L. CRANDALL.

Portable Furnace.

No. 110,118. Patented Dec. 13, 1870.

Fig: 1.

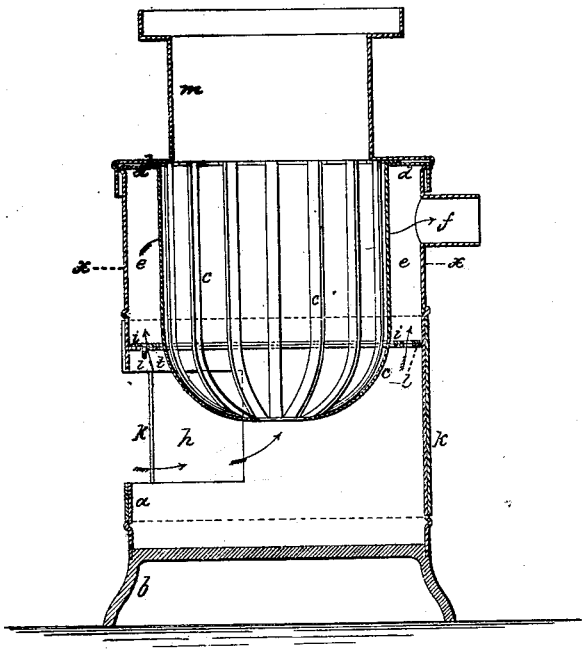
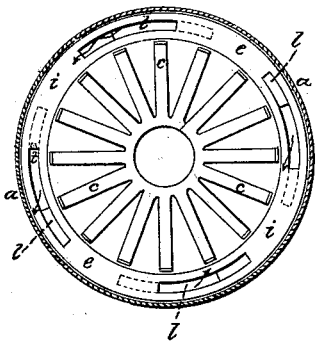


Fig: 2.



Witnesses:

Chas. H. Smith.

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United States Patent Office.

LUCIUS CRANDALL, OF NEW YORK, N. Y.

Letters Patent No. 110,118, dated December 13, 1870.

IMPROVEMENT IN FURNACES FOR BURNING SHAVINGS.

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, LUCIUS CRANDALL, of the city, county, and State of New York, have invented a certain new and useful Improvement in Furnaces for Burning Shavings; and the following is hereby declared to be a full and correct description thereof.

In planing-mills and other places where wood is worked shavings accumulate in vast quantity, and they are generally destroyed by being burned in furnaces.

Great difficulty is found in burning such shavings, saw-dust, and chips in the furnaces now used for this purpose.

This is mainly owing to the fact that the draught or air is supplied to the bottom of the grate or fire-pot which contains the shavings being burned, and, the shavings being closely packed in the fire-pot or burned in large masses, the fire often only smokes, smolders, and finally dies out, because air or draught cannot pass through the compact mass, and the accumulation of ashes on the surface excludes the atmosphere.

Another difficulty arises in burning shavings from the accumulation of gases from the smoldering wood, which often ignite with an explosion, scattering sparks and ashes around the heater; and this is particularly dangerous in carpenter shops, from the stoves there often employed.

My invention is made with special reference to meeting this want of a furnace, in which the air or draught may be supplied to the sides and bottom of the fire in such a manner that the combustion can be maintained with uniformity, the ashes falling away as the combustion continues, and that regardless of any draught through the shavings themselves while in large masses or closely packed together.

I form the fire-pot as an open basket to contain the shavings, and suspend the same within a surrounding casing, leaving an air-space between the sides of said basket and said casing.

In the lower part of said casing I provide an opening for the admission of air, and in the upper part of the air-space or flue surrounding the basket I place the escape-flue for the products of combustion from the furnace.

Between said opening in the casing and the escape-flue, and surrounding the lower part of the fire-pot, I provide a register for admitting and regulating the draught to the sides of said basket.

I make the upper part of the furnace as a hopper, extending from the top of the basket, and in this hopper the shavings are to be placed, and the hopper may be closed with a cover or cap.

This furnace becomes a base-burner, the fire burning at the bottom and sides of the basket, the products of combustion escaping by the flue at the side of the basket, and the contents of the hopper gradually feeding or falling down as the contents of the basket are consumed, and the ashes falling away, so as not to obstruct the fire.

In the drawing—

Figure 1 is a vertical section of my improved furnace, and

Figure 2 is a cross-section of the same at the line *x x*, fig. 1.

a represents the casing of the furnace, supported by the base *b*.

c is the fire-pot, formed as an open basket, the metal strips or bars of which said basket is composed being connected at the bottom, and bent or shaped so as to form a cylinder of slats or bars, with the upper ends of the bars resting upon and supported by the flange *d* of the casing *a*.

e is the air-space or flue between the casing *b* and basket *c*, and

f is the escape-flue.

h is the main draught-opening in the lower part of the casing *a*, and the amount of air admitted to the furnace is regulated by the cylindrical sleeve *k*, which is made to surround the casing *b*, and provided with an opening therein corresponding to the opening *h*, so as to open or close the draught *h* by moving the cylinder *k*.

i is the register for admitting air to the sides of the basket *c;* and I have shown the same as a circular ledge, *l*, extending from the casing *b* to the basket *c*, and provided with openings therein corresponding to the openings in the ring-shaped register *i*, which rests upon said ledge *l*, and, by being turned by the projection *t*, opens or closes the openings in said ledge, and hence admits more or less draught to the basket *c;* and, when the draught is closed, the draught passes through the basket, for burning up blocks or pieces that may accumulate therein, or according to the fuel introduced therein.

m is the hopper, extending from the top of the basket *c;* and this may be closed with a cover when the shavings are introduced in mass, or extended up to a place at which the shavings or saw-dust are introduced from time to time.

From the foregoing, it will be understood that, by the opening *h* and register *i*, the necessary amount of air may be admitted to the lower part and sides of the basket *c*, and that this draught may be regulated at will, so that the contents of said basket will be thoroughly consumed, and there will be no danger of the fire smoldering or dying out for want

of the draught necessary to maintain perfect combustion.

The fire may be raked, or the grate shaken or rotated, if desired.

I claim as my invention—

The basket-grate *c* at the lower end of the hopper *m*, and within the casing *a*, in combination with the draught-regulators *k*, register *l i*, and flues *e f*, substantially as and for the purposes specified.

Signed by me this 12th day of October, A. D. 1870.

Witnesses: LUCIUS CRANDALL.

CHAS. H. SMITH,

GEO. T. PINCKNEY.