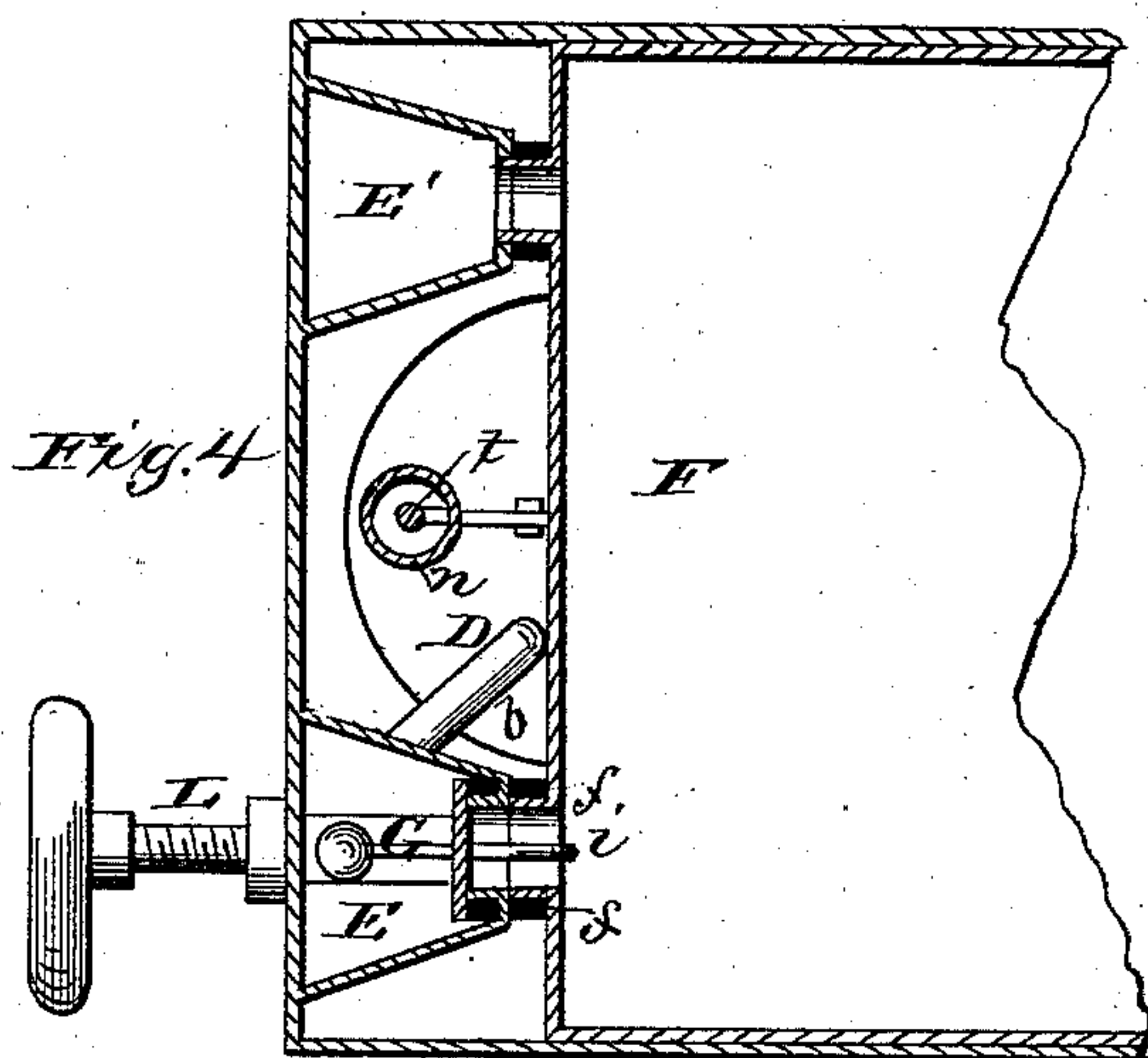
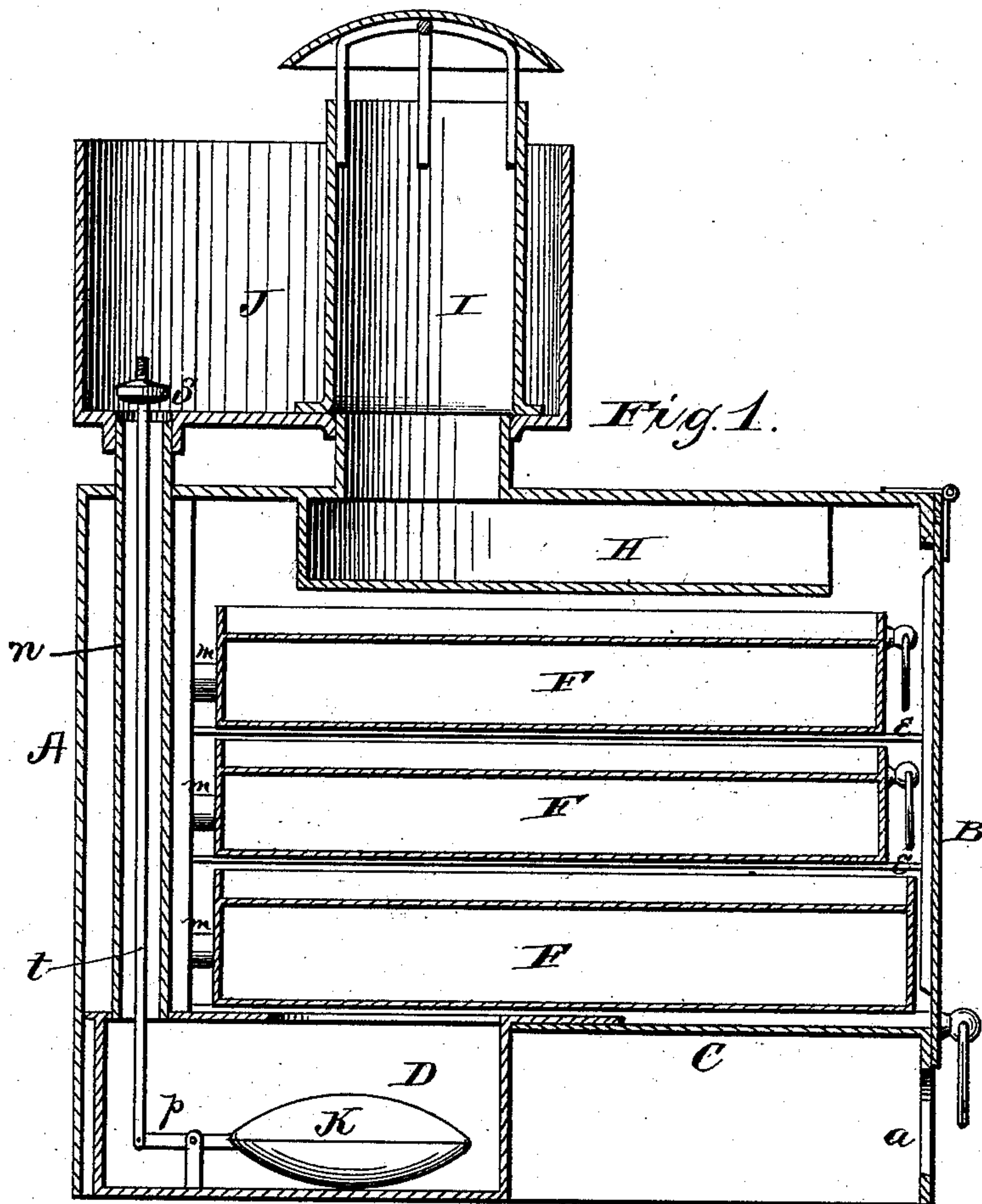


J. B. SWEETLAND.
Fruit-Drier.

No. 214,728.

Patented April 22, 1879.



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C. L. Evert.

INVENTOR
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Fig. 2.

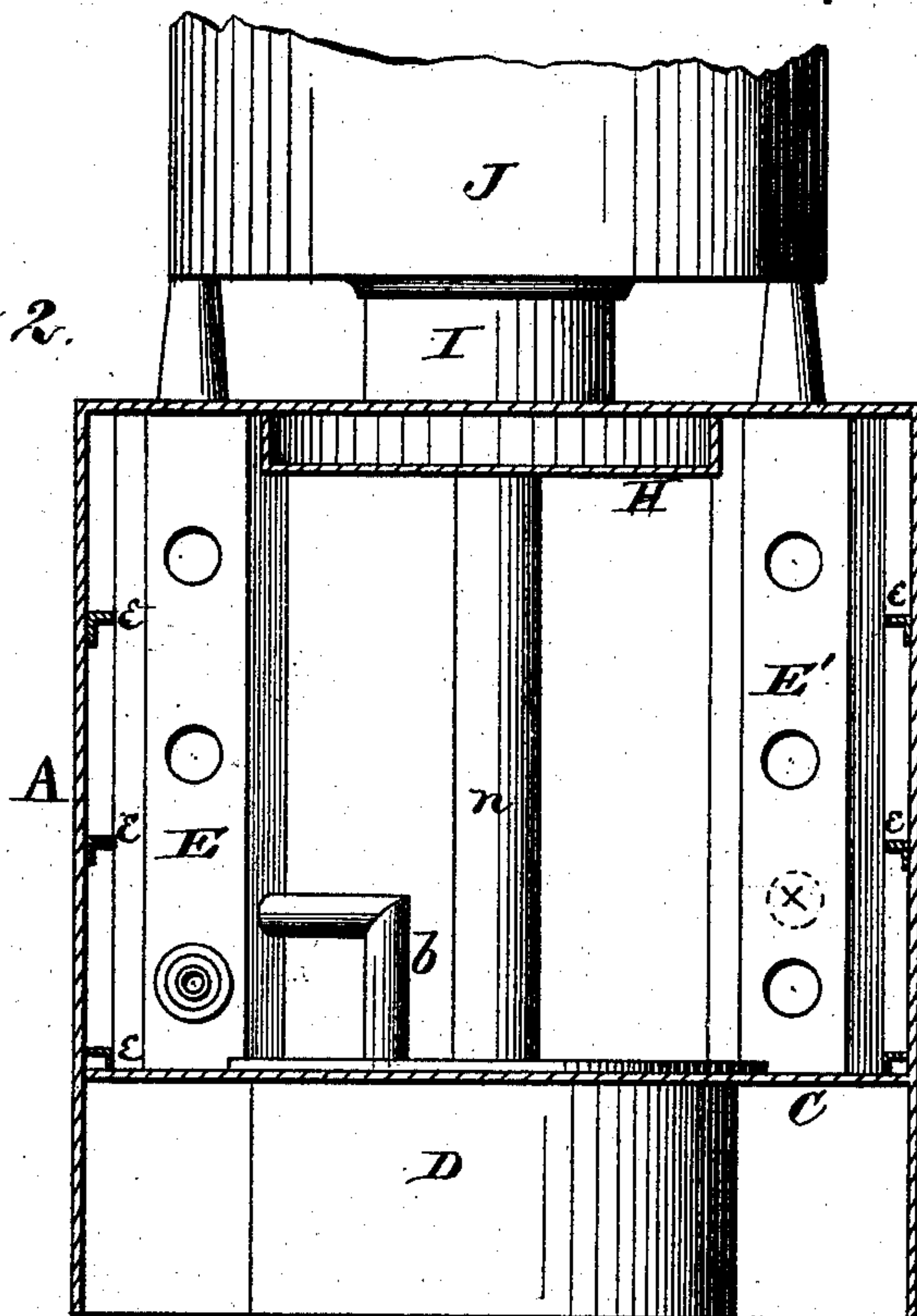
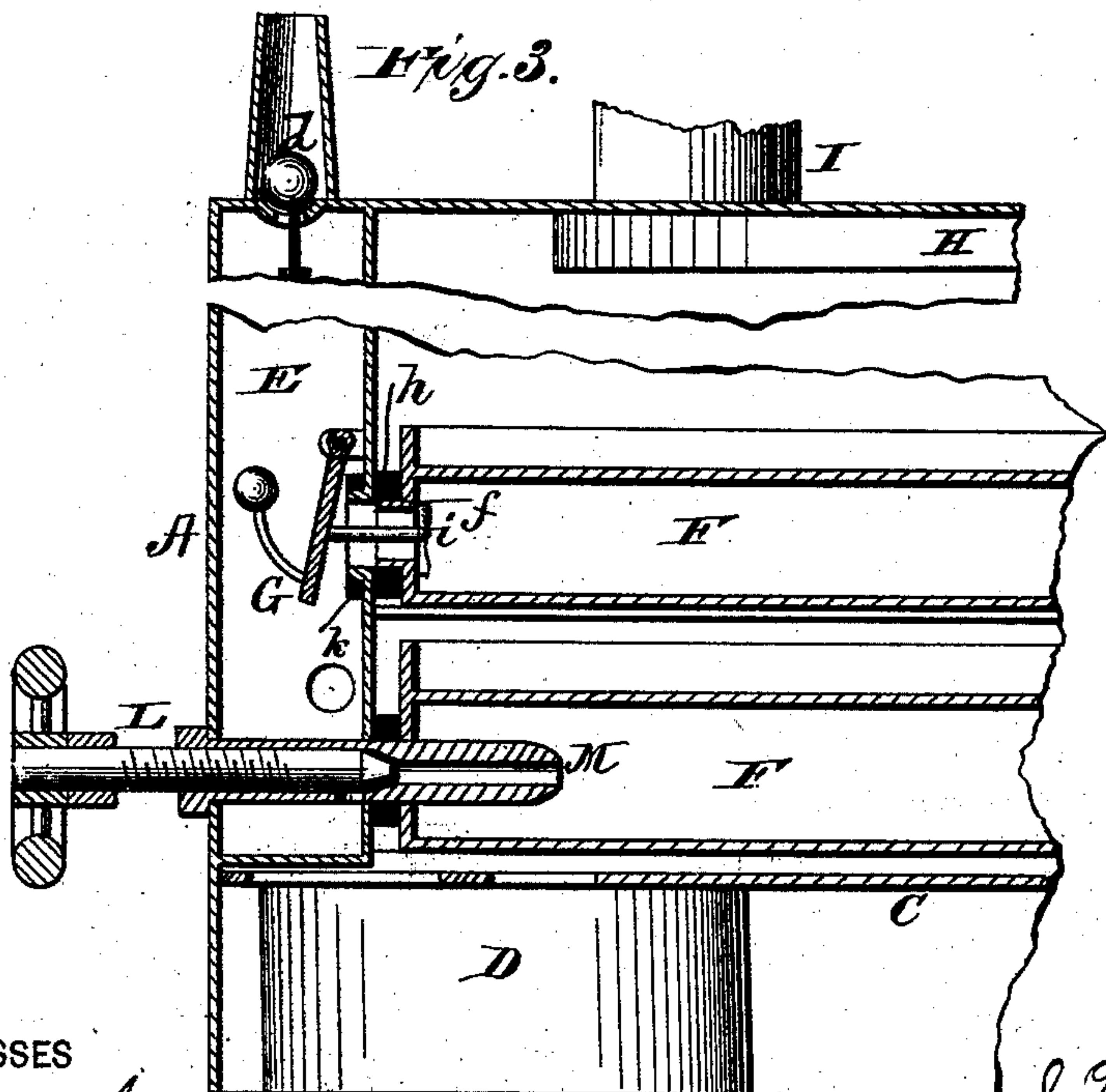


Fig. 3.



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UNITED STATES PATENT OFFICE.

JEROME B. SWEETLAND, OF PONTIAC, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY M. SWEENEY AND FRANK B. HOADLEY, OF DETROIT, MICH.

IMPROVEMENT IN FRUIT-DRIERS.

Specification forming part of Letters Patent No. **214,728**, dated April 22, 1879; application filed March 26, 1879.

To all whom it may concern:

Be it known that I, JEROME B. SWEETLAND, of Pontiac, in the county of Oakland, and in the State of Michigan, have invented certain new and useful Improvements in Fruit-Driers and Evaporators; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a fruit-drier and evaporator, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a longitudinal vertical section of my fruit-drier. Figs. 2 and 3 are enlarged detailed vertical sections thereof. Fig. 4 is a detailed horizontal section of a part of the drier.

A represents the shell or body of the evaporator, constructed in any suitable form and size that will admit of its being placed on a stove, and provided at the front with a door, B, which may be hinged or otherwise, as desired. I prefer to make this door with mica or other transparent material inserted therein, so that the fruit or other article being dried can be seen without opening the door.

The bottom C of the body A is raised a suitable distance above the lower edges, and in said bottom is inserted a pan or boiler, D, which extends down to be in the same plane as the lower edges of the body, and thus be over a stove-hole when the drier is placed on a stove.

The lower part of the body A, below the bottom C, forms an air-chamber for heating air, which is admitted through suitable openings *a*, and passes up at the rear into the drying-chamber.

From the boiler D a pipe, *b*, conducts the steam into a vertical flue, E, at the rear of the drier, and at the top of this flue I have arranged a safety-valve, *d*, consisting of a gravitating ball upon a concave seat; but I do not

confine myself to this construction of the valve, as any valve that will answer the purpose may be used.

F F represent the hollow trays, placed upon ledges *e* in the drier. At the inner or rear end each tray is provided with a short tube, *f*, surrounded by rubber or other suitable packing, *h*, and through this tube projects a pin, *i*, which is fastened to the pan in any convenient manner.

In the steam-flue E are openings to correspond with the tubes *f* of the various pans or trays, and for each opening within the flue is a hinged valve, G, weighted in any suitable manner so as to close automatically, and packing may be arranged, as shown at *k*, to make the valve tight when closed, and prevent the escape of steam when the tray is not in place.

As the tray is pushed in, the pin *i* opens the valve G, and the steam will pass through the short tube *f* into the tray, the packing *h* making the joint tight. Each pan is further provided with an outlet-tube, *m*, through which the steam escapes into the outlet-flue E'.

When the pans or trays are in place there is formed, as it were, a large vertical air-chamber at the rear end of the drier, into which the hot air ascends from below.

By reason of the depending shield and passage H, the space between the top of the drier and the upper tray is considerably smaller than the air-chamber at the rear, and hence the hot air cannot escape fast enough at the top, but must find its way between the various trays, and a steady current of hot air will pass over each tray to the front end of the drier, where it all ascends, and is caught by the shield H and carried to the chimney I. This chimney is passed through a water-reservoir, J, on top of the body A, and a pipe, *n*, leads from said reservoir down to the boiler D, for supplying the same with water.

In the boiler D is a float, K, secured to a pivoted arm or lever, *p*, and this is connected to a rod, *t*, passing up through the supply-pipe *n*, and a valve, *s*, is attached to or formed on the upper end of said rod.

By means of this float, rod, and valve, the water may be kept in the boiler at a certain height, and replenished just as fast as used.

In Fig. 3 I have shown a tube, M, with stop-cock L through the steam-flue E, to form the connection with the pan, which device may be used, if desired.

In the outlet-flue E', I make an opening, as indicated at *x* in Fig. 2, for the admission of air into said flue, to create a draft for carrying off the steam.

In the practical operation of my drier it is not necessary that the door B be closed, as it will work as well with the door open or without any door, and the arrangement of the air-chambers gives only a short distance for the hot air to travel, instead of, as is usual, running back and forth in the drier.

It will readily be seen that great advantage is gained by this method, because the air will not lose its heat, as it naturally will do while traveling back and forth over a number of pans, and also because the draft is so much greater when the course of the air is straight, as in my present case.

I am aware that driers have been constructed to form hot-air chambers at the bottom; that hollow pans or trays have been used with steam inlets and outlets; that hot air has been made to pass over trays containing the articles to be dried, and that in domestic boilers valves have been provided in the steam-chamber, to be opened by the vessel inserted in the

boiler; hence I do not claim such, broadly, as my invention.

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

1. In a fruit-drier, the combination of the body A, forming at the bottom a chamber for heating the air, the boiler D within said chamber, connecting with a steam-flue at the rear end of the drier, a series of hollow pans or trays, F, and a steam-outlet flue, E', the pans each having separate and independent connections with the flues, and the parts being arranged as described, to cause the hot air to pass directly over each pan from one end of the drier to the other, substantially as herein set forth.

2. The combination of the steam-flue E with valve G, and the hollow closed pan F with tube *f*, packing *h*, and pin *i*, for admitting the steam directly into the pan and closing the joint, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of March, 1879.

JEROME B. SWEETLAND.

Witnesses:

H. AUBREY TOULMIN,
J. J. MCCARTHY.