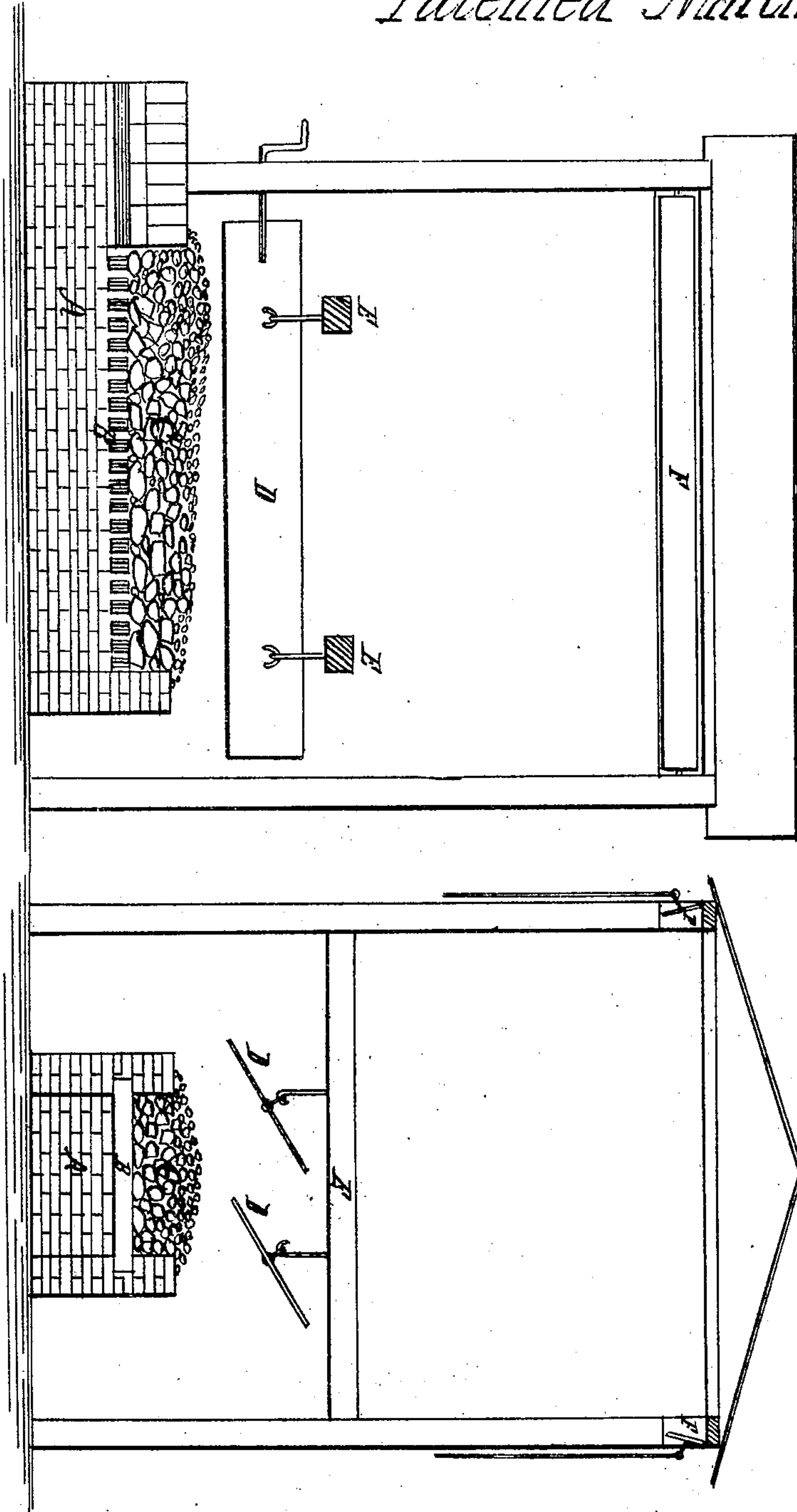


J. B. Johnson

Drier

No 75277

Patented March 10 1868



Witnesses.
O. F. Mayhew
Wm. H. Weeks

Inventor.
Leffe B. Johnson.

United States Patent Office.

JESSE B. JOHNSON, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO HIMSELF,
THOMAS E. JOHNSON, AND BENJAMIN F. JOHNSON.

Letters Patent No. 75,277, dated March 10, 1868.

IMPROVEMENT IN DRIERS.

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, JESSE B. JOHNSON, of Indianapolis, in the county of Marion, and State of Indiana, have invented new and useful Improvements in Drying-Kilns; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification.

My invention relates to the construction of the furnace for heating drying-kilns, and consists in making the top of the furnace of cobble-stones or boulders, supported on iron bars above the fireplace, and piled in such manner that the interstices between the stones at the bottom are covered loosely by those above, so as to allow the heated air and products of combustion to ascend freely among them and escape into the drying-chamber, whereby the whole heat of the fuel is utilized for the purpose of drying lumber or other articles.

Figure 1 is a vertical longitudinal section through the centre of the kiln and furnace.

Figure 2 is a transverse section through the kiln and furnace.

Similar letters of reference indicate corresponding parts in the several figures.

The following description will enable those skilled in the art to make and use my invention.

The fireplace A is built of bricks in the usual manner. B are iron bars placed at the proper height above the hearth or grate, and close enough together to support the stones C, which constitute the top of the furnace. The stones C are piled on the bars B to the depth of several inches, which may be varied according to the purpose for which the furnace is intended. For drying lumber, the depth of the stones should be about twelve inches, more or less. The stones are arranged as shown in the drawing, the largest being at the bottom, and covering the whole area of the furnace. On these, stones a size smaller are placed, so as to cover, as far as practicable, the interstices between those below, and thus built up as shown. The stones built up in this manner will prevent the escape of flame or sparks into the drying-chamber, but will allow the hot products of combustion to ascend through them into it.

No chimney is required to this furnace. The fire, when first kindled, will smoke until the boulders C become heated, after which there will be sufficient draught to cause the fire to burn briskly, and as it is abundantly supplied through the furnace-door with air, which is quickly raised to the combining temperature by the hot walls and boulders, the gases are thoroughly consumed. From thence, combined with the heated air that enters the furnace through the fuel-door, the products of combustion slowly ascend through the interstices of the boulders into the drying-chamber in a condition to rapidly dry the lumber or other articles therein.

A furnace for temporary purpose may be constructed to operate in a similar manner by simply digging a trench in the ground, of suitable dimensions, over which iron bars, large stones, or other suitable supports are laid, on which the boulders are piled in the same manner as here shown.

E are cross-timbers, on which to lay the lumber. D are deflecting-plates, suspended from the under side of the cross-timbers E, or they may be hung in any convenient manner above the furnace, and are used to deflect the heated air and products of combustion to either side or up the middle of the kiln, as may be required, as when the kiln is only partly filled with lumber, or when part of the dry lumber has been removed and green lumber put in its stead, or when a portion of the lumber is thicker than the rest. F are ventilators in the side walls of the kiln, near the roof, by which to regulate the escape of the heated air. They also affect and may be used to regulate the draught of the furnace.

I also contemplate using this furnace for drying fruit and other analogous purposes, in which case a chimney or flue may be attached, to be used only for carrying off the smoke on first kindling the fire, or for exciting a more rapid combustion when the fire is burned too low to afford sufficient heat to consume the smoke, after which the chimney-flue is to be closed by a suitable damper.

A marked advantage of this furnace for drying lumber consists in using the products of combustion, mingled with the heated air that enters the furnace direct, whereby the whole heat evolved from the fuel is utilized, and consequently a great saving is effected, as no heat is lost by being carried off by a chimney.

The mass of boulders will retain a large amount of heat after the fire has gone down, which will be given

off gradually, and thus the warmth of the kiln will be kept up during the night without the trouble or risk of keeping up the fire, and loss of time in firing up in the morning avoided.

Having thus fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. Making the top of the furnace of drying-kilns of cobble-stones or boulders, or their equivalents, arranged substantially in the manner and for the purpose set forth.
2. The deflecting-plates D, in combination with the furnace, constructed as described, substantially as and for the purpose set forth.

JESSE B. JOHNSON.

Witnesses:

O. F. MAYHEW,
WM. H. WEEKS.