W. BRAIDWOOD.

FRUIT-DRIER AND STEAMER.

No. 183,630. Patented Oct. 24, 1876.

Fig.1.

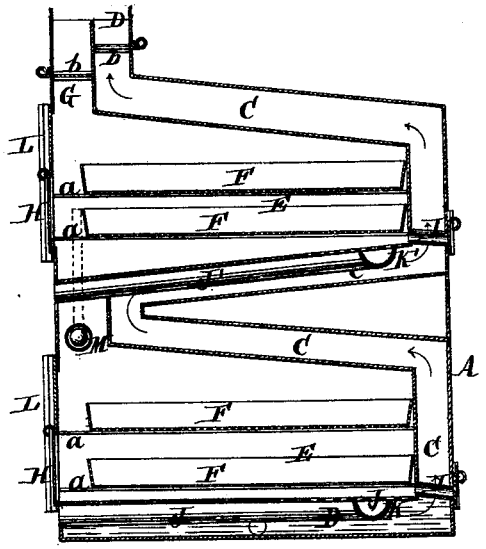
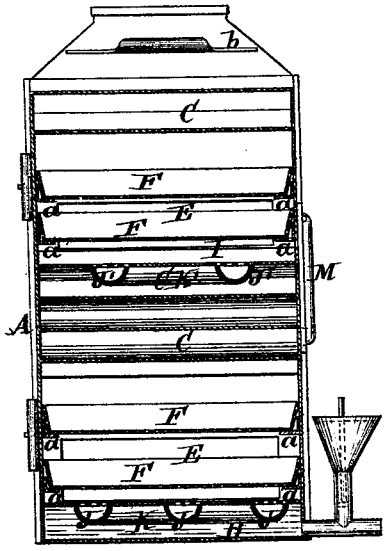


Fig.2.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM BRAIDWOOD, OF MOUNT VERNON, NEW YORK.

IMPROVEMENT IN FRUIT DRIER AND STEAMER.

Specification forming part of Letters Patent No. **183,630**, dated October 24, 1876; application filed March 31, 1876.

To all whom it may concern:

Be it known that I, WILLIAM BRAIDWOOD, of Mount Vernon, in the county of Westchester and State of New York, have invented a new and Improved Apparatus for Drying and Steaming Fruit and other articles, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a longitudinal vertical section. Fig. 2 is a transverse vertical section.

Similar letters indicate corresponding parts.

This invention consists in a closed vessel, the lower part of which forms a chamber, which communicates by a circuitous flue with an escape-pipe emanating from the top of said vessel. Above the chamber are compartments for the reception of the articles to be dried or steamed, said articles being placed in trays made of perforated sheet metal or other equivalent material, from which the vapors rising during the process of drying or steaming pass off through an escape-pipe or channel provided for this purpose. The escape of these vapors is promoted by currents of air admitted into the drying or steaming compartment.

In the drawing, the letter A designates a closed vessel, which is made of sheet metal or any other suitable material. In the bottom part of this vessel is formed a chamber, B, which is intended to be filled with water and which communicates by a circuitous flue, C, with an escape-pipe, D, emanating from the top of the vessel A. If the water in the chamber B is heated, either by placing the vessel A on a stove, or by means of steam or heated air, the steam rising from said water circulates through the flue C, and the interior of the vessel A is uniformly heated throughout.

Above the water-chamber B are situated two (more or less) compartments, E, on the sides of which are secured ledges *a*, for the support of trays F, which are intended for the reception of the articles to be dried or steamed. Said compartments communicate with a pipe, G, which serves to carry off the vapors rising from the articles in the trays F, and which is independent of the steam-escape pipe D.

The trays F are introduced into their compartments and removed therefrom through doors L, in the front side of the vessel A. In the rear part of the vessel A I arrange pipes I, which serve to admit currents of cold air into the compartments E, the pipes in this example leading into the lower parts of said compartments, but said pipes may be made to communicate with the middle portion of said compartments, or additional air-pipes may be employed.

In the water-chamber B are formed longitudinal channels J, which extend from the front to the rear part of the apparatus and communicate at the rear end with a common transverse channel, K, the top part of which is perforated in such a manner that the air admitted to the same through the longitudinal channels J, and which becomes heated by contact with the hot water in the chamber B, escapes through the perforated top part of the channel K into the lower drying and steaming compartment E. The rear portion of the longitudinal channels J also is perforated, as seen in Fig. 1, so that the hot air escapes not only from the transverse channel K, but also from the longitudinal channels.

In that part of the circuitous flue C situated immediately below the upper steaming and drying compartments E I arrange hot-air channels J′ K′, similar to those in the water-chamber B, the transverse channel K′ and the rear portion of the longitudinal channels J′ being perforated, while the air entering by the longitudinal channels J′ becomes heated by the action of the steam passing through the flue C, and in its heated state is admitted to the upper drying and steaming compartments E. The object of admitting a current of hot air into the heating and drying compartments E, as last described, is to create a gentle draft throughout the apparatus, for the purpose of carrying off the vapors arising from the fruits or other articles in the process of drying. By the transverse pipe K or K′ the air is very evenly diffused. The front ends of the longitudinal pipes J or J′ may be closed by suitable dampers, so that the supply of air may be cut off at any time.

The doors L contain dampers H, Fig. 1, by which cold air may be admitted to the apparatus without its being necessary to open

the said doors, such dampers extending the entire length of the doors and transversely of the apparatus. The air admitted by the dampers H to the front part of the apparatus acts in conjunction with that admitted to its rear part by the hot-air channels J K or J′ K′, not only for clearing the apparatus but also for regulating the heat.

With my apparatus may be combined a thermometer, M, so that the exact temperature of the drying and steaming chambers E may be ascertained at any moment, the bulb of the thermometer being bent inward and allowed to enter the apparatus while its recording part is situated exterior thereof.

By this apparatus I am enabled to dry fruits and vegetables of different kinds, also meats and other articles, in a short space of time; also to steam the same, all danger of scorching or spoiling the articles by overheating them being obviated. The heat in the steaming and drying chambers can be regulated with the greatest nicety by means of the hot-air channels J K or J′ K′, as well as by the dampers H, and in the escape-pipes D and G are dampers *b*, which also assist in regulating the temperature. The escape of the steam through the pipe D creates a draft through the escape-pipe G, whereby the drying process is promoted. Instead of producing the steam by means of water placed in the chamber B, steam may be injected from a generator, which in that case can be used for supplying several driers.

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

1. An apparatus for drying and steaming fruits and other articles, composed of a closed vessel, A, containing a chamber, B, a circuitous flue, C, compartments E, for the reception of trays F, and escape-pipes D and G, one for the escape of steam to create a draft in the other, which serves for the escape of moisture arising from the material to be dried, all constructed and operating substantially as shown and described.

2. The combination of hot-air channels J K J′ K′ with the closed vessel A, chamber B, circuitous flue C, compartments E, trays F, and escape-pipes D and G, substantially as set forth.

In testimony that I claim the foregoing, I have hereunto set my hand and seal this 10th day of March, 1876.

WM. BRAIDWOOD. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.