W. L. McDOWELL.

Grate for Ranges and Stoves.

No. 162,487. Patented April 27, 1875.

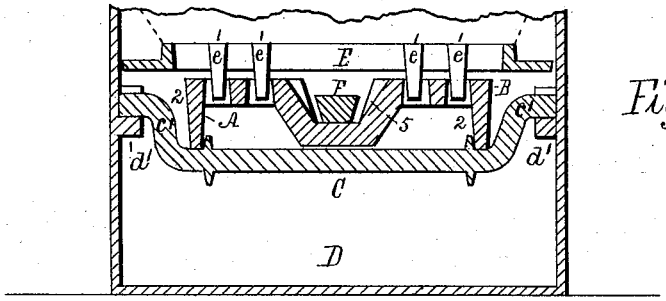

Fig. 1.

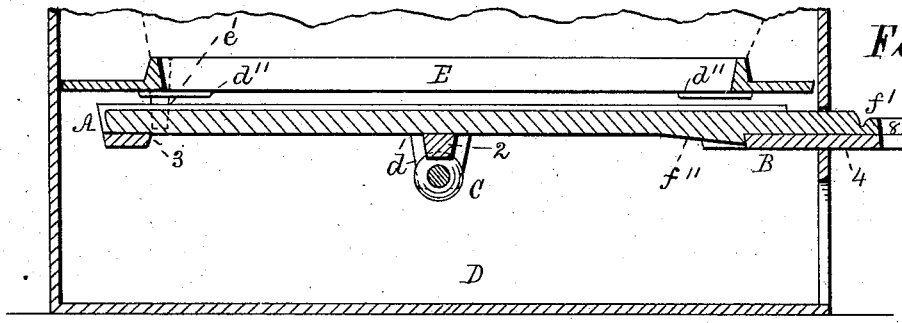

Fig. 2.

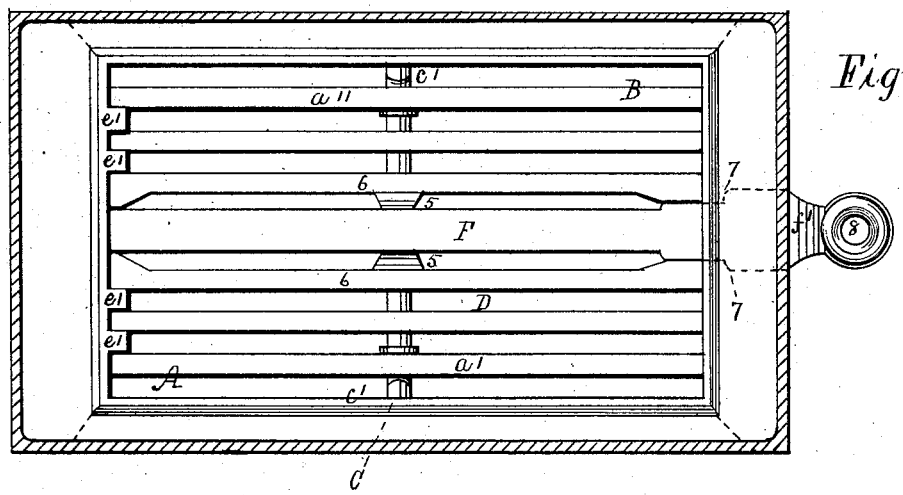

Fig 3.

Witnesses:

Ben Morison

Wm. H. Morison.

Inventor:

William L. McDowell

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

WILLIAM L. McDOWELL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN GRATES FOR RANGES AND STOVES.

Specification forming part of Letters Patent No. **162,487**, dated April 27, 1875; application filed March 18, 1875.

To all whom it may concern:

Be it known that I, WILLIAM L. McDOWELL, of the city of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Grates for Ranges and Stoves, of which the following is a specification:

The object of my invention is to afford more free and easy backward and forward motions, in combination with slightly rising and falling motions, in a horizontal grate fitted with a detachable draw-bar, substantially as will hereinafter be described, with reference to the accompanying drawing, in which—

Figure 1 is a vertical transverse section of Fig. 3, showing the rear half of the ash-pit with my invention applied; Fig. 2, a vertical longitudinal section of Fig. 3; Fig. 3, a plan view of my invention applied.

The grate A B is supported at its midlength by a rock-shaft, C, which has a crank and journal, c', at each end, so as to allow it to be rocked freely in suitable open bearings d' d', cast on the side plates of the ash-pit D, or otherwise fixed to side walls, if the ash-pit be of brick-work, as in ranges. The connected rear ends of the bars of the grate A B pass freely under the rear end of the fire-brick supporting-plate E, which rests upon fixed side ledges d'' d'', while the handle b', which projects outward from the connected front ends of said grate-bars, passes freely through the front plate of the ash-pit D, and thus prevents the grate A B from tilting downward at either end into the ash-pit below, (see Fig. 2,) and at the same time allow the said grate to be easily moved backward and forward, and slightly upward and downward, while being supported at its midlength upon the rock-bar C by means of two bifurcated legs, 2 2, which project downward from the under edges, respectively, of the two outside bars, a' a'', of the grate. (See Fig. 1.) The slightly rising and falling motions of the grate are produced by the curved movement of the rock-shaft during the backward and forward motions of the grate A B, operated by means of the handle b'. Studs e' e' are cast onto the front edge of the rear part of the fire-brick supporting-plate or frame E, which, respectively, extend downward through the spaces which are between the grate-bars below that part of the plate E, and while the said studs allow the requisite free motions of the grate A B, they serve the purpose of preventing any cinders or stones which may be in the fire or ashes from getting between the said grate A B and the plate E during the requisite motions of the former. (See Figs. 1 and 3.) The draw-bar F rests in depressions 3 and 4 in the front and rear ends of the grate A B, as shown in Fig. 2, and also in a like depression, 5, in a tie-bar, which connects the two grate-bars 6 6 at their midlengths, (see Figs. 1 and 3,) and thus forms the middle bar of the said grate. The outer end of the draw-bar F serves as an addition to the handle b', when in place upon the latter, the bottom of the handle b' being sunk below the plane of the upper surface of the grate A B, for the purpose of receiving the projecting end or handle f' of the draw-bar F, which corresponds in form with sides and end of the said handle b', and has a corresponding hole, 8, for the insertion of the end of an ordinary bent poker, for the purpose of moving both together, as occasion may require. The under side of the front end or handle f' of the draw-bar has an inclined plane, f'', which affords a shoulder in front, which drops behind the bottom of the handle b' when the draw-bar is pushed inward until stopped by its side shoulders 7 7, (see Fig. 3), and thus prevents the said draw-bar from being drawn out from the grate until the bar-handle be first lifted sufficiently to clear the shoulder of the inclined plane f'' from the rear end of the depressed bottom of the handle b' of the grate A B. And it will be seen that, by means of the connected handles f' and b', the grate and draw-bar can be moved together at the same time, and that the draw-bar F can be drawn out entirely, so as to leave a sufficiently wide opening along in the midwidth of the grate, for the discharge of cinders, stones, or the whole contents of the fire-box, by agitating the remaining portion of said grate. It will also be seen that very free and easy longitudinal and upward and downward motions will be produced at the same time, by using the

joint-handles b' and f', mainly because the grate is supported upon the rock-shaft C, as described.

I claim as my invention—

1. The combination, in a range, stove, or furnace, substantially as described, of the rock-shaft C, with the grate A B, provided with a special handle, b', projecting through the front plate of the base or ash-pit D, for purposes set forth.

2. The combination, with the grate A B, constructed to swing upon a rock-shaft, C, substantially as described, of the draw-bar F, provided with the inclined plane and shoulder f''', substantially as and for the purposes set forth.

3. The combination, with the depressions 3, 4, and 5, in the grate A B, of the draw-bar F, the said parts being constructed and arranged to operate substantially in the manner described, for the purposes specified.

WILLIAM L. McDOWELL.

Witnesses:
BENJ. MORISON,
WM. H. MORISON.