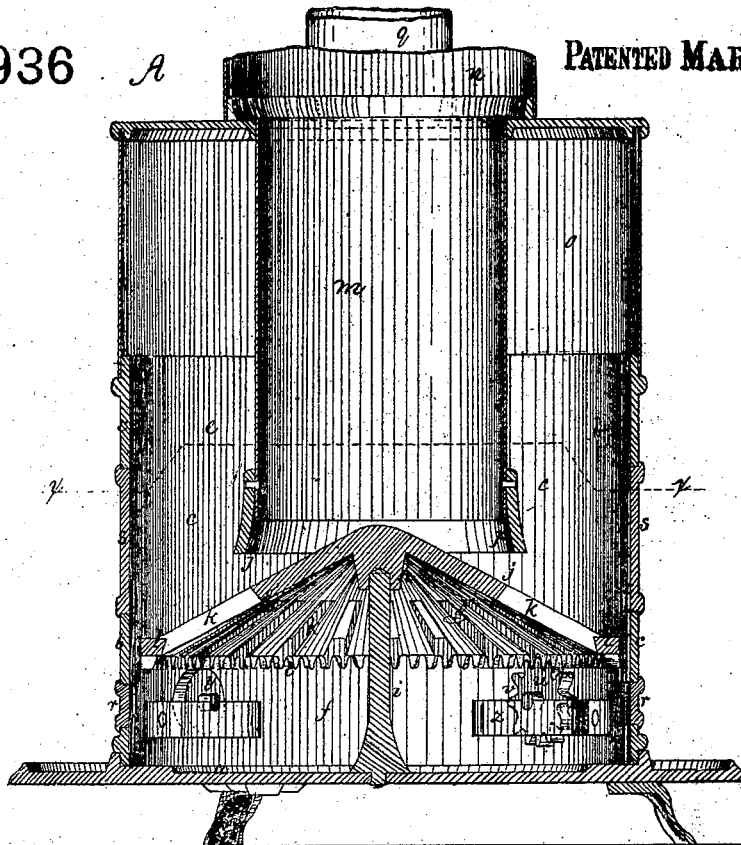


L. Litchfield.
Imp'd Stove for Burning Tan, etc.

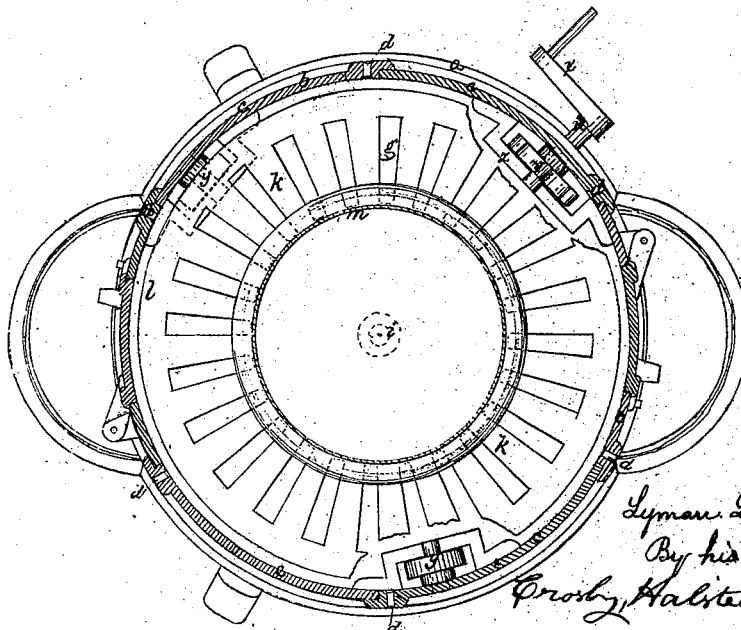
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A

PATENTED MAR 21 1871



B



Lyman Litchfield
By his attys.
Crosby, Halsted & Gould

Witnesses { *Mr. W. Frothingham*
S. B. Kidder

United States Patent Office.

LYMAN LITCHFIELD, OF GOUVERNEUR, NEW YORK, ASSIGNOR TO HIMSELF AND HORACE K. OSBORNE, OF ARLINGTON, MASSACHUSETTS.

Letters Patent No. 112,936, dated March 21, 1871.

IMPROVEMENT IN BASE-BURNING STOVES.

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, LYMAN LITCHFIELD, of Gouverneur, in the county of St. Lawrence and State of New York, have invented an Improved Stove for Burning Tan, &c.; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention has particular reference to the construction of stoves designed for burning tan-bark, saw-dust, and other fine or comminuted fuel.

In the employment of such fuel, its rapid combustion when dry, and when sufficiently loose to burn readily, subjects the grate to constant clogging of ashes, thereby shutting off the entrance of air necessary to support combustion.

To remedy this difficulty I make a cylinder-stove or combustion-chamber with a central feed-pipe or supply-pipe, and locate under this pipe a rotary grate, by the rotation of which the combustion-chamber is readily freed from ashes.

It is in the combination with the central feed or supply-pipe of the rotary grate that my invention primarily consists.

The drawing represents a stove embodying my improvements.

A shows a sectional elevation of the stove.

B, a sectional plan on the line *x x*.

a denotes the base-plate, upon which is placed a cylinder, *b*, preferably made sectional, and of cast-iron plates *c*, united at their adjacent and lapping or abutting edges by bolts *d*.

These plates form the combustion-chamber *e* and ash-pit or chamber *f*, and between the two chambers is located the grate *g*. This grate is made of conical shape, and under its center or apex it has a boss or bearing, *h*, by which the grate is supported upon the top of a vertical spindle, *i*, extending up from the center of the base-plate *a*.

The grate-bars *k* extend from the edge or rim *l* of the grate about half-way to the center or apex, the rest or central part of the grate being made close or solid, as seen in the drawing. Over this central part is located a feed-tube or supply-pipe or reservoir, *m*, which extends up through the stove, and may be provided with a pipe, *n*, extending from the top of the stove to a room above the room in which the stove is located, so that the fuel may be supplied to the combustion-chamber from said upper room.

The upper part of the stove may be formed of a sheet-metal plate or plates, *o*, but the lower part is preferably formed of the cast-iron plates *c*.

The feed-pipe *m* is provided with a cast-metal flange or flaring ring, *p*, at its lower end.

The center or apex of the grate extends up into the ring or open bottom of the supply-pipe, but between the pipe or ring and the grate is a space, *j*, through which the fuel can pass from the supply-pipe down upon the grate-bars, the space over which bars, and between the supply-pipe and the cylinder-plates *c*, constitutes the combustion-chamber, the volatile products of combustion passing up through said chamber into and off through a flue-pipe, *q*, leading therefrom.

The ash-pit chamber is provided with two doors, *r r*, upon opposite sides of it, and the fire-pot or combustion-chamber with two opposite or draught-doors, *s s*, all or either of which doors may be opened for greater or lesser supply of air, either above or below the grate, and upon one or more sides thereof.

The under side of the rim or perimeter of the grate is made or provided with gear-teeth *t*, and on one side of the cylinder *b* is a horizontal shaft, *u*, journaled in one of the plates *c* and in a bearing, *z*, within the cylinder. This shaft bears a gear-pinion, *v*, which meshes into the gear-teeth *t*, and rotation of the shaft, by means of a crank-handle, *x*, rotates the grate upon the spindle *i*, and causes the ashes to be sifted through the grate-bars down into the ash-pit, from which they may be removed at either ash-pit door.

The grate, besides resting at its edge upon the gear pinion *v*, also rests upon friction-rolls *y* at opposite sides of the ash-pit, these rolls preventing the grate from tipping or binding against the inner surface of the stove-plates *c*, and facilitates its rotation by the hand-actuated shaft and pinion.

The feed-pipe or reservoir *m* may be kept charged with fuel, the simple rotation of the grate being sufficient to keep the grate at all times supplied with fuel under full ignition.

The construction of the stove enables the waste bark of tan-yards, saw-dust of saw-mills, fine shavings of planing-mills, and other fine waste which accumulates in manufacturing establishments, to be utilized as fuel with the best results.

I claim—

In combination with the conical rotary grate *g*, the central post or spindle *i*, friction-rolls *y*, and driving-pinion *v*, for supporting and rotating the grate, when constructed and arranged substantially as shown and described.

LYMAN LITCHFIELD.

Witnesses:

D. A. JOHNSON,
CHAS. ADAMS.