B. F. RONEY.

Magazine Stove.

No. 33,367. Patented Sept. 24, 1861.

Fig. 1.

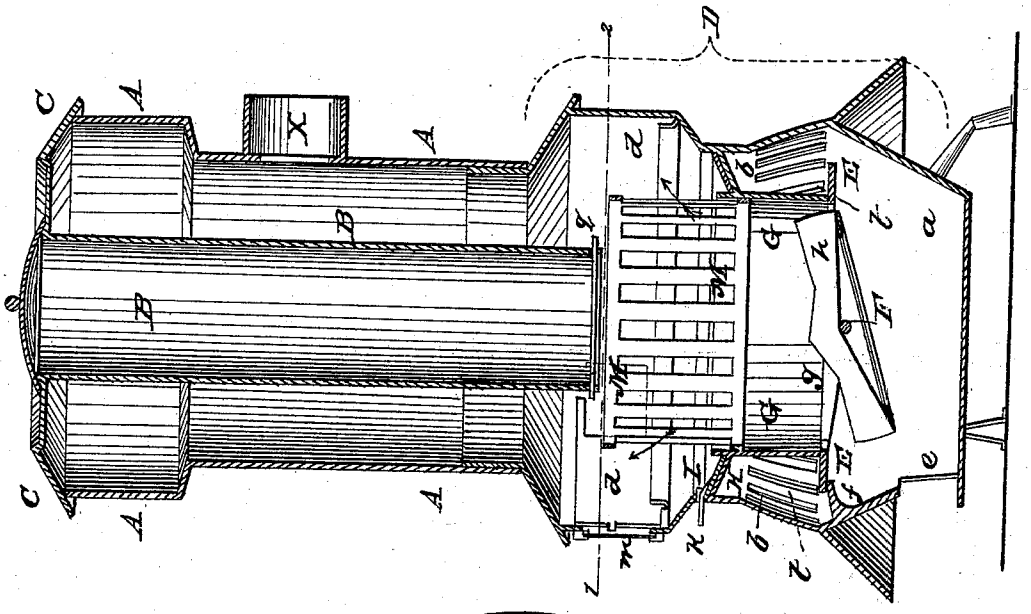
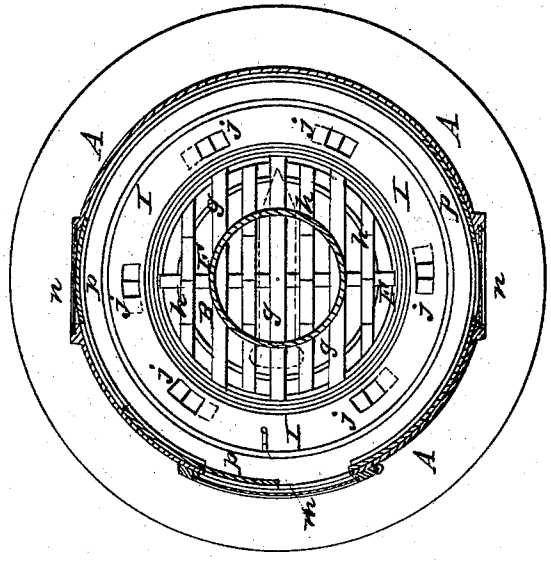


Fig. 2.



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UNITED STATES PATENT OFFICE.

BENJAMIN T. RONEY, OF BRISTOL, PENNSYLVANIA.

IMPROVEMENT IN COAL-STOVES.

Specification forming part of Letters Patent No. **33,367**, dated September 24, 1861.

To all whom it may concern:

Be it known that I, BENJAMIN T. RONEY, of Bristol, Bucks county, Pennsylvania, have invented certain new and useful Improvements in Coal-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists, first, of an arrangement (substantially as described hereinafter) of a cylindrical fire-pot, a grated fire-pot, and an internal casing, whereby the ignited products of combustion are directed laterally through the bars of the said grated fire-pot; secondly, in an arrangement, described hereinafter, of an air-chamber with certain openings, the fire-pot, and ash-pit, whereby the air for supporting combustion is thoroughly heated before it mingles with and ignites the products of combustion generated from the partially-consumed fuel in the grated fire-pot; thirdly, in certain slides for preventing the obscuring of the mica plates of the fire-chamber when the fire is kindled in the first instance.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

In reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section of my improved coal-stove; and Fig. 2, a sectional plan on the line 1 2, Fig. 1.

A is the exterior casing of the body of the stove; B, the inner casing serving as a reservoir for containing the fuel, and C the cap attached to the upper ends of both exterior and inner casings, *x* being the outlet for the passage of the products of combustion to the chimney.

D is the base of the stove, in which are three compartments—namely, the ash-pit *a*, the air-chamber *b*, and fire-chamber *d*. The ash-pit *a* has in front an opening *e* for the admission of the usual drawer to receive the ashes, and has any convenient number of lugs or projections *f*, on which rests the annular plate E with its permanent bars *g*. Beneath the latter is a spindle F, passing through and turning in the opposite sides of the base and furnished at one end with a suitable handle, the spindle having a number of bars *h* of the peculiar form represented in the drawings, and each bar moving between two of the permanent bars *g* of the annular plate E as the spindle is vibrated. As this grate forms the subject for a separate application for a patent, it will be unnecessary here to enter into a lengthy explanation of its construction and operation.

To the inner edge of the annular plate E is secured the fire-pot G, which consists of a hollow cast-iron cylinder, and the upper end of which is connected to the exterior casing which forms the base D of the stove, by means of a partition H, the latter separating the air-chamber *b* from the fire-chamber *d*, and having a number of openings *j*. (Best observed on reference to the plan view, Fig. 2.) On this partition H rests an annular plate I, which has a number of openings coinciding in number, size, and position with the openings *j* of the partition H, the plate being provided with a handle *k*, which projects through an oblong slot in front of the base of the stove and enables the attendant to turn the plate partly round so as to close the openings *j* of the partition or so as to cause the openings of the plate and partition to coincide, and thereby present a free communication between the air-chamber *b* and fire-chamber *d*.

To the inside of the cylindrical fire-pot G is secured a second fire-pot M, which consists of a hollow cylinder with vertical bars, and which is so situated that its upper edge shall be but a short distance below the lower edge of the internal casing B.

The fire-chamber *d* is provided in front with a door *m*, which consists of a frame containing a plate of mica, and in the sides of the fire-chamber may be framed any convenient number of mica plates *n*. On the inside of the fire-chamber, and fitting close to the casing of the same, are slides *p p*, which are so arranged that they can be readily moved away from the mica plate of the door and from those framed into the side of the fire-chamber, or may be slid to such a position as to cover the said mica plates.

Near the lower edge of the interior casing B, and directly opposite to the door *m* of the fire-chamber, are oblong openings for receiv-

ing the slide q, which is of such a width as to prevent the fuel in the casing B from falling therefrom into the grated fire-pot M.

In preparing the stove for use in the first instance the internal casing B is filled with coal, which is prevented from falling into the upper grated fire-pot by the slide q. A suitable cover (shown in red lines, Fig. 1) is then fitted to the top of the internal casing, so as to prevent the air and products of combustion from passing through the store of fuel in the said casing. Suitable kindling material being deposited on the grate of the fire-pot G and then ignited, the slide q is partly withdrawn from the internal casing B, so as to allow the coal to fall in small quantities until it becomes ignited, when the slide q may be entirely withdrawn and the coal allowed free access to the grated fire-pot. During this preliminary igniting of the fuel care should be taken to cover the mica plates of the door and sides of the fire-chamber by means of the slides p p, thereby preventing the smoke from obscuring the plates and destroying their translucency. When the stove is in full operation, the red-hot cinders and ashes are contained in the cylindrical fire-pot G and the partially-consumed fuel in the grated fire-pot M. The air for supporting combustion has to pass in the first instance through the openings t, which are situated at suitable intervals apart from each other and arranged round the air-chamber b. Impinging directly against the red-hot fire-pot G the air becomes heated before it passes into the ash-pit a. As it passes through the grate and through the red-hot cinders it becomes still further heated, and by the time it reaches the grated fire-pot M is in the very best condition for thoroughly igniting the products of combustion as they are generated from the partly-consumed fuel in the said fire-pot. In fact, the contact of the heated air with these products of combustion causes the latter to assume the form of a brilliant flame, which, owing to the presence of the body of coal in the central casing, will be propelled laterally in the direction pointed out by the arrows through the grating of the fire-pot M, and owing to the position of this fire-pot in relation to the fire-chamber d this flame will be visible through the mica plates of the door m and sides of the fire-chamber.

The peculiar position of the fire pot G in respect to the air-chamber b and in air-openings t possesses two advantages. In the first place the foul air of the apartment is carried off through the openings into the ash-pit and is used as a means of supporting combustion, while the rays of heat from the red-hot fire-pot will penetrate through the openings and add to the heat imparted to the room by other parts of the stove. The annular plate I, with its openings, serves a threefold purpose: Frst, by altering its position more or less air may be made to pass through the partition H instead of downward into the ash-pit, thereby checking the draft of the stove at pleasure; secondly, it serves as a medium for discharging into the ash-pit whatever fuel may fall from the upper edge or from between the bars of the grated fire-pot, and, thirdly, by moving the annular plate, so as to expose the openings of the partition, the dust created by the raking of the fire is allowed to pass upward through the body of the stove instead of being discharged into the apartment.

I wish it to be understood that I do not desire to claim, broadly, the use of an internal casing B, forming a reservoir for the fuel, as a central fuel-chamber has been heretofore used in connection with stoves; but

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

1. The cylindrical fire pot G, the cylindrical and grated fire-pot M, and the internal casing or fuel-reservoir B, when the several parts are arranged in respect to each other, substantially as set forth, for the purpose of directing the ignited products of combustion laterally through the bars of the said grated fire-pot, as set forth.

2. The arrangement of the air-chamber b, its openings t, the fire-pot G, and ash-pit a, whereby the air is directed in the first instance against the said fire-pot, thence into the ash-pit, and thence through the fuel, for the purpose described.

3. The slides p, applied to the interior of the fire-chamber d and arranged in respect to the mica plates of the door and sides of said chamber, in the manner and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

B. T. RONEY.

Witnesses:

HENRY HOWSON,

JOHN WHITE.