

F. I. NORTON.

Lumber Drier.

No. 96,471.

Patented Nov. 2, 1869.

Fig. 1.

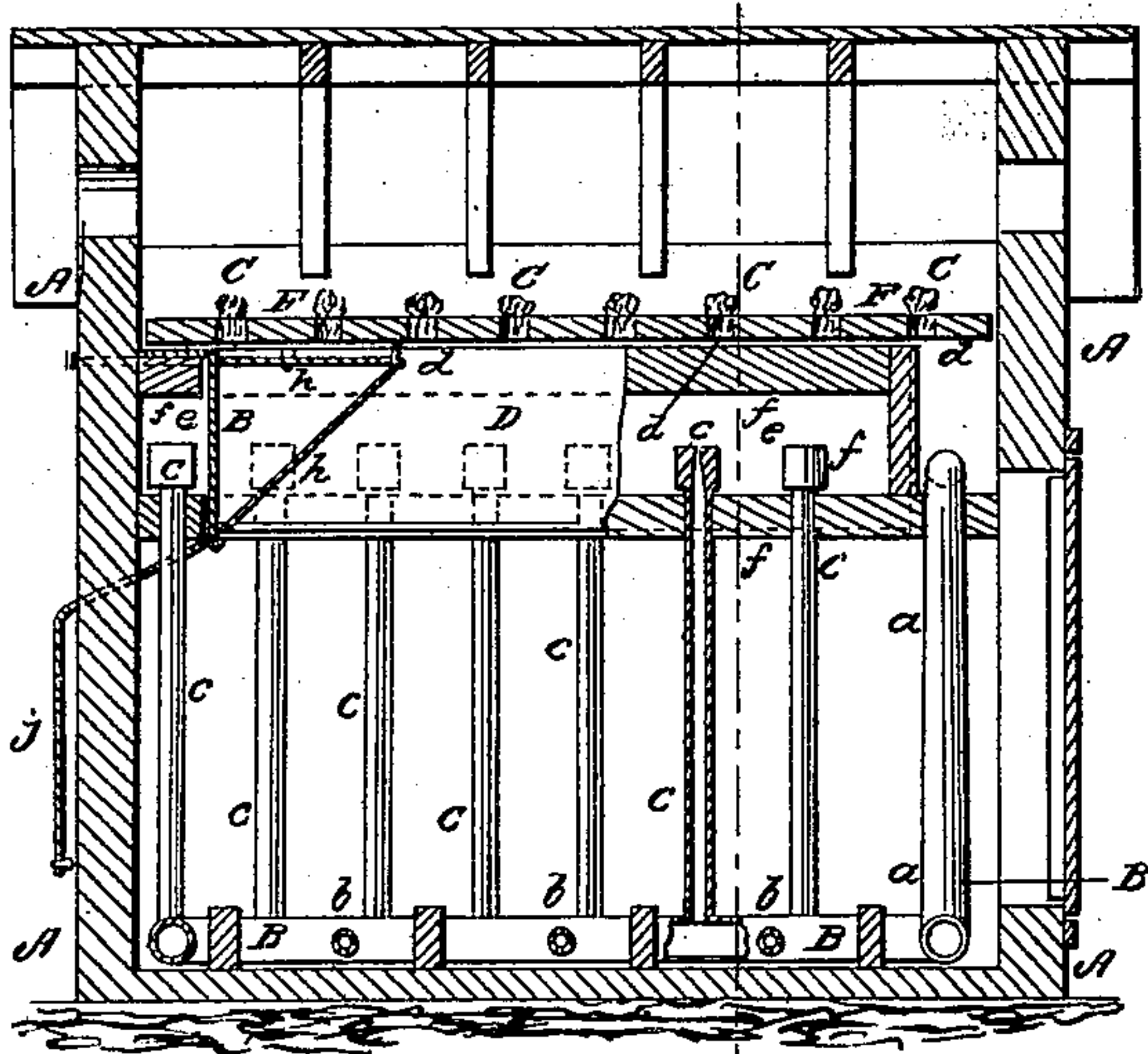


Fig. 2.

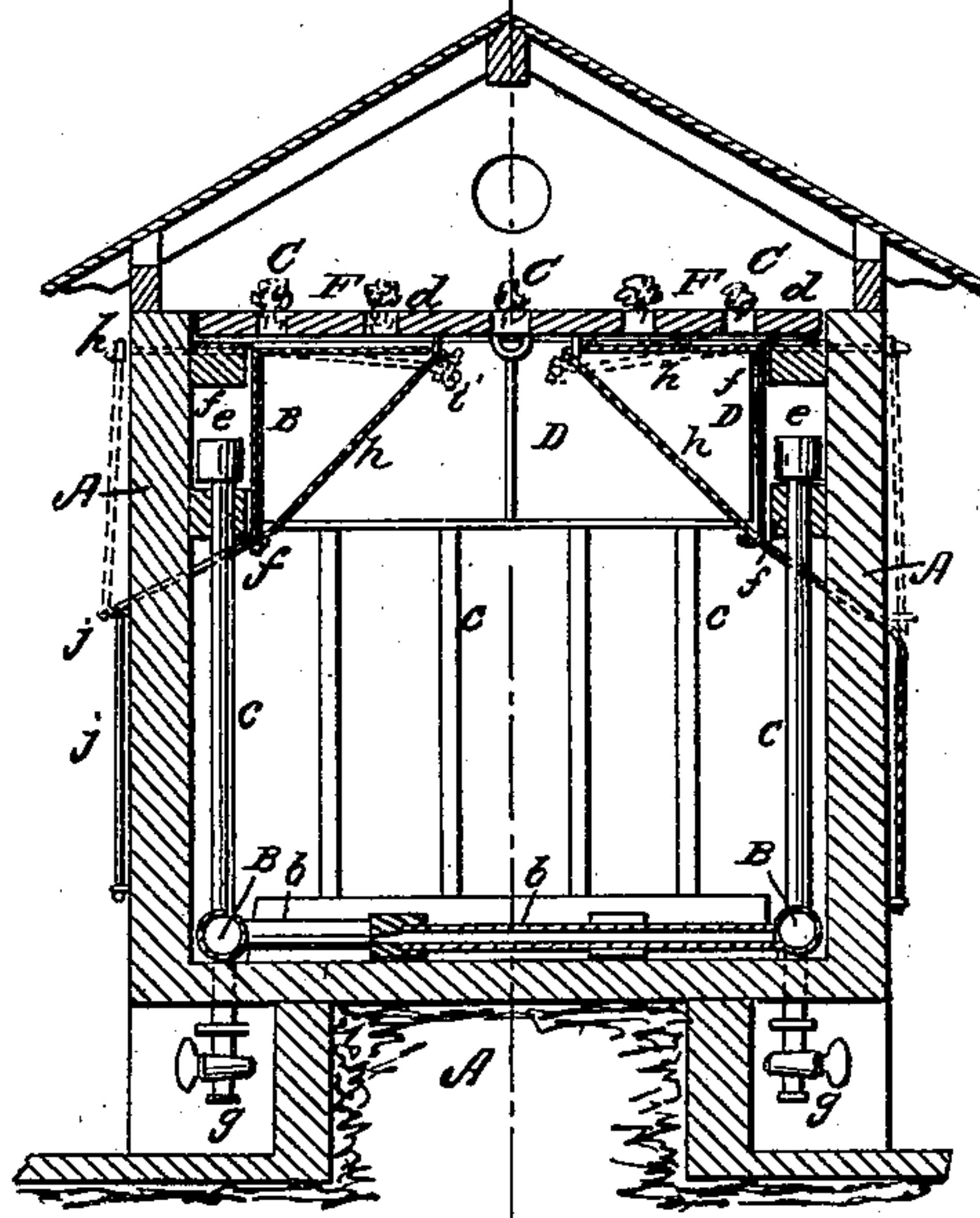
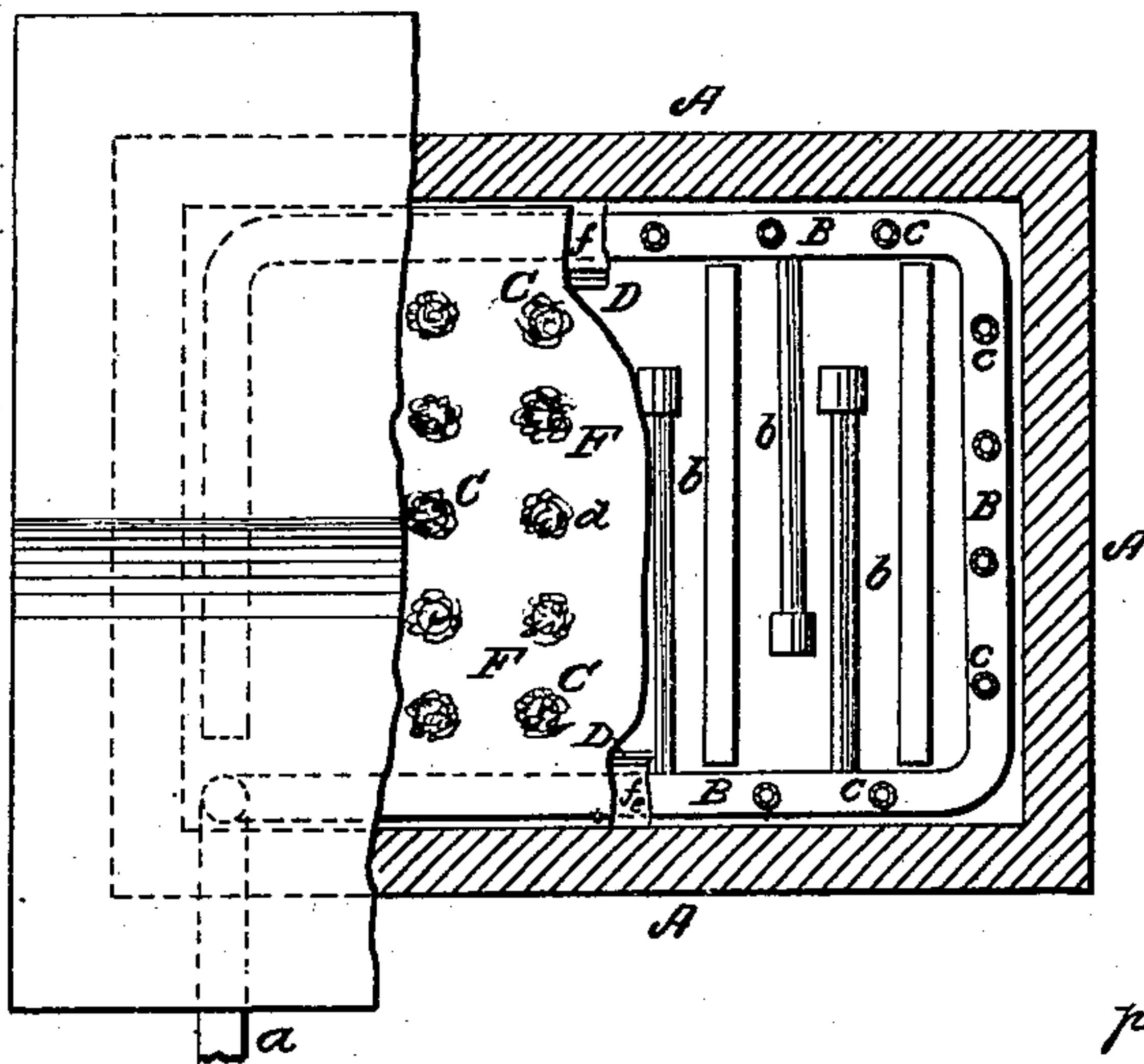


Fig. 3.



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United States Patent Office.

F. I. NORTON, OF FREMONT, OHIO.

Letters Patent No. 96,471, dated November 2, 1869.

APPARATUS FOR DRYING LUMBER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, F. I. NORTON, of Fremont, in the county of Sandusky, and State of Ohio, have invented a new and improved Apparatus for Drying Lumber; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical longitudinal section of my improved apparatus for drying lumber.

Figure 2 is a vertical transverse section of the same.

Figure 3 is a plan or top view, partly in section, of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to construct a kiln for drying lumber, by means of steam, and dry heat produced by steam.

The invention consists chiefly in arranging a series of doors within the kiln, which doors, when let down, will close one or more chambers, into which the steam is discharged, while they will, when swung up, open said chambers, so that the steam may freely enter the kiln. The doors form, therefore, when closed down, steam-chambers outside of the kiln, and are heat-radiators, to diffuse the heat of the steam in the kiln. While the doors are open, steam freely enters the kiln, and fills the pores of the wood to be dried, dissolving and carrying off all matter that may tend to facilitate the decay of the wood. When the doors are closed, the steam is used to heat them, and is not let to the wood, thereby producing a dry heat in the kiln, whereby the wood is rapidly dried without requiring fresh air to be carried into the kiln.

The invention also consists in providing sponge-plugs in the perforated cover of the kiln. These plugs absorb the products of condensation that are deposited by the steam on the under side of the cover, and carry the same, by capillary attraction, to the outside, thereby preventing their dropping upon the wood, and moistening the drying wood.

A, in the drawing, represents the kiln, built up of brick or other suitable material.

In it is arranged an endless or other main pipe, B, which enters the kiln at *a*, and which has a series of horizontal branches, *b b*, on the floor of the kiln, and some vertical branches, *c c*, along the sides of the kiln, as is clearly shown in the drawings. The ends of the branches are capped, and the caps have very small apertures, so that the steam will escape in small jets into the kiln.

The cover F of the kiln is perforated, and its aper-

tures, *d d*, are closed by sponge plugs C C, as shown in all the views.

These plugs absorb all the moisture that may adhere, in a condensed state, on the ceiling or cover F, and conduct the same, by capillary attraction, to the outside of the kiln, where evaporation takes place.

The ends of the vertical branches *c* of the steam-pipe enter small chambers *e e*, that are formed on the sides or ends of the kiln, by means of ribs or plates, *f f*, projecting therefrom, as is clearly shown in figs. 1 and 2.

These chambers can be closed by means of plates, D D, that are hinged at their upper or lower edges, as shown in fig. 2, and when thus closed, the steam cannot escape into the kiln from the vertical branches *c*, but will be discharged into the closed chambers *e*, and heat the metal doors or plates D, which then act as heat-radiators to dry the lumber in the kiln.

When the doors or plates D are swung open into horizontal positions, as shown by red lines in fig. 2, the steam will escape from the pipes *c*, directly into the kiln.

The main pipe B has or may have downward extensions, *g g*, which carry off the products of condensation from the pipe and its branches, so that only dry steam, as it comes from the boiler, will be forced into the kiln.

The operation is as follows:

The lumber or other wood is placed into the kiln, upon the bottom of the same, and then the door E of the kiln is closed.

The doors D are swung up to open the chambers *e*, and steam is let into the kiln, to thoroughly saturate the lumber.

When the wood has been sufficiently steamed, the doors are let down to close the chambers *e*, and then the drying-process is commenced, no more steam being allowed to enter the kiln.

When sufficiently dry, the steam is shut off, and the wood removed.

Doors, similar to D, may also be provided over the floor of the kiln, to cover horizontal branches *b*.

The doors D are operated entirely from the outside.

They are connected with cords or chains *h h*, which pass through loops *i*, or over rollers on the fixed part of the kiln, so that by pulling the strings, the doors may be opened and held open. Other similar strings may be used to close the doors, and to keep them closed.

Having thus described my invention,

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

1. The lumber-drying apparatus, consisting of the

kiln A, which has the pipe B, with the branches *a b*, or either, and in which the swinging plates or doors are arranged to form and close chambers *e*, substantially as and for the purpose herein shown and described.

2. The sponge plugs C, applied to the perforations in the cover F of a lumber-drying apparatus, substantially as described, for the purpose specified.

3. The plates D for closing the steam-chambers *e*,

when provided or connected with strings, or their equivalents, so that they can be opened or closed from the outside, substantially as herein shown and described.

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Witnesses:

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