

(No Model.)

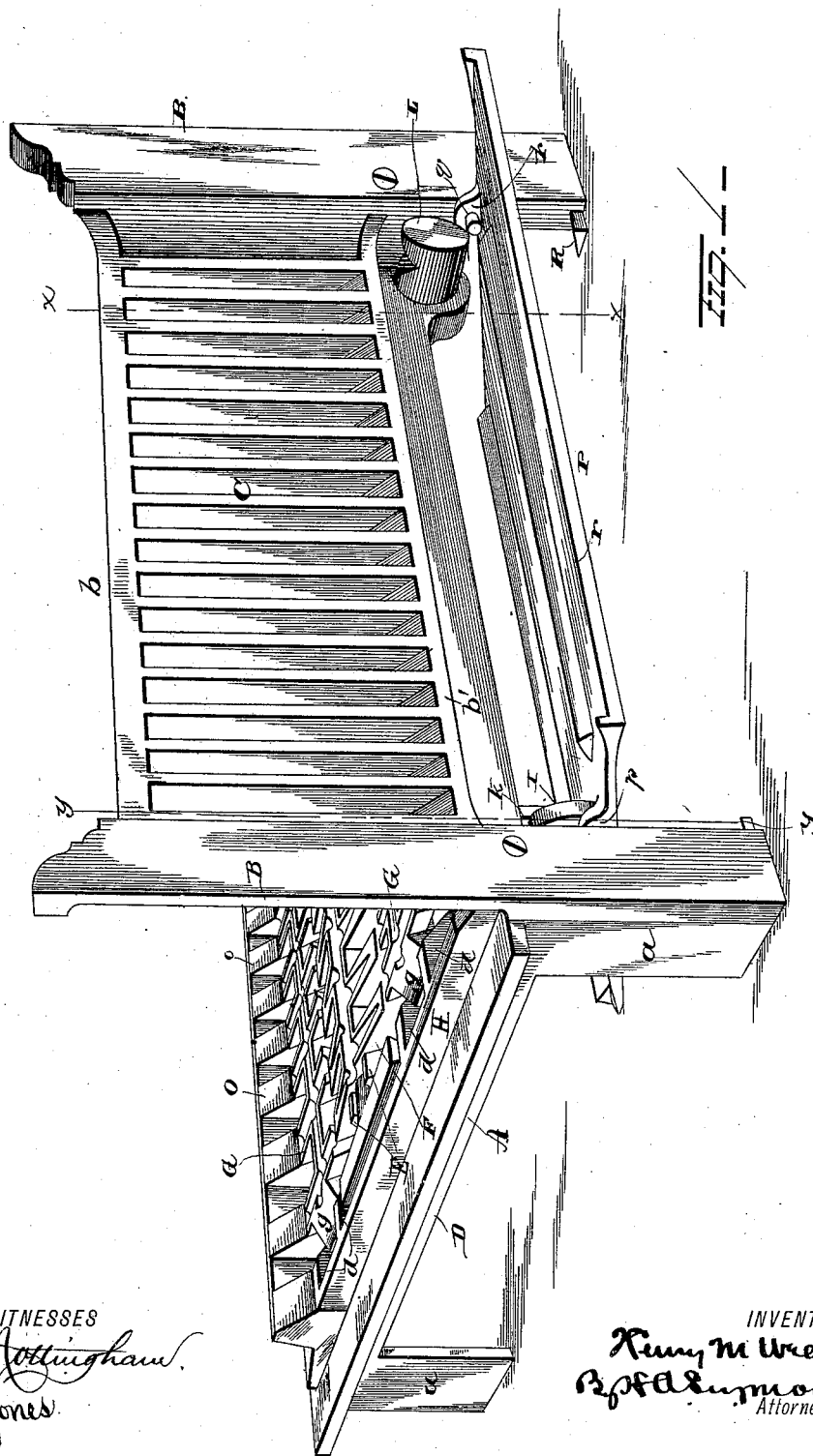
2 Sheets—Sheet 1.

H. M. WEAVER.

GRATE.

No. 347,401.

Patented Aug. 17, 1886.



WITNESSES

C. H. Nottingham.
J. E. Jones.

INVENTOR

INVENTOR
Kenny M. Weaver.
By R. F. A. Symon
Attorney

UNITED STATES PATENT OFFICE.

HENRY M. WEAVER, OF MANSFIELD, OHIO.

GRATE.

SPECIFICATION forming part of Letters Patent No. 347,401, dated August 17, 1886.

Application filed November 12, 1885. Serial No. 182,582. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. WEAVER, of Mansfield, in the county of Richland and State of Ohio, 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 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in grates.

The object is to provide a grate by which the ashes and cinders may be effectually and conveniently removed from the fire-pot either while the fire is burning or after it is out.

A further object is to provide an apron adapted to prevent the ashes from falling onto the hearth in front of the grate, and to form a neat finish in front, and which shall be capable of being tilted to admit of cleaning the hearth, dumping the grate, &c.

A further object is to provide an improved construction of the portion of the front and back situated in close proximity to the grate-bars, whereby the slicing and crushing of the cinders and removal of the ashes may be more effectually accomplished, and to provide improved means for connecting the grate-bars with the operating-rod.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the grate in perspective, showing the apron tilted. Fig. 2 is a view in vertical transverse section, on the line *x x* of Fig. 1, showing the apron in its normal position; and Fig. 3 is a vertical transverse section on the line *y y* of Fig. 1, showing the apron tilted.

A represents a supporting-frame resting on legs *a*. The frame is conveniently oblong in shape, but may have other shapes, as desired. The front consists of a pair of end uprights, B, resting on a plane with the lower ends of the legs *a*, and connected by an upper and a lower rail, *b* and *b'*, between which the series of upright bars C extend. The rails *b b'* curve backwardly as they leave the uprights B, the lower rail, *b'*, resting on the front of the supporting-frame A.

The supporting-frame A is provided near

its ends with cross-bars D, which are connected with the end bars by guide-cheeks *d*, arranged in pairs for holding the longitudinally-sliding grate-bars in position. The cross-bars D are provided with one or more sets of upwardly-extending lugs, E, between which the rounded bearings on the rocking grate bar or bars loosely fit.

F represents one of the rocking grate-bars, and G represents one of the longitudinally-reciprocating bars. The grate shown in the accompanying drawings consists of three independent bars—one rocking and two longitudinally reciprocating, the rocking bar being located between the two reciprocating bars. This number and position of the bars is not however, essential, as there might be two or more rocking bars and one, or more than two reciprocating bars, and the rocking bars might be arranged alternately with the reciprocating bars, or the rocking bars and the reciprocating bars might either or both be arranged in groups of two or more.

The bars as presented in the drawings are all of the same general type, consisting of a main trunk provided on each side with laterally-extending branches, the upper face or edge of the trunk, and the upper faces of the branches being slightly hollowed out, as shown.

The rounded parts or journals *f* of the rock-bar are located between the end branches and the branches next thereto, the bar being held by the said branches against longitudinal displacement. The ends of the bars G are squared, as shown at *g*, to fit loosely between the cheeks *d*, the longitudinally sliding motion of the bar being limited by the upwardly-extending flanges H on the ends of the frame A.

The bar or bars F are rocked by means of a combined latch and operating-rod I, one end of which is pivotally secured to the lower end of a depending lug, *h*, formed on the bar F, and the other end of which extends toward the front through an elongated closed slot, *k*, formed in a depending lug, H, attached to the front of the frame A. The under edge of the latch I is provided with a notch, *i*, adapted to receive the edge of the lug H' at the bottom of the slot *k*, and thereby lock the bar F in adjustment for use. If more than one rock-bar is employed, they may be connected and rocked

by the latch I in the same manner as the bar F is rocked.

A rock-shaft or operating-rod, L, is journaled transversely to the grate-bars in suitable bearings formed in the front and back of the frame A, and is preferably located at the opposite end of the grate-bars from the latch I. The rod or shaft L is provided, directly beneath the bar or bars G, with a loop-shaped lug or lugs, l, adapted to engage a slot or recess, M, formed between a pair of depending lugs, m, on the under side of the bar. The open space in the loop-shaped lug l allows the ends of the lugs m to enter therein as the bar G is moved longitudinally, thereby affording a more positive hold than is obtained by the ordinary lug and recess. The rod or shaft L is also conveniently cranked at the points where the lugs l are formed, to give the bar G a longer stroke without increasing the length of the lug l.

The upright bars C are provided on their inside faces, at points opposite the ends of the branches on the bar G, with inwardly-extending lugs N, the upper sides of which are formed slanting from the bars C toward the grate-bar, thereby tending to crowd the ashes and cinders away from the front bars, C, onto the grate, and forming, in conjunction with the projection a' of the bar G, an effective device for crushing and loosening the ashes and cinders. A bar, O, provided with a set of lugs, o, corresponding to the branches on the grate-bar, is adapted to be secured to the supporting-frame A at the back of the grate and in close proximity to the grate-bar.

The front of the grate is provided with an apron, P, which is removably secured to the uprights B by means of a pair of depending hooks, p, secured to the inside face of the apron at its ends, said hooks being adapted to engage laterally-extending lugs q on the uprights. The hooks are so located on the apron that when in engagement with the lugs q the apron will automatically retain a horizontal position. The apron is locked in vertical adjustment by means of a pair of lugs, R, at the lower ends of the uprights B, which prevent the bottom of the apron from swinging inwardly accidentally. To tilt the apron, the latter is raised until the lower edge of same clears the top of the lugs R. Then, by releasing the apron and, if necessary, pulling outwardly on the upper end thereof, the latter will turn to the position shown in Fig. 3. To turn the apron to an upright position, the outer or upper end of same is moved toward the grate, during which movement the lower edge thereof rides up and passes the inclines R. The top r of the apron is made to recede from the bars C, thereby forming a guard to prevent the ashes and coals which might work through between the bars C from falling on the hearth in front of the grate and guiding the same beneath the grate into the ash-receptacle.

The apron when vertically adjusted forms a neat finish to the front and hides the ash-

receptacle, latch, and rock-shaft, the rock-shaft terminating inside of the apron. When in a horizontal adjustment, the hearth may be cleaned and the latch operated. The rock-shaft may be operated when the apron is in either vertical or horizontal adjustment by means of a lever inserted in a socket, s, formed in its head. By not allowing the rock-shaft to extend through the apron the latter may be more readily removed and manufactured at less expense.

When the grate is composed of a central rock-bar and two outside reciprocating bars, as shown in the drawings, the ashes may be shaken into the receptacle by the rocking of the shaft L, which reciprocates the bars G, and the cinders may be removed by rocking the grate-bar F.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the construction herein set forth; but,

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

1. In a grate, the combination, with a supporting-frame, of two or more parallel independent grate-bars located thereon, one or more of said bars being pivoted to the frame, whereby it (or they) can be rocked, and the ends of one or more of the bars resting on bearings constructed to permit the said bar or bars to have a sliding movement in said frame, substantially as set forth.

2. In a grate, the combination, with a supporting-frame, of two or more independent grate-bars located in the same horizontal plane, one or more of said bars being pivoted to the frame, and one or more of the bars resting loosely in bearings, whereby it (or they) may have a longitudinal sliding movement on said frame, substantially as set forth.

3. In a grate, the combination, with a grate-frame, of parallel bars, one of which is pivoted to the grate-frame, and the adjacent bar resting loosely in bearings, whereby it may have a sliding movement on said frame, substantially as set forth.

4. The combination with a rocking grate and its supporting-frame, of an apron pivoted to the frame below the front edge of the grate, the pivotal point being above the lower edge of the apron, as set forth.

5. In a grate, the combination, with a supporting-frame and a reciprocating grate-bar having a recess in the lower side, the said frame having side cheeks and flanges for holding the bar laterally against displacement, and for limiting the longitudinal movement of said bar, of a rock-shaft, and a loop-shaped lug secured to said shaft and resting within said recess in the bottom of the reciprocating bar, substantially as set forth.

6. In a grate, the combination, with a frame,

one or more reciprocating grate-bars, and one or more rocking grate-bars, the said bars being located in the same horizontal plane, of a rock-shaft having one or more loop-shaped lugs engaging the reciprocating bars, and a rod for operating the rocking grate-bars, substantially as set forth.

7. The combination, with a grate and a suitable supporting-frame, of an apron secured to the front of the grate in a plane below the grate-bars, substantially as shown, and provided with an outwardly-flaring upper edge, substantially as set forth.

8. The combination, with a grate and a supporting-frame, of a tilting apron secured to the front of the grate and provided with an

outwardly-flaring upper edge, substantially as set forth.

9. The combination, with a frame having upper and lower lugs, substantially as described, and a grate supported on said frame, of an apron having hooks projecting from the rear face of the apron and engaging the upper lugs, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY M. WEAVER.

Witnesses:

J. B. WARREN,

CHARLES A. ANNABLE.