

F. T. KIDDER.

FURNACES FOR BURNING SAW-DUST, TAN-BARK. &c.

No. 178,372.

Patented June 6. 1876.

Fig. 1

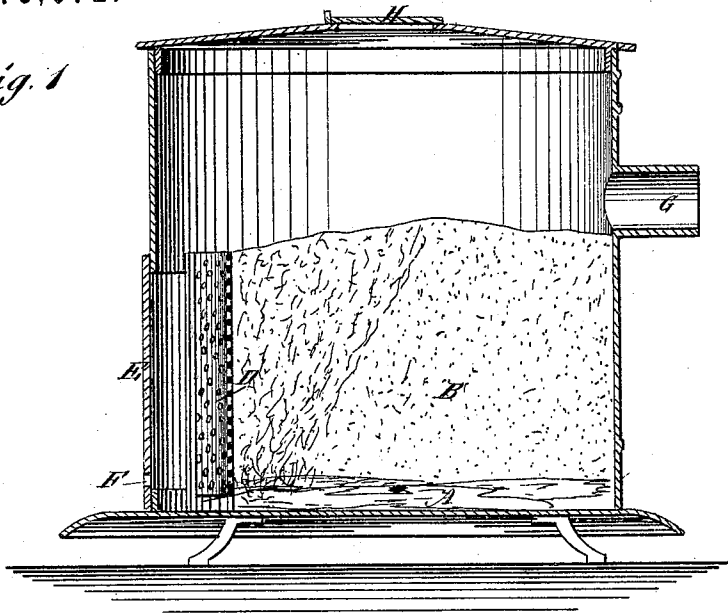


Fig. 2

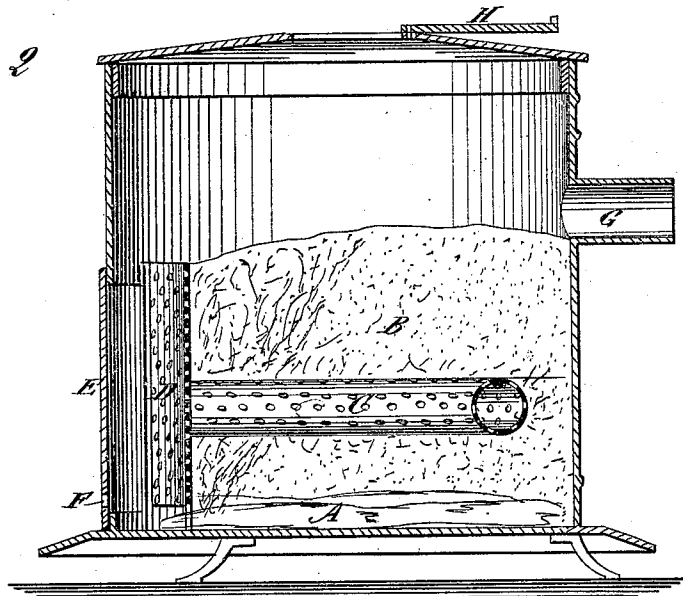
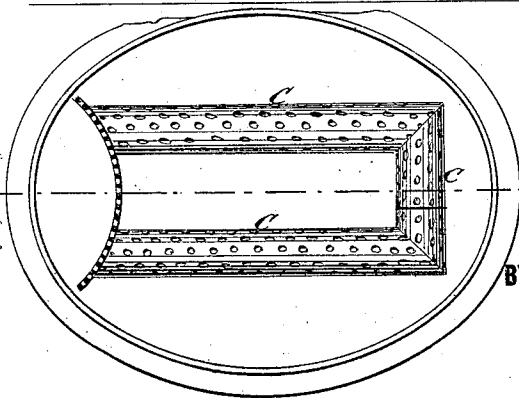


Fig. 3



WITNESSES:

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# UNITED STATES PATENT OFFICE.

FREDERIC T. KIDDER, OF CLAREMONT, NEW HAMPSHIRE.

## IMPROVEMENT IN FURNACES FOR BURNING SAWDUST, TAN-BARK, &c.

Specification forming part of Letters Patent No. **178,372**, dated June 6, 1876; application filed January 15, 1876.

*To all whom it may concern:*

Be it known that I, FREDERIC T. KIDDER, of Claremont, in the county of Sullivan and State of New Hampshire, have invented a new and Improved Method of Burning Sawdust, Tan-Bark, &c., of which the following is a specification:

My improved apparatus for burning sawdust, tan-bark, fine chips, borings, and other like material, consists of using what I call "feeders" under or in the bottom of the mass of such fine fuel, with which the stove is filled more or less high, according to the amount of heat wanted, the said feeders being pieces of wood extending from the front at the draft-inlet along the stove to the back, and which, being ignited at the front end, burn slowly, together with the sawdust or tan-bark immediately around them, while the heat, ascending up the bank of other fuel, converts it into charcoal, and prepares it for burning as it falls down to the fire of the pieces of wood, thus making a slow and steady fire, which is regulated by the quantity of air admitted; and in case the fine material is very wet I arrange one or more perforated pipes horizontally in the same, a little above the wood pieces, to conduct some of the heat into the mass, for drying it in advance of the fire, by passing from the tubes up through the fuel.

Figure 1 is a sectional elevation of stove, showing the method of operation. Fig. 2 is another sectional view, showing the manner of using the perforated tubes; and Fig. 3 is a horizontal section of the stove, showing an arrangement of two tubes.

Similar letters of reference indicate corresponding parts.

A represents the pieces of wood on the bottom of the stove; B, the sawdust, tan-bark, or other like fuel to be burned; C, the perforated tubes; D, a guard inside of the door E and draft-opening F, to prevent the fuel from falling out in case the door is opened, also to prevent it from clogging the draft. G is the smoke-pipe, and H is an opening in the top of the stove, through which to supply the fuel.

The wood feeders are so placed that the draft impinges on the burning ends as it enters, and maintains the fire as long as the feeders last, and this fire is increased by the falling particles of fine charred material, which, without the feeders, would not continue to burn.

The fire thus produced is practically better than the fire of solid wood fuel, being slower and steadier, and not requiring to be replenished so often.

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

An apparatus for burning sawdust, &c., having the draft F, smoke-pipe G, and perforated tubes C, supported in perforated guard D, substantially as and for the purpose specified.

FREDERIC T. KIDDER.

Witnesses:

T. B. MOSHER,  
ALEX. F. ROBERTS.