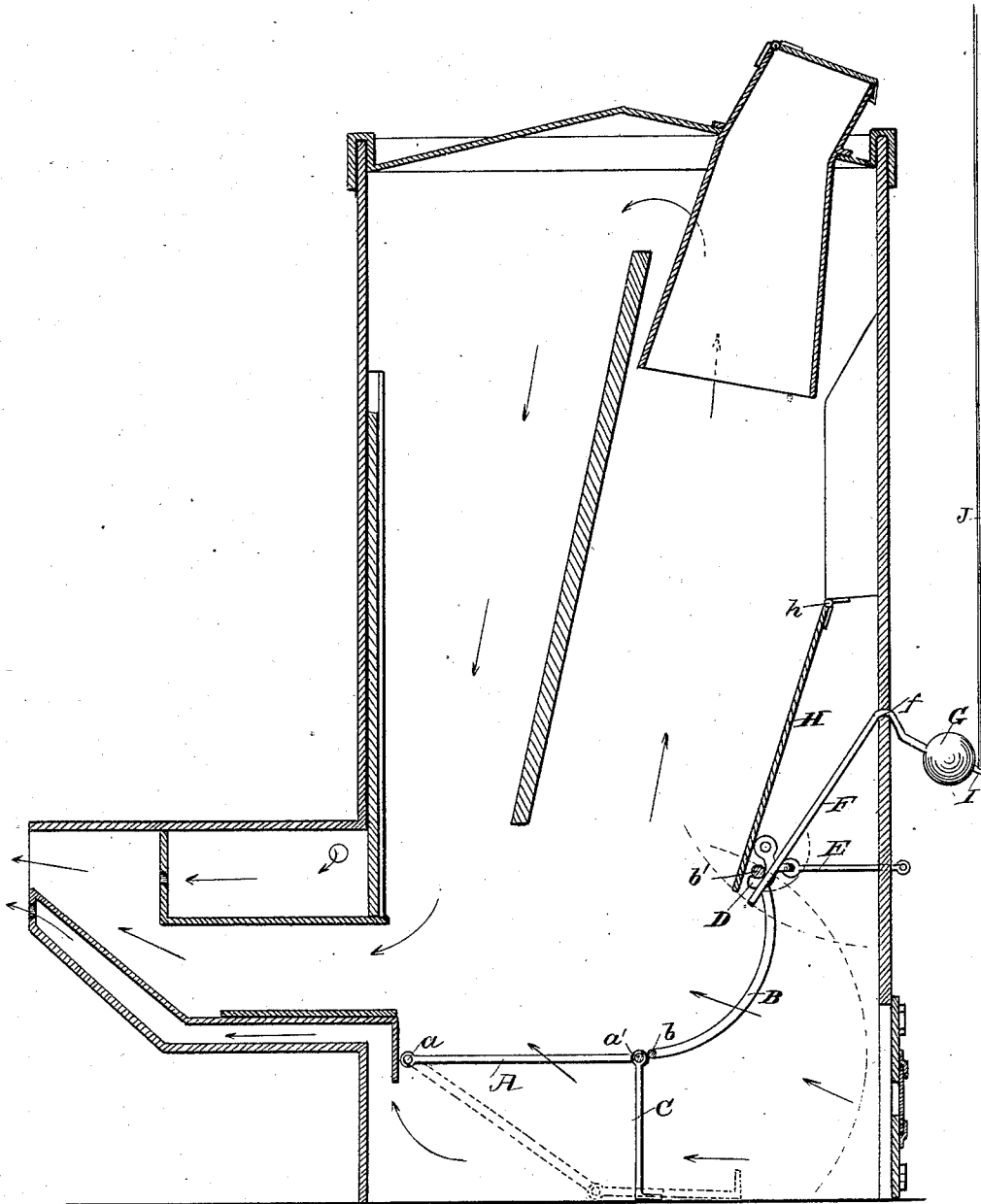


(No Model.)

C. C. HARE.  
GRATE AND SHAKER.

No. 256,894.

Patented Apr. 25, 1882.



Attest:  
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# UNITED STATES PATENT OFFICE.

CHRISTOPHER C. HARE, OF KANSAS CITY, MISSOURI.

## GRATE AND SHAKER.

SPECIFICATION forming part of Letters Patent No. 256,894, dated April 25, 1882.

Application filed April 29, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER C. HARE, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Grates and Shakers for the same, of which the following is a specification.

In my Patent No. 242,126, dated May 31, 1881, I have described an apparatus for burning bituminous coal in which the grate is hinged at the back of the furnace and held up in front by a swinging catch on the side of the furnace. The catch being pulled, the grate falls and discharges all contents of the furnace into the ash-pit; but I have found that clinkers and refuse collect at the back part of the grate, while the front is entirely clear, and it is somewhat of a disadvantage to let the whole body of coal fall, and have to be lifted back, when the grate is dropped for the purpose of removing clinkers.

My improvement consists, first, in making the grate in two independently-hinged parts, each part being held by suitable mechanism to its normal closed condition, and adapted to be dropped at its front ends to discharge part or all of the contents of the grate.

My invention further consists in combining with a grate hinged at its back end and supported at front by a catch, or otherwise, a bent lever passing through the front wall of the furnace, its inner end bearing on the under side of the front rib of the grate, and the end outside the furnace being provided with a ball or weight sufficiently heavy to, when raised and dropped, lift the grate and drop it alternately, thus shaking down the coal and removing the ashes.

My invention further consists in hinging the forward wall of the magazine at or near the top and making it reach down within the front rib of the grate, so that when the grate is lifted by the pivoted lever it will bear on the magazine-front, and so alternately compress and loosen the coal, thus preventing clogging.

The accompanying drawing represents a vertical longitudinal section of my grate and shaking device as applied to the furnace described in my application before referred to.

A B represent my improved grate, the rear part, A, being hinged in the side walls of the

furnace at *a*, while the front part, B, is hinged in the walls at *b*.

To the forward end of the grate A is hinged, at *a'*, a standard, C, provided with a toe-piece, *c*, to hold it in a vertical position. The upper end of grate B is, when closed, caught in a hook, D, to which is attached a rod, E, passing through the wall of the furnace to permit the retraction of the hook and dropping of the grate B. By means of the hook D perfect freedom of motion of the grate in an upward direction is allowed, while the dropping of the grate is prevented.

Bearing at one end on the under side of rib *b'* is a bent lever, F, pivoted, as at *f*, in the front wall of the furnace, and provided at its outer end with a ball or weight, G, heavy enough to lift the grate when raised and dropped. The front side, H, of the magazine is hinged, as at *h*, either to a projection from the wall of the furnace, as shown, or to the wall itself, and hangs down within the grate B, so that the grate, when raised and lowered by the lever F, will alternately compress and loosen the coal in the magazine and prevent the clogging so liable to occur in stoves for burning bituminous coal.

To aid the flow of the coal the magazine is made larger at the bottom than at the top, so that the coal will have a continual free passage downward.

On the end of the lever F may be a hook or ring, I, to which may be attached a cord or wire, J, running to an upper story, so that to stir the fire it will not be necessary to go down to the furnace in the basement, but merely to turn a crank or other mechanism in an upper room of the house, by which the weight G will be raised and dropped.

Thus a continuous passage of coal through the furnace is secured, and any clinkers collecting at the back of the grate may be readily removed by dropping the back grate, A, while if for any cause the whole lower part of the furnace is to be opened for cleaning out, renewal, or other purposes, the front grate may be dropped.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A grate consisting of the two independent

portions A B, each hinged at back and provided at front with mechanism for holding them in their normal or closed position.

5 2. A weighted shaking-lever, in combination with a grate having a motion perpendicular to its own plane.

10 3. In combination with a weighted lever for clearing the fire, a cord or wire connected thereto and enabling the operation of the lever at a distance from the stove or furnace, substantially as set forth.

15 4. In combination with a grate held from downward motion by suitable stops, and having free upward motion, a bent shaking-lever pivoted in the wall of the furnace at its bent portion, weighted at its outer end, and engaging under the grate at its inner end, the whole being arranged as described, so that when the weighted end of the lever is dropped its inner  
20 end will impinge against the under side of the

grate, raise it from its supports, and allow it to drop again into place thereon, substantially as set forth.

5. In combination with a hinged grate, the shaking-lever F, having weight G, for the purposes set forth. 25

6. In a magazine-stove, the combination of hinged reservoir-wall H, a hinged grate, and a pivoted shaker for shaking and alternately compressing and releasing the coal, substantially as described. 30

7. The combination of hinged grate B, having catch D, shaking-lever F, having weight G, and the hinged magazine-wall H, substantially as and for the purposes set forth.

CHRISTOPHER C. HARE.

Witnesses:

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HARRY E. KNIGHT.