

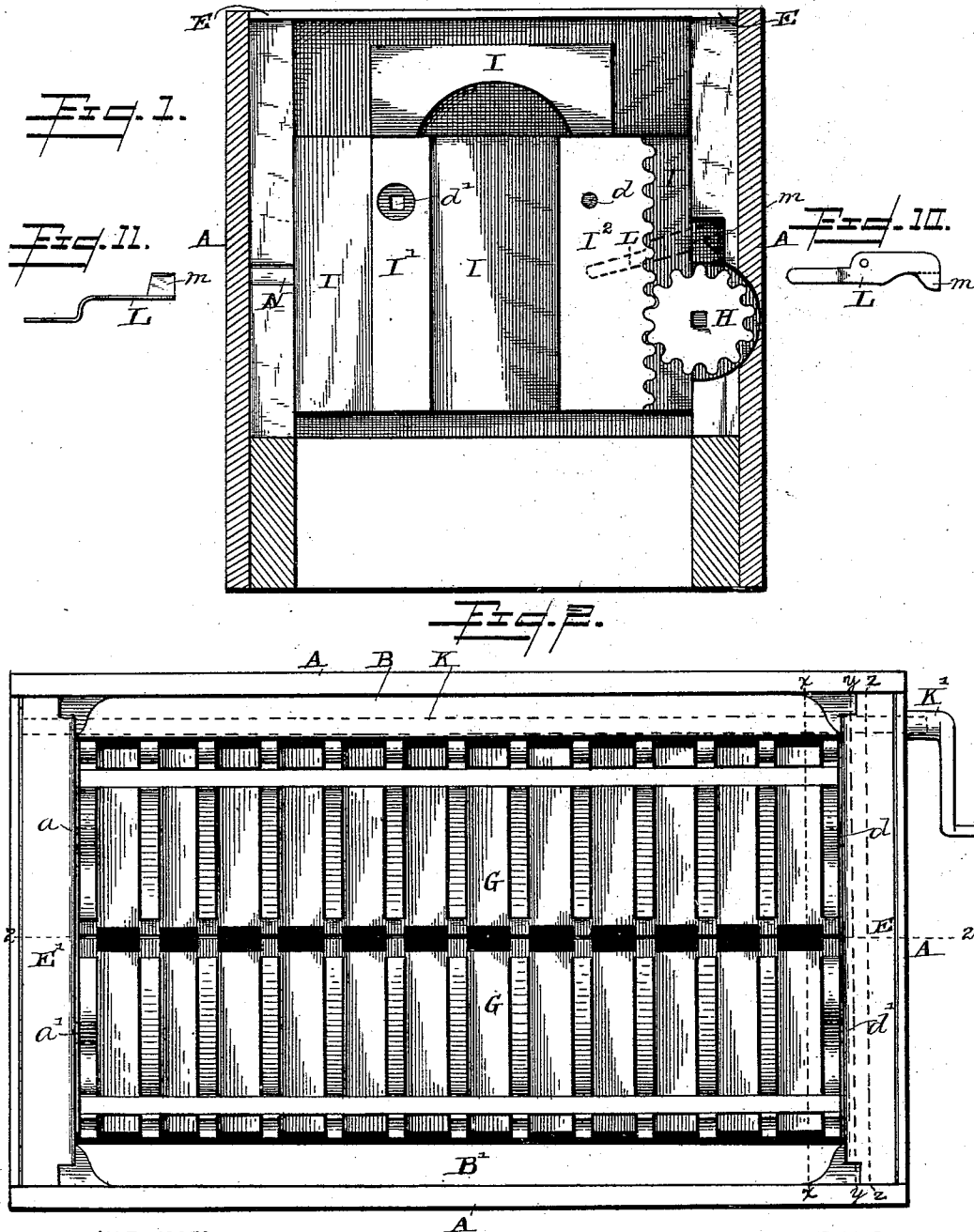
(No Model.)

3 Sheets—Sheet 1.

W. M. SHORES.
STOVE OR RANGE GRATE.

No. 468,958.

Patented Feb. 16, 1892.



WITNESSES:

Jas N Blackwood
Chas B Blackwood

INVENTOR.

William Miles Shores
BY *Geo. V. Myer*

ATTORNEY.

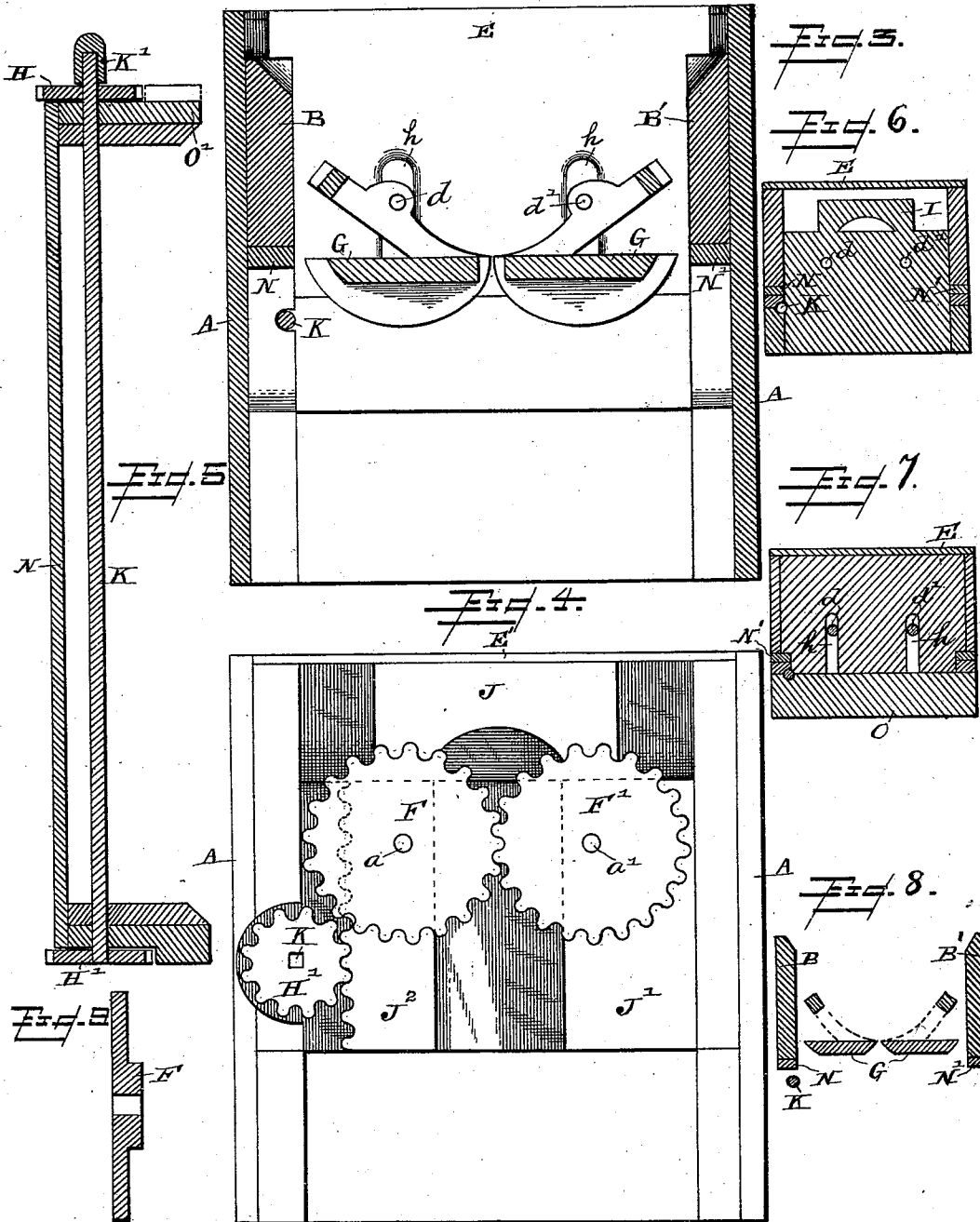
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3 Sheets—Sheet 2.

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No. 468,958.

Patented Feb. 16, 1892.



WITNESSES:

John H. Blackwood
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INVENTOR.

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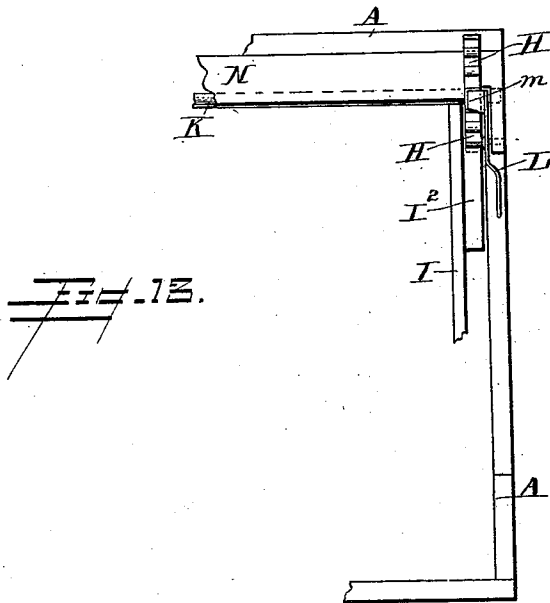
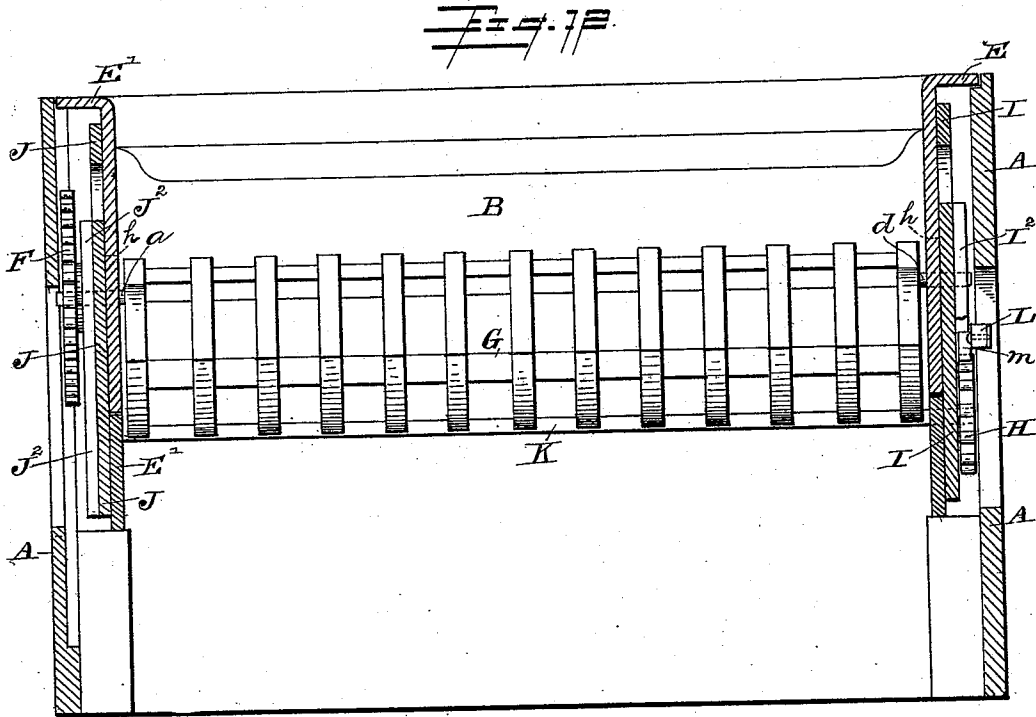
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3 Sheets—Sheet 3.

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No. 468,958.

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Witnesses

Joseph Blackwood
Albert B. Blackwood

By his Attorney

Inventor
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UNITED STATES PATENT OFFICE.

WILLIAM MILES SHORES, OF TOWANDA, PENNSYLVANIA.

STOVE OR RANGE GRATE.

SPECIFICATION forming part of Letters Patent No. 468,958, dated February 16, 1892.

Application filed June 11, 1891. Serial No. 395,858. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILES SHORES, a citizen of the United States, residing at Towanda, in the county of Bradford and State of Pennsylvania, have invented certain new and useful Improvements in Stove or Range Grates; and I do 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 the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in that class of grates for stoves or ranges in which a raising or lowering mechanism is employed to elevate or lower the grate and set the same at the desired point for the purpose of bringing the ignited fuel nearer to or farther from the top plate of the stove or range, and thus regulate the heat and control the consumption of fuel.

My improvements consist in combining with the stove frame or casing grate-bars journaled in sliding end plates provided with rack-bars, and which plates are inclosed between the fire-box and outside casing of the stove or range, so as to better protect the same from the ashes and effects of the heat, and these, in connection with other features, to operate the grate with great ease and facility, as more particularly hereinafter described and claimed.

My improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a transverse partly sectional view in elevation of one outer end of a stove with the outer casing removed to show the position and operation of the lifting mechanism; Fig. 2, an inside plan view showing position of grate, with relation to lifting apparatus; Fig. 3, an inside end view, in elevation and partly in section, showing connection of dumping-grates with lifting-rack plates and inside end of fire-box frame-work; Fig. 4, an outside end view opposite to that of Fig. 1, with outside end casing removed to show connection of grate, turning-gear, and the lifting-rack and pinion; Fig. 5, a vertical section of operating-shaft and its connections and supporting-frame; Fig. 6, a transverse sectional view

on line *zz* of Fig. 2; Fig. 7, a similar view on line *yy* of Fig. 2; Fig. 8, a similar view on line *xx* of Fig. 2; Fig. 9, a sectional side view of grate-wheel; Figs. 10 and 11, details of weighted pawl; Fig. 12, a central longitudinal section on the line 2 2 of Fig. 2, and Fig. 13 a detail plan view of the pawl and the pinion with which it engages.

Referring to the drawings, A A are the outside casings of a stove or range.

B B' and E and E' are respectively the side and end linings of the fire-box.

I J are respectively opposite sliding end plates placed between the lining E E' of the fire-box and the outer casing of the stove and in which are journaled the double rotating grates G. The short journal-shafts *a a'* and *d d'*, supporting the grates, extend through plates E' J and E I, respectively, and have a vertical movement in slots *h*, cut in each of the inside end plates of the fire-box. The grates in their vertical movement thus carry with them the plates I J. The journal-shafts *a* and *a'* carry the cogs F F'. One of the journals *d* terminates in a small square shaft and is adapted to receive a crank or wrench for turning the grates and cogs F F', whereby the grates are rotated in opposite directions.

I² J² are racks cast, respectively, to the opposite end sliding plates I J and adapted to engage with the pinions H H', mounted, respectively, on the opposite ends of a rocking shaft K. By means of these racks, pinions, and shaft the grates are given their vertical movement. For this purpose the shaft extends through the casing and a crank K' is employed to turn it, and which crank may be used to both turn the grates and to raise them. The shaft K is mounted in a removable cast frame X, having side pieces N N' and end pieces O O' set in the casing below the fire-box lining, and as indicated in Figs. 5, 7, and 8.

L is a weighted pawl pivoted to one of the end plates I, operated by gravity, and its end *m*, adapted to engage with and hold the pinion H and consequently rack-bars in the position raised.

It will be noticed that the end linings of the fire-box are not only slotted, but are also beveled inwardly to an edge, which construc-

tion permits the grates to be moved up and down easily without interference with the contents of the fire-box.

Although not confined to the particular form of grate herein shown, as other grates may be used, yet my improvements are peculiarly adapted to be used with advantage with a duplex rotary grate of a well-known form, adapted when turned in one direction to lower and be used for the burning of coal, and when turned in the opposite direction to be raised higher and then used in burning wood, and by which rotary movement the grate is easily cleaned of ashes and clinkers. Clinkers are also prevented from forming at the sides and ends of the grate by the use of the elevating mechanism.

The inside faces of the sliding end plates I and J are made perfectly smooth, so as to fit snugly and smoothly against the smooth inside faces of plates E and E' of fire-box, which construction, together with the inwardly-beveled edges of the slots in E and E', prevent all ashes and fine coal getting between said plates and fire-box. On the back of plate I the rack I² is composed of a raised portion of the plate, and I' is another raised portion to raise the plate I flush with the rack and give a thicker bearing for the journal-shaft of grate. The

rack and raised portion on back of plate J are similarly constructed.

Having thus described my invention, what I claim is—

1. The combination of sliding end plates carrying racks, grate-bars journaled in the said plates, a fire-box having removable end linings with slots, the edges of which are beveled inwardly and through which the shafts of grate extend to the said sliding plates, and a shaft with pinions attached thereto for operating said racks, substantially as described.

2. In a grate, the combination, with the sliding end plates, removable frame X, the rotating shaft mounted in the end pieces of said frame, provided with a pinion on each end to engage said plates, and the weighted pawl pivoted in a recess at one end of casing and adapted to engage with and hold one of said shaft-pinions, of a duplex rotary grate mounted in said sliding end pieces, having at one end intermeshing cog-wheels, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM MILES SHORES.

Witnesses:

T. R. MCAFEE,
GEO. V. MYER.