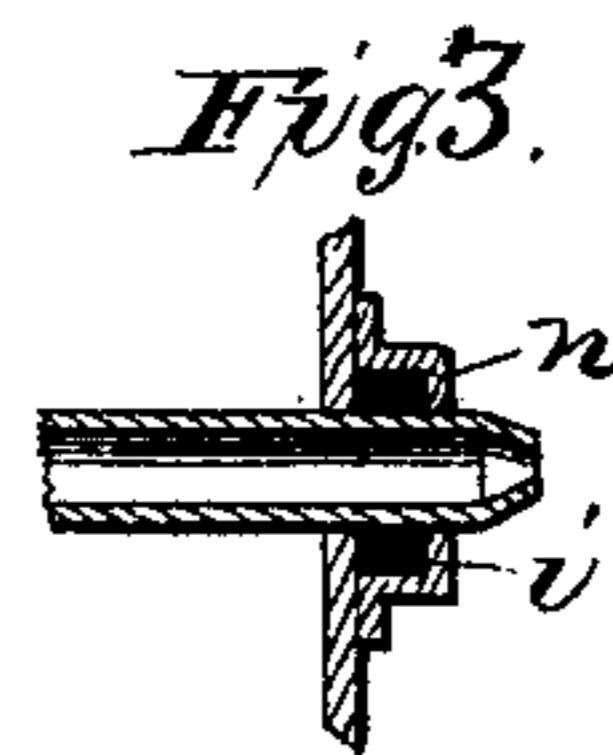
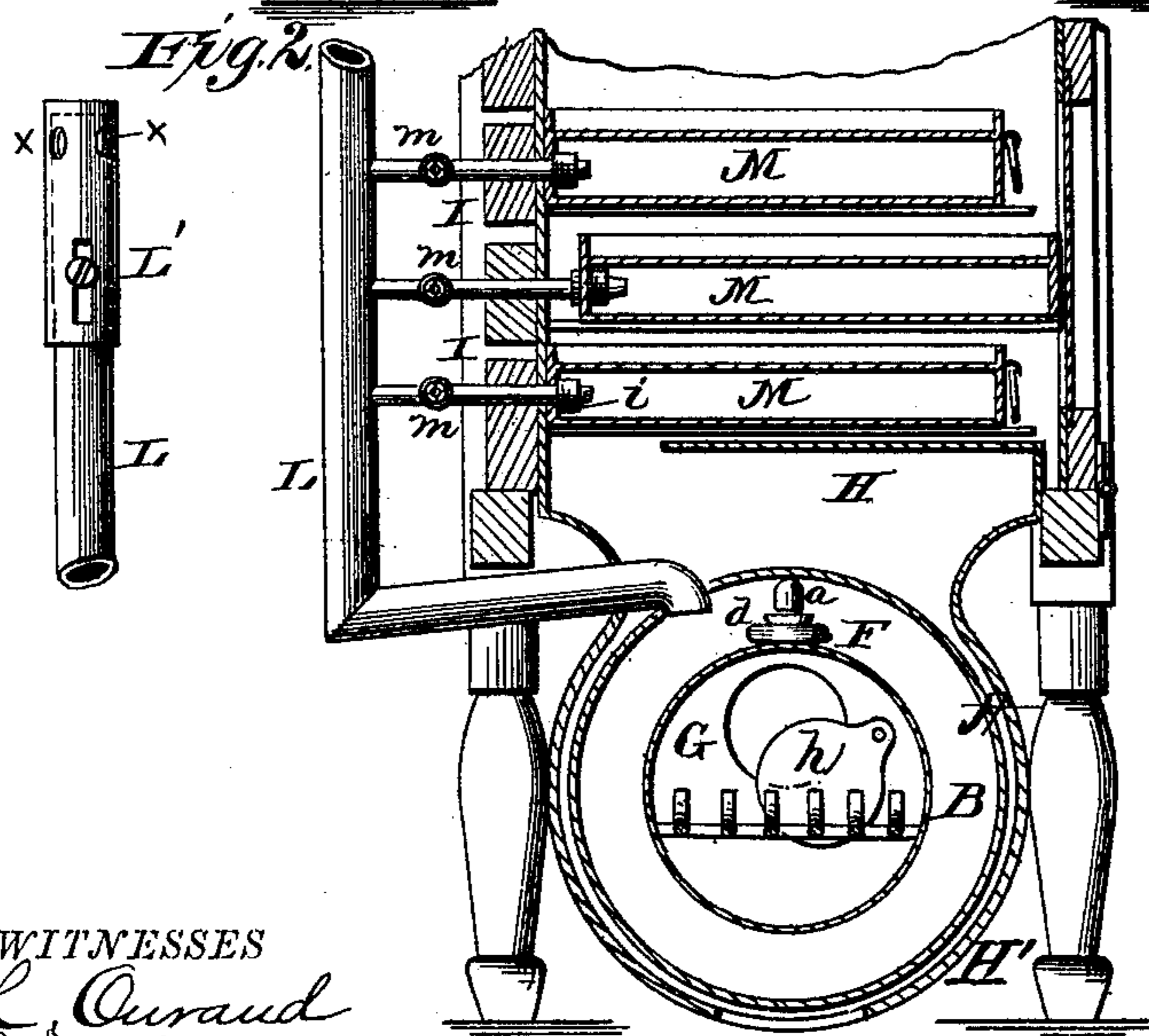
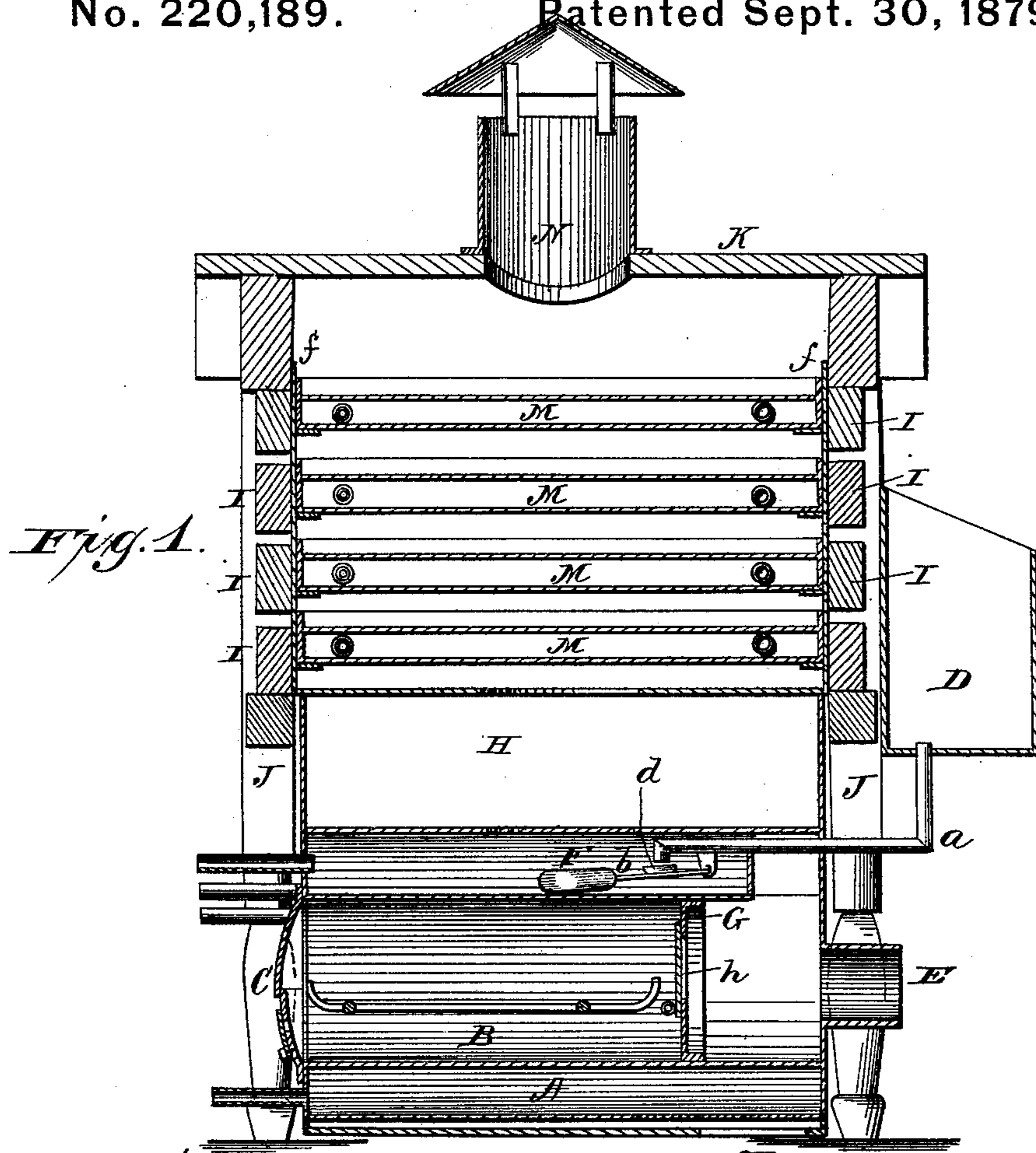


J. B. SWEETLAND.  
Fruit-Drier.

No. 220,189.

Patented Sept. 30, 1879.



WITNESSES  
F. L. Curand  
H. Aubrey Goddard

By

INVENTOR  
J. B. Sweetland  
Alexander Stuart  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

JEROME B. SWEETLAND, OF PONTIAC, ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO ANDREW McPHERSON AND HENRY N. SWEENEY, OF DETROIT, MICHIGAN, ONE-THIRD TO EACH.

## IMPROVEMENT IN FRUIT-DRIERS.

Specification forming part of Letters Patent No. **220,189**, dated September 30, 1879; application filed February 25, 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 and Vegetable 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 and vegetable 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 evaporator. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a detailed view of a part thereof.

A represents the boiler, made in the form of a horizontal cylinder, with an interior cylindrical fire-box, B, which is surrounded by water. C is the door to the fire-box, having suitable dampers, and E is the smoke-exit pipe.

In order to make the boiler perfectly safe and practical for even inexperienced persons to operate it successfully I employ a self water-feeder.

D is the water-supply tank, attached to one end of the dry-chamber. From the bottom of this tank a pipe, *a*, leads into the top of the boiler. *b* is a hinged rod or lever, having a float, F, attached to its free end, and on this rod or lever is attached a valve, *d*, for closing the end of the feed-pipe *a*.

When the water rises a suitable distance above the central flue or fire-box it lifts the float F, and as this float rises the valve *d* closes the end of the pipe *a*, shutting off the supply. As soon as the water falls below the proper point the float sinks and the valve opens, allowing more water to enter. All the care it requires from the operator is simply to keep water in the tank D.

Inside of the flue B is a bulk-head or diaphragm, G, with a damper, *h*, which may be placed at any desired point, to retain the heat in front of it and let it escape through the opening as desired. Without this bulk-head the heat would rush to the rear end of the flue at once.

Above the boiler is the hot-air chamber H, and the whole is connected to the drying-chamber or body of the evaporator. The air-chamber H is extended to form a shell, H', entirely surrounding the boiler, except at the top, leaving an air-space, *p*, between them, and suitable openings *s* in the bottom of said shell H', admit the air into the air-space. The air passing into said space *p* goes around the boiler and becomes thoroughly heated during its passage and while in the air-chamber H, from which it then passes into the drying-chamber. This is formed of corner posts J, with a roof, K, supported thereon, and the sides and ends are formed of narrow strips, I, of wood, placed short distances apart, and the entire inner surface has a lining, *f*, of tin or other suitable material.

By means of the separated strips I the air can pass freely between them, so that the heat from the inside will not affect them perceptibly.

L is the steam-pipe, leading from the boiler and extending perpendicularly upward after passing outward beyond the side of the evaporator. This pipe L connects by branches *m m* with each tray or pan M in the drying-chamber.

On the upper end of the pipe L is a safety-valve composed of a sliding tube, L', closed at the upper end and provided with perforations *xx*. This sliding tube is to be weighted to a certain pressure, and when the pressure of the steam rises above such degree of weight the tube will rise, uncovering the perforations *x* and allowing the steam to escape. To the construction of this safety-valve I, however, lay no claim in this application.

The trays or pans M are made hollow, as shown, to be filled with steam, and at the point in each pan where the branch pipe *m* connects there is a rubber packing, *i*, inside of the pan, said packing being held to its place by a perforated cap, *n*, or its equivalent, to allow the

steam to pass through it. Hence, when the pan is slipped into its place it becomes perfectly steam-tight.

Any number of trays or pans M may be used, one above the other, each alternate pan jogging back and forward, to allow the hot air to circulate over all the pans in succession.

N is the chimney on top of the roof K for the escape of the moisture and hot air.

I am aware that it is not new to arrange a fire-box, a hot-air chamber, and a boiler one within the other; and also that hollow pans or trays have been used, and provided with packing to make the joints tight where they connect with the steam-pipes, and 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, with the drying-chamber, of the exterior shell H', forming the air-chamber H, the boiler A within the shell, the fire-box B within the boiler, the

diaphragm G, with damper h at rear end of fire-box, a series of hollow pans or trays, M, and connecting-pipes to convey steam separately to each pan from the boiler, while the hot air from the air-chamber passes in a zig-zag course successively over the pans, substantially as and for the purposes herein set forth.

2. In a fruit and vegetable evaporator, the combination of the steam-pipe L, having stationary branch pipes m, with separate stop-cocks, and a series of hollow pans, M, each pan provided on the inside with rubber packing i, held in place by a cap, n, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of February, 1879.

J. B. SWEETLAND.

Witnesses:

B. S. TREGENT,  
S. E. BEACH, Jr.