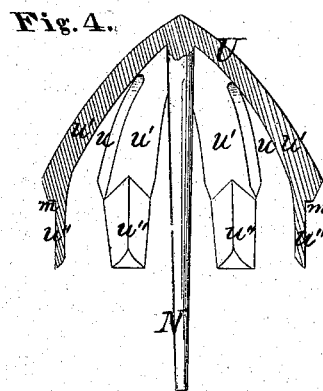
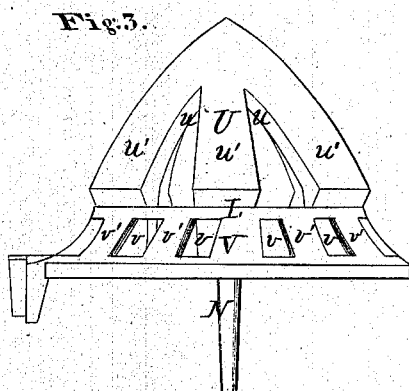
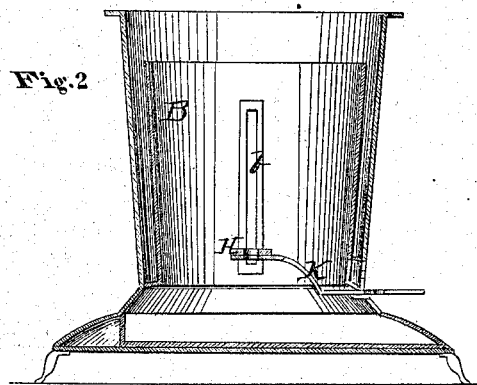
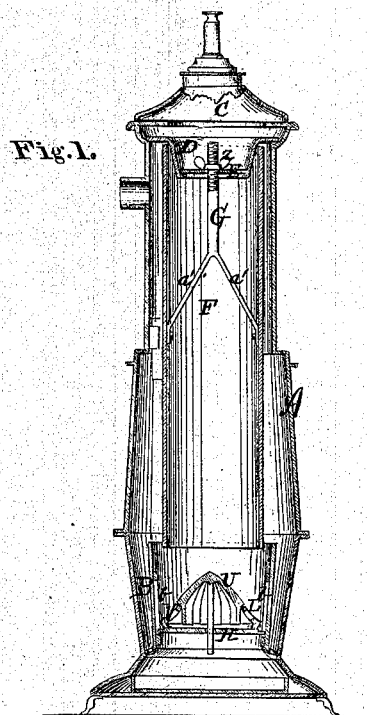


De M. MADDEN.
Magazine Stove.

No. 112,609.

Patented Mar. 14, 1871.



Witnesses.

Chas. Kenyon
Villette Anderson.

Inventor

De Marcus Madden,
Chapman & Fossamer & Co
Attys.

UNITED STATES PATENT OFFICE.

DE MARCUS MADDEN, OF PENN YAN, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO RALPH T. WOOD AND FARLEY HOLMES, OF SAME PLACE.

IMPROVEMENT IN BASE-BURNING STOVES.

Specification forming part of Letters Patent No. **112,609**, dated March 14, 1871.

To all whom it may concern:

Be it known that I, DE MARCUS MADDEN, of Penn Yan, in the county of Yates and State of New York, have invented a new and valuable Improvement in Magazine-Stove; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a central vertical section of my invention. Fig. 2 is a central vertical section of the fire-pot, taken at right angles with the above. Fig. 3 is a side elevation of the entire grate. Fig. 4 is a sectional view of the adjustable conical center grate.

My invention has relation to certain improvements in magazine-stoves; and it consists in the construction and novel arrangement of an adjustable conical grate and an adjustable magazine-pipe, whereby it is designed to admit air from the bottom up into the center of the burning body of coal, to form the burning body of coal into a thin conical shell, and to regulate the amount of coal fed from the magazine or shut it off altogether.

The exterior casing and the fire-pot of the heater may be made in the usual forms. The double-wall fire-pot is preferred, however.

In the drawing, the letter A represents the external casing. B represents the wall of the fire-pot, usually made with an upward flare. C represents the top of the stove. D represents a downwardly-tapering throat extending into the upper end of the adjustable magazine. E designates a transverse bar extending across the lower opening of the throat D. F represents the magazine or reservoir for coal. This is usually cylindrical in form, and may, as shown in the drawing, be movable as a whole; or the upper part of it may be fixed, and the lower part only arranged to slide up and down within or without the upper fixed portion.

To the wall of the movable cylinder, on each side, are attached the ends of two arms or branch rods, *a'*, which proceed upward and inward at an equal inclination until they unite,

usually at an acute angle, to form the elevating-rod G.

A screw-thread is turned on the upper end of this rod, which is arranged to pass through a perforation in the transverse horizontal bar E, and is elevated or depressed, with its pendent magazine-pipe, by means of the thumb-nut *z*.

It will be apparent that by this means the movable magazine-pipe may be adjusted up and down with great nicety.

On each side of the fire-pot are placed the guiding slots or channels *b b*, to receive the ends of adjustable sliding rest H, which is usually a transverse bar extending across the fire-pot from one side to the other, and provided with a bent handle, K, which extends downward and outward, and projects through some appropriate aperture in the wall thereof.

The grate is designed usually to rest on the transverse bar H, and it will be apparent that by pushing in or pulling out the handle K the transverse bar H, with its superincumbent grate, can be readily raised or lowered.

Notches may be made in the handle K, or other means adopted, whereby it may be fixed in any precise position which may be necessary in order to hold the grate at any desired height above the lower ends of the slots *b b*.

L represents the conical grate, adjustable, as above described, upward and downward. It is designed also to be easily rotated horizontally, and to be readily tipped when it becomes necessary to discharge the entire contents of the fire-pot.

My grate, although it may be made solid and entire, is usually constructed in two portions—the one U a central conoid, projecting upward from an opening in the center of the other, V, which is usually in the form of an annular conical frustum, concave on its exterior surface, arranged at the base of and surrounding the central conoid.

The openings *u u* between the bars of the conoidal grate are angular at upper ends, but widen as they descend. The bars *u' u'* terminate in perpendicular fingers *u'' u''*, which keep the grate in position when it is raised from the annular grate V.

Slight shoulders *m m* are formed at the base of the bars *u' u'*, which rest on the upper edge

of the grate V when the conoidal grate is at its lowest position. The bars *u' u'* are wedge-shaped in their cross-section, being broader at the surface of the grate than at any other point. The bars *v' v'* of the lower grate are also wedge-shaped in their cross-section, and the openings *v v* are somewhat tapering upward.

N represents a central stem, which projects downward from the center of the conoidal grate. By means of a suitable lever applied under the end of this stem the conoidal grate may be raised or lowered with reference to the annular grate, the latter resting stationary.

Instead of the conical annular grate V, the lower circumscribing grate may be flat; but the conical form is preferred. It is usually made somewhat concave, in order to increase the body of coal around the lower edge, to support the coal better, and to keep the particles from becoming wedged in between the periphery of the grate and the wall of the fire-pot.

It is apparent that by means of the adjustable grate and the adjustable magazine, or either of them, the feed of coal to the fire-pot may be regulated or shut off altogether.

The form of the grate is such as to admit air up from the bottom into the center of the burning body of coal. At the same time it serves to form the burning bed into a conical shell, in which the combustion cannot fail to be complete.

By means of the sliding center grate the bed of coals may be agitated or shaken at the very center and immediately under the magazine; and when slaty coal is used the conical center serves an excellent purpose in dislodging the

clinkers and raising them over the rim of the fire-pot, whence they can be readily removed.

The ease with which my grate is cleared of ashes and oxygen admitted to the heart of the coal-bed at the very point where the fresh coals fall from the magazine is designed to render it an improvement of importance to the comfort of mankind. At the same time the facility with which a fire can be kindled, regulated, and shut off will prevent unnecessary consumption of fuel.

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

1. The rotary conical grate U, arranged to be raised and lowered without rotation, while its axis remains vertical, substantially as specified.

2. The combination of a conical center grate, U, having vertical motion of translation, with a surrounding base-grate, V, substantially as specified.

3. The adjustable conoidal center grate, substantially as specified.

4. An adjustable magazine capable of being raised and lowered by means of an elevating-screw, *z*, substantially as specified.

5. The combination of an adjustable magazine with an adjustable grate capable of being moved toward or from each other, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DE MARCUS MADDEN.

Witnesses:

FRANK B. CURTIS,
EMORY BATES.