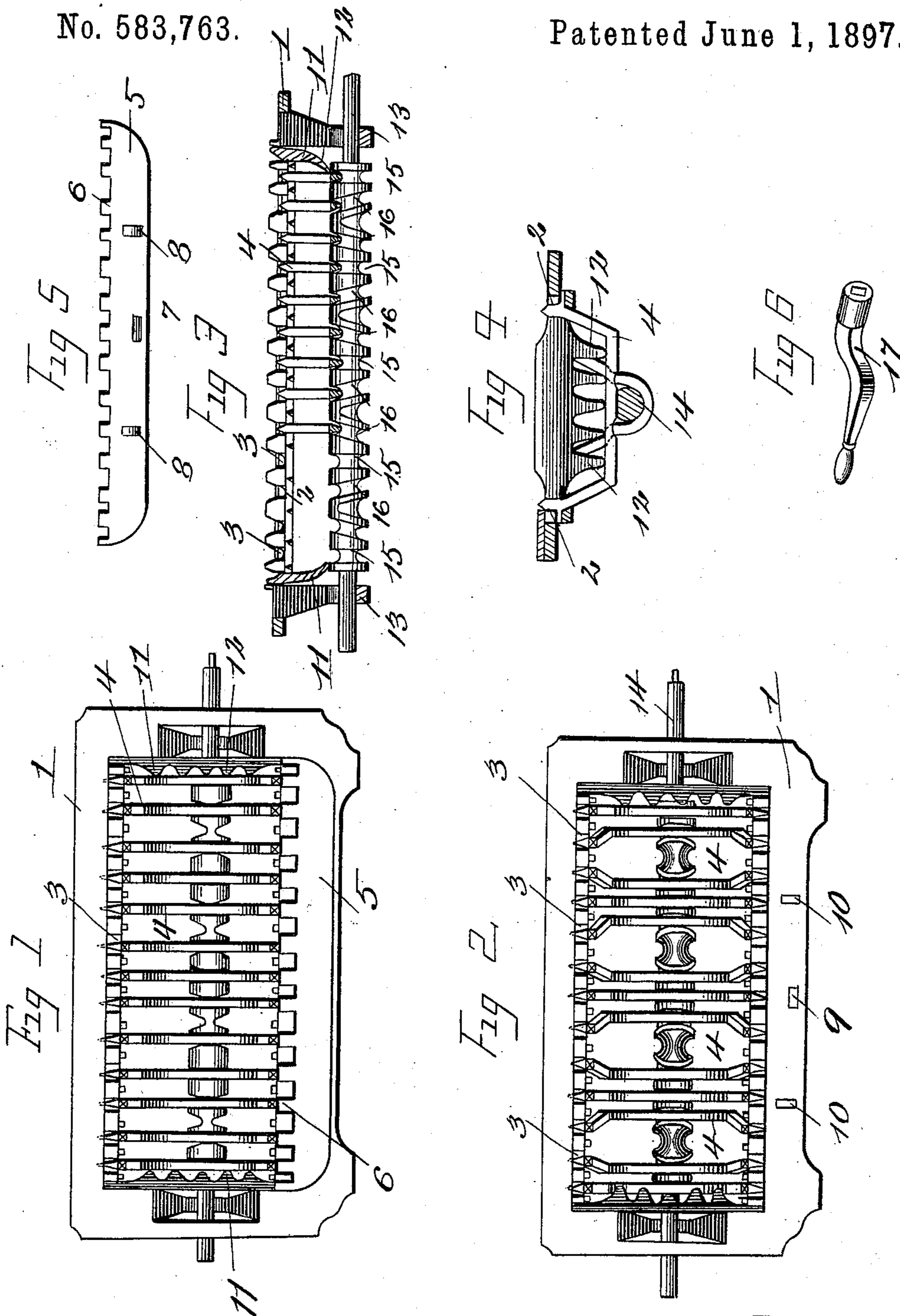


(No Model.)

J. MORRILL & J. A. COWAN.  
STOVE GRATE.

No. 583,763.

Patented June 1, 1897.



Witnesses  
E. A. Ryan.  
S. S. Fultz

Inventors,  
John Morrill *att.*  
Jas. A. Cowan  
By J. R. Nottingham  
*Att.*

# UNITED STATES PATENT OFFICE.

JOHN MORRILL, OF BANGOR, AND JAMES A. COWAN, OF BREWER, MAINE.

## STOVE-GRATE.

SPECIFICATION forming part of Letters Patent No. 583,763, dated June 1, 1897.

Application filed July 9, 1896. Serial No. 599,064. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN MORRILL, residing at Bangor, and JAMES A. COWAN, residing at Brewer, in the county of Penobscot, in the State of Maine, citizens of the United States, have invented a new and useful Stove-Grate; and we do hereby declare that the following is a full, clear, and exact description of our invention, which will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to that class of stove-grates commonly called "pocket-grates;" and it consists in the combination and arrangement of the several parts, as will be hereinafter more fully described, and particularly set forth in the claims.

One of the essential objects of the invention is to so construct the grate that any one or all of the bars when partially burned out can be readily removed and replaced by a new bar or bars without disturbing the other parts of the grate and the lining of the fire-pot of the stove.

A further object of the invention is to provide efficient means by which the bars may be rocked to either remove the accumulated ashes or dump the contents of the fire-pot into the ash-pit below the same; and a still further object of the invention is to improve the draft by providing means for introducing air into the bed of fuel at a point where it is incandescent.

These objects are accomplished by means of the device illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of our improved grate, showing the grate-bars in their normal position. Fig. 2 is a similar view with the bar-journal-confining plate removed, showing the bars in position for dumping; Fig. 3, a longitudinal vertical sectional view taken centrally, but showing the shaker-bar in side elevation, a number of the bars being removed to show the open bearings at one side for the reception of the journals of the grate-bars and the admission of air; Fig. 4, a transverse vertical sectional view; Fig. 5, a bottom plan view of the bar-journal-confining plate, and Fig. 6 a perspective view of the shaking crank-handle.

Referring to the several views, the numeral

1 indicates the frame of the grate, which may be of any desired shape, constructed to fit the inside of the fire-pot of the stove and adapted to be seated upon the ledge or other support usually provided for the purpose. Each inner side edge of the grate-frame is formed with a depression or rabbet 2, which is provided with open notches or recesses 3, into which are received the journal ends of the independent hanging grate-bars 4. These bars have their respective ends turned upward at preferably an acute angle and provided with suitable journals, the journals at one end being slightly longer than those at the other end, so that they will extend through the open notches or recesses back under the frame and thus be confined therein. The journals at the other or opposite ends are also confined in their respective notches or recesses. This is accomplished by means of a plate 5, which is preferably provided at its inner edge with projections 6, which cover the ends of the journals. The plate is locked to the grate-frame by means of the stud 7 and hooks 8, which are received into the slots 9 and 10 10. Each grate-bar swings or hangs independently in its respective notches or recesses and when in position forms a pocket-grate.

The open space at each end of the grate is protected by a guard 11, which is provided with inwardly and downwardly projecting fingers 12, the intervening spaces of which are for the admission of air. The end of each guard is provided with journals similar to those of the grate-bars, which are received into the notches or recesses at the inner side edges of the frame and held against accidental displacement by the same means which confines the journals of the grate-bars.

Journalled in suitable bearings made in brackets 13, which depend from the under side of the grate-frame, is a shaker-bar 14, having a series of grooves 15 running at right angles to the axis of said shaker-bar and situated at intervals along said bar, and a series of cam-grooves 16, situated in pairs between the grooves 15. The grooves 16 run diagonally to the grooves 15, the grooves of each pair diverging at opposite angles, as shown in Fig. 3. One of the journal ends of the shaker-bar is extended sufficiently to allow

it to project through the side of the fire-pit of the stove and is shaped to receive the end of a crank-handle 17, whereby the shaker-bar may be rocked to and fro to sift the ashes through between the grate-bars or to revolve it a sufficient distance to dump the contents of the grate.

The underside of the grate-bar rests lightly in the grooves 15 and 16, and by rocking the shaker-bar the grate-bar at each side of those resting in the grooves 15 is caused by its cam-shape groove to swing to and from said bars, causing the ashes to be sifted through into the ash-pit, and when the shaker-bar is turned a farther distance the grate-bars will be caused to separate in groups of three a sufficient distance apart to dump the contents of the grate, as shown in Fig. 2.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a stove-grate, the combination of two series of suspended grate-bars, the bars of which are alternately arranged, and means for swinging the bars of one series to and from the bars of the other series.

2. The combination, of a grate composed of bars arranged in groups of three, the middle bar of which is maintained stationary, and the side bars adapted to be swung to and from the stationary bar, and means for moving the side bars of the groups together, first toward and then away from the stationary bars.

3. The combination, in a stove-grate, of two series of suspended grate-bars, the bars of which are alternately arranged, and a shaker-bar provided with cam-grooves, whereby the bars of one series are swung to and from the bars of the other series.

4. The combination, in a stove-grate, of two series of suspended grate-bars, the bars of which are alternately arranged, and a shaker-bar provided with rests for the bars of one series, for holding them stationary, and with cam-grooves for swinging the bars of the other series to and from the stationarily-held bars.

5. A stove-grate consisting of a suitable

frame provided with notches or recesses at its inner side edges, two series of independent depending grate-bars hung in said notches or recesses and adapted to swing therein, and a rotatable shaker-bar provided with a series of diverging cam-grooves in which the lower portions of the grate-bars of one series are adapted to rest, whereby the rocking of the shaker-bar will cause said grate-bars to swing to and fro.

6. A stove-grate consisting of a suitable frame provided with notches or recesses at its inner side edges, a series of independent depending grate-bars hung in said notches or recesses and adapted to swing therein, and a rotatable shaker-rod provided with a series of grooves 15 and a series of diverging cam-grooves to receive the lower portions of the grate-bars, as and for the purpose specified.

7. A stove-grate consisting of a suitable frame provided with notches or recesses at its inner side edges, a series of independent depending grate-bars hung in said notches or recesses and adapted to swing therein, a guard provided with air-spaces situated at each inner end of the frame, and a rotatable shaker-bar provided with grooves 15 and diverging cam-grooves to receive the horizontal portions of the grate-bars, as and for the purpose specified.

8. A stove-grate consisting of a suitable frame provided with notches or recesses at its inner side edges, a series of independent depending grate-bars suspended in said notches or recesses and adapted to swing therein, a guard provided with air-spaces situated at each inner end of the frame, means for holding the grate-bars against accidental displacement, and a rotatable shaker-bar provided with grooves 15 and diverging cam-grooves to receive the horizontal portions of the grate-bars, as and for the purpose specified.

In testimony that we claim the above as our invention we hereunto subscribe our names.

JOHN MORRILL.  
JAMES A. COWAN.

In presence of—

HARVEY L. JEWELL,  
HERBERT L. ARCHER.