

JOHNSON & HARTWELL.

## Drying Sand.

No. 100,636.

Patented March 8, 1870.

Fig-1-

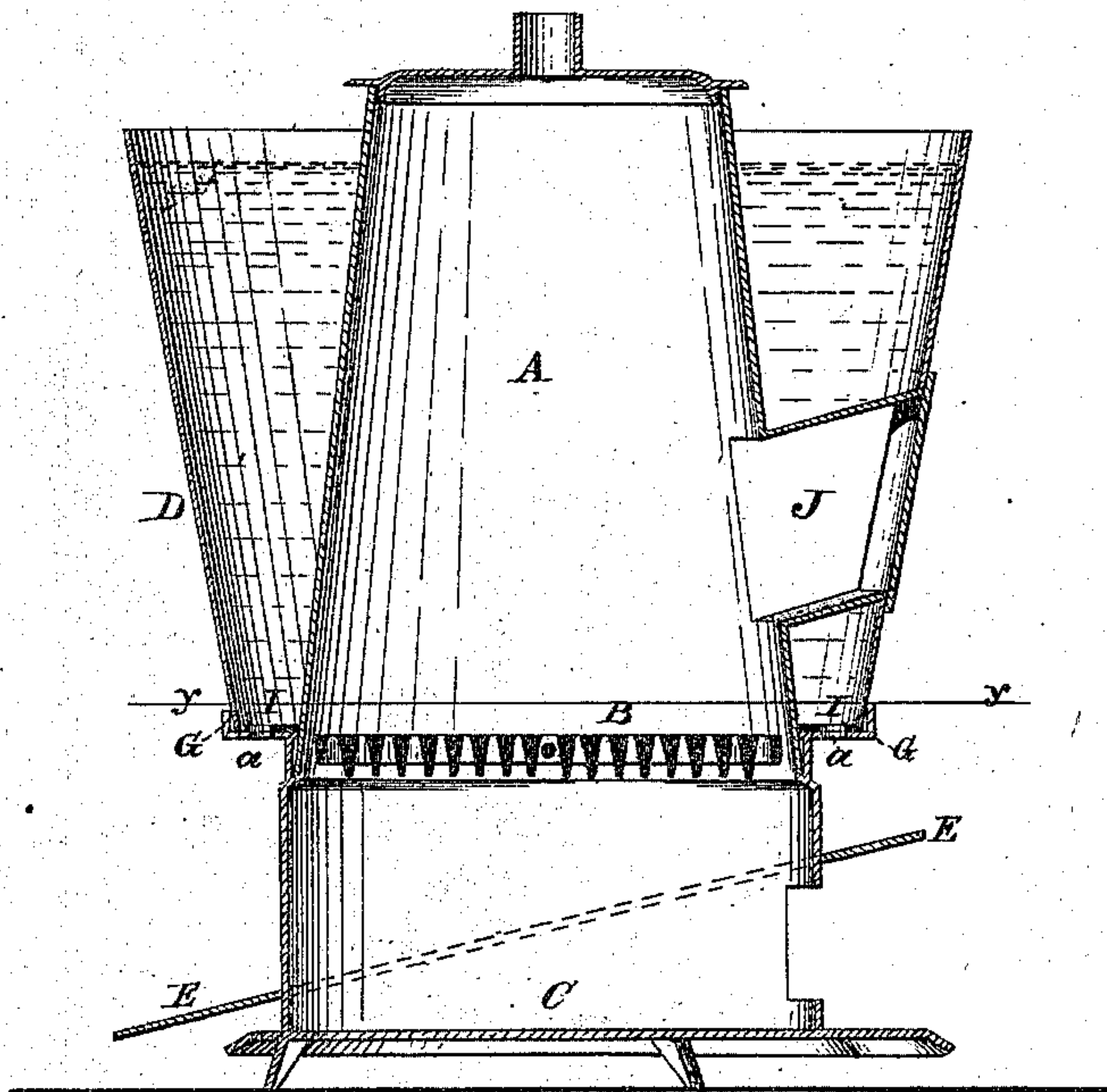
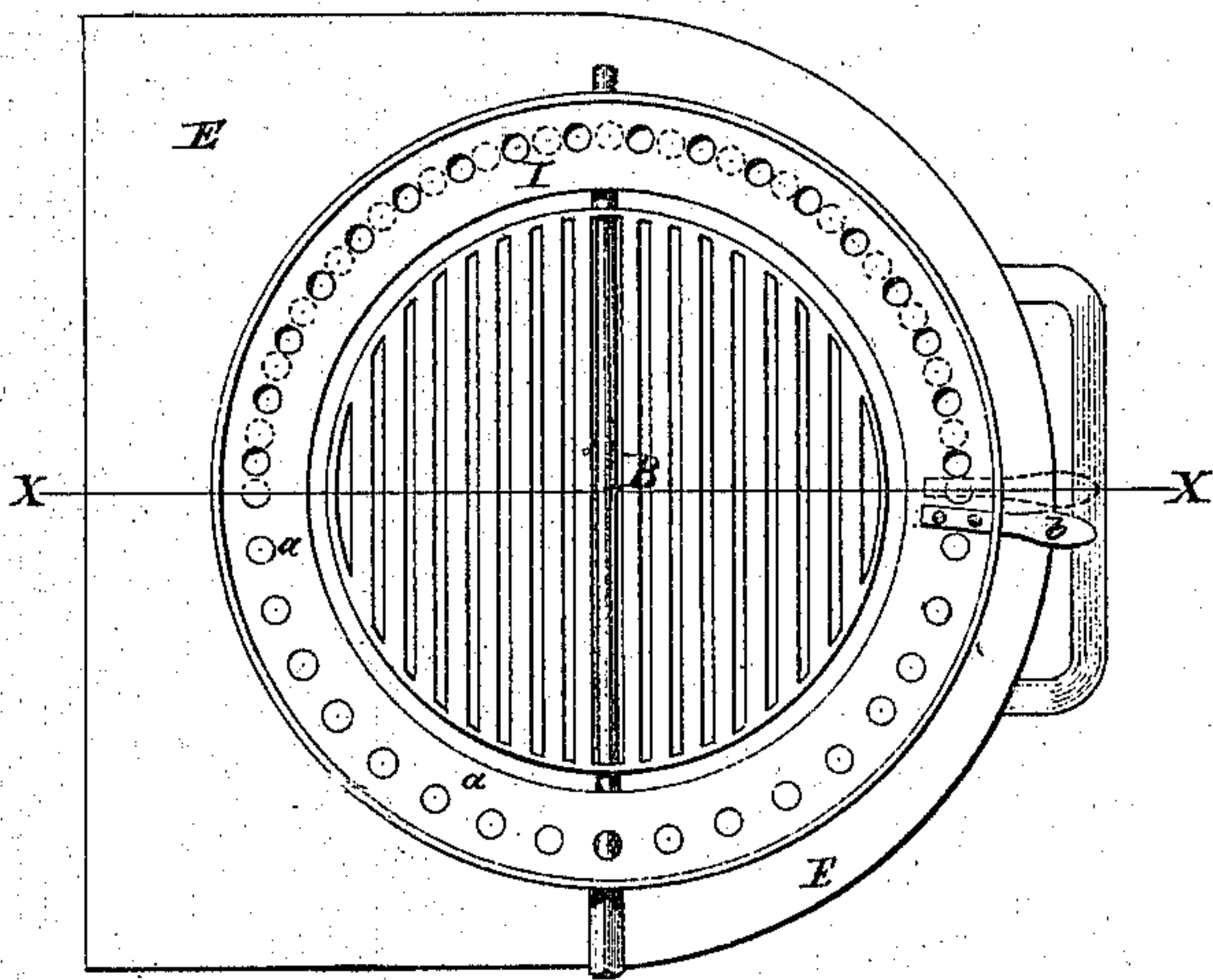


Fig. 2.



Witnesses:

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Phil. T. Dodge,

*Inventaris.*

J. D. Johnson  
a. V. Hartwell  
by Dodge & Munn  
their attys.



# United States Patent Office.

INSLEY D. JOHNSON AND ABRAHAM V. HARTWELL, OF CHICAGO, ILLINOIS.

Letters Patent No. 100,636, dated March 8, 1870.

## FURNACE FOR DRYING SAND.

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

To all whom it may concern :

Be it known that we, INSLEY D. JOHNSON and ABRAHAM V. HARTWELL, of Chicago, in the county of Cook, and State of Illinois, have invented certain Improvements in Furnaces for Drying Sand, of which the following is a specification, reference being had to the accompanying drawings.

Our invention consists of a furnace of novel construction, for drying sand to be used on locomotives and similar purposes, as hereinafter explained.

Figure 1 is a transverse vertical section, taken on the line  $x-x$  of fig. 2.

Figure 2 is a horizontal section on the line  $y-y$  of fig. 1.

It is customary to provide locomotives with a box of sand, for sprinkling on the rails when the wheels slip thereon, in consequence of there being moisture, ice, or grease on the rails; and as this sand is generally passed to the rail through a pipe, it is necessary that it should be thoroughly dried, in the first instance to prevent it from clogging in the pipe, and to enable it to be spread thinly and evenly on the rails.

To accomplish this drying of the sand in an economical and expeditious manner, and with but little labor, is the object of our invention.

To accomplish this object, we construct a stove or furnace with a cylindrical conical body, A, as represented in fig. 1, it being provided with a grate, B, and an ash-pit, C, in the usual manner.

The body A of the furnace we surround with a hopper, D, of sheet-iron, or similar material, this hopper being preferably made in the form of the frustum of a cone inverted, and considerably larger than the body A, as represented in fig. 1.

The hopper D is supported at its bottom on a radial flange, G, which is secured to the furnace-body, and is perforated all the way around with a series of holes.

An annular register, I, perforated with a corresponding series of holes,  $a$ , is fitted loosely upon the bottom of the hopper, as represented in fig. 2, it being provided with a handle,  $b$ , by which it can be moved, so as to close or open the holes  $a$ , as may be desired.

A spout or passage, J, extends from the outside of the hopper through to the interior of the body A for the admission of fuel, as represented in fig. 1, it being provided with a door, in the usual manner.

The sand to be dried is placed in the hopper D, where it is brought in contact with the body A, by which means it is rapidly dried, and passes or flows out through the holes  $a$  at the bottom, and falls upon an inclined plate, E, which is secured to the furnace below, and projects out all around far enough to catch the falling sand, and by which the sand is conveyed as it falls into a bin or box, suitably located to receive it.

The heat of the furnace being thus applied at the center of the body of sand, is utilized to the best possible advantage, and nothing is required but to keep up the fire, and keep the hopper supplied with sand.

Having thus described our invention,

What we claim is—

1. A stove or furnace, provided with the hopper D, constructed and arranged to operate substantially as described.
2. In combination with the hopper D, the register I, substantially as set forth.
3. The inclined plate E, arranged to receive the sand as it falls from the hopper, and convey it away, substantially as described.

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Witnesses:

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