

M. G. FAGAN.  
Magazine Stove.

No. 96,902.

Patented Nov. 16, 1869.

Fig. 1

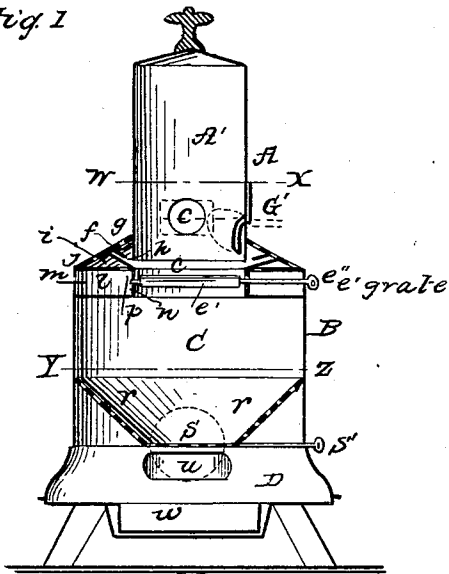


Fig. 2

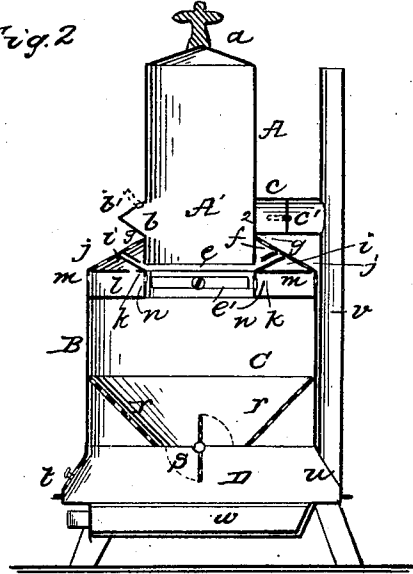


Fig. 3

through w-x

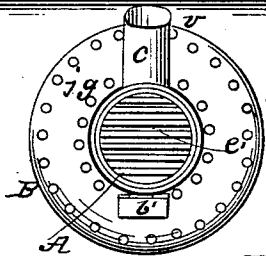
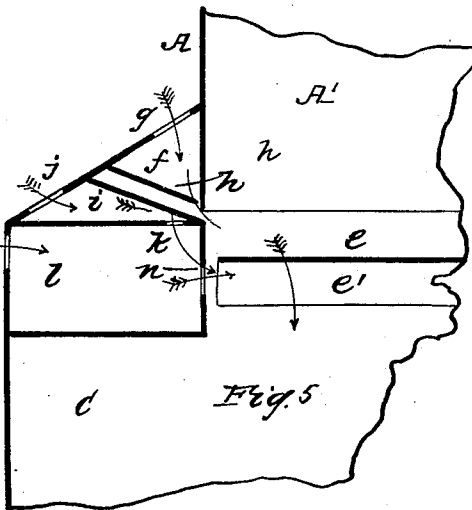
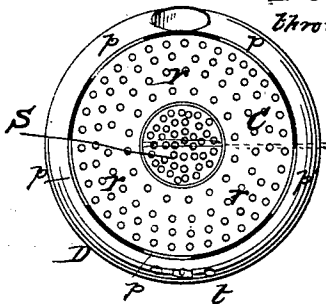


Fig. 4

through y-z m



Witnesses

Henry F. Thayer  
John. Stanley

Inventor

Michel G. Fagan

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2 Sheets—Sheet 2.

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Fig. 6

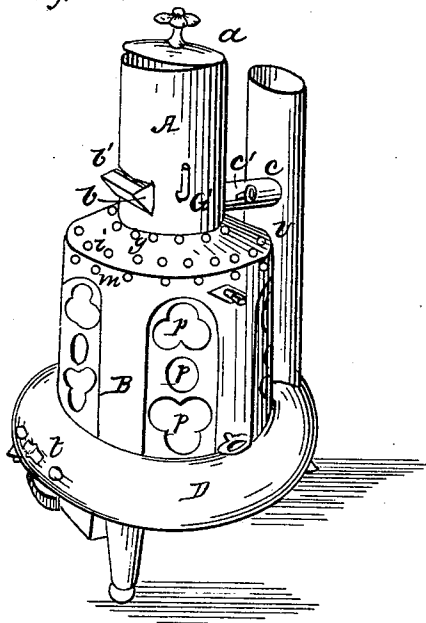


Fig. 7

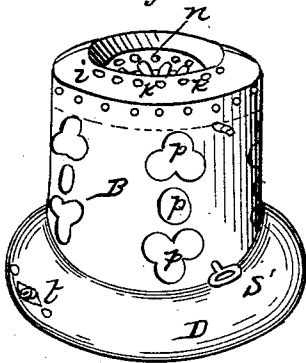
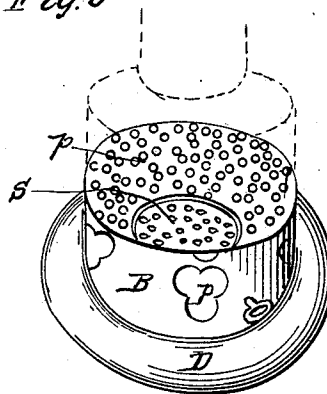


Fig. 8



Witnesses  
Henry T. Thayer  
John Stanley

Inventor  
Michel G. Fagan.

# United States Patent Office.

MICHEL G. FAGAN, OF TROY, NEW YORK, ASSIGNOR TO HIMSELF AND  
JOSEPH B. WILKINSON, OF SAME PLACE.

*Letters Patent No. 96,902, dated November 16, 1869.*

## BASE-BURNING STOVE.

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

I, MICHEL G. FAGAN, of the city of Troy, in the county of Rensselaer, and State of New York, have invented certain Improvements in Stoves for the burning of bituminous coal, of which the following is a specification.

### *Nature and Objects of the Invention.*

The nature of my invention consists, first, in the arranging of the several parts of my stove, so that a receptacle for fuel (or fuel-chamber) may be kept filled, and the coal burned only at the bottom of the said chamber and on the surface of the grate, the draught being downward, and away from the same.

The coal contained in the cylinder or chamber above the grate, by means of the heat below, becomes gradually converted into coke, or a substance analogous thereto, and dropping downward on the grate, it becomes in its turn entirely consumed.

The fuel-chamber is filled at the top, and the aperture is closed by a cover, pivoted on one side, and the cover slides horizontally, and is fitted so that the aperture is closed perfectly.

It also consists in the employment and arrangement of an opening, provided with a suitable cover, which will perfectly close the same; and the said opening is situated opposite to an outlet-pipe, which is provided with a damper, so constructed that when shut it will close up the passage and render it perfectly tight, the object of this arrangement being to facilitate the kindling of fuel when starting the fire.

The inlet and outlet-openings are situated just above the surface of the grate, and they are opened, when kindling, and a direct draught is produced running directly into the main exit-pipe, and thence into the chimney. After the fire is started, these openings are closed, and we then have the down draught through the grate, and away from the fuel-chamber.

It also consists in supplying the fire with draught-air at a point but little above the surface of the grate, said draught-air being heated in a chamber provided for the purpose, and then passes downward through the bars of the grate.

Before this draught-air is admitted to the fire, it passes through a chamber constructed and placed around the lower part of the fuel-chamber, and its bottom plate is about on a line with the bottom of the fuel-chamber. One object of this chamber is to heat the draught-air, and another object is to keep the lower part of the cylinder surrounding the fuel-chamber cool, and prevent its destruction by the intensity of the heat within.

The draught-chamber is provided with apertures for ingress and egress. The outer apertures are provided with suitable dampers, so that the draught may be regulated.

It also consists in the employment and construction of a chamber surrounding the grate, the top line being

a little above the top line of the grate, and the bottom of the chamber being a little below the bottom of the grate.

This chamber has apertures for ingress and egress, and through this chamber I pass air, warming it therein, and admitting the air thus warmed to the fire just abreast the grate, and the object being to assist combustion and the burning of the gases below the grate, by the admixture of fresh air at that point.

I also have a chamber situated between this last-mentioned chamber and the one before-mentioned, encircling the upper cylinder, into which I admit air, and from thence I pass the air, through suitable apertures, into the chamber abreast the grate. This chamber has ingress-apertures, provided with dampers, and is auxiliary to the chamber abreast the grate, so that an additional quantity of heated air may be admitted to the fire below the grate, if required.

It also consists in the construction and employment of a chamber below the grate, the top of which is formed by the grate and the bottom plate of the chamber surrounding the grate before mentioned, and the sides of this chamber, below the grate, constitute the lower cylinder of the stove, and the bottom of this chamber is formed by a perforated plate, and in the centre of this plate I have a circular aperture, sufficiently large to allow the ashes and other matter, if required, to pass or drop downward into the ash-pan below, and I close this aperture by means of a damper or revolving plate, also perforated with small apertures through its surface, the object of this perforated plate and perforated damper being to retain the particles which may not have been consumed above within this chamber, where, by the intensity of the heat, they become entirely consumed.

It also consists in the arrangement and employment of apertures through the surrounding walls or cylinder of the lower chamber, or chamber below the grate, which said apertures I close or cover with mica, or its equivalent, the object being to allow the fire to be seen, and by its brilliancy to illumine the apartment.

It also consists in the construction and employment of a dampered aperture, situated below the lower cylinder, and in the base of the stove, and opposite this aperture I place the outlet exit-pipe, and through the aforesaid aperture I admit cold air, which, by passing across and into the exit-pipe, has the effect of checking the draught.

It also consists in the use and construction of a lever, one end being inside the upper cylinder or fuel-chamber, and the other end outside, and the object thereof is as follows: It has been found that coal coked in this way has a tendency to stick in the cylinder, which, by the operation of this device, is prevented.

### *Description of the Accompanying Drawings.*

Figure 1 is a vertical section from right to left of the stove.

Figure 2 is a vertical section from front to back of the stove.

Figure 3 is a horizontal section through the upper cylinder or fuel-chamber, at the line W-X.

Figure 4 is a horizontal section through the lower cylinder or combustion-chamber, on the line Y-Z.

Figure 5 is a vertical section of the chambers surrounding the grate, and situated at the junction, and forming the connection of the upper and lower cylinders.

Figure 6 is a general perspective view of the stove.

Figure 7 is a perspective view of the lower cylinder, the upper being removed.

(This view shows the apertures through which air is admitted, and the position of the grate.)

Figure 8 is a perspective view of a portion of the lower cylinder, the remainder of the stove left out, and this shows the perforated plate and perforated damper within said cylinder.

#### General Description.

On the drawings, like letters refer to like or corresponding parts.

Arrows show the direction of the currents.

A is the upper cylinder, forming the fuel-chamber, with the charging-door or cover *a*, and at *b* is the opening for the direct draught used in kindling, having its cover *b'*, and at *c* is the outlet-pipe for direct draught, running from the fuel-chamber to the main exit-pipe, and having the damper for opening and closing the same, shown at *c'*.

It will be seen that the bottom of the fuel-chamber stops at *e*, leaving a space all around at the upper surface of the grate, shown at *e'*. There may be a grating, or its equivalent, at this place, dividing this space into several apertures, if desired.

At *f* is a chamber, encircling the lower part of the fuel-chamber, and having dampered apertures at *g*, for ingress of air, and apertures at *h*, for passage of air therefrom to the fire at *e*, for draught.

I have another encircling-chamber at *i*, having dampered apertures at *j*, for ingress of air, and outlet-apertures at *k*, for admittance of air to the next chamber, *l*, and the chamber *i* is auxiliary thereto.

The chamber *l* is situated within the upper part of the lower cylinder of the stove, and encircles the grate, and I provide apertures for ingress of air thereto at *m*, and for passage of air to the fire at *n*, opposite the grate. The air admitted from this chamber is employed to assist combustion in burning the gases, and it also aids the draught.

*e'* marks the grate-bars, which I construct hollow, in the shape of an arch, hollow and open underneath. This grate also revolves on a bar, as usual, for dumping and cleaning.

B is the lower cylinder, and encloses the combustion-chamber, or chamber below the grate, and around this cylinder I have the mica-covered illuminating-apertures, marked *p*.

C is the combustion-chamber, and it is here that the gases are consumed.

*r* is the perforated plate, forming the bottom of the combustion-chamber, and having a perforated damper, as shown at *S*, in its centre. This damper revolves vertically on a rod or bar, having a handle at *S'*.

At *D* is the base of the stove, and to this chamber I construct dampered apertures at *t*, for admittance of air to check the draught, as before mentioned, and at *u* is the outlet-opening for smoke, &c., to the exit-pipe *v*, through which it escapes. At *w* is the ash-pit, containing an ash-pan, as usual.

At *G'* I place a lever, as shown, so formed and hung that, by forcing downward the outer end thereof, the inner end, by rising, will cut or break the coal or coke, and cause it to drop down toward the grate, if from any cause the coal or coke should stick in the cylinder or fuel-chamber, as has been before mentioned.

#### Claims.

I claim, as my invention—

1. The fuel-chamber *A'*, supported by the cylinder *B* at a point between the exit-pipe *c* and the grate *e'*, situated and used as and for the purpose as described and set forth.
2. The draught-aperture *b*, with its cover *b'*, in combination with the outlet connection-pipe *c*, and its air-tight damper *c'*, situated, constructed, and used as described and set forth.
3. The chamber *f*, with its dampered ingress apertures *g*, and outlet *h*, constructed, situated, and used as described and set forth.
4. The chamber *i*, with its dampered ingress-apertures *j*, and outlet-apertures *k*, constructed, situated, and used as described and set forth.
5. The chamber *l*, with its ingress-apertures *m*, and outlet-apertures *n*, constructed, situated, and used as described and set forth.
6. The chamber *C*, in combination with the upper chamber *A'*, (and supporting the same,) situated and used as described and set forth.
7. The perforated bottom plate, or its equivalent, *r*, with the perforated damper *S*, operated by the handle *S'*, constructed, situated, and used as described and set forth.
8. The dampered aperture *t*, in combination with the outlet *u* and the perforated plate *r*, constructed, situated, and used as described and set forth.
9. The illuminating-apertures *p*, covered or closed with mica, or its equivalent, and situated below the grate and above the base of a stove, as and for the purpose described and set forth.
10. The employment and construction of the lever *G'*, or any equivalent thereto, for the purpose of causing the fuel to drop downward, substantially as described and set forth.

MICHEL G. FAGAN.

Witnesses:

HENRY F. THAYER,  
JOHN STANLEY.