

(No Model.)

M. D. MACKNET.
ADJUSTABLE SELF CLEANING GRATE.

No. 540,816.

Patented June 11, 1895.

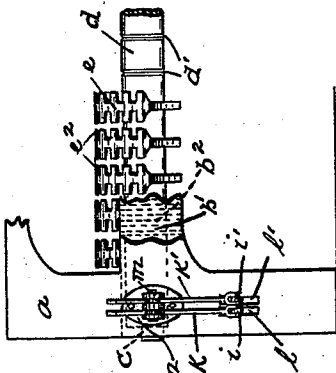


Fig. 2.

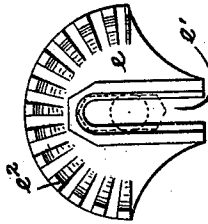


Fig. 4.

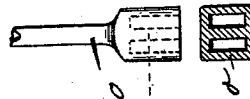


Fig. 5.

Fig. 6.

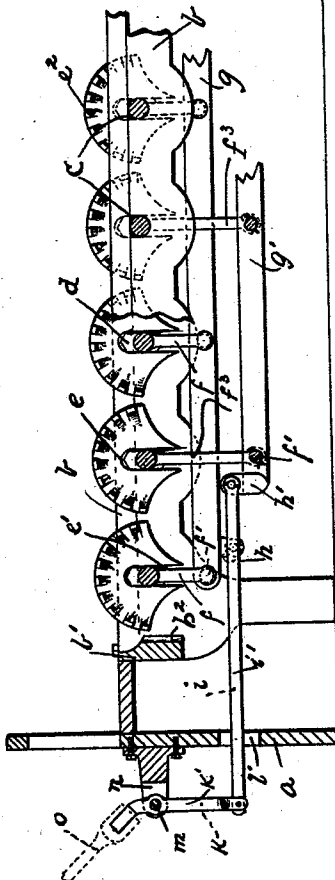


Fig. 1.

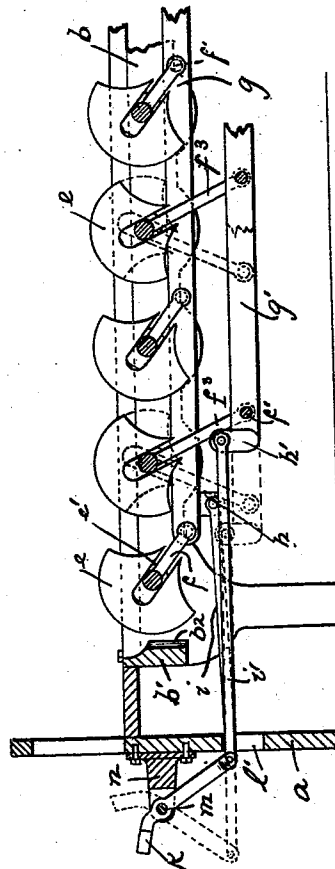


Fig. 3.

WITNESSES:

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ADJUSTABLE SELF-CLEANING GRATE.

SPECIFICATION forming part of Letters Patent No. 540,816, dated June 11, 1895.

Application filed March 1, 1895. Serial No. 540,194. (No model.)

To all whom it may concern:

Be it known that I, MORRIS D. MACKNET, a citizen of the United States, residing in the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Adjustable Self-Cleaning Grates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide an adjustable self-cleaning grate of simple and durable construction, easily handled and reliable in operation.

The invention consists in the improved grate, its rocking mechanism, and in the combination and arrangements of the various parts thereof, substantially as will be hereinafter more fully described and claimed.

In the drawings, Figure 1 is a side elevation of my improved grate, certain portions being broken away and others shown in section; Fig. 2, a front elevation of a portion of Fig. 1; Fig. 3, a view similar to Fig. 1, illustrating the various parts in position while the grate is being rocked; and Figs. 4, 5, and 6 are detail views of one of the clips and of a certain rocking lever, respectively.

In said drawings *a* represents the front, *b* the sides of the grate, and *b'* the forward cross head bar secured to the sides *b* in any desired manner. Said cross head bar *b'* is provided with a series of vertically arranged projections *b²* adapted to form passages for the clinker and ashes.

In the side sections *b* are arranged a series of openings *c* adapted to form the bearings for the rocking bars *d*, which latter are provided with a series of vertically arranged grooves *d'*, adapted to receive the correspondingly shaped sides of the slots *e'* in the clips *e*. Said clips have a segmental shaped upper portion provided on each side with a series of projections *e²* as clearly shown, and are so arranged on the rocking bar *d*, that a sufficient space is left between them, to allow the clinkers and ashes to drop through, when said clips

and their projections cut into the under side of the body of the fuel.

Depending from the under side of the grate bar *d* and arranged alternately are a series of shorter and longer crank arms *f* and *f³*, provided at or near their lower ends with suitable crank pins or projections *f'* adapted to engage correspondingly shaped openings in the horizontally arranged connecting bars *g* and *g'*. The arm *g* is provided at or near its forward end with a downwardly extending projection *h* to which is pivotally secured one end of the lever *i*, while to the forward projection *h'* on bar *g'* is pivotally secured one end of the lever *i'*. The forward ends of said levers *i* and *i'* project through vertical slots *l* and *l'* in the front *a* respectively, and are pivotally secured to the levers *k* and *k'* fulcrumed near their upper ends on the pin *m* arranged in bracket *n*, as clearly shown. The face ends of said fulcrumed levers *k* and *k'* are adapted to be engaged by the socket of the handle *o*, as will be manifest.

In operation the levers *k* and *k'* are oscillated by means of the handle *o*, which movement is transferred through levers *i* and *i'* to the connecting bars *g* and *g'* respectively, which in turn oscillate the rocking bars and their respective clips. This movement of the clips causes them to grind or cut against the under surface of the fuel, without any general or partial upheaval of the same, and thereby any clinker which may gather there is broken away. The projections *e²* on the sides of the clips grind up said clinker and allow it to pass with the ashes from the burning mass into the space beneath.

By having the crank arms *f³* and *f* of different length, a somewhat differential movement of the different sets of clips is produced, whereby the openings at every other set of the clips are enlarged while the lever *o* is operated in one direction, and are reduced while being operated in the opposite direction. This feature is found to be of great advantage in the above described operation.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with series of rocking grate bars, the bars of the respective series

being alternately arranged and mounted in the same plane, and adapted to oscillate in arcs of equal radii, of means for operating all the bars and for moving the bars of one series through greater portions of the arcs than are traversed by the bars of the other series, substantially as described.

2. A grate consisting of a series of rocking bars arranged in the same plane, a series of clips on said rocking bars, a series of alternately arranged crank arms of different lengths depending from said rocking bars, arms connecting the alternate series of shorter

and longer crank arms, a lever pivoted to each of said connecting arms, and a fulcrum lever pivoted to the free end of each of the levers, all said parts, substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of February, 1895.

MORRIS D. MACKNET.

Witnesses:

WM. D. BELL,

ALFRED GARTNER.