J. A. BUCKWALTER.

GRATE.

No. 169,411. Patented Nov. 2, 1875.

Fig. 1.

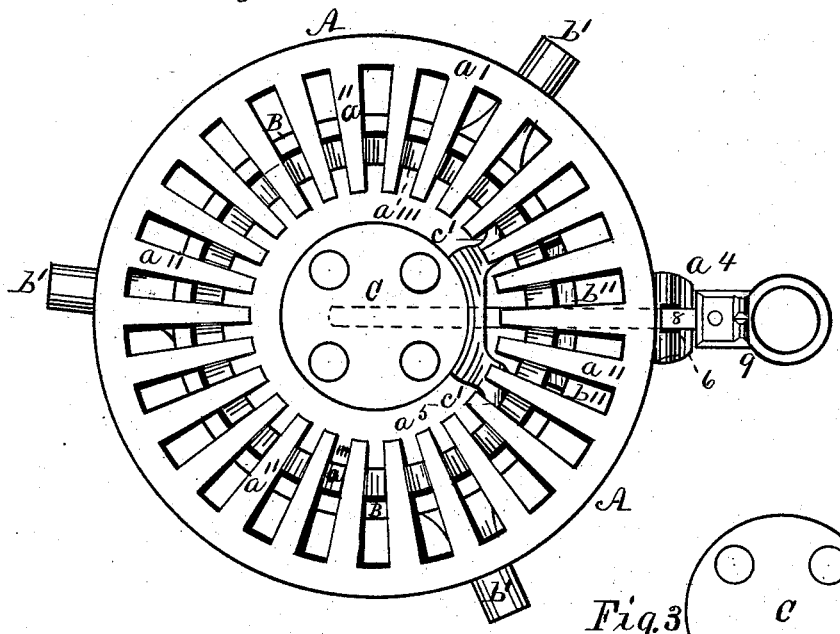


Fig. 3

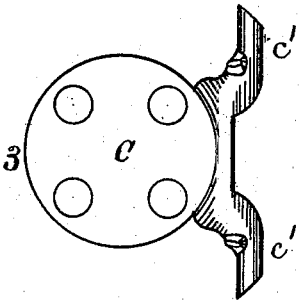
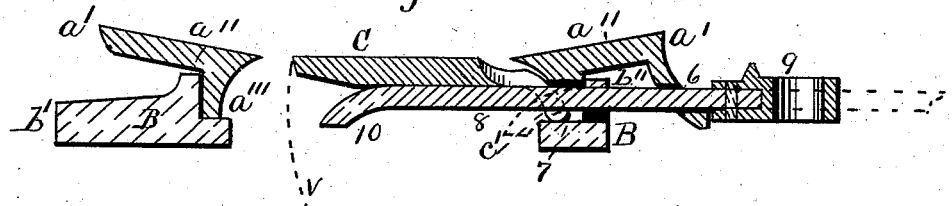


Fig. 2.



Witnesses:

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JOSEPH A. BUCKWALTER, OF ROYER'S FORD, PENNSYLVANIA.

IMPROVEMENT IN GRATES.

Specification forming part of Letters Patent No. **169,411**, dated November 2, 1875; application filed October 4, 1875.

To all whom it may concern:

Be it known that I, JOSEPH A. BUCKWALTER, of Royer's Ford, in the county of Montgomery and State of Pennsylvania, have invented an Improvement in Grates for Stoves, Ranges, and Air-Heating Furnaces, of which the following is a specification:

My improvement relates more especially to the horizontally-oscillating circular grates; and the object of my invention is to facilitate the discharge of the ashes and stones or cinders from that class of grates; and my invention consists of a circular grate having radial bars extending from the perimeter of the grate, in a slightly downward direction, to an open central space, which in its diameter is about one-third of the whole diameter of the grate, and the under sides or edges of said radial bars supported near their inner ends by a circular flange cast therewith, which traverses a flanged ring beneath, which ring is supported by radial arms resting upon the base or ash-chamber of the stove. Suspended by two journals (which turn in bearings cast for the purpose in that part of the circular flange of the grate-bars which is next to the front of the stove) is a flat circular plate, which is about one-fourth less in diameter than that of the central opening, and, when in its horizontal position in said opening, leaves an annular space between sufficiently wide to let ashes and small lumps of cinders pass down into the ash-pit below when the grate is oscillated for the purpose. This circular plate is held up in the horizontal position just stated by means of a draw-bar, the inner end of which is curved downward, and when the bar is being pushed inward the curved end underruns, lifts, and supports the swinging circular plate concentrically in the open central space of the grate, and when the bar is being drawn outward in front the curved inner end lets the plate swing down, and thus lets fall all the larger cinders and stones into the ash-pit, all of which parts of my invention will be hereinafter described and specified with reference to the accompanying drawing, in which—

Figure 1 is a plan view of the grate and its supporting-ring, with the drop-plate in its horizontal position, supported by the draw-bar of the handle of the grate. Fig. 2 is a vertical central section through the handle and draw-bar of Fig. 1. Fig. 3 is a plan view of the drop-plate detached.

The grate A consists of the outside rim a', with radial bars a'' a'', an inner ring, a''', and a downward-projecting lug, a^4, all cast together in one piece, leaving an open central space, a^5. The inner ring a''' projects downward below the radial bars a'' about the same depth that it occupies between the said bars a'', and thus forms a downward-projecting flange, connecting the bars a'' a'' together at their inner ends. The lug a^4 inclines outward and projects downward somewhat lower than the ring a''', and has a square hole, 6, directly in the same horizontal plane of a square-notched recess, 7, in the lower edge of the inner ring a''', through both of which the draw-bar 8 of the handle 9 is adapted to slide longitudinally as the said handle is pushed inward or drawn outward. The inner end of the draw-bar 8 is curved downward, and, when pushed inward until stopped by the handle 9, extends diametrically across the central space a^5 about two-thirds of the diameter of the latter. The grate A is supported by a recessed or flanged ring, B, which is supported by three radially-projecting arms, b', which rest upon the usual base-plates of the stove or heater, and thus allow the grate A to be freely oscillated in said recessed ring B by means of the handle 9. The vertical portion of the flange of the ring B is cut away at b'' sufficiently to allow the requisite lateral movements of the draw-bar 8 of the handle 9 in oscillating the grate. The drop-plate C swings on two journals, c' c', which project from one side edge outward and downward, but in alignment with each other, and leaving a space between them for the passage and lateral movements of the draw-bar 8 of the handle 9, (during the oscillatory movements of the grate A,) through the hole 6 in the lug a^4 of which (of A) the draw-bar 8 passes, as shown in Figs. 1 and 2. When the draw part is being pushed inward its downwardly-curved end 10 (see Fig. 2) comes in contact with the under side of the drop-plate, raises and underruns the same, so as to support it in the horizontal position shown in Figs. 1 and 2, with an annular space around between it and the inner ends

of the grate-bars a'', for the passage of ashes during any oscillatory motions which may be given to the said grate and its drop-lid. When the draw-bar 8 is pulled outward from under the said lid the latter, turning upon its journals, which are held in position by respective recesses for the purpose in the under edge of the inner ring B, drops or swings downward in the direction indicated by the dotted line V in Fig. 2, and opens fully the central space 5 for the discharge of the accumulated stones and clinkers before spoken of. The grate, being supported at all times by its ring a''' in the flanged ring B, which rests, by its radial arms b', upon the usual base, is kept securely in a horizontal position, and at the same time allowed to be oscillated, as before described, with facility, by means of the handle 9.

I claim as my invention—

1. The swinging drop-plate C and the draw-bar 8 of the handle 9, in combination with an oscillatory grate provided with the open central space a^5, substantially as set forth, for the purpose described.

2. The combination, substantially as described, of the inner ring a''' of the grate A with the stationary ring B, the said parts being constructed and arranged to operate as and for the purposes set forth.

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Witnesses:

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