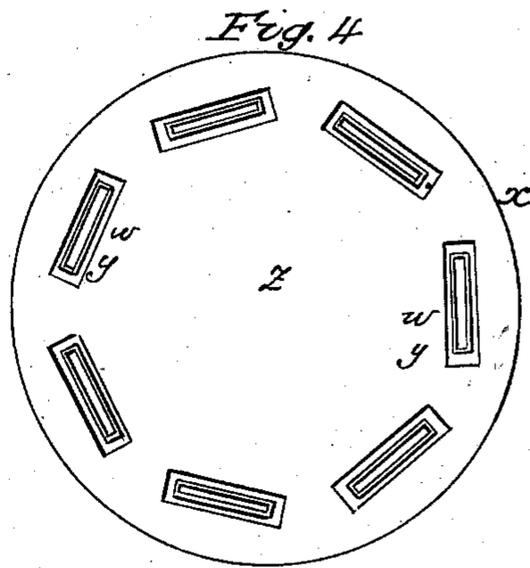
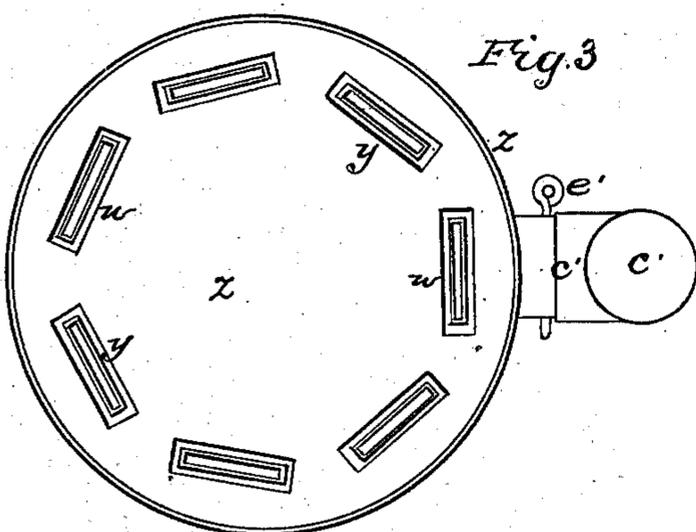
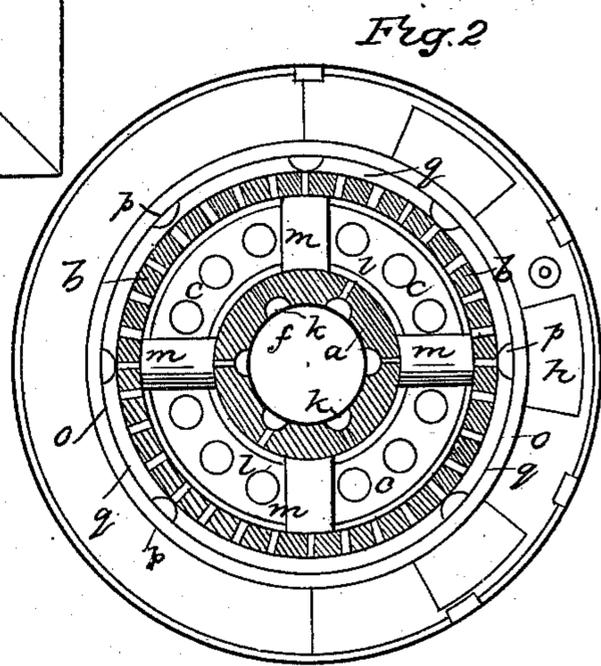
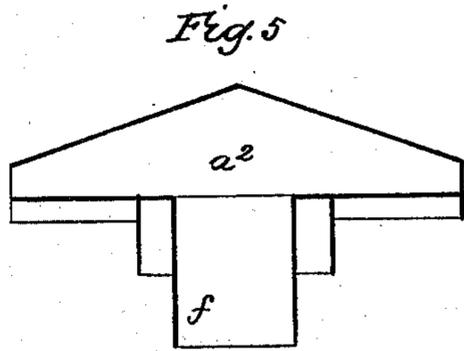
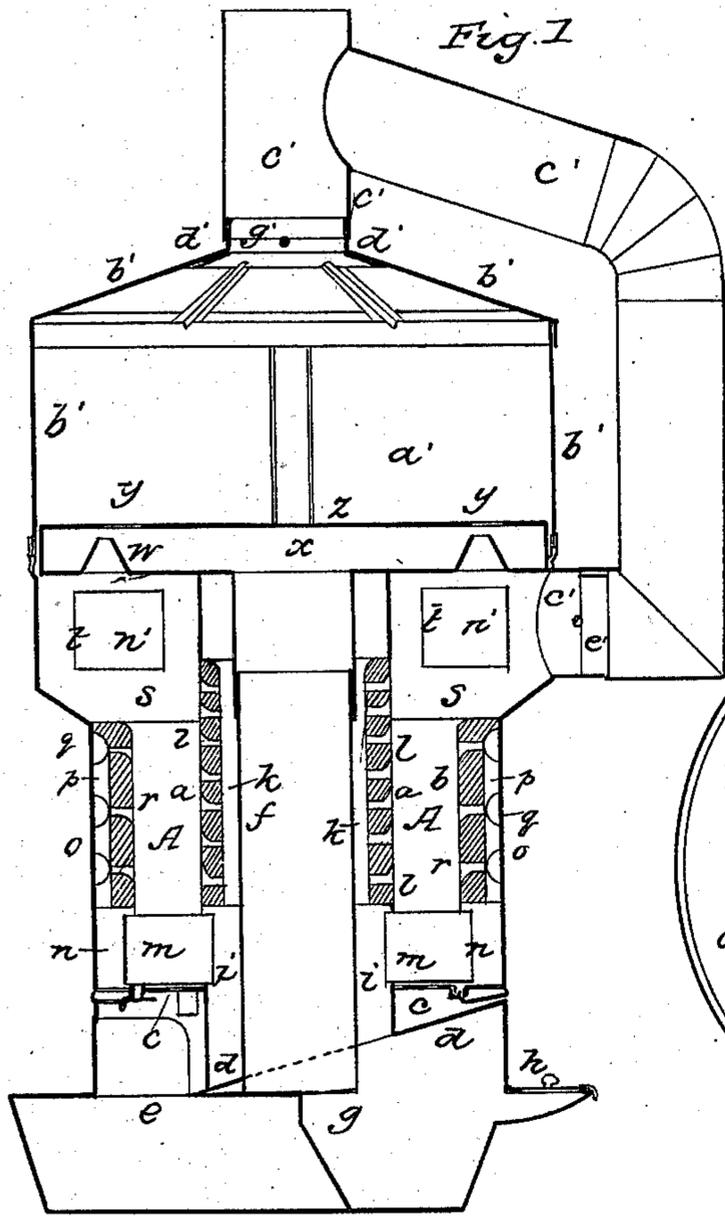


M. L. HORTON.  
Coal Stove.

No. 100,406.

Patented March 1, 1870.



WITNESSES  
S. N. Piper  
J. P. Snow

Marcus L. Horton,  
INVENTOR  
by his attorney  
W. M. Eddy

# United States Patent Office.

MARCUS L. HORTON, OF WINDSOR, VERMONT.

Letters Patent No. 100,406, dated March 1, 1870.

## COAL-STOVE.

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

To all persons to whom these presents may come:

Be it known that I, MARCUS L. HORTON, of Windsor, of the county of Windsor, and State of Vermont, have invented a new and useful Stove or Furnace for generating heat and giving light; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a vertical and longitudinal section of it.

Figure 2 is a horizontal section, taken through its fuel-chamber.

Figure 3 is a horizontal section, taken through its lantern.

Figures 4 and 5 are hereinafter described.

In such drawings, the fire-place A is represented as a space comprehended between two concentric and tubular cylinders or linings *a b*, made of fire-brick or other proper fire-resisting medium or composition.

Such fire-place is provided with an annular grate, *c*, which may be supported so as to enable it to be revolved, more or less, back and forth, so as to shake ashes from the fuel while it may be resting on such grate.

This grate is placed over an inclined chute or plane, *d*, which terminates over an ash-chamber, *e*, and leads the ashes into such chamber.

A metallic pipe, *f*, rises within and is encompassed by the inner tubular lining *a*, and opens at bottom out of an air-receiving chamber, *g*, which is disposed in rear of the ash-chamber, and is provided with a register, *h*, or series of air-inlets, and a valve or valves thereto.

The said air-chamber *g* also opens into another air-chamber, *i*, over and on top of which the inner fire-brick lining *a* is supported. This lining is grooved vertically, as shown at *k k*, &c., each groove being provided with a series of holes or openings, *7*, leading from it through the lining, and opening into the fire-place or fuel-chamber, the whole being so that air from the chamber *i* may flow up through the grooves of the lining, and through the openings *7*, and thence into the fire-place.

From the chamber *i* a series of pipes, *m*, radiate, and open communication between such chamber and another concentric space or chamber, *n*, which, at top, is surmounted by the outer fire-brick lining *b*. This latter lining, inclosed in and encompassed by the outer case *o* of the stove, has vertical channels *p p* made in its outer surface.

It also has a series of horizontal channels, *q q*, formed thereon, such channels being provided with passages or holes *r r* leading laterally from them into the fuel-chamber. Air passing from the chamber *i*, through the pipes *m*, into the chamber *n*, will flow therefrom through the channels of the outer lining, and thence into the fuel-chamber.

Over the fuel-chamber is a flame-chamber, *s*, which, at its sides, is provided with a series of fuel-supply openings, *t*, each of which has a door, *u*, to it.

Out of the top of the fuel-chamber a series of hollow pyramidal frusta or gas-burners, *w w w*, is led up into a shallow air-chamber, *x*, into the middle of which the tube *f* opens.

Over such burner there is an opening, *y*, made through the top *z* of the air-chamber *x*.

Fig. 4 is a top view of the said air-chamber top, with its openings and the burners thereof.

The top *z* constitutes the bottom of a lantern or chamber, *a'*, formed with panes *b'* of glass or mica, inserted in its sides and top.

A discharge-pipe, *c'*, leads out of the flame-chamber and into a pipe, *d'*, extending from the top of the lantern, and opening out of such lantern. There is a damper, *e'*, in the lower part of the discharge-pipe *c'*, and there is also a damper, *g'*, within the lower part of the pipe *d'*, and below the junction of such pipe with the pipe *c'*.

Instead of the series of gas-burners arranged as described, I contemplate a continuous burner, made as shown in transverse section in fig. 5.

It consists of a cylindrical case or chamber, *a''*, provided with a conical top, and having a foraminous bottom. This chamber or case is to be arranged within the upper part of the flame-chamber, and with a narrow space between the two and surrounding the air-case *a''*.

The air flowing from the pipe *f* directly into the case *a''* will be discharged through the holes of its bottom into the flame within the flame-chamber, and rising with such through the space about the case *a''* and into the lantern, will facilitate the combustion of the gases of the flame-chamber, especially those of them which may escape into the lantern.

By means of the lantern, I not only get heat from the flame of the burner or burners, but light with such heat will be radiated from the flame through the sides of the lantern. Such light will illuminate the objects which may surround the stove or furnace.

Fuel of any proper kind may be burned within the fuel-chamber, it being supplied with air through the grate and through the linings, as described.

The combustible gases escaping into the flame-chamber will be more or less burned therein. Such of them as may pass therefrom up through the burner or burners will be there enflamed, and by receiving additions of atmospheric air, heated more or less in its passage to them, will be burned, and in a state of flame will enter the lantern, and produce the effects as stated.

The waste volatile products will flow off through the escape-pipe of the lantern.

When the fire is first kindled, the damper of the lantern-pipe should be closed, and that of the exit-pipe

of the flame-chamber should be opened. Thus a direct draught from the flame-chamber will be effected.

I claim—

The combination as well as the arrangement of the lantern *a*<sup>1</sup>, one or more gas-burners *w* and the air-supplying passages thereof, substantially as described, with the furnace or fuel-chamber.

Also, the arrangement and combination of the channeled linings *a b*, the stove-case *o*, the air-receiving

and conveying-chambers *g i n*, and the central air-pipe *f*, connected as described.

Also, the combination and arrangement of the series of gas-burners *w* with air-conducting space or chamber *x*, provided with openings *y*, arranged with such burners in manner as described.

Witnesses:

JAMES N. EDMINSTER,  
L. W. LAWRENCE.

M. L. HORTON.