A. J. REDWAY.

Dumping-Grate for Stoves and Furnaces.

No. 210,804. Patented Dec. 10, 1878.

Fig. 1.

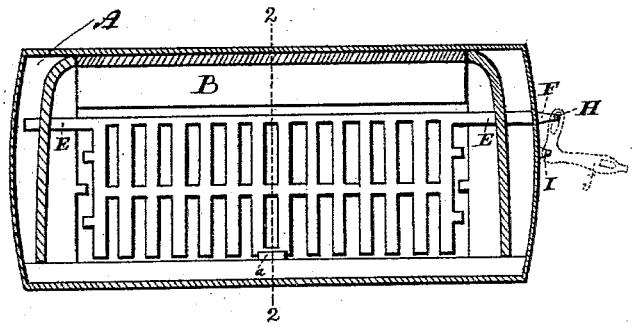


Fig. 2.

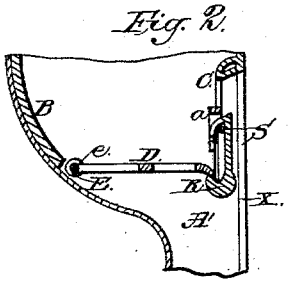


Fig. 4.

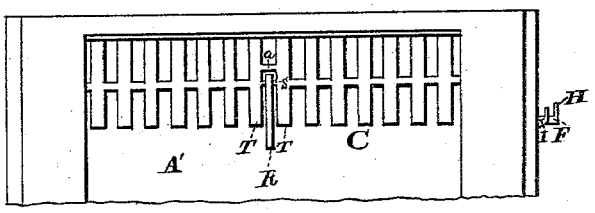


Fig. 3.

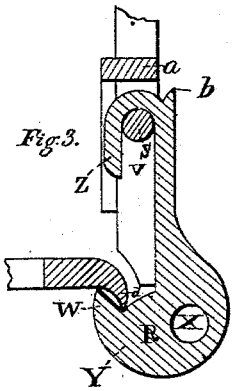


Fig. 6.

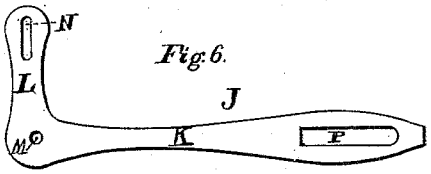


Fig. 5.

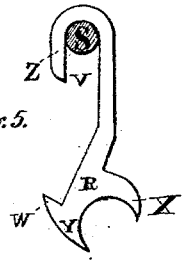
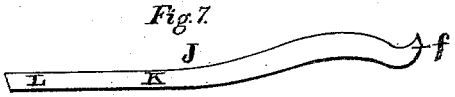


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALBERT J. REDWAY, OF AVONDALE, ASSIGNOR TO REDWAY & BURTON, OF CINCINNATI, OHIO.

IMPROVEMENT IN DUMPING-GRATES FOR STOVES AND FURNACES.

Specification forming part of Letters Patent No. **210,804**, dated December 10, 1878; application filed April 5, 1878.

To all whom it may concern:

Be it known that I, ALBERT J. REDWAY, a resident of the village of Avondale, in the county of Hamilton, State of Ohio, and doing business in the city of Cincinnati, county and State aforesaid, have invented certain new and useful Improvements in Dumping Apparatus for Stoves and Furnaces, of which the following is a specification:

My invention relates to a latch applied to the fire-chamber of a stove provided with an open or swinging bottom; and it consists, in general, of novel peculiarities in construction of the latch and the grate or grates of the fire-chamber.

The features of my invention are, first, the provision which enables the latch to be readily and conveniently adjusted upon the front grate or portion of the fire-chamber, and as readily and conveniently removed therefrom; secondly, a provision employed in connection with the first feature of my invention, whereby the latch, when in proper position, is prevented from being unshipped from its bearing or support while the bottom is being lifted past the latch to be latched; thirdly, a provision in the front grate for the support and security of the latch when the latter is applied thereto; fourthly, the bottom grate of a fire-chamber, arranged to swing on axes, as hereinafter described, and capable of being swung to a horizontal position by means of a suitable instrument or mechanical provision applied to the end of one of the axes, in combination with a latch, preferably constructed as herein shown, but, at any rate, provided with means for automatically catching the grate-bottom when uplifted.

My invention is applicable to various styles of stoves and furnaces.

For convenience of illustration I have herein selected a cooking-stove, and have shown my invention as applied thereto.

In the accompanying drawings, Figure 1 is a top view of a fire-box of a cooking-stove provided with my invention. Fig. 2 is a vertical section of device shown in Fig. 1, through the dotted line 2 2. Fig. 3 is a portion of Fig. 2 enlarged. Fig. 4 is a front elevation of device shown in Fig. 1. Fig. 5 is a modification of the tongue. Fig. 6 is a top view of the shaker. Fig. 7 is a side elevation of the shaker.

A represents the fire-chamber of the stove, and A′ the ash-box beneath. B is the back of the fire-chamber. The front portion of this chamber A is formed by the grate C, and the bottom portion by the grate D. The latter is hung upon axis-rods E, one of which projects from each end of the bottom near the back edge of the latter, and rests and turns on a bearing, *e*, in the end of the fire-chamber.

The shaker-rod J consists, essentially, of a shank, K, provided with a hole, P, adapted, as before mentioned, to fit the sides of axis F, and when fitted thereon, when receiving a reciprocal motion from the operator, to oscillate the bottom D. The bottom is supported at its front edge by a latch, R, hung upon some part of the front edge of the fire-chamber, here hung upon one bar, S, of the cross-bars which connect together the vertical bars T of the grate C. This cross-bar S is preferably rounded on top and sides to allow the latch to swing freely thereon.

The principal features of the latch are, first, an aperture, V, to receive the rod S, this aperture being preferably rounded on top to permit the latch to swing freely on the rod, and preferably open at bottom to admit of the latch being cast separate from the grate C, and to be readily attached to or disconnected from said grate; secondly, a lip or catch, W, to engage the front edge of the bottom D and firmly hold it there; thirdly, a hole, X, (see Fig. 3,) or projection, X, (see Fig. 5,) whereby a hold is afforded to retract the latch and drop the bottom; fourthly, the beveled cut-away or rounded-off shape imparted to the portion Y of the latch immediately below the lip, whereby when the bottom D is elevated the front edge of the latter, upon impinging against said beveled portion Y, shall throw the latch back; fifthly, such a disposition of the metal in the latch as shall cause it to always hang when not interfered with in such a position that its catch shall project under and catch the edge of the bottom D as soon as the latter has passed above the catch.

In order to insure the most perfect operation

of the latch, the edge of the bottom D is provided, at the point where it will come in contact with the latch, with a downwardly-projecting lip, *d*, rounded on its upper side to assist in throwing back the latch as the bottom is raised. The lip *d* enables the edge of the bottom to take hold of the catch W when the bottom rises above the latter.

In order to prevent the bottom from being elevated farther above the catch than is necessary, this lip is extended out beyond the edge of the bottom and far enough forward to impinge when rising against the shoulder *b*, formed by recessing the lower ends of the grate-bars T on each side of the latch.

When the aperture V of the latch is open at the bottom, it is well to make the portion Z of the latch somewhat long to prevent the latch from slipping off the rod S while being operated, and in furtherance of this object it is well to provide in the grate, immediately above the latch, between the vertical bars on either side of the latch, a cross stud or bar, *a*, and also a shoulder, *b*, on the upper portion of the front of the latch, this shoulder being so placed that it shall (when the latch lifts upward, as it frequently does immediately upon being disengaged from the bottom) impinge against the bar *a* and prevent the latch from rising from the rod S; but neither the shoulder *b* nor the bar *a* is essential in the construction of the latch; neither is the hole or projection X indispensable thereto, as the latch can be retracted by a hook or bar or pinchers applied to the bottom or sides thereof. While I prefer to employ the lip *d* on the bottom D, it may also be dispensed with without impeding the successful working of the latch.

The modes in which the various features of my invention operate are as follows: To drop the bottom D of the fire-chamber C and dump the ashes, clinkers, cinders, &c., retract the latch. This retraction is done by inserting the end *f* of the shaker or other rod into the hole X or behind the projection X, and moving the latch away from the bottom D. The ashes, &c., on the bottom D will then fall into the ash-box A′ or other proper receptacle below. To elevate the bottom D, fit hole P of the shaker upon the part F of axis E. By then moving the lever back or forward, according as it is placed above or below part F, the bottom is elevated. As the latter rises the round of lip *d* strikes the portion Y of the latch, and throwing the latch back rises above the catch W of the latter, whereupon the latch swings back to its normal position and the catch W comes beneath the lip *d* or the edge of the bottom and prevents its descent.

The advantages of the dumping devices are obvious. These devices enable the operator to quickly and readily drop the bottom, and as quickly and readily to return it to position without the danger of burning his hands. Again, the position of the axis at or near one edge of the bottom enables the entire bottom to be wholly removed out of the way of the descending ashes and clinkers, thus affording no opportunity for the retention in the fire-chamber of a portion of the débris of combustion. On the old plan of oscillating the bottom upon an axis placed at the longitudinal center of the bottom, the latter always presented itself as an obstruction to the descent of the said débris.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The grate-latch provided with catch W Y and with the open or hook connection Z, substantially as and for the purposes set forth.

2. The grate-latch provided with catch W Y, the open or hook connection Z, and shoulder *b*, substantially as and for the purposes set forth.

3. The latch provided with shoulder *b*, in combination with grate C and cross-bars S and *a*, substantially as and for the purposes set forth.

4. The latch provided with aperture V and catch W Y, in combination with a bottom, D, hung on axes E and E F, substantially as and for the purposes specified.

Cincinnati, Ohio, January 21, 1878.

ALBERT J. REDWAY.

Attest:

C. WALTON, Jr.,

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