

(No Model.)

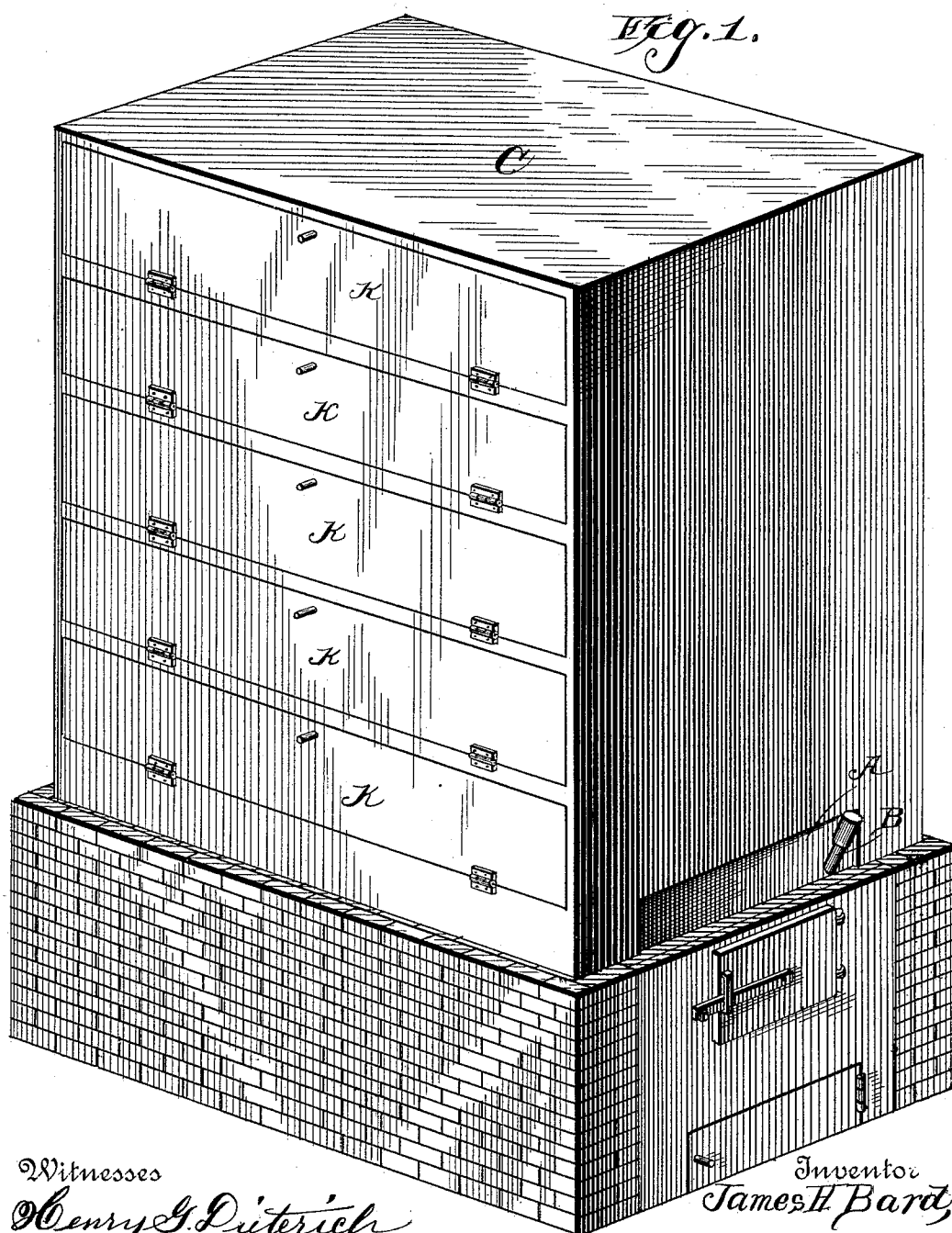
2 Sheets—Sheet 1.

J. H. BARD.

FRUIT DRIER.

No. 413,125.

Patented Oct. 15, 1889.



Witnesses

Henry G. Diterich
John A. ...

Inventor

James H. Bard

By his Attorneys

C. H. ...

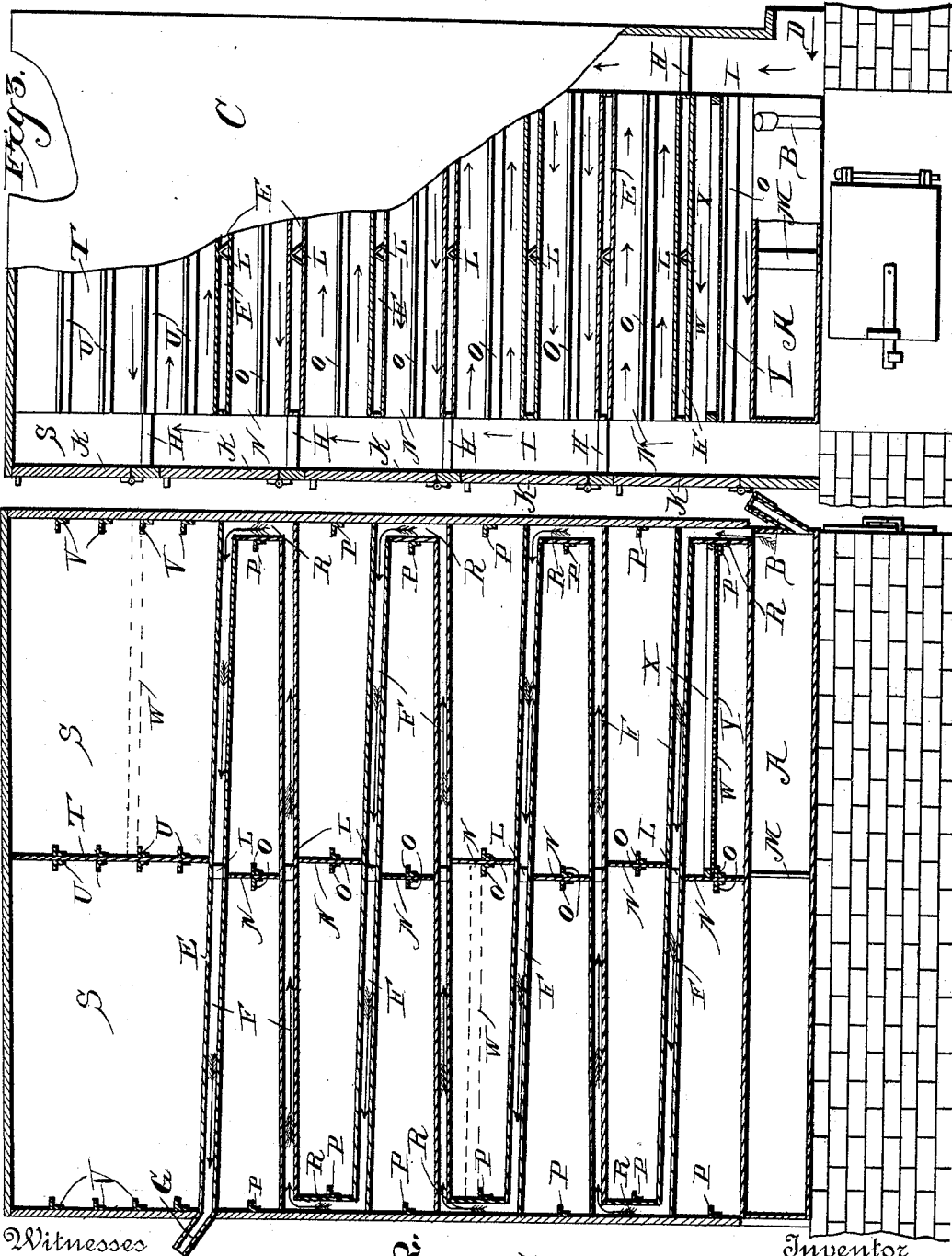
(No Model.)

2 Sheets—Sheet 2.

J. H. BARD.
FRUIT DRIER.

No. 413,125.

Patented Oct. 15, 1889.



Witnesses

Henry S. Dieterich
J. C. Kanner

Fig. 2.

By his Attorneys

Chas. A. ...

Inventor
James H. Bard,

UNITED STATES PATENT OFFICE.

JAMES H. BARD, OF OAKLAND, OREGON.

FRUIT-DRIER.

SPECIFICATION forming part of Letters Patent No. 413,125, dated October 15, 1889.

Application filed November 15, 1888. Serial No. 291,303. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BARD, a citizen of the United States, residing at Oakland, in the county of Douglas and State of Oregon, have invented a new and useful Improvement in Fruit-Driers, of which the following is a specification.

My invention relates to an improvement in fruit-driers; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of a fruit-drier embodying my improvement. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is partly an end elevation and partly a transverse sectional view of the same.

A represents a rectangular flat boiler of suitable size, provided at one end with an inclined feed-pipe B, that communicates with the interior of the boiler, near the lower side thereof. The boiler is arranged in the lower side of a rectangular vertical inclosing-case C, the latter being made of wood or other suitable material and considerably wider than the boiler, so that spaces are left between the sides of the boiler and the sides of the case. An opening D is made in one side of the latter at its lower end.

E represents a broad steam-conducting pipe, the upper and lower sides of which are flat. Said pipe consists of oppositely-inclined sections F and vertical connecting sections R at the ends thereof alternately. The said pipe communicates with one end of the boiler and passes backward and forward in the case C, and has its inclined sections F arranged one above the other and at a suitable distance apart, as shown in Figs. 2 and 3. The said sections F are inclined in such manner as to cause the water resulting from the condensation of the steam to find its way by gravity back to the boiler. The upper end of the said steam-conveyer E extends through one end of the case, at a suitable distance from the upper end thereof, and is provided with steam-escape pipes G. The width of the steam-conveying pipe E is less than the width of the case and is equal to the width of the boiler, and the inclined sections of the said steam-conveyer being arranged one above the

other and in the same vertical plane with the boiler, said steam-conveyer is also out of contact with the front and rear side of the case.

The sections F are alternately connected to opposite sides of the case by means of horizontal partition boards or plates H, and thereby a series of flues or chambers I are formed in the case, between the side thereof and the inclined approximately horizontal section F of the steam-conveyer. The lowermost of the flues I communicates with the opening D. The front side of the case is provided with a series of doors K, which are hinged at their lower sides and are adapted to open in order to permit access to the flues. In the center of each inclined section F of the conveyer is a longitudinal brace or stiffening-plate L, which is of inverted-V shape in cross-section, as shown in Fig. 3. The boiler is also provided in its center with a suitable brace M. By employing these braces the boiler and the steam-conveyer sections may be made of comparatively thin sheet metal, and at the same time have sufficient strength to resist the pressure of the steam and to be rendered very durable.

Arranged in the centers of the flues I, and transversely in the same, are partition-plates N, which are provided on opposite sides with brackets O, that are made of right-angular pieces of sheet metal. Similar brackets P are arranged in the ends of the flues I, and secured to the vertical sections R of the steam-conductor and to the end walls of the case C. The space above the steam-conductor forms a chamber S, which is likewise divided by a vertical transverse partition-plate T, on the sides of which are secured brackets U. Similar brackets V are secured to the ends of the case and arranged in the same horizontal plane with the brackets U.

W represents a series of trays of suitable size, each of which comprises an open rectangular frame X, on the lower side of which is stretched a screen Y of wire-cloth or other suitable material. The said trays, after being filled with fruit, are placed in the flues or chambers of the drier and supported on the brackets N L and U V, and the doors K are then closed. Steam is generated in the boiler by a furnace such as illustrated in Figs. 1

and 2, or by placing the drying apparatus on a cooking-stove, and as the steam passes through the conductors E it heats the air in the case C by radiation and to a uniform degree. As the air becomes heated it rises in the case and passes back and forth through the flues I, between and under and over fruit-trays therein, and passes through the chambers S, and circulates around, under, and over the fruit-trays in the said chambers, and finally escapes through an opening in the top of the case. This upward movement of the heated air in the case tends to create a partial vacuum in the lower end thereof, and thereby causes fresh air to be sucked into the case through the opening D, with the result that a continuous current of hot air passes backward and forward and upward through the case as long as steam is maintained in the boiler. This causes the fruit to be very speedily evaporated, and renders the temperature equal in all the drying chambers or flues of the apparatus, and hence no necessity exists for gradually shifting the trays from the upper to the lower side of the drier, as is now the common practice with the drying apparatus now generally used.

Having thus described my invention, I claim—

The improved fruit-drier herein described and shown, consisting of the casing C, having an opening D in one side at its lower end, the boiler arranged within the casing out of contact with the sides of the same and provided with a feed-pipe B, the steam-conducting pipe E, communicating with and rising from the boiler and equal in width thereto, the said pipe having the inclined sections F and the straight sections R connecting the same, and having its upper end extended through the casing and provided with escape-pipes G, the plates H, connecting the alternate sections F with the opposite sides of the casing, the doors K in the front side of the casing, the braces L, arranged in the centers of the sections F, the brace M in the center of the boiler, the partition-plates N, having the brackets O, the brackets P, and the plate T, having the brackets U, all arranged substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JAMES H. BARD.

Witnesses:

SCOTT HENRY,
Z. L. DIMMICK.