(No Model.) 2 Sheets—Sheet 1.

J. A. PRICE.

GRATE.

No. 476,963. Patented June 14, 1892.

Fig 1.

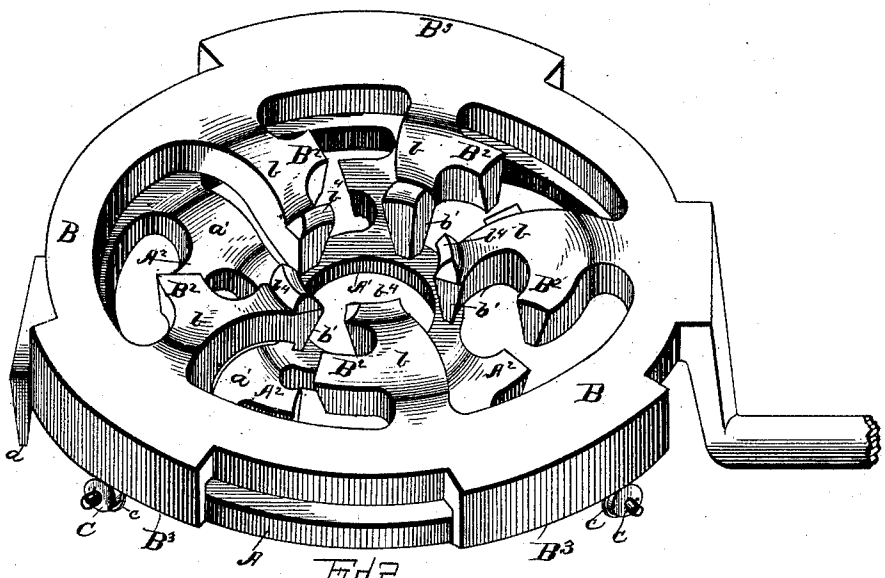
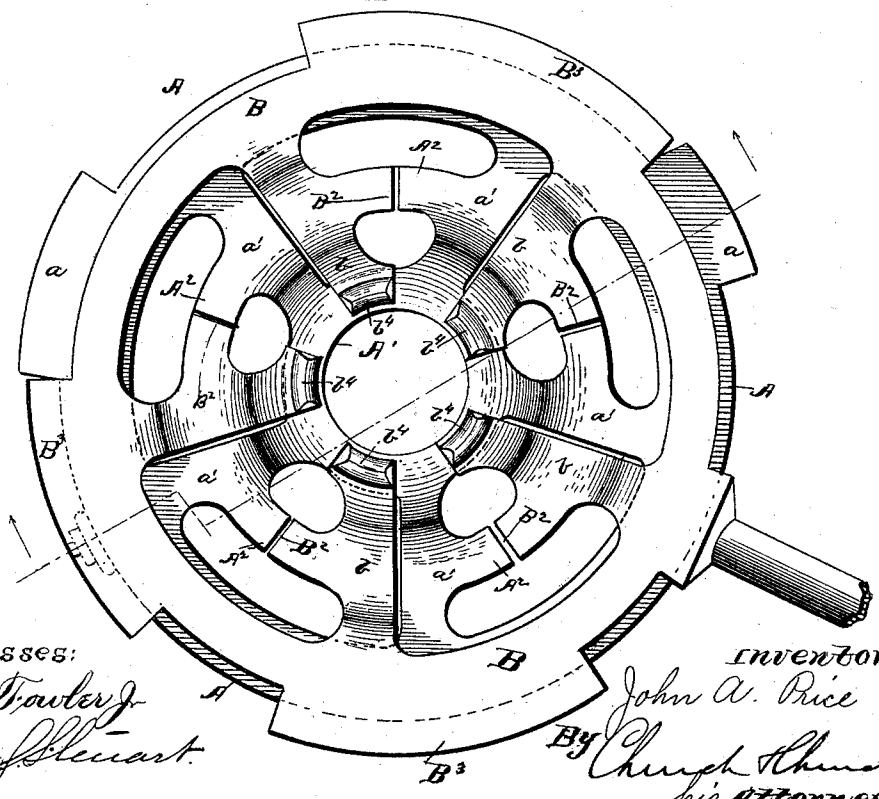


Fig 2.



Witnesses:
J. M. Fowler Jr.
Alex. J. Stewart.

Inventor
John A. Price
By Church Howe & Church
his Attorneys.

(No Model.) 2 Sheets—Sheet 2.

J. A. PRICE.

GRATE.

No. 476,963. Patented June 14, 1892.

Fig 3.

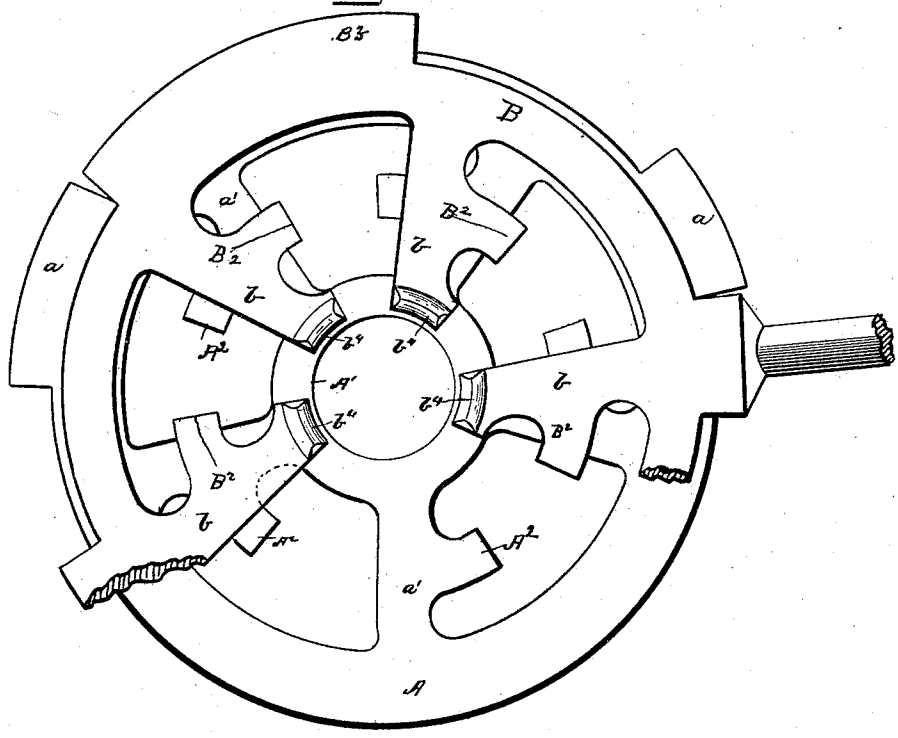


Fig 4

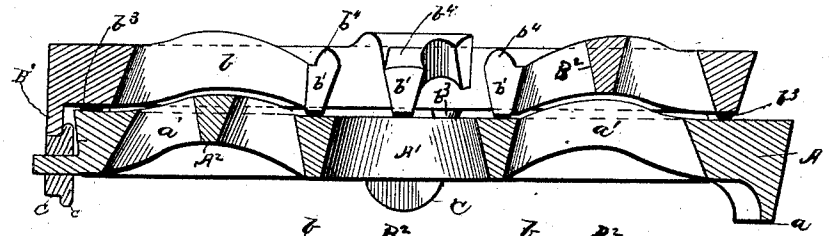


Fig 5.

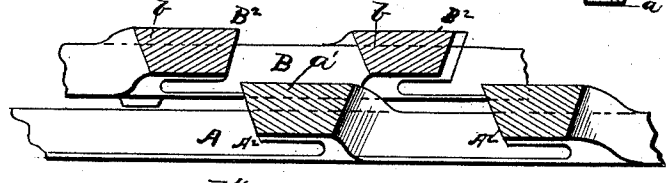
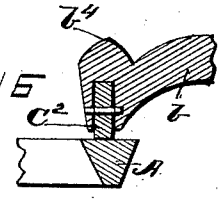


Fig 6



Witnesses
J. M. Fowler Jr.
Alex. J. Stewart.

Inventor
John A. Price,
By Church & Church
his Attorneys.

UNITED STATES PATENT OFFICE.

JOHN A. PRICE, OF SCRANTON, PENNSYLVANIA.

GRATE.

SPECIFICATION forming part of Letters Patent No. 476,963, dated June 14, 1892.

Application filed August 19, 1891. Serial No. 403,108. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. PRICE, of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Grates; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in that class of grates known as "rotary" or "reciprocating" grates, being of substantially circular shape and adapted to reciprocate or oscillate about a central point. The object of the invention is to provide a grate which while composed of few and simple parts will nevertheless more effectually break the cake at the bottom of the fuel and discharge the cinders and ashes more completely than other grates of this character heretofore produced.

The invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be hereinafter described, and pointed out particularly in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a grate constructed in accordance with my present invention. Figs. 2 and 3 are top plan views with the movable section at opposite extremes of its movement, portions being broken away to show the stationary section. Fig. 4 is a vertical section. Fig. 5 is a detail section through one of the laterally-projecting fingers. Fig. 6 is a detail of a modification, showing anti-friction rollers at the center of the grate.

Like letters of reference indicate the same parts in all the figures.

In carrying the present invention into practice I employ a stationary grate-section having certain peculiarities of construction to be presently pointed out and an overlying movable section co-operating therewith to form pockets or depressions which are alternately filled and opened for the discharge of the ashes when the section is reciprocated, said two parts constituting the entire grate so far as the necessary operating parts are concerned.

The letter A indicates the stationary section having depending flanges a, which co-operate with suitable brackets or hangers in the stove-body. (Not shown, as they form no part of the present invention.) This stationary section is of open-work and underlies the whole area of the grate, the interior parts being preferably formed by a central ring or bearing A′, which admits air to the center of the pot, and a series of radial arms a', connecting the center ring and rim, as shown, said arms being curved upward somewhat and preferably at approximately the highest point are each provided on one side with a lateral finger or fingers A^2, extending approximately a little less than half-way across the space between the arms.

B indicates the upper or movable section, in general configuration the same as the lower section, but differing therefrom in the preferred form in that there is no central ring; but the radial arms b are independent and are extended down at the inner ends and have bearing-surfaces b' thereon, which rest on the central ring of the lower section to assist in supporting the movable section. Similar bearing projections or lugs b^3 are formed around the rim of the movable section and rest on the rim of the stationary section, thus with the curvature given the arms leaving a space between the arms of the two sections and preventing all possibility of their interference when the grate is reciprocated. Fingers B^2 are formed on the arms of the upper section similar to the fingers A^2 on the lower section, save that they project in the opposite direction.

To hold the movable section in place against lateral displacement, the rim is provided with downwardly-extending peripheral flanges B^3, which embrace the stationary section between the supporting projections a, and besides holding the movable section in place also serve to limit the reciprocating movement of the same by striking said projections a. Advantage is taken of the employment of these flanges B^3 to wholly or partially support the movable section on anti-friction rollers C, journaled on the periphery of the stationary section and upon which the flanges rest. The rollers have flanges c at the inner edges which hold the flanges B^3 away from the rim of the stationary section. The anti-friction-roller feature is especially applicable to large grates where

a heavy body of fuel has to be carried, and in addition to the employment of rollers at the periphery similar rollers C^2 may be located at the center, as shown in Fig. 6.

As is well known, with grates of this type—*i. e.*, having a reciprocating section—the accumulations at the bottom of the fire-pot are apt to form a cake, which rests on the movable section, or the clinkers become so agglomerated as to preclude their removal by the ordinary movements of the grate, and it is with a special view to overcoming these difficulties that I have made the supporting-surface of the grate irregular to break up and disturb the accumulations and the fingers to clutch, crush, and remove the same. The fingers on the two sections point toward each other, and in normal position those on one section bridge the spaces in the other section, forming pockets normally open at the top, and when the upper section is swung to the other position, Fig. 3, the bottom of the pockets are opened and the contents discharged. Should clinkers or other hard accumulations exist, the arms on the upper section will break the same, and when it works into the pockets the ends of the fingers effectually crush and comminute it sufficiently to pass through the grate, leaving the fire-surface bright and clean under all circumstances. At the inner ends the arms of the movable section may further be provided with little projections b^4, which disturb the bed of fuel at the center, causing the accumulations at the center to pass out through the ring of the lower section, leaving a clear space for the entrance of fresh air.

Having thus described my invention, what I claim as new is—

1. In a grate such as described, the combination, with the upper movable section constituting the supporting-surface for the bed of fuel and having the radial arms with laterally-projecting fingers, of the stationary section underlying and supporting the movable section, having corresponding radial arms with lateral fingers projecting in the opposite direction, substantially as described.

2. In a grate such as described, the combination, with the underlying supportiug section, of the upper section having the upwardly-curved arms forming an irregular or undulating supporting-surface for the bed of fuel, and the laterally-projecting fingers on said arms at approximately the highest points, substantially as described.

3. In a grate such as described, the combination, with the stationary section having the rim, central ring or bearing, and radial arms between said rim and bearing, of the upper movable section having the rim supported by the rim of the stationary section, and the radial arms having their inner ends supported by the central ring or bearing of the stationary section, substantially as described.

4. In a grate such as described, the combination, with the stationary section having the rim, central ring, and radial arms between said rim and central ring, of the upper movable section having the rim supported by the rim of the stationary section, and the independent radial arms having bearings on their inner ends resting on the central ring of the stationary section, substantially as described.

5. In a grate such as described, the combination, with the stationary section having the peripheral anti-friction rollers, the central ring and radial arms, of the upper movable section having the rim resting on said anti-friction rollers, and the radial arms resting at their inner ends on the central ring of the lower section, substantially as described.

JOHN A. PRICE.

Witnesses:
B. E. WATSON,
CHAS. JEFFREY.