C. A. SANDS.

HOP-DRIER.

No. 189,389. Patented April 10, 1877.

Fig: 1.

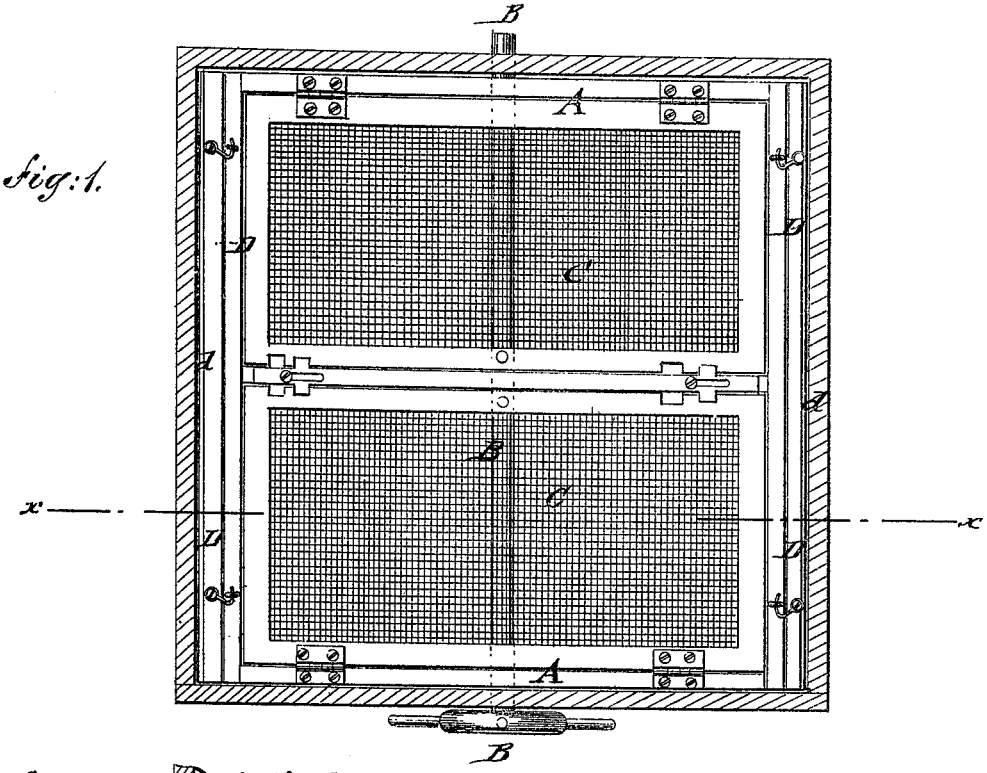
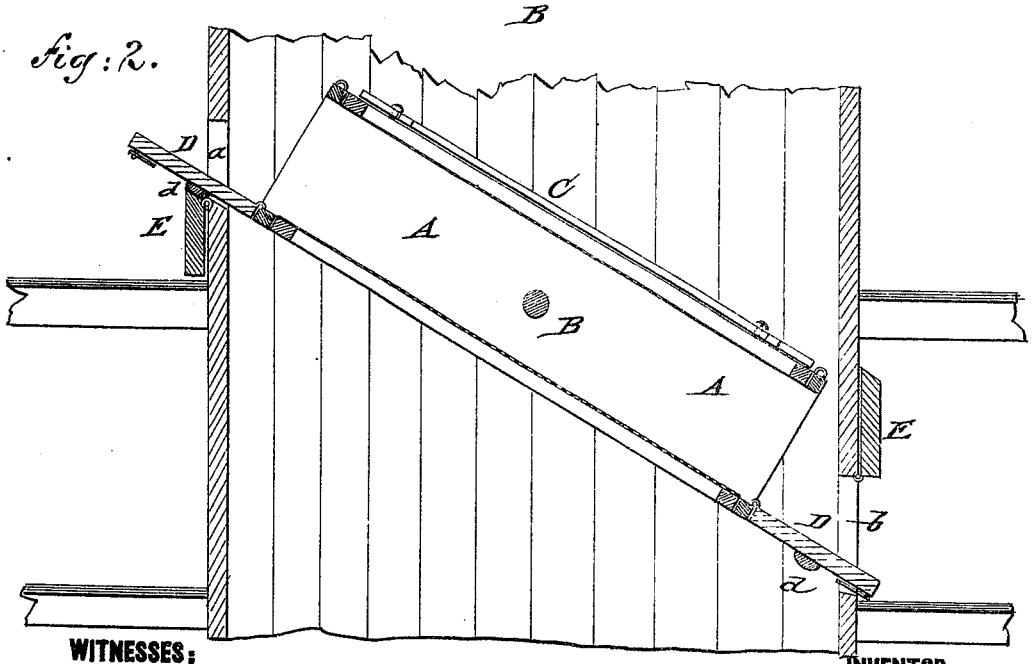


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES A. SANDS, OF BURLINGTON, KANSAS.

IMPROVEMENT IN HOP-DRIERS.

Specification forming part of Letters Patent No. **189,389**, dated April 10, 1877; application filed February 3, 1877.

To all whom it may concern:

Be it known that I, CHARLES A. SANDS, of Burlington, in the county of Coffee and State of Kansas, have invented a new and Improved Hop-Drier, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view of my improved hop-drier; and Fig. 2, a vertical longitudinal section on line *x x*, Fig. 1, showing the same in tilted position, ready to receive or discharge the hops.

Similar letters of reference indicate corresponding parts.

The invention has reference to an improved apparatus for drying hops in a more uniform and convenient manner than the one at present in practice, so that the entering of the drying-chamber and the turning of the hops are dispensed with, while also a quicker charging and discharging of the hops into and from the drier are obtained, and time and labor economized thereby.

The market value of the hops depends on the uniform and perfect drying or curing of the same, which has hitherto been attended to in a careless manner, on account of the small experience which most raisers of hops have in the treating of the same.

My invention is designed to furnish an apparatus by which every grower of hops may dry them more advantageously and perfectly than heretofore, and without exposure to the heat of the drying-room in turning the hops.

The invention consists of a hop-drying apparatus, consisting of a centrally-pivoted box that takes the place of the drying-floor, the box having a top and bottom of wire-gauze, and hinged end doors, that connect with openings in the walls of the upper and lower stories, for charging and discharging the hops to and from the drier. The end doors of the drying-box are provided with transverse rubber cushions or strips, for closing the space between the walls and the box when said doors are in a horizontal position, and thereby compel the heat to pass through the drying-box.

In the drawing, A represents a box, of suitable width and height, that is hung to a central shaft, B, taking the place of the drying-floor generally used in hop-curing sheds. The box A revolves on the shaft, so as to be swung over entirely by a hand-wheel from the outside, or to be placed in inclined position to connect with an opening, *a*, in the walls of the receiving-chamber, which is on a level with the drying-box and with an exit-opening, *b*, of the packing-room on the ground floor, containing the heating-room, with the stove.

The top and bottom of the box A are made of wire-gauze, either with hinged doors C, locked to a center strip or otherwise, or of perforated or reticulated sheet metal, or cloth doors, so that the heat from the stove may readily pass through the hops, with which the box is filled. The ends of the box facing the openings *a b* are provided with hinged doors D, that are secured by hooks and eyes or otherwise, and seated, when opened, in inclined position in the openings *a b*, so as to assist the filling of the box with hops from the receiving-room, or the quick discharge of the hops to the packing-room when they are sufficiently dried, as shown in Fig. 2.

When the box is entirely filled with hops the upper end door is closed, and also the door E of the entrance-opening *a*, the drying-box being then placed into horizontal position, and exposed to the heat of the stove. The top doors are then thrown open to admit the free evaporation of the moisture.

Strips *d*, of rubber or other elastic material, and of sufficient thickness, are applied to the doors D, for the purpose of closing the space between the walls, and when said doors are in an open or horizontal position, and thereby compel the heat to pass through the drying-box.

When the hops are heated to about 180° Fahrenheit, and the lower half sufficiently dried, the top doors are closed, the box is then revolved, and thereby the top layer or upper half of the hops exposed to the action of the heat, the turning requiring but a few moments, and dispensing with any one going in the drying-room to accomplish the work. The top doors are again opened, and the drying thus completed. The hops may be turned once or oftener, as required, until perfectly dried. The box is then placed in inclined position. The doors of the lower opening *b* and the lower door of the drying-box are opened,

ıd thereby the hops discharged directly into
e packing-room, without shoveling or hand-
ıg the same.

The drying-box is now ready to be filled,
hich is accomplished by closing the lower,
ıd opening the upper, doors, saving thereby
e time hitherto required for waiting till the
ying-room was cool enough to admit a per-
ıı to enter to remove the dried hops.

With this apparatus a greater quantity of
ops may be cured in a given time than in
e old way, as the different operations of
ıarging, turning, and removing the hops are
complished so much quicker. The hops
ıve all an even thickness or level in the dry-
g-box, and are thereby more uniformly dried.
A superior and more marketable article is
us obtained, that commands a better price
an the hops at present cured in insufficient
ıanner by the hop-growers in the different
ates.

Having thus described my invention, I
ıim as new and desire to secure by Letters
ıtent—

1. A hop-drying apparatus, composed of a revoluble and reversible drying-box, having wire-gauze or perforated top and bottom doors to admit the passage of the heated air, and hinged entrance and discharge doors at the end, substantially as and for the purpose set forth.

2. The combination, with the drying shaft or chamber, of the centrally-pivoted and revolving drying box or floor, having hinged doors at opposite ends, and an entrance-opening above the level of the box and a discharge-opening below the level of the box, to tilt the same in inclined position for receiving or discharging the hops, substantially as specified.

3. The combination of the transverse strips or cushions *d* with the doors D of the box, to close the space between the box and walls of the drying-room, substantially as described.

CHARLES A. SANDS.

Witnesses:
PAUL GOEPEL,
C. SEDGWICK.