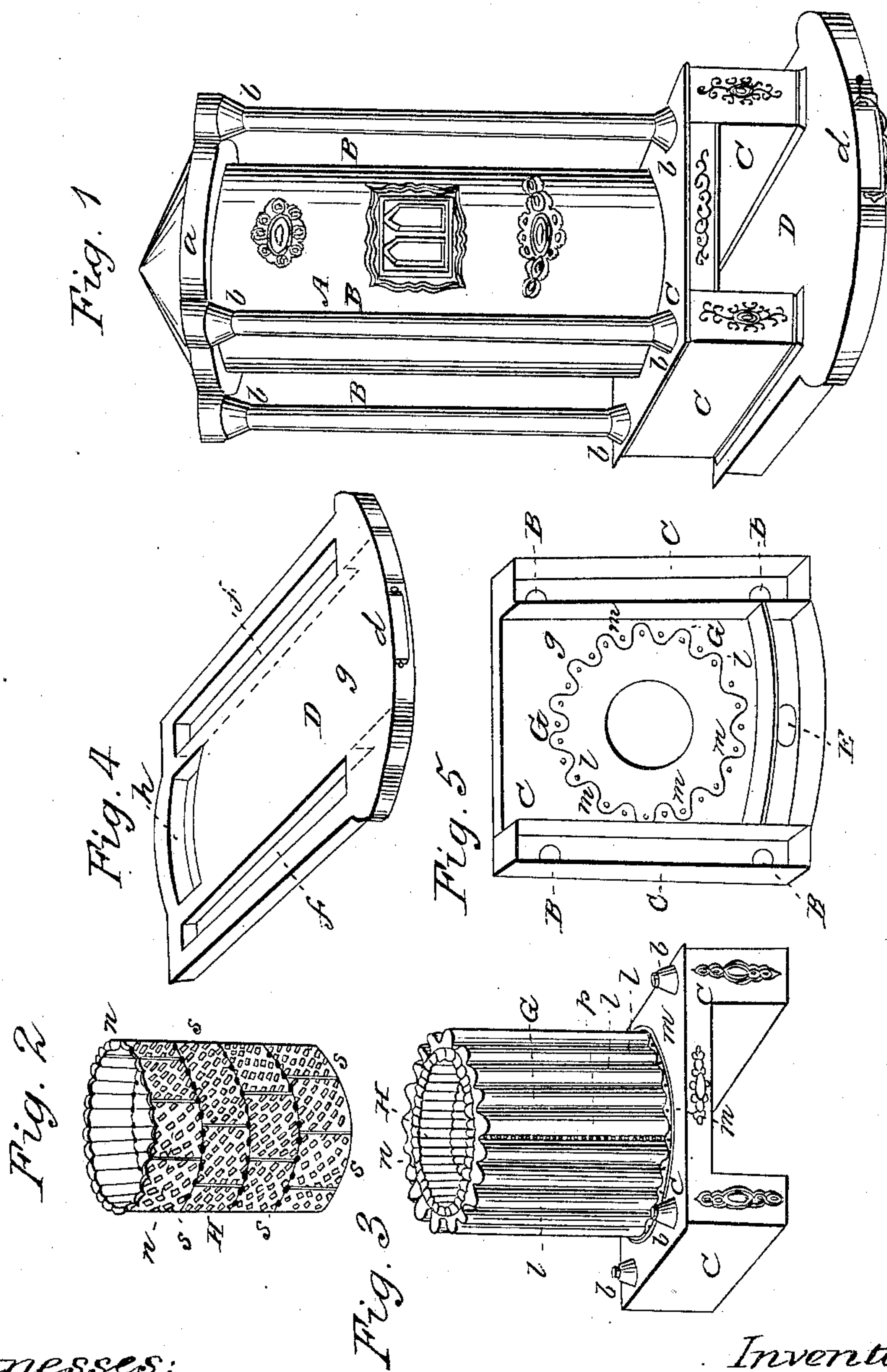


J. J. LOW.

Grate.

No. 63,538.

Patented April 2, 1867.



Witnesses:

Thos. J. Parker
E. J. Brown

Inventor:

John J. Low
By his atty
E. J. Brown

United States Patent Office.

JOHN J. LOW, OF CLEVELAND, OHIO.

Letters Patent No. 63,538, dated April 2, 1867.

IMPROVEMENT IN COAL 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, JOHN J. Low, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented an improved Gas-Burning Coal Stove; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a view in perspective of the entire stove.

Figure 2, a view in perspective of my improved fire-pot lining.

Figure 3, a view in perspective of my improved corrugated or fluted cylinder surrounding the lining, and of the upper base of the stove.

Figure 4, a view in perspective of the lower base and hearth of the stove.

Figure 5, a view in perspective of the under side of the upper base of the stove.

Like letters designate corresponding parts in all of the figures.

The stove as represented is a cylinder coal stove, but my fire-pot improvement is applicable to stoves of shapes varying therefrom.

Letter A represents the body of the stove, C the upper base, and D the lower base, including a front projection thereof or hearth. I have represented four vertical columns, B B, for conveying the products of combustion from the top *a* of the stove down to the upper base C, but single enclosed side flues, or other arrangements of flues, may be substituted with good if not the best effect. There are two side flue spaces, *c c*, in the upper base C, and occupying the entire sides thereof, for receiving the products of combustion from the pipe-columns B B. These spaces extend down to the bottom of the lower base D, and are separated from the middle portion *g* thereof by partitions, *t t*, as most clearly represented in fig. 4. By this construction the products of combustion are compelled to pass from the side flue spaces directly forward under the hearth or front projection of the lower base, and thence back through the middle space *g* to a rear flue space, *h*, (fig. 4,) whence they escape upward through a flue or pipe behind the stove, as indicated at fig. 5. By thus bringing the products of combustion down into the base of the stove, and causing them to circulate all through the same, under the hearth and under the ash-pit, not only does the stove heat well down close to the floor, where it is most required, and a largely increased radiating surface is produced, but the hearth is thoroughly warmed, rendering its use exceedingly comfortable. I am aware that other arrangements for base-heating have been attempted, but I believe none have so thoroughly heated, especially under the hearth, and with cylinder coal-burning stoves. The object of my improvement in the fire-pot or box of the stove is to supply the oxygen of the air for supporting combustion by admitting the air as abundantly, as directly, and at as many different points to the burning fuel as possible. I employ a corrugated or fluted cylinder, G, to be placed inside of the casing of the stove, and to be composed of sheet iron, cast iron, or other suitable material. This cylinder rests upon the base of the stove, through which apertures, *m m*, (figs. 3 and 5,) are formed, so as to admit air from below up into each corrugation or fluting, *l*, substantially as indicated. It may itself be used as the interior lining of the stove, in which case the air is admitted only within the outer flutings, and thence through the thickness of the cylinder by numerous small holes, as indicated at *p*, fig. 3, directly into the burning fuel. But, especially for a coal stove, it is preferable, if not necessary, to employ a refractory lining, H, of fire-brick or soap-stone, or even of cast iron, immediately inside of the corrugated or fluted cylinder. This lining is most conveniently made of separate pieces or bricks, as indicated in fig. 2, so put together as to break joints. There should be numerous perforations through the linings to admit the air from the corrugations into the fuel, or among the gaseous products thereof, throughout the extent of the lining; and in making the lining of separate bricks or pieces these perforations are readily formed by making notches, *n n*, in the edges of the bricks, as shown. The corrugations of the cylinder G should be wholly or nearly closed at the top, so as to allow or compel the air to pass through these perforations from bottom to top. And, although the air is most abundantly and freely admitted directly up through these vertical corrugations or flutings, yet, in order to more thoroughly and evenly admit the air on all sides, I make oblique cross-grooves or flutings, *s s*, in the outer surface of the lining, as seen in fig. 2. When the lining is used inside of the corrugated or fluted cylinder, air may either not be admitted into the outer flutings, or, if admitted, may flow therefrom by perforations or passages through the outer case into the room to enhance the heat thereof.

It is a well-known fact that by all ordinary means of burning fuel much of the gaseous product of the decomposed fuel escapes in the draught on account of the deficient supply of oxygen from the atmosphere to support the combustion of the gases. Especially is this true of peat, of bituminous, and even of other coals. The difficulty of completely effecting this important purpose is such that an improved means of effecting it may be very valuable, for not only is much more heat obtained and utilized from the consumption of a certain amount of fuel, but cleanliness, health, and convenience are promoted. My improvement is quite effectual in producing these desirable results. It is not necessary that the fluted "cylinder" should be of exact cylindrical form, but that being its general form or outline the appellation thus derived is applied as its technical name, even when it is made in other shapes. Instead of having the apertures *m m* made in the base of the stove they may be made in the periphery of the stove body, outside of the corrugated or fluted cylinder. The cylinder may be used without an outer casing, as described, in which case it radiates directly into the surrounding air, and has a good surface for that purpose.

What I claim as my invention, and desire to secure by Letters Patent, is—

The corrugated or fluted cylinder *G*, as constructed and arranged in relation to the apertures *m m* at its base, and to the passages *n n* or *p*, substantially as and for the purposes herein specified.

I also claim an interior perforated lining *H*, in combination with said corrugated or fluted cylinder, and aperture at its base, constructed and operating substantially as and for the purpose herein specified.

I also claim in a cylinder coal-burning stove the passage of the products of combustion into the lower base *D*, at the sides thereof, thence forward under the hearth, and finally back through the middle of the base beneath the ash-pan to the exit flue or pipe, substantially as and for the purposes herein specified.

JOHN J. LOW.

Witnesses:

J. S. BROWN,

THOS. T. PARKER.