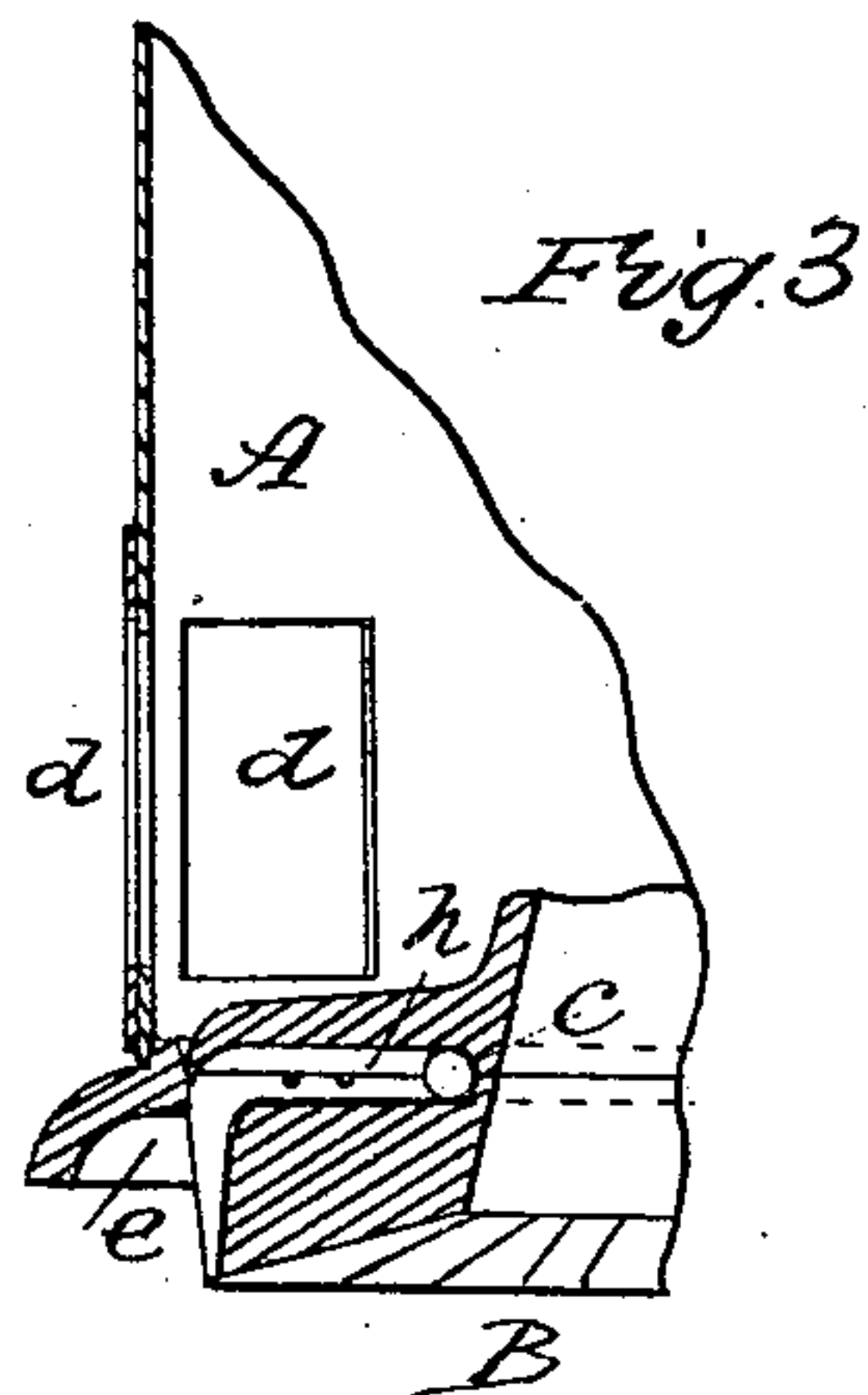
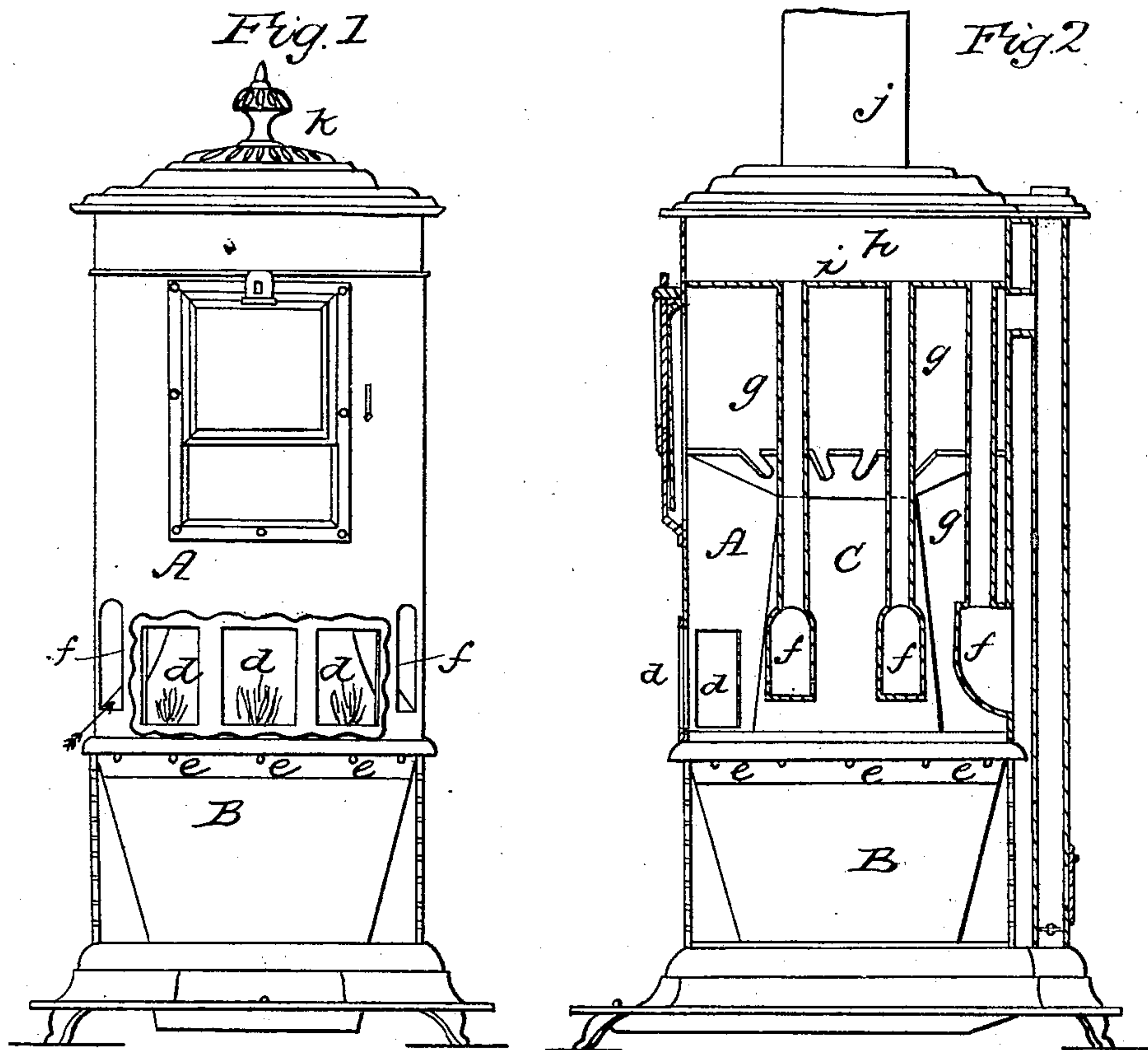


H. G. GILES.
Base Burning Stove.

No. 46,895.

Patented March 21, 1865.



WITNESSES
R. F. Osgood.
D. C. Johnson

INVENTOR
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UNITED STATES PATENT OFFICE.

H. G. GILES, OF TROY, NEW YORK.

IMPROVEMENT IN BASE-BURNING STVOES.

Specification forming part of Letters Patent No. **46,895**, dated March 21, 1865; antedated September 21, 1864.

To all whom it may concern:

Be it known that I, H. G. GILES, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in 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, in which—

Figure 1 is a front elevation, and Fig. 2 a vertical section through the tubes *g g*, chamber *h*, and pipe *j*, the fire pot B and supply-cylinder C being shown in elevation. Fig. 3 is a vertical section of a portion of the wall and flange of the fire-pot, showing the mode of admitting air to consume the gases of combustion, together with a part of the outer cylinder, A, and illuminating-openings *d d*.

My invention is designed as an improvement on the stove patented to Gilbert J. Kingsbury, April 12, 1859, and by an additional improvement September 18, 1860; and it consists in combining and arranging with said stove devices for illuminating in front of and around the same by the light emitted from the combustion of the gases therein provided for, and for heating a portion of the external air in immediate connection with the burning of the gases, and passing the same out of the top of the stove, or, when required, through a pipe to warm a room above.

The general construction and operation of the stove on which my improvements are founded are as follows:

A sheet-iron cylinder, A, is set upon a fire-pot, B, which is provided with a suitable grate and ash-pit. Immediately above the fire-pot, and resting thereon by means of radial bars, is a smaller cylinder, C, for containing a supply of coal, which falls into the fire-pot by its own weight as fast as that below is consumed. The flame finds egress through the openings situated between the bars which connect the fire-pot and supply-cylinder, and at this point external air is introduced through apertures, which, entering from the outside of the fire-pot at *e e*, pursue the bars *b*, Fig. 3, and intersect an annular groove, *c*, situated immediately under the supply-cylinder at its junction with the bars. From this annular passage, and from those which communicate with it through the connecting-bars, the air is emitted

at intervals in small jets on the outside of the annular passage or groove and on each side of the bars, there to mingle with the gases evolved from the coal to insure their combustion.

In the cylinder A, immediately above the fire-pot, I provide a number of openings, *d d*, each of a height sufficient to allow all the flame arising from the gases to be visible. These may consist of a single opening or of a number of smaller ones of any convenient form, which should be covered with mica, or some other transparent material that will readily transmit light and resist the heat. By this means I produce a stove which is a powerful illuminator at all times when the fire is kept burning in any considerable degree, for each jet of air which is emitted from the orifices described produces a light nearly equal to that of an ordinary gas-burner when the fuel and state of the fire are in a suitable condition. Therefore the openings *d d d* radiate the light of a great number of burning gas-jets, giving a brilliant as well as cheerful effect to the stove and affording a considerable degree of (and in many cases adequate) illumination to the room.

It will be observed that all products of combustion from the fire-pot B escape directly upward through the annular space between the supply-cylinder C and outer cylinder, A, which space is further reduced by the radial bars *b*, located at the junction of the fire-pot and supply-cylinder, at which point the fresh air is introduced in a highly-heated condition, mingling at once with the ascending gases, igniting them, and producing a second combustion with very brilliant flames in consequence of the incandescence of the particles of combustion under the extreme heat thus produced, and this condition renders the employment of the light for illumination, so far as can be done without destroying the essential form and operation of the stove, a matter of importance in economy, as well as to render the stove more inviting by giving the effect of an open grate or fire-place; and the condition above alluded to enables me to save a considerable amount of the heat evolved by burning the gases at this point of junction by indenting a portion of the outer cylinder, A, back of or above the illuminating-openings *d d*, with

a number of pockets, *f*, deeply recessed in its sides, just above the line of gas-jets, so that they are heated both below and on three vertical sides thereby, while the fourth is open for the free admission of air, and the top connected with the pipes *g g* for its ascent when heated. These pipes communicate with a chamber, *h*, separated from the lower portion of the stove by the diaphragm *i*, in which the air thus heated is gathered, and from which it is discharged into the room through openings in the urn or cover *k*, Fig. 1, or conveyed through the pipe *j* to warm an upper room. The pockets *f f* may be arranged quite closely together, and while they obstruct the direct radiation of heat scarcely at all, they constitute an important adjunct for heating the air of the room or for warming another, and effect a large saving in the fuel, as the chief part of the heat thus obtained would otherwise escape up the smoke-pipe and be lost. The pockets may be covered with open-work, which renders them an ornament without materially obstructing the passage of the air. They may be made semicircular, or of any other form which shall be found most convenient to construct, and may be placed just above the light-openings *d d*, where it is desirable to use such

around the cylinder, and still receive the full heat of the flames from the burning gases.

I do not claim, broadly, the use of illuminated openings in the front or side of stoves having an interior feeding-chamber above the chamber of combustion when fresh or exterior air is not admitted for igniting the gaseous products of combustion; but

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

1. Combination of apertures *e* in the fire-pot of a base-burning stove, communicating with hollow radial bars *b*, provided with openings in the sides, and mica windows *d d d*, arranged and operating substantially as for the purposes set forth.

2. The air-pipes *g g*, in combination with the openings *f f*, air-chamber *h*, reservoir *C*, and cylinder *A*, arranged and operating substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

H. G. GILES.

Witnesses:

P. FRASER,
R. F. OSGOOD.