H. R. ROBBINS.

Magazine Stoves.

No. 147,978. Patented Feb. 24, 1874.

Fig. 1.

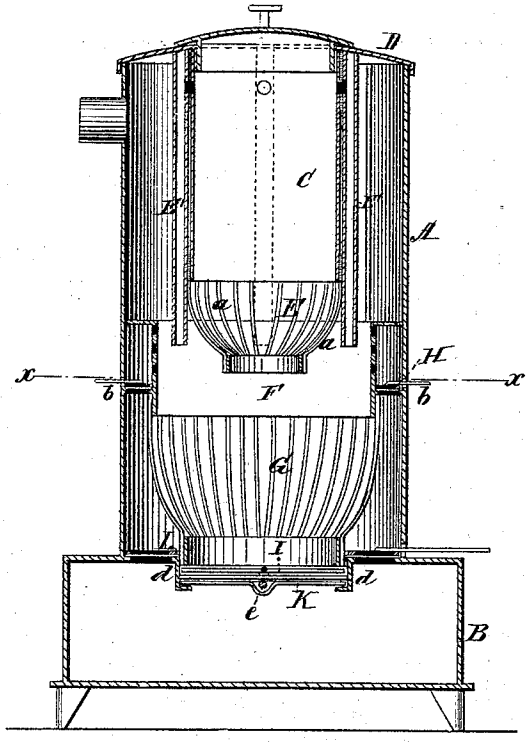


Fig. 2.

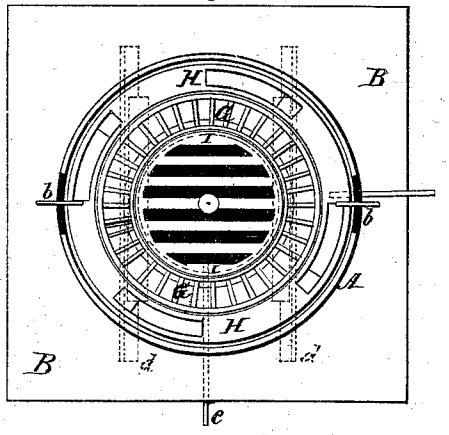
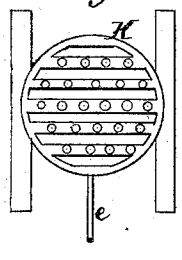


Fig. 3.



Witnesses:

G. Matthys

A. W. Hart.

Inventor:

Henry R. Robbins

Per Munn & Co

Attorneys.

UNITED STATES PATENT OFFICE.

HENRY R. ROBBINS, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF AND ELISHA S. HEATH, OF SAME PLACE.

IMPROVEMENT IN MAGAZINE-STOVES.

Specification forming part of Letters Patent No. **147,978**, dated February 24, 1874; application filed January 26, 1874.

To all whom it may concern:

Be it known that I, HENRY R. ROBBINS, of Baltimore city, State of Maryland, have invented a new and Improved Base-Burning Stove for Anthracite Screenings; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a sectional elevation of my improved stove; Fig. 2, a cross-section on the line *x x* of Fig. 1, and Fig. 3 a plan of the sliding damper.

My invention relates to an improved magazine-stove, especially adapted for burning anthracite-coal screenings, and thereby utilizing what has generally been regarded as a waste product of the coal-yard. The magazine or cylinder for holding the coal has a conical terminus formed of a narrow ring and vertical bars, the latter arranged at such distance apart as to prevent escape of the bulk of screenings between them, while allowing free access of flame and heat from the body of incandescent coal in the fire-pot immediately below. Thus a degree or extent of combustion which would be difficult or impossible to produce and maintain by means of the ordinary form of cylinder in magazine-stoves is assured, while the area or surface of burning coal is largely increased, and thereby a correspondingly greater degree of heat produced. The invention also includes an arrangement of two annular registering-slides with a fire-pot open on the sides, whereby the combustion may be increased at the base or top, or both, of the body of screenings contained in the pot, as occasion or necessity requires.

In the drawing, the vertical cylinder A, provided with a stove-hole, and the rectangular base B, containing the ash-pan or holder, are shown connected in the ordinary manner. The magazine C is also suspended from the top D of the cylinder, and closed by a detachable cover, as usual in base-burners of this class. To its lower end is attached (by any suitable means) a basket, E, which is formed of a large and small ring, connected by bars or rods *a*, having narrow spaces between them. The basket is in the form of a truncated cone inverted, and is made detachable to allow renewal, repair, &c.

The contraction of the basket at its lower end prevents the fine screenings spreading out too quickly in the fire-pot, and also causes them to be exposed to the heat, and either ignited or prepared to ignite, so soon as they escape from the basket.

Vertical tubes E′ are applied around the outside of the cylinder C, and communicate with openings through the sides thereof at the top. Their lower ends project somewhat below the lower end of the cylinder proper, so that the gases may be conducted from the top of the cylinder, where collected, down into close proximity to the burning fuel. The enlarged combustion-chamber or fire-pot F has perforations in its side or cylindrical upper portion, and terminates at its lower end in a basket-grate, G, substantially similar to the smaller basket E, both in form and construction. The fire-pot F is suspended in the well-known manner, so as to leave a narrow annular space between it and the outer cylinder A. To provide for access of air to the sides of the fuel contained in it, and also to exclude the same when desired, I provide an annular slide, H, whose openings register with those of the annular diaphragm on which it rests. Said diaphragm is located at or near the junction of the basket G with the perforated cylinder, and between it and the outer cylinder. The slide H is operated by an arm, *b*, which projects through the side of the cylinder A. The bottom of the basket G terminates just above the grate I, which is pivoted centrally to a suitable supporting-bar. The same is formed of a series of bars joining a circular rim, and arranged with slots or spaces between them. The bars or slots are parallel to the front of the base B of the stove. Beneath this grate is another, K, formed of a metal plate, and having alternating parallel rows of holes and slots. It has also two of its sides straight and parallel, to adapt it to be supported by, and slide in,

the flanges *d*, which are applied beneath the top portion of the base B. Both grates are operated by bars *e*, projecting in front.

When combustion is going on normally, the lower grate K will be so adjusted that its rows of holes will coincide with the slots of grate I, to admit air to the burning coal. But when it is desired to shake down the grate, the adjustment will be changed to bring the slots of the two grates coincident, the bars of the upper grate in that case covering the rows of holes in the lower one. This latter arrangement is necessary to confine or prevent escape of the fine screenings under ordinary conditions. But when it is required to completely free the fire-pot of ashes, cinders, &c., the lower grate K will be drawn forward or removed by means of its handle, and the upper grate I then vibrated on its pivot.

L is a slide similar to slide H, which is arranged at the bottom of basket G, and supported on the top plate of the base B, having coincident openings. When it is desired to increase the combustion in the lower portion of the fire-pot, the slide H is closed and the slide L opened. When in the upper portion also, both slides are opened, and since the air will seek a passage where least obstruction exists, the opening of the slides will cause nearly the whole supply to pass through the slides; and, for the same reason, when both slides are thus open, the main combustion will be in the upper portion of the fire-pot. Thus the slides enable the combustion to be very perfectly regulated.

I do not claim the combination of gas-conducting tubes with a magazine or feeding cylinder; nor the combination of two grates, one of which has alternating slots and rows of holes; nor the combination of registering-slides with a fire-pot open on the sides.

What I claim is—

1. The combination of the inverted conical basket E, formed of bars *a* and rings, as shown and described, with the fire-pot F and magazine-cylinder C, all arranged as specified.

2. The combination of the slides H and L with the fire-pot formed of the basket G and upper perforated portion, as shown and described, for the purpose specified.

HENRY R. ROBBINS.

Witnesses:
C. F. MARROW,
GEO. A. HAMMOCK.