# QUAY & HINSDALE.

## Stove Grate.

No. 107,197. Patented Sept. 6, 1870.

Fig. 1.

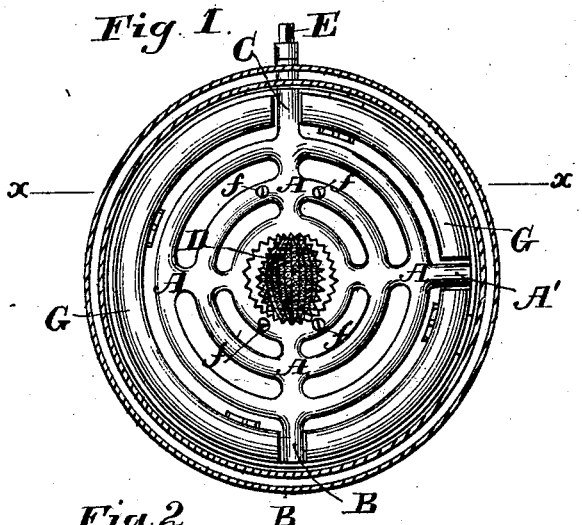



Fig. 2

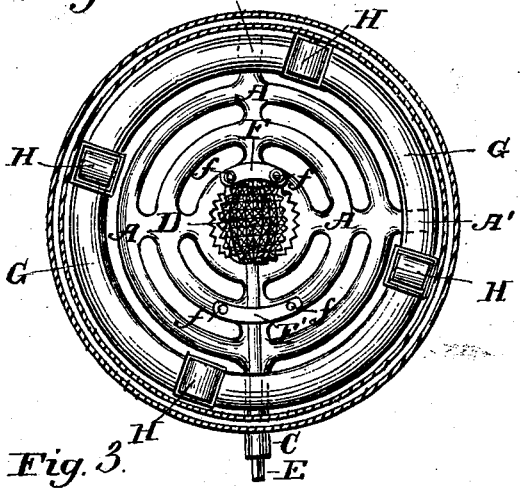



Fig. 3.

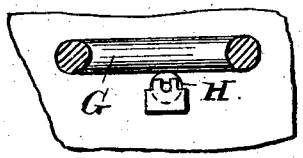
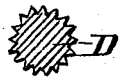



Fig. 4.

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# United States Patent Office.

WILLIAM QUAY AND EZRA M. HINSDALE, OF TROY, NEW YORK.

*Letters Patent No.* 107,197, *dated September* 6, 1870.

## STOVE-GRATE.

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

*To all whom it may concern:*

Be it known that we, WILLIAM QUAY and EZRA M. HINSDALE, of Troy, in the county of Rensselaer and in the State of New York, have invented certain new and useful Improvements in Stove-Grates; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view of the upper side of our grate;

Figure 2 is a like view of the lower side of the same;

Figure 3 is a vertical cross-section of the supporting ring for the grate, on the line *x x* of fig. 1; and

Figure 4 is a central cross-section of the pivoted center piece.

Letters of like name and kind refer to like parts in each of the figures.

Our invention is an improvement in grates for use in stoves or furnaces burning coal; and

It consists, principally, in a center-piece pivoted to or within a suitable opening at the center of the grate, with its axis parallel with the face thereof, so as to be capable of a vertically rotary motion independent of and without disturbing said grate, as is hereinafter set forth.

It further consists in a center-piece pivoted to or within a suitable central opening within a grate, so as to have therein an independent vertically rotary motion, and provided, upon its periphery, with suitable abrading or grinding points, ribs, or grooves, as is hereinafter shown.

It further consists in providing the inner edge of the opening for the reception of the pivoted center-piece, with teeth, corrugations, or their equivalents, as is hereinafter specified.

In the annexed drawing—

A represents a grate of usual general form, provided with a pivotal bearing, B, and a shank, C, which projects horizontally and radially outward from opposite sides thereof.

Pivoted horizontally within a suitable opening passing vertically through the center of the grate A is a piece of metal, D, having a circular form transversely and an oval shape in a line with its axis, which axis is formed by means of a short journal projecting outward from one end of said piece, and pivoted within a bearing at one side of the opening, and a shank, E, projecting outward from the opposite end, and fitted loosely within a groove formed in the lower side of the shank C.

Two clamps, F and F', fitting over the journal and shank of the center-piece D, and secured to the grate by means of the screws *f*, hold said center-piece in position, while allowing it to revolve freely within and independent of said grate.

The surface of the center-piece D and the contiguous edge of the opening within which it is pivoted being toothed, grooved, or otherwise roughened by causing the former to revolve, the clinker or slag resting upon the center of the grate, will be loosened and broken or ground up until sufficiently fine to pass downward into the ash-box, leaving the center of the fire open and free from all obstructions to the admission of air, instead of being clogged up, as is usually the case.

G represents a ring of metal corresponding interiorly in shape with and having a size somewhat greater than the exterior of the grate, for which it furnishes a support, the journal B and shank C being contained within suitable grooves or bearings provided upon or within the upper face of said ring, so as to permit said grate to revolve vertically within the latter, when it is desired to dump the contents of the fire-pot.

In order to confine the grate in a horizontal position when the center-piece is revolved, so that its motion shall not be communicated to and dump the grate, the latter is provided, upon one side, with a stop or lug, A', which projects horizontally and radially outward therefrom, and engages with the side of the supporting ring G, within which is provided a semicircular groove corresponding in size with said stop and containing the same.

It being desirable that the grate should be capable of a horizontal rotary movement, a ring rests upon and is supported by means of a number of rollers, H, which are pivoted within suitable bearings secured to or upon the stove, the axis of each roller being in a line with the center of said grate.

A movable plate fitting over the shanks C and E, and covering the horizontal slot within the exterior plate of the stove through which said shank projects completes the device, which is operated as follows:

When it is desired to remove the ashes and clinker or slag from the fire, the grate may be rotated back and forth horizontally by means of a suitable handle placed over and embracing the squared end of the shank C, which handle may also be used to revolve said grate vertically, so as to dump its contents within the ash-box.

If the center of the grate becomes clogged, the obstruction may be removed by rotating the center-piece D, for which operation a second handle is fitted to or upon the squared end of the shank E, said shank projecting sufficiently beyond the shank C to furnish a bearing for said handle.

As thus constructed, it will be seen that it is not possible for the grate to become clogged by the wedging of pieces of coal or slate between its outer edge

and the contiguous portions of the stove, that the horizontal or shaking motion of said grate is rendered far more easy by the use of the roller bearings than in grates of usual construction, and that, by means of the pivoted center-piece, the center portion of the base of the column of fuel can be kept entirely free from all obstructions, so as to greatly increase the heating capacity of the stove.

Having thus fully set forth the nature and merits of our invention,

What we claim as new is—

A center-piece pivoted to or within a corresponding opening within a grate, with its axis parallel with the face thereof, so as to be capable of a vertical rotary motion independent of said grate, and having its surface provided with suitable abrading or grinding points, ribs, or grooves, substantially as and for the purpose specified.

Also, in combination with the above-named pivoted center-piece, a toothed or serrated opening for containing the same, substantially as shown and for the purpose set forth.

In testimony that we claim the foregoing, we have hereunto set our hands this 1st day of July, 1870.

WILLIAM QUAY.

Witnesses: EZRA M. HINSDALE.

HENRY A. MERRETT,

J. H. MCCARTHY.