(No Model.)

J. B. BELCHER.

DRIER FOR FRUIT, &c.

No. 307,741. Patented Nov. 11, 1884.

Fig. 1.

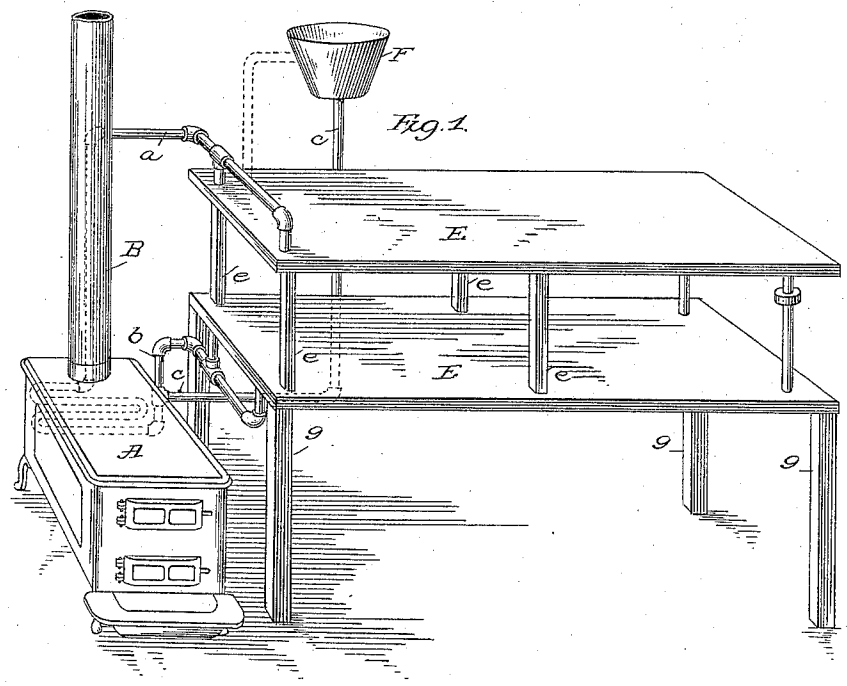
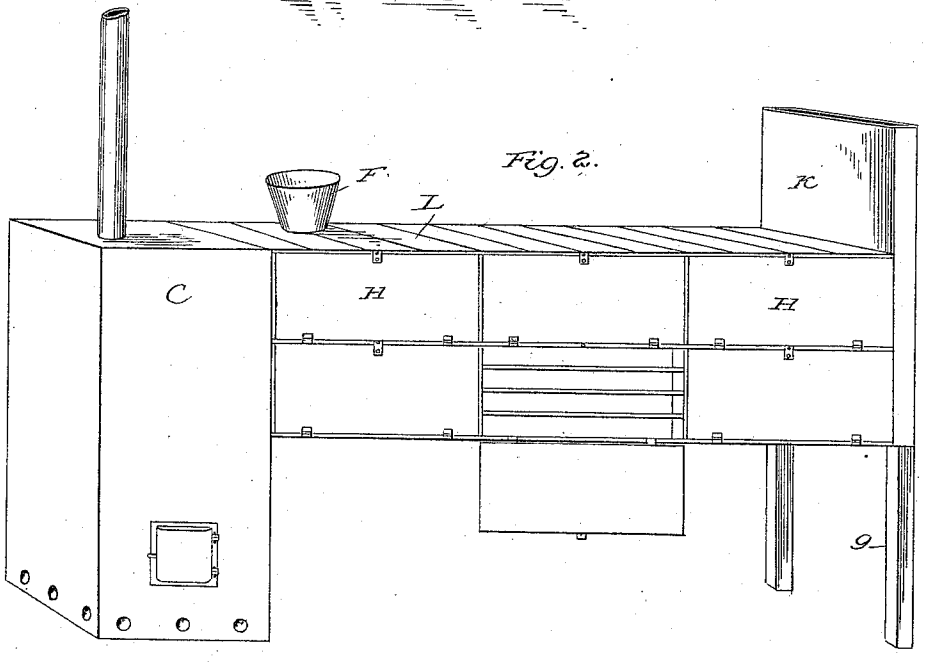


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN B. BELCHER, OF CHARLOTTE, MICHIGAN.

DRIER FOR FRUIT, &c.

SPECIFICATION forming part of Letters Patent No. 307,741, dated November 11, 1884.

Application filed February 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. BELCHER, of Charlotte, in the county of Eaton and State of Michigan, have invented a new and useful Improvement in Evaporators; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved evaporator or drier. It is adapted to the drying of fruit and various other articles for which this class of evaporators is used.

The object of my invention is to produce a simple and inexpensive apparatus, and to utilize therein the greatest possible amount of heat from the stove or furnace by heating at the same time the trays which contain the fruit or other articles and the air which passes over them.

I use in this invention the form of steam-chambers constituting horizontal partitions in the body of the evaporator, the same as those shown in Letters Patent granted to Hooker and Belcher on the 2d day of October, 1883.

The accompanying drawings show the general principles of my invention and the details of the particular forms in which it is embodied.

In these drawings, Figure 1 shows the apparatus in perspective without the outer casing. Fig. 2 is a like view of the apparatus with the casing.

The heater is represented at A as an ordinary stove, that may be of any known or suitable form. It is provided with a coil of pipe, one end of which is connected with the pipe *a*, that extends up within the stove-pipe B, and thence is connected with the upper steam-chamber at one or more points, as may be desired. The other end is connected to a pipe, *b*, which communicates with the lower or lowest steam-chamber. Where only two steam-chambers are used, as shown in Fig. 1, the pipes *a* and *b* are connected to them at the ends nearest the furnace, and the chambers are connected to each other at the opposite end. However many steam-chambers may be used, connection is made on the same principle to cause the water to circulate through them all.

Connected with the pipe *b* is a pipe, *c*, which rises to a tank, F. The pipe *c* is provided with a cock, and water may be supplied from the tank at will. The chambers E E are separated by posts *e e*, these supporting the upper chambers, and upon these posts are fixed rails 2 2 for the drying-trays. The stove or furnace is inclosed in a case, C, of sheet metal or any suitable material, and from this extends a horizontal trunk, L, inclosing the heating-chambers. The opposite end is provided with a flue, K. The trunk is provided with doors H, for the admission of the trays, and is supported by suitable legs, *g*. The case has openings at the bottom, by which air is admitted to the interior.

In operating the apparatus, the pipe is filled with water from the tank F, and water may be admitted also sufficient to cause it to circulate through the chambers E E. The heat of the furnace causes the water or steam to rise in the pipe *a*, to circulate through the chambers, and to return to the coil by the pipe *b*. This applies heat directly to the trays. The air admitted to the lower part of the case C passes up over the stove, by which it is heated, through the trunk L, over and through the trays, whence it carries off the waters of evaporation through the flue K.

The apparatus may be made small enough for domestic purposes, or on a larger scale. A relief-pipe may be inserted, leading from the top of the chamber or highest part of the pipe to the tank, to allow any accumulation of steam to escape into the tank.

I claim as my invention—

1. In combination, a stove or furnace, a coil of pipe within said stove or furnace, pipes *a b*, leading to heating-chambers, and a casing and trunk inclosing the stove or furnace and the heating-chambers, all substantially as described.

2. In combination, the stove A, having a coil of pipe, the pipe *a*, passing up within the stove-pipe and connected with the upper chamber, E, the pipe *b*, connected to the lower chamber, suitable pipe-connections between the chambers, a casing, C, having perforations and inclosing the stove, a trunk, L, communicating therewith and inclosing the heating-chambers, provided with doors and means for holding the trays, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN B. BELCHER.

Witnesses:
O. E. PACKARD,
JAS. G. POLLARD.