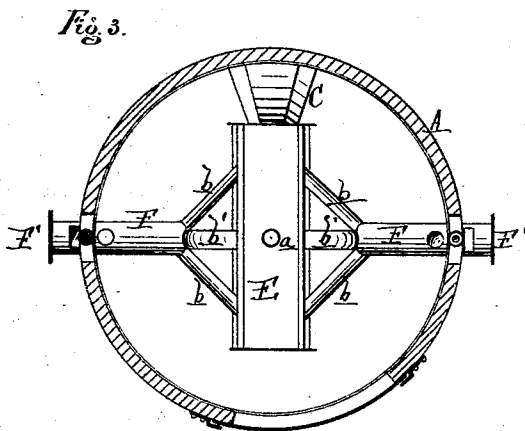
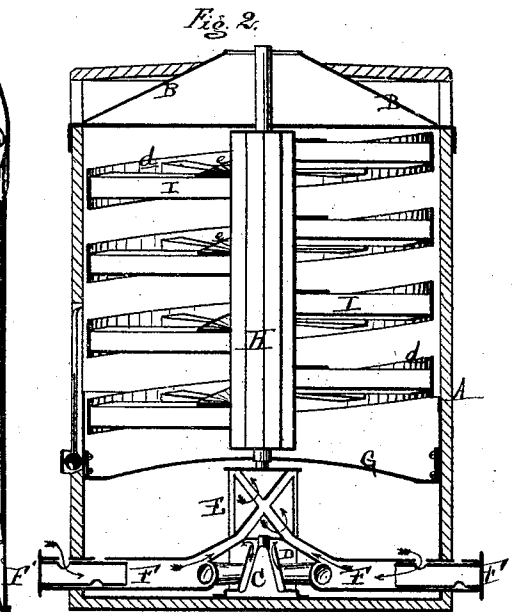
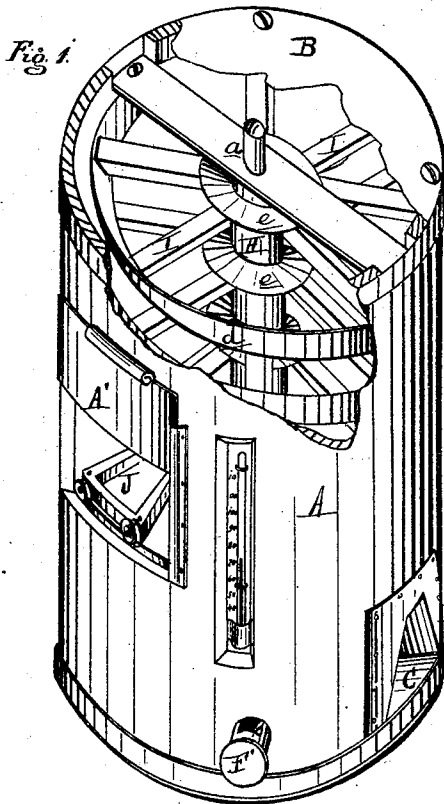


E. BRADFIELD.
Fruit-Driers.

No. 151,829.

Patented June 9, 1874.



Attest:
A. C. Barthel.
Chas. J. Hunt

Inventor:
E. Bradfield
per Attorney
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UNITED STATES PATENT OFFICE.

EDWARD BRADFELD, OF ADA, MICHIGAN.

IMPROVEMENT IN FRUIT-DRIERS.

Specification forming part of Letters Patent No. **151,829**, dated June 9, 1874; application filed March 24, 1874.

To all whom it may concern:

Be it known that I, EDWARD BRADFELD, of Ada, in the county of Kent and State of Michigan, have invented an Improvement in Fruit-Driers, of which the following is a specification:

The nature of this invention relates to an improvement in that class of fruit-driers wherein the fruit is dehydrated by the upward passage of heated currents of dry air through the trays containing the fruit, as they move up or down the air-chamber.

The invention consists in a circular chamber having an air-heating furnace of peculiar construction in its bottom, above which is a spiral railway, upon which travel small carriages, each carrying two or more fruit-trays, which carriages may be placed on the track at the top with their loads, and allowed to slowly descend the track, being taken out at the bottom through an opening in the casing.

Figure 1 is a perspective view of the drier with portions of the casing broken out. Fig. 2 is a vertical section, being a cross-section of the stove and radiator, and a longitudinal section of the cold-air pipes. Fig. 3 is a horizontal section at *x x* in Fig. 2. Fig. 4 is a plan of one of the carriages.

In the drawing, A represents a circular evaporating-chamber, which, for domestic use, may be from two to three feet in diameter, and from five to ten feet high. For commercial purposes it may be four to eight feet in diameter, and from fifteen to thirty feet high. The chamber may be made of well-seasoned staves of wood properly banded, double walled, if desired, and lined on the inside with sheet metal, or coated with any non-radiating material. B is a conical top, with a central aperture for the emission of the heated and vapor-laden currents; also with an opening for placing the carriages on the spiral track. C is a stove, having a fire-box inclosed in a casing, D, of similar form, and surmounted by a radiator, E, subdivided by diaphragms into four compartments, for the purpose of affording a large heat-radiating surface, so that a large volume of air may be warmed at a small cost. *a* is the smoke-pipe

of the stove, rising from the radiator through the axis of the chamber A. F F are cold-air trunks, extending through two opposite sides of the chamber at the bottom, and connected by branch pipes *b b'* with the stove-casing D and radiator E, delivering inside of them a supply of fresh air. The outer end of each is fitted with a cup-valve, F', so arranged, with relation to openings in the trunk, both inside and outside the chamber, as that the air supply may be drawn from the inside of said chamber, or from the external atmosphere, to regulate the temperature within the chamber, which is provided with one or more thermometers for the purpose of indicating the temperature within. G is an arched metal bridge-piece, extending across the axis of the chamber just above the radiator, and supports the lower end of the hollow shaft H, built up of staves inclosing the smoke-pipe, which is sleeved upon the pipe-collar of the radiator, and revolves with the spiral track, if the latter be caused to rotate. Holes are bored in the center of the staves in spiral rows. In each hole a spoke, I, is driven. *d* is a strip of common band-iron, fastened to the ends of the spokes, and projecting one-half or three-fourths of an inch above the edges of said spokes. *e* is a flat strip, of the same material, secured to the upper surface of the spokes close to the shaft, making the inner rail of the track, on which run carriages J, whose frames are sectors of a circle, and are provided with two double-flanged wheels, *f f*¹, of equal diameters on the outer edge, to ride on the rail *d*, while a plain wheel, *f*², of lesser diameter is provided on the inner end to ride upon the spiral strip *e*.

The fruit-trays are frames of the same shape as the carriage-frame, and like it are covered with netting to receive and sustain the fruit. Three or four of these frames or trays may be placed on each carriage, which will descend the spiral track while the heated currents will pass up through the fruit to evaporate its moisture. The frames should be kept a couple of inches apart by blocks, pins, or any other simple device. At the lower end of the track an opening is made in the casing of the cham-

ber, through which the carriages and their frames may be successively removed upon completion of the drying process. This opening is closed by a sliding door, A'.

The temperature may be increased within the chamber by closing the openings in the outer ends of the air-trunks, and drawing the air-supply for the stove and radiators from the interior of the chamber, thus reheating the air contained in it as it becomes cooled, and settles to the bottom. The required degree of heat in the chamber can be easily maintained by adjusting the air-supply valves.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a vertical drying-chamber, A, of a spiral railway adapted to have the sector-shaped carriages J travel

thereon, and an air-heating stove in the lower part, the several parts being constructed and arranged substantially as described and shown, for the purpose set forth.

2. The carriages J, constructed as described, in combination with a spiral track in a fruit-drying chamber, as and for the purpose set forth.

3. The stove C, casing D, radiator E, cold-air trunks F F, each provided with a rotating cup-valve, F', carriages J, and spiral track, all constructed and combined with the chamber A, as and for the purpose set forth.

EDWARD BRADFIELD.

Witnesses:

C. K. GIBSON,
J. R. BRADFIELD.