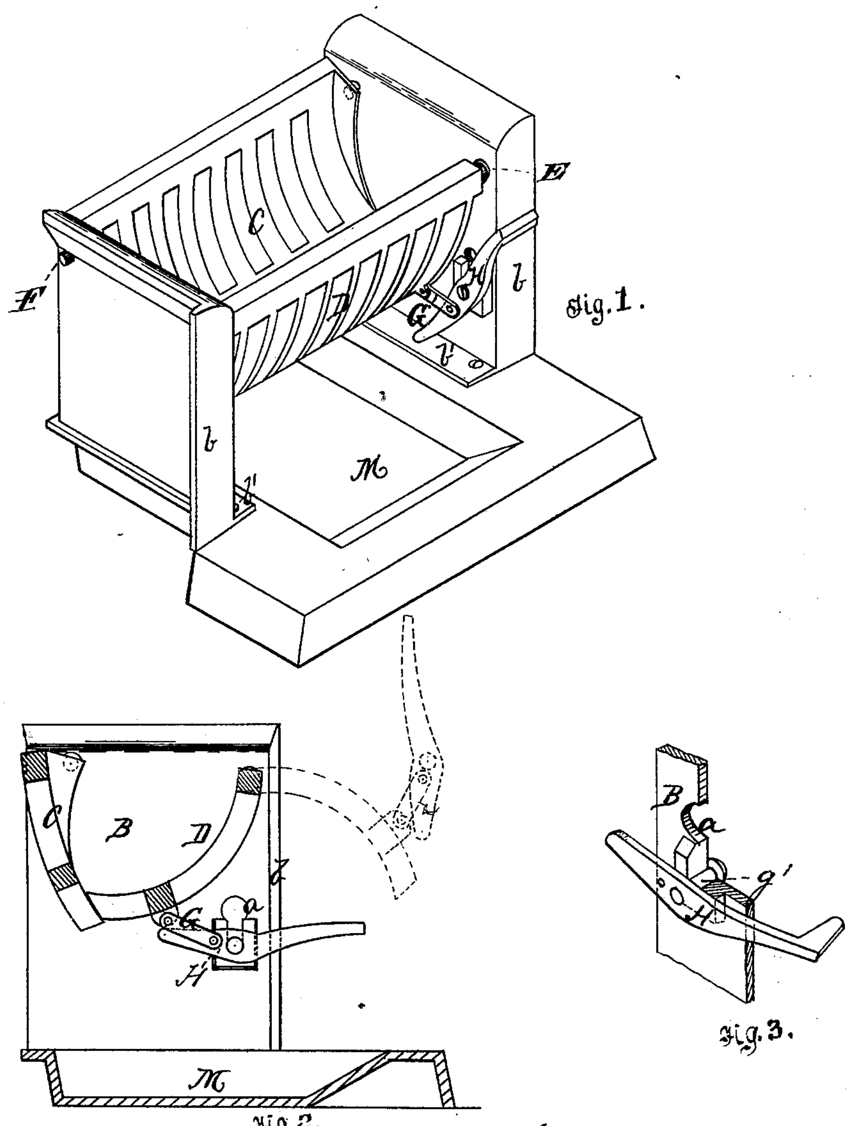
J. B. GEYSER.

Grate.

No. 218,376. Patented Aug 12, 1879.



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UNITED STATES PATENT OFFICE.

JOHN B. GEYSER, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN GRATES.

Specification forming part of Letters Patent No. **218,376**, dated August 12, 1879; application filed April 18, 1879.

To all whom it may concern:

Be it known that I, JOHN B. GEYSER, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Grates; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an open-fire-place grate embodying my improvements. Fig. 2 is a vertical transverse section of the same. Fig. 3 is an enlarged detail view, showing the manner of pivoting the shaking-lever.

Like letters refer to like parts wherever they occur.

My invention relates to the construction and operation of shaking and dumping grates for stoves, fire-places, &c.; and consists, first, in the combination of two concave grate-sections, said sections pivoted at or near their upper parts in or near the top of the fire-box, so as to turn away from the grate-center, whereby a full and unobstructed discharge of the contents of the grate may be effected; secondly, in the combination of two concave grate-sections pivoted at or near their upper edges and in or near the top of the fire-box, one of said sections being so pivoted that it can swing past the other, and provided with a shaking-lever, so pivoted that it can be detached to permit the outward swing of the pivoted section, so as to discharge the contents of the grate; thirdly, in combining with a shaking and dumping grate jambs and a combined pan and fender-front, arranged to form a frame, whereby the grate may be removably set in any ordinary fire-place.

Heretofore in the construction of shaking grates there have been several distinct methods followed—as, for instance, the whole grate has been given either a rotary or oscillatory motion, or alternate bars of the grate have been given an endwise and a rising-and-falling motion, which constructions crushed the fuel, forming more or less fine dust, which escaped through the bars without being consumed; neither did such constructions effectually separate the fine ashes.

Dumping-grates have also been composed of concave sections, so pivoted below the center of the fuel-chamber that the top of the sections converged and passed through the body of the fuel as the bottoms diverged; but such construction reduces the discharge-opening and permits the fuel to bank up.

In cases where alternate bars of the grate rose and fell, the durability of the grate was frequently impaired by the burning of the bars which caught above the grate-line; and in those cases where the whole grate rotated or oscillated the wedging of the grate was of frequent occurrence; while in both forms the shape necessarily given to the grate or fire-chamber impeded the draft through the fire, and permitted more or less of the fine ashes to escape into the room whenever the grate was shaken.

A further objection to such grates was the inability to readily and fully clear the grate when rebuilding the fire without scattering the ashes or using the hands to remove the coal.

The object of my invention is to so construct a grate that the fire can be effectually cleared of ashes without displacing or breaking up the fuel, the contents of the grate can be fully and readily removed at any time without handling any of the fuel, and to produce a grate which can be shaken and operated with little expenditure of force.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawings, B indicates the liner or frame of the grate, and C D swinging sections composing the grate. The section C is so shaped or curved that it approximates the arc of a circle whose center is the point of pivoting of grate-section D, so that the grate-section D will play or swing within section C; and section C is pivoted at or near its upper edge, as at F, so that it can be swung away from the center of the grate, but is so balanced that it will by its weight swing toward the center of the grate, its inward movement being limited by lugs on the frame B.

The section D, which is the shaking section, is somewhat larger than section C, is pivoted to the frame B, as at E, so that it will move within the section C, and is actuated by a link, G from a lever, H, having its pivot or fulcrum at g', either on a post or on the frame B, as preferred.

Where these devices are used as a grate for a stove or range, or in equivalent positions, I prefer to make the swinging section C the front part of the grate and the shaking section D the rear portion of the grate, in which case the shaking-lever H will require to be longer, and, for convenience in operating the lever by the foot, it should be provided with a foot-treadle; but where employed for an open fire-place the swinging section C is placed at the rear and the shaking section D at the front; and in order to permit the disengaging of the shaking lever or treadle H, so that the shaking section can be turned away from the grate-center to freely discharge the contents of the grate, I secure the fulcrum pin or pivot g' to the lever H and pass it through a slot, a, in the frame, the slot a being larger above than below, and the pivot or fulcrum pin g' having an enlarged head, which prevents the accidental escape of the pin from the slot.

For facilitating the setting of such grates in the arch of the ordinary fire-place, I form in one with the frame B jambs b and flanges b', whereby the frames may be connected directly to a base-piece, M, so shaped as to constitute an ash-pan and fender-front.

When in use the devices operate as follows: The outer arm of lever H being pressed down by the foot causes the link G to force up the swinging grate D, thus elevating and agitating the whole body of fuel, and as soon as the foot is removed from the treadle the jar of the grate as it falls back to its place shakes and sifts the dead ashes from their places.

The advantages of my invention are, first, the complete basket form of the grate formed by the two sections permits free access of air to all parts of the fire, consuming the fuel more evenly and thoroughly than any other form of grate; secondly, the pivotal connections of the treadle permit the power to be applied to the best advantage in shaking, and also allow the weight of the body to be utilized for that purpose; thirdly, the draft of the fire is such that the dust and ashes will not escape into the room; fourthly, by lifting the lever H the grate-sections can both be swung away from the center, so as to discharge the contents of the grate directly into the ash-pan without liability of wedging the grate-sections, and without using the hands for the removal of coal, ashes, &c.

I am aware that a grate composed of a fixed or permanent front section and a pivoted rear section, the latter hung so that its front edge could be brought to any desired position on the fixed front section, and secured at said point for the purpose of elevating and holding up the body of fuel within the grate, has heretofore been devised, and I do not herein claim such devices. Neither do I claim a grate composed of concave sections, so pivoted below the center of the fuel-chamber that the tops of the sections converge and pass through the body of the fuel as the bottoms thereof diverge; but,

Having thus described the nature, operation, and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. The grate composed of the two swinging sections, pivoted at or near their upper edges in or near the top of the fire-box, and adapted to swing away from the center, substantially as and for the purpose specified.

2. The grate composed of two swinging sections, pivoted at or near their upper edges in or near the top of the fire-box so as to swing away from the grate-center, and arranged with relation to each other so that one can swing or move within the other, substantially as and for the purpose specified.

3. The combination in a grate, of two sections, one arranged and pivoted so as to swing or move within the other, and provided with a detachably-pivoted shaking-lever, substantially as and for the purpose specified.

In testimony whereof I, the said JOHN B. GEYSER, have hereunto set my hand.

JOHN B. GEYSER.

Witnesses:
R. H. WHITTLESEY,
F. W. RITTER, Jr.