

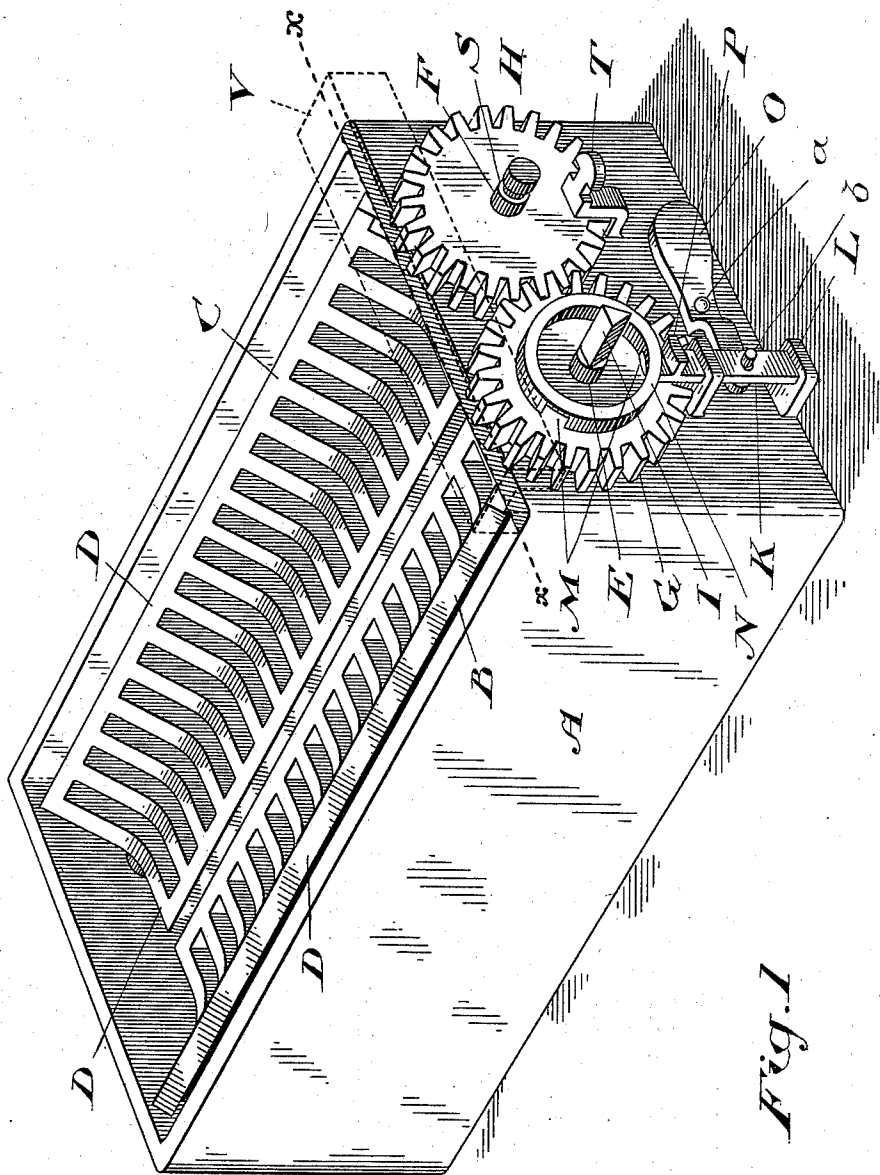
(No Model.)

3 Sheets—Sheet 1.

A. SCHRAG.
GRATE.

No. 535,418.

Patented Mar. 12, 1895.



Witnesses

Myself.
Fred Clarke

Inventor

Andrew Schrag.
by Bidout & Maybee!
Atty's

(No Model.)

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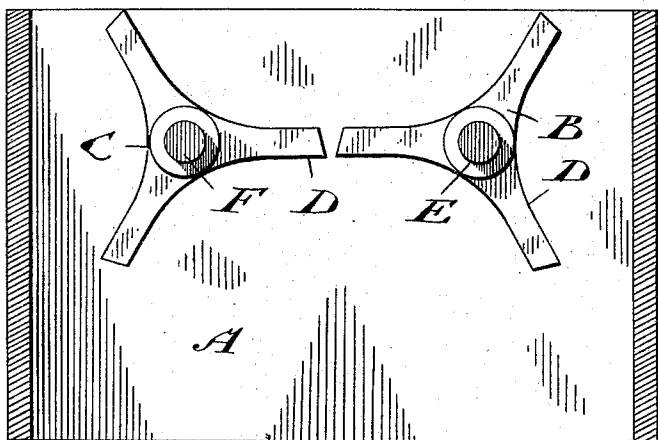


Fig. 2

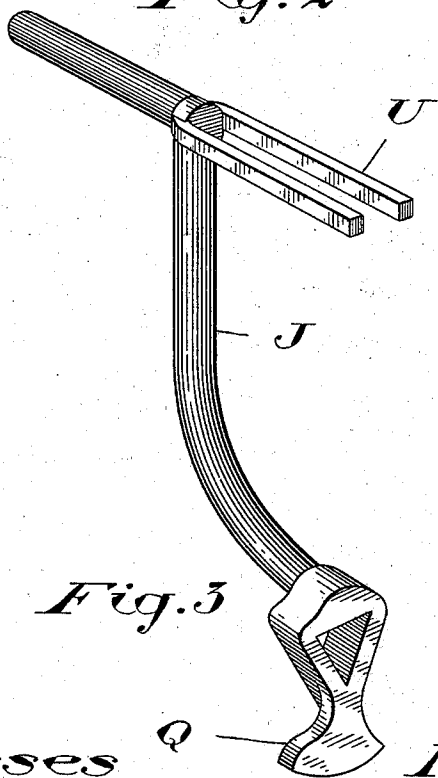


Fig. 3

Witnesses

Q

Inventor

Wm. Neff
Fred Clarke

by

Andrew Schrag
Ridout & Mayhew
Attys

(No Model.)

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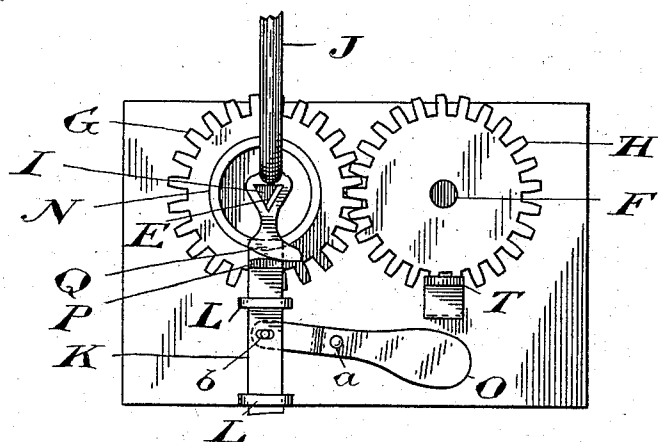


Fig. 4

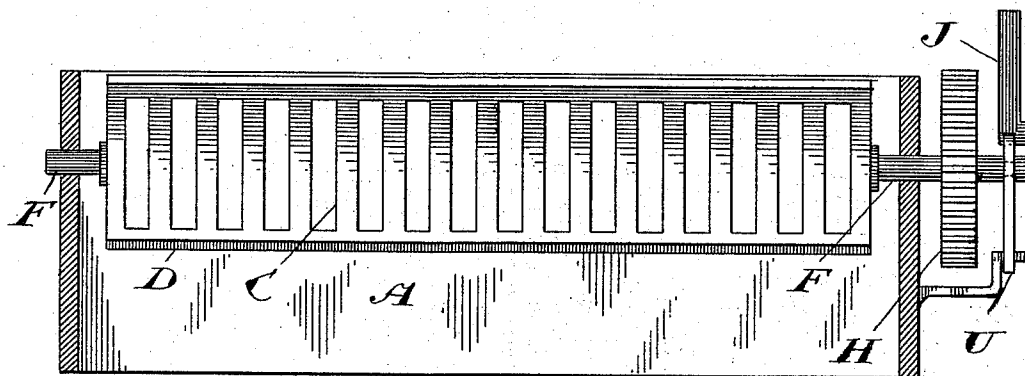


Fig. 5

Witnesses

Fred Clarke
L. Dick.

Inventor

Andrew Schrag
by *Ridout & Maybee*
Attys

UNITED STATES PATENT OFFICE.

ANDREW SCHRAG, OF BRANTFORD, CANADA, ASSIGNOR OF ONE-THIRD TO
DUNCAN DEMPSTER, OF SAME PLACE.

GRATE.

SPECIFICATION forming part of Letters Patent No. 535,418, dated March 12, 1895.

Application filed July 13, 1894. Serial No. 517,448. (No model.)

To all whom it may concern:

Be it known that I, ANDREW SCHRAG, of the city of Brantford, in the county of Brant and Province of Ontario, Canada, have invented certain new and useful Improvements in Grates, of which the following is a specification.

The object of my invention is to devise a simple and automatic duplex grate for stoves and furnaces, which may be either shaken or turned to dump clinkers, and it consists, in the peculiar construction, arrangement and combinations of parts hereinafter more particularly described and then definitely claimed.

Figure 1, is a perspective view of my invention. Fig. 2 is a section of the same through the line *xx*, Fig. 1. Fig. 3, is a perspective detail of the crank handle. Fig. 4 is an end view; and Fig. 5 is a longitudinal section.

In the drawings like letters of reference indicate corresponding parts in the different figures.

A, is the grate frame.

B, and C, are grate bars supported in suitable bearings in the frame A, by the spindles E, and F. These spindles are movable longitudinally in their bearings so that a reciprocating motion may be given to the grate bars.

G, and H, are gear wheels connected to the spindles of the grate bars B, and C, by means of feathers, or their equivalents, so that though a rotary motion may be given to the grate bars by means of them, yet the spindles E, and F, will slide freely through them in a longitudinal direction.

The end I, of the spindle E, of the grate bar B, is preferably formed of triangular section as shown, so that it may be revolved by means of the crank handle J.

As the gear wheels G, and H, mesh with one another, whatever rotary motion is imparted to one grate bar, is also imparted to the other so that they are given a simultaneous inward rotary motion.

On reference to Fig. 2, it will be seen that the grate bars B, and C, are formed with three radial flanges D, and it will be seen on reference to Fig. 1, that these flanges are transversely slotted so as to form apertures through

which the ashes may pass when the grate bars are given a reciprocating motion.

K, is a stop sliding in brackets L. This stop engages with any one of three notches M, formed in the ring N, formed on or connected to the gear wheel G. A weighted lever O, pivoted at *a*, to the grate frame and at *b*, to the stop K, tends to force the said stop into connection with one of the notches M, when the said notch is brought into the proper position by the rotation of the grate bar.

P, is a lug formed on the stop K.

Q, is a cam formed on the crank handle J. This crank handle fits the end I, of the spindle very loosely, so that when the crank handle is placed in position and turned to revolve the spindle E, the cam Q, comes in contact with the lug P, and forces the stop K, clear of the notch M, in which it lies before any rotary motion is imparted to the said spindle. The rotation of the grate bar is continued till another notch M, is over the stop K, when the said stop immediately enters the notch and locks the gear wheel till the former operation is repeated.

It will be seen that the end of the spindle F, has an annular groove S, cut therein. Below the spindle is a notched bracket T.

On the crank handle J, jaws U, are formed. When it is desired to impart a reciprocating motion to the grate bar C, these jaws are made to embrace the spindle F, between the sides of the groove S, while the ends of the jaws lie in the notches of the bracket T. By rocking the crank handle an endwise motion may be thus imparted to the grate bar C, the bracket T, forming the fulcrum. A similar annular groove and bracket may be provided at either end of the spindle E.

In Fig. 1, is shown in dotted lines the guard V, intended to retain the gear wheels G, and H, in their proper position.

From the above description, it will be seen that a reciprocating motion may be readily given to the grate bars at any time for the purpose of shaking down the ashes and that when desired, the grate bars may be easily revolved to dump clinkers or a large body of ashes.

As the grate bars are formed with three ra-

dial flanges, and the motion of the grates is always in the same direction, the flanges, which in the first place supported the fire, will be replaced as the grates are revolved by the next flanges in order, and so on. It is not possible that a large mass of the fire should fall through, as the upper flanges of the grate bars moving inward, grip the clinkers and ashes between them in such a manner as to support the superincumbent fire while the bottom mass of ashes and clinkers is being discharged into the ash pan.

Is will be noticed that the outer edges of the radial flanges of the grate bars are so shaped as to leave a V-shaped recess between them when horizontal. This prevents the jamming of any clinkers between them, as the grate bars are revolved.

By making the grate bars of a suitable size and shape, the grates can be readily adapted for use with a circular fire pot.

In the grate bars shown, the spindles are not continued through the flanges, but they can easily be constructed in this way if so desired.

What I claim as my invention is—

1. In a grate, grate-bars B and C, each provided with three radial flanges, gear wheels G and H meshing with each other and having a connection with said grate-bars B and C, thus causing the latter to move together, notches M in one of said gear wheels, and a weight-actuated stop K arranged to automatically enter one of said notches M, the gears

G and H, causing each of the grate-bars to be held with their radial flanges in their proper position to support the fire, when said stop K enters one of said notches, substantially as described.

2. In a grate, a rotary grate bar, to the spindle of which a notched wheel is connected, and a weight-actuated stop arranged to engage with said notched wheel, in combination with a crank handle loosely fitting the suitably shaped end of the spindle and provided with a cam adapted to engage with and release the said stop from the notch when the crank handle is revolved, substantially as and for the purpose specified.

3. In a grate, the combination of two rotary grate bars each provided with three radial flanges; two gear wheels connected to the spindles of the said grate bars and meshing with one another, three notches formed in one of the wheels; a weight actuated stop adapted to engage with any one of the notches; and a crank handle loosely fitting the suitably shaped end of one of the spindles and provided with a cam adapted, when the crank handle is revolved, to engage with and release the said stop from the notch in which it lies, substantially as and for the purpose specified.

Brantford, July 4, 1894.

ANDREW SCHRAG.

In presence of—

M. F. MUIR,
J. DEMPSTER.