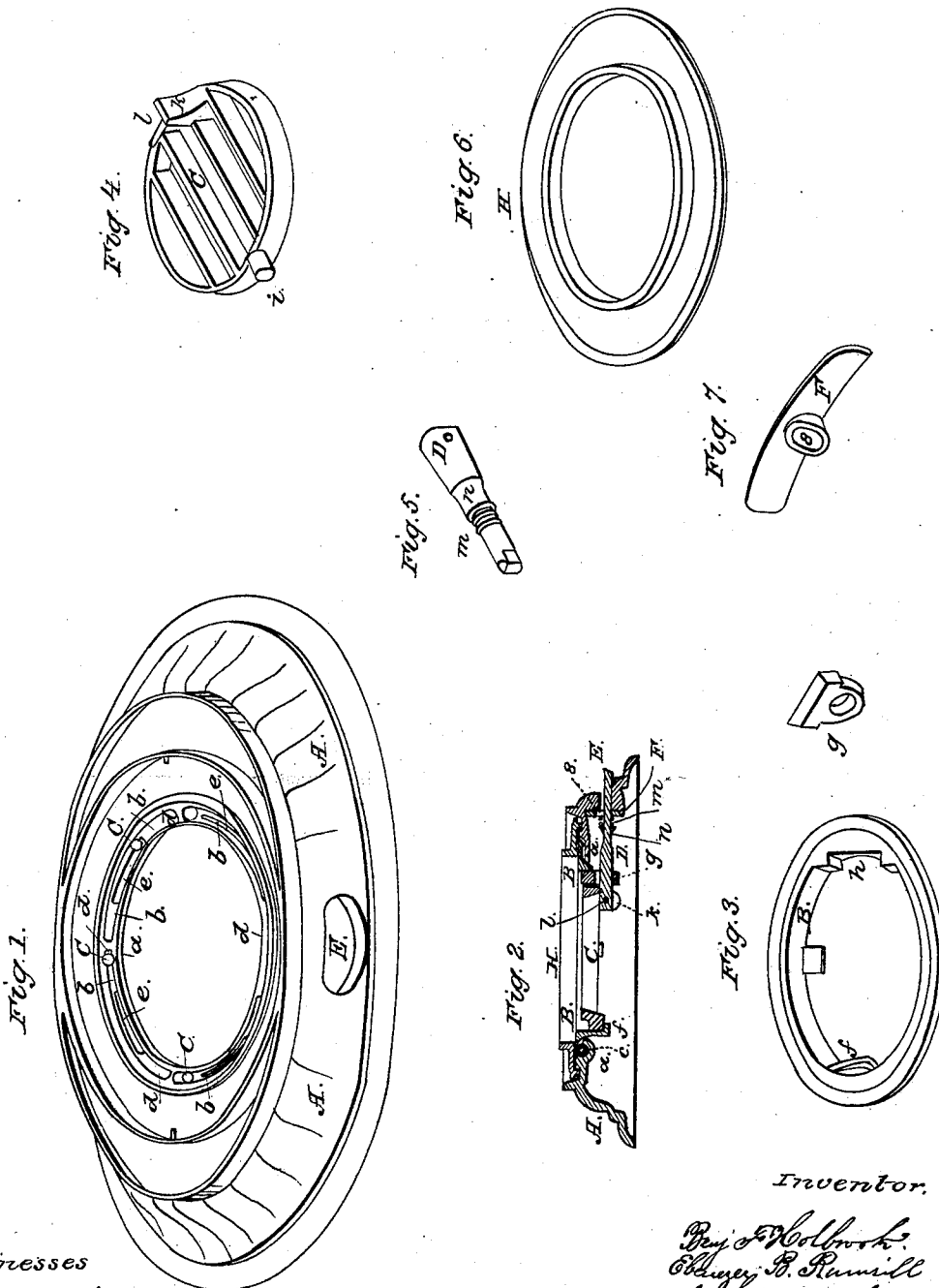


HOLBROOK & RUMRILL.

Stove Grate.

No. 81,904.

Patented Sept. 8, 1868.



Witnesses

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Letters Patent No. 81,904, dated September 8, 1868.

IMPROVEMENT IN STOVE-GRATES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be known that we, BENJAMIN F. HOLBROOK and EBENEZER B. RUMRILL, both of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain Improvements in Movable Grates, and in the construction of bed-plates for supporting the same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the interior of the lower portion or base of a stove, with some of our improvements applied thereto.

Figure 2 is a transverse vertical section through the centre of the base of the stove, with all of our improvements connected therewith.

Figures 3, 4, 5, 6, and 7 are perspective views, representing our several improvements in detail.

Rotating grates, as heretofore constructed, have been employed in connection with stationary bed-plates, but this construction is objectionable, for the following reasons, viz: The cinders and clinkers constantly accumulate and form on the upper side of the stationary bed-plate, or they become wedged between it and the grate, thereby rendering it difficult to shake the latter to sift the ashes, or tip it over when the cinders are to be removed therefrom.

Our invention has for its object to obviate the above-mentioned difficulty, and consists in a movable or rotating bed-plate, in connection with a movable or rotating grate, and also in an annular ring, for supporting the lining, and for preventing the cinders or ashes from obstructing the motion of the said movable bed-plate.

And, furthermore, our invention consists in making the revolving grate and its arbor separately and independently of each other, and so connecting and supporting them within the rotating bed-plate as to admit of the grate being readily removed and replaced without disturbing the lining or bolts.

And our invention also consists in a movable plate for covering the port, against which it is pressed by means of a spring.

To enable others skilled in the art to understand and use our invention, we will proceed to describe the manner in which we have carried it out.

In the said drawings, A is the casting, representing the base or bottom of the stove, around the inner edge of which extends a circular flange, *a*, provided with grooves *b b b b*, (fig. 1,) for the reception of spherical balls *c c c c*, which are prevented from coming in contact with each other by stops *d d d d*. Each groove *b* has a slot, *e*, through its bottom, to allow of the escape of any ashes or other obstacles that may enter the groove and tend to arrest the motion of its ball.

B is a circular bed-plate, of the form shown in figs. 1 and 3, its under side being grooved or hollowed out, to allow of its resting and revolving upon the balls *c c c c*, by which construction the friction of the bed-plate, when revolving, is materially reduced.

This movable plate is provided with two bearings *f g*, diametrically opposite, for the support of a revolving grate, C, (figs. 2 and 4,) one of these, a stationary bearing, *f*, being formed in a lug projecting down from the under side of the movable bed-plate, while the other, *g*, is a sliding bearing, in the form of a loop, fitted into dove-tailed ways *h* made in the inner side of the said movable bed-plate, (see fig. 3.)

This bed-plate is made to perform a partial revolution horizontally, in order to prevent the tendency of the cinders, clinkers, &c., from accumulating and conglomerating, incident to the use of stationary bed-plates, the rotating bed-plate being operated by the movement of the grate C, in a manner now to be described.

From the outside of the rim of the grate projects a short gudgeon or arbor, *i*, and nearly diametrically opposite thereto, and from the bottom of the grate projects a lug, *k*, provided with a horizontal pin, *l*, over which slides the end of an arbor, D, of the form shown in fig. 5, and of sufficient length to extend through a "port" or aperture, E, in the front of the bottom of the stove, the end of the said arbor being adapted to receive a handle, for vibrating and tipping the grate, when required, to sift the ashes, and for preventing clink-

ers forming by imparting motion to the bed-plate, and also to remove the contents of the grate when a new fire is to be laid.

This arbor D, before passing through the port E, enters a hole, 8, formed through the centre of a sliding cover, F, the purpose of which is to keep the port closed, the cover being pressed up thereto by a spiral spring, m, surrounding the arbor D, and abutting against a shoulder, n, formed thereon.

This construction of the various parts allows of the grate being readily and conveniently removed from and replaced within the stove through the door by which the fuel is supplied, thus obviating the necessity of removing the fire-brick lining or the bolts, incident to the ordinary construction of grates.

When it is required to remove a grate, the arbor of which is made in one and the same piece therewith, the hand is inserted through the door, and the grate raised by taking hold of the portion near the short arbor or gudgeon i, when, as it is lifted up toward the door, the arbor D is drawn out of the sliding-port cover, and the movable bearing or loop g is raised sufficiently to withdraw the arbor with facility. If the sliding-port cover were kept against the port by rivets passing through slots, the cover would not then be free to incline toward the grate, and it could not be taken out, when desired, without removing the fire-brick lining and sundry bolts.

When it is desired to remove the grate, the arbor of which is pivoted thereto, (as above described,) it is simply necessary to turn the grate a quarter of a revolution, thus bringing it into a vertical position, when the pin l may be readily lifted out of its hole in the end of the arbor, and simultaneous therewith the gudgeon is removed from its bearing f.

H is a circular plate or annular ring, interposed between the revolving bed-plate, for supporting the fire-brick or other lining, and to prevent it from resting upon and obstructing the motion of the bed-plate, the inner edge of said ring projecting over a portion of but not touching the bed-plate, and also serving to protect it from being obstructed by ashes, &c.

It is evident that our improvements may be applied to furnaces, ranges, boilers, &c., wherever they may be found applicable, and rollers may be substituted for the balls c c c c, without departing from the spirit of our invention.

Claim.

What we claim as our invention, and desire to secure by Letters Patent, is—

A movable bed-plate, B, substantially as and for the purpose set forth.

We also claim a bed-plate, B, revolving on balls c c c c, substantially as and for the purpose described.

We also claim the movable bearing or loop g, in combination with the revolving bed-plate B and arbor D of the revolving grate C, substantially as described for the purpose set forth.

We also claim the annular ring H, for protecting the revolving bed-plate and supporting the lining, substantially as described.

We also claim the sliding and removable port-cover F, in combination with the port E and arbor D, with its spring m, constructed and operating substantially as and for the purpose specified.

We also claim an arbor, D, so pivoted to its grate as to admit of being readily connected therewith or disconnected therefrom, substantially as and for the purpose set forth.

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Witnesses:

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