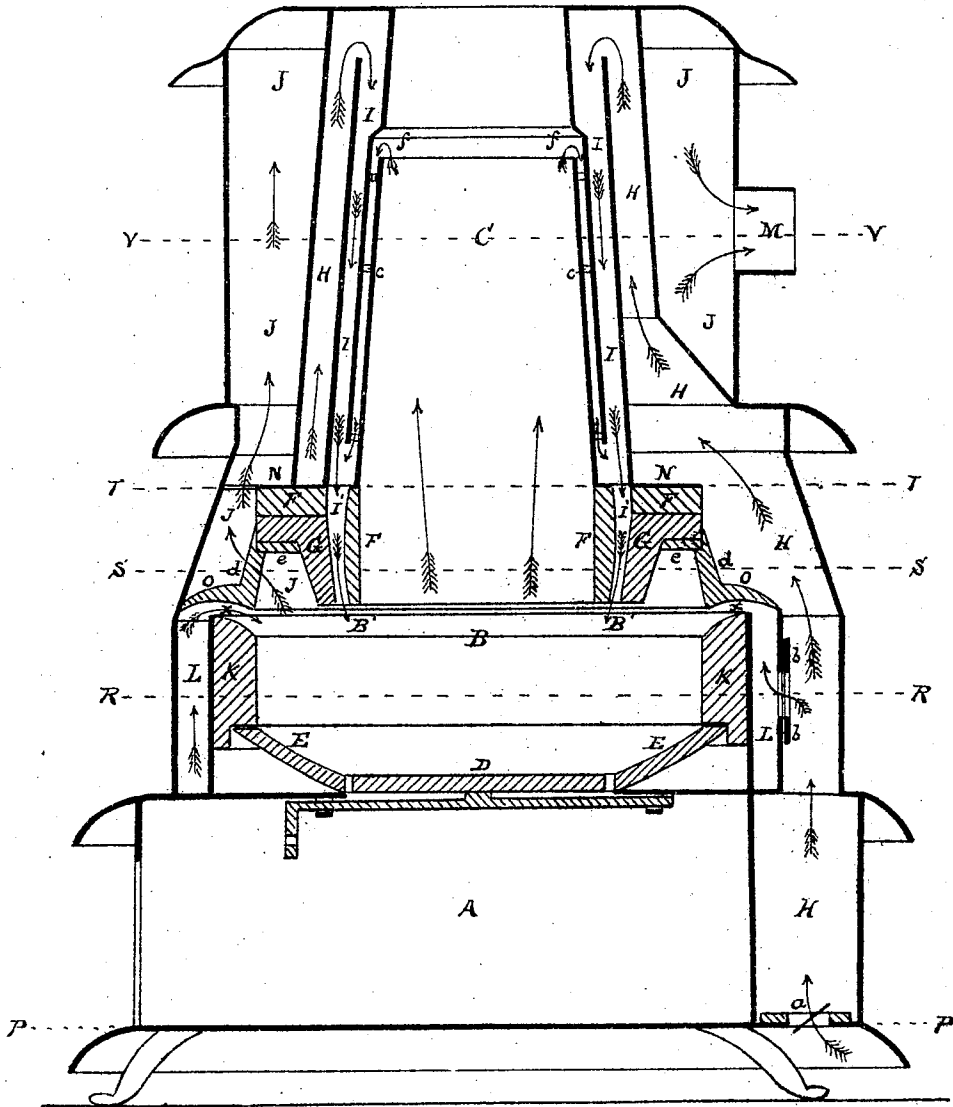


# J. Tiffany. Base-Burning Stove.

No 72339

Patented Dec. 17, 1867.

Fig. 1.



Witnesses.

W. B. Peabody

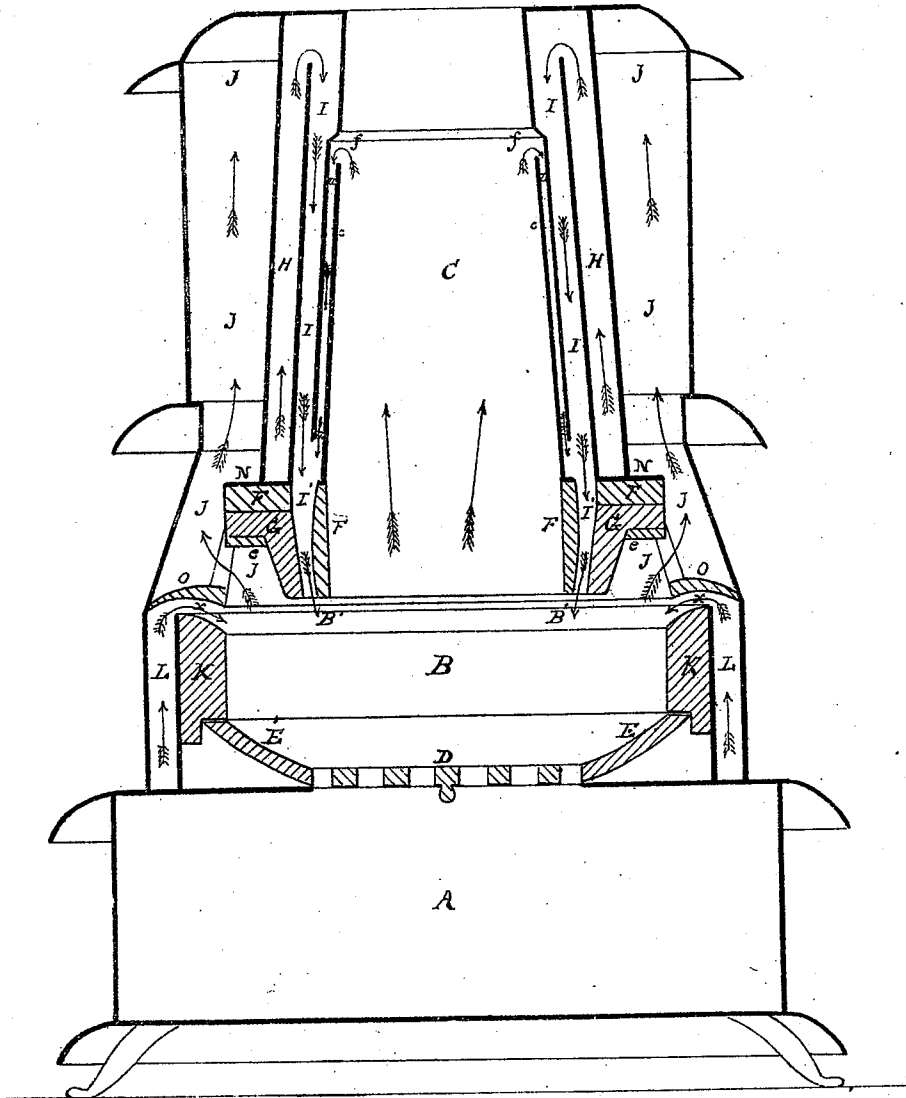
Thos. Houghton

Inventor.

Joel Tiffany

J. Tiffany.  
Base-Burning Stove.  
No 72339 Patented Dec. 17, 1867.

Fig. 2.



Witnesses.

W. B. Treadwell  
Thos. Houghton.

Inventor.

Joel Tiffany

J. Tiffany.

Base-Burning Stove.

N<sup>o</sup> 72339

Patented Dec. 17, 1867.

Fig. 3.

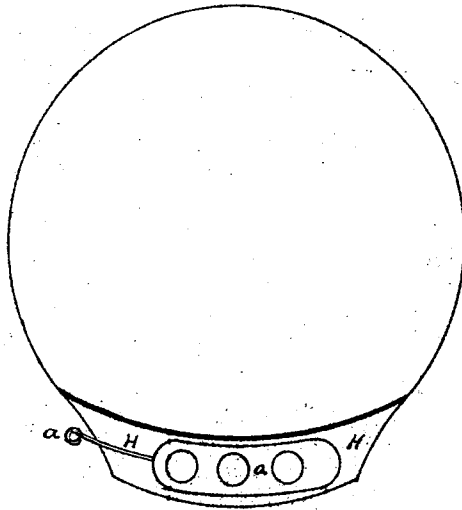
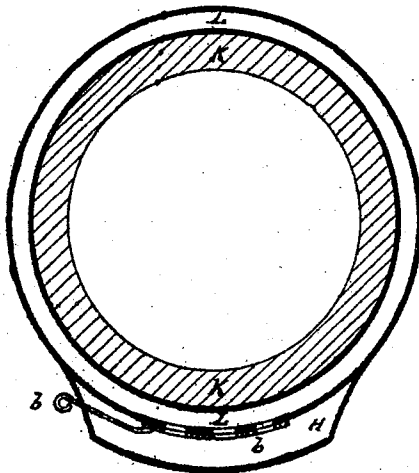


Fig. 4.



Witnesses.

W. B. Treadwell

Thos. Houghton

Inventor.

Joel Tiffany

J. Tiffany.

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N<sup>o</sup> 72339

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Fig. 5.

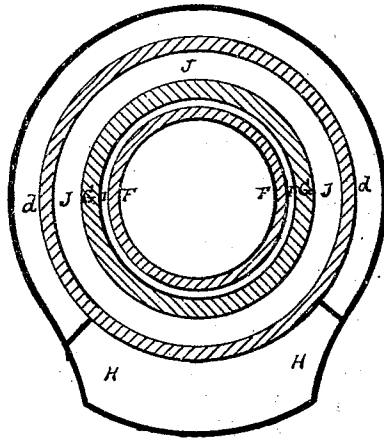


Fig. 6.

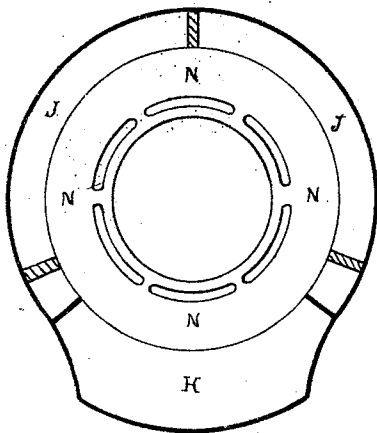
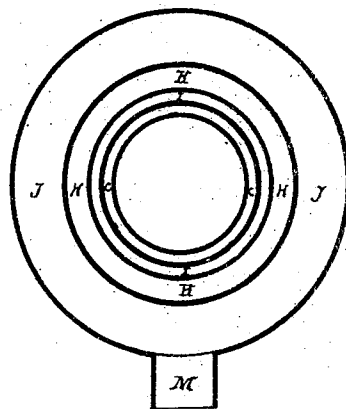


Fig. 7.



Witnesses.

W. B. Treadwell

Thos. Houghton

Inventor.

Joel Tiffany

# United States Patent Office.

JOEL TIFFANY, OF ALBANY, NEW YORK.

Letters Patent No. 72,339, dated December 17, 1867.

## 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, JOEL TIFFANY, of Albany, in the county of Albany, and in the State of New York, have invented a useful Improvement in Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof.

The object and nature of my improvement consist in so constructing a stove, for heating purposes, as to produce the most perfect combustion, by throwing upon the surface of the burning fuel streams or jets of hot and cold air, meeting at the point of impingement. In the drawings hereto attached, and forming a part of the specification and description of such improvement—

Figure 1 represents a perpendicular section of a base-burning stove, with my improvement attached, and fully represented by appropriate letters.

The section is represented as passing through the supply-cylinder C, through the chamber or pipes conducting the hot air from the upper part of the supply-cylinder, and around the same, through the opening I, upon the surface of the burning fuel, at B', through the combustion-chamber B, through hot-air chamber I I I I, through cold-air chamber or conductor H H, through the upper part of combustion-chamber J J J J, through the escape-flue M, through the mouth of the supply-cylinder F F, through the covering of the orifice O O, through the orifice  $x x$ , through the fire-brick K K and the cast-iron portion of the fire-pot E E, through the grate D, through the cold-air chamber L L, the base of the stove A, and the cold-air valve  $a$ .

Figure 2 represents a perpendicular section cut at right angles to section represented in fig. 1, the same letters marking the same parts in each figure.

Figure 3 represents the base of the stove, showing openings for the admission of cold air at H H; also, showing a damper,  $a$ , by which to regulate the admission of cold air into chamber H H, &c., in fig. 1.

Figure 4 represents a horizontal section of stove, at the red line R R in fig. 1.

Figure 5 represents a horizontal section of stove, at red line S S, fig. 1.

Figure 6 represents a horizontal section of stove, in fig. 1, at red line T T.

Figure 7 represents a horizontal section of the stove, at red line V V, in fig. 1.

The same letters represent the same parts in each of the several figures.

The stove represented in the above figures is constructed as a base-burning stove, having a supply-cylinder, C, a gas-chamber,  $c c$ , opening into the supply-cylinder at  $f f$ , and into the hot-air chamber at or near the place of discharge into the fire-chamber, having a hot-air chamber surrounding the gas-chamber, and the supply-cylinder, as seen at I I I I, having an upper combustion-chamber, through which the products of combustion pass to the escape-flue, as seen at J J J J, and escape-flue M, having a lower combustion-chamber, as seen at B, and which is at the base of the supply-cylinder C, having a fire-pot, composed of fire-brick K K, and iron plates E E, and fire-grate D, having a cold-air chamber, L L, connecting with the lower combustion-chamber, through the orifice  $x x$ , and with the outer air of the room at H H, fig. 3, and having a base or ash-pit, as seen at A.

The operation of this stove is as follows: When a fire is kindled on the grate D, by means of suitable kindling material, the dampers  $a$  and  $b$  may be closed until the fire is well started, and the first charge of coal in the fire-pot is well ignited, up to near the base of the supply-cylinder. This having taken place, the admission of air through the grate D should be prevented, by closing all dampers admitting air underneath the grate. The valves or dampers  $a$  and  $b$  should then be opened, to admit of the free circulation of air through the hot-air chamber I I I I and the cold-air chamber L L, and through the cold-air orifice  $x x$ , to meet the hot-air current or jet, upon the surface of the burning fuel, at B', surrounding the mouth of the supply-cylinder.

In the organization of the stove, to apply my improvement, great care must be taken to cause these streams or jets of hot and cold air to meet and impinge together upon the surface of the burning fuel, as it is no part of my improvement to cause such streams or jets to meet in the combustion-chamber, at any considerable distance from such surface, considering it a damage rather than a benefit to introduce cold air into the combustion-chamber, unless it is made to impinge upon the surface of the burning fuel.

The nature of my improvement is such as to require that the gases arising from the surface of the burning fuel shall be arrested immediately at the surface, where the temperature is sufficiently high to produce combustion, and shall not be permitted to escape until perfect combustion takes place.

To accomplish this, I cause a stream or jet of cold air to be thrown upon the surface of the burning fuel, to supply the requisite amount of oxygen for that purpose, and, in addition to producing the stream directly upon the surface, I employ a downward current of hot air, to force it upon and among the burning coals at the surface, thus causing the air, with its oxygen, to spread out over and upon the surface, and thus to mingle perfectly with the rising gases, and produce perfect combustion. The admission of cold air to the combustion-chamber at any point where, from lowness of temperature, combustion cannot take place, tends to prevent combustion in several ways—first, by still further reducing the temperature in the combustion-chamber; second, by choking up the escape-flue, and preventing the necessary draught to the stove.

My improvement cannot be successfully applied when cold air is allowed to enter the combustion-chamber in any considerable quantity, at any considerable distance above the surface of the burning fuel, and will be most perfectly applied when no cold air is admitted to such chamber, except such as is forced upon the burning surface.

The openings *ff*, leading from the supply-cylinder into the gas-chamber *cc*, fig. 1, are placed there to conduct the gas arising within the supply-cylinder back again to the surface of the fire, there to mingle with the cold air, and be consumed by the perfect combustion thus produced. This gas enters the hot-air chamber at the point of discharge upon the surface of the burning fuel.

Having thus fully described the nature and purpose of my improvement, I will proceed to state my claims.

I do not claim the introduction of hot or cold air, or of hot and cold air into the combustion-chamber of a fireplace or stove; nor do I claim the downward jet of hot air upon the surface of the burning fuel, nor the downward jet of hot air in combination with the gas from the supply-cylinder; but

What I claim as my invention is as follows:

The use or employment of downward streams or jets of hot air upon the surface of the burning fuel, in combination with lateral streams or jets of cold air, taken over the top, through the sides or otherwise, of the fire-pot, and specially directed or conducted, by means of tubes, projecting plates, or other equivalent means, so as to meet the streams or jets of hot air, at the point of impingement upon the surface of the burning fuel, substantially as set forth.

In testimony that I claim the above-described improvement in stoves, I have hereunto signed my name, this 13th day of November, 1867.

JOEL TIFFANY.

Witnesses:

D. E. SOMES,  
CHARLES HERRON.