W. B. HOSFORD.

STOVE-GRATE.

No. 169,544. Patented Nov. 2, 1875.

Fig. 1.

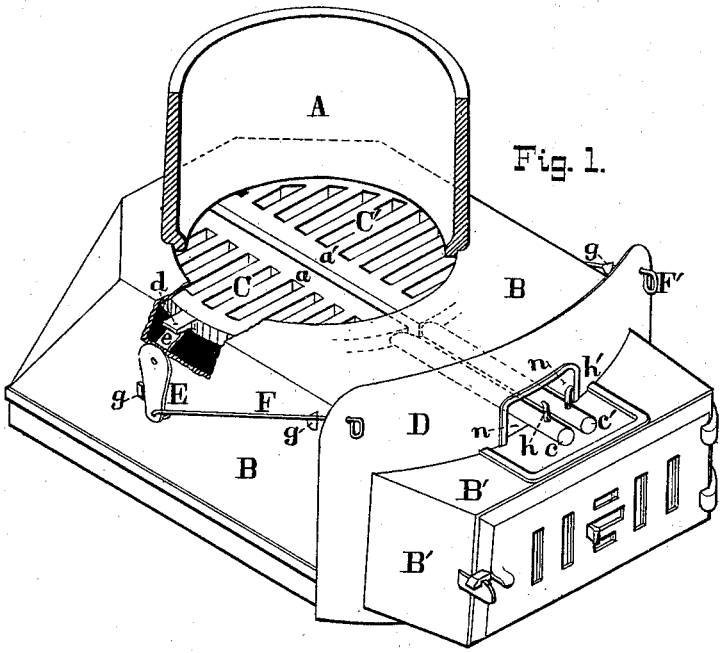

Fig. 2.

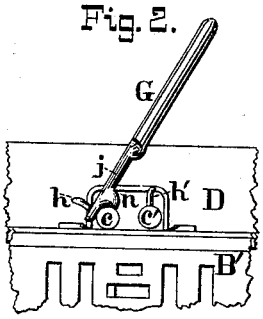

Fig. 3.

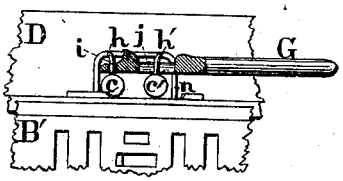

Fig. 4.

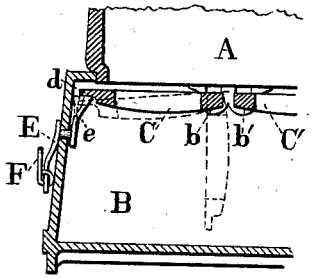

Fig. 5.

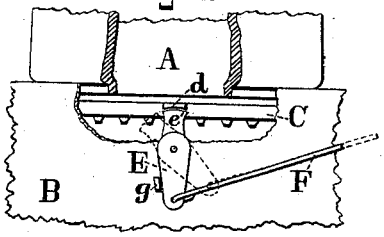

Fig. 6.

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM B. HOSFORD, OF MAYWOOD, ILLINOIS.

IMPROVEMENT IN STOVE-GRATES.

Specification forming part of Letters Patent No. **169,544**, dated November 2, 1875; application filed April 21, 1875.

To all whom it may concern:

Be it known that I, WILLIAM B. HOSFORD, of the town of Maywood, in the county of Cook and State of Illinois, have invented certain Improvements in Furnace and Stove Grates, of which the following is a complete specification:

The principal object of this invention is to render the clinkers and other coarse incombustible material readily removable without seriously disturbing the fire; and it consists partly in a combination of catching and releasing devices with hinged grate-sections, as will be hereinafter more fully described.

Another feature consists in the arrangement for shaking the grate to remove ashes, so that it may be done without dumping.

In the drawings, Figure 1 is a general perspective view of my invention, partly broken away to show the operative mechanism. Figs. 2, 3, 4, and 5 are detached details, showing the operative features from different points of view. Fig. 6 is an enlarged plan of the dumping-lever.

Like letters of reference designate corresponding parts in all of the figures.

The drawings illustrate my improvement as applied to the grate of an ordinary heating-furnace. The grate is circular in outline, and is divided into two semicircular sections, hinged at the line of division, and arranged to drop or dump at their outer edges.

Let A represent the fire-chamber above the grate, arranged to receive any desired form of radiator, and B the ash-box below the grate. C C′ are sections of the circular grate on which the fuel rests. The straight central and adjacent bars *a a′* of the grate-sections are extended back to form journals *b b′*, which rest loosely in bearings in the ash-box B. These bearings support the grate behind. At the front the bars *a a′* extend forward, and are much elongated to form cylindrical journals *c c′*, which pass through an opening, *n*, in the upper part of the ash-box B and the screen or front plate D, and rest upon the upper plate of the depressed portion B′ of the said box. This supports the grate in front.

To keep the grates up in the proper horizontal position, and to enable each section to be dropped or dumped at will, I provide the grate-sections, at their outer edges, with lips *d d′*, having, preferably, concave under faces, (see Fig. 5,) and attach to the inner sides of the ash-box catches *e e′*, having their tops rounded for the lips *d d′* to rest upon. These catches are connected rigidly to cranks E E′ on the outside of the ash-box by means of short cylindrical journals, which pass through the sides of the said box and have suitable bearings therein. To the extremities of the cranks are attached shifting-rods F F′, which pass forward and through the front plate D. These rods are provided with hand-loops at the outer ends, and suitable stops *g g* to prevent too much movement. The elongated journals *c c′* are provided with projecting pins *h h′*, which stand upright when the grate-sections are in place. A dumping-lever (shown in plan in Fig. 6) is provided with a hole, *i*, near the end, an elongated opening or slot, *j*, and a conical projection between the two.

Having thus described the several features of my invention, I will now explain its operation. If it is desired to dump the left-hand section C of the grate, the dumping-lever G is hooked onto the pin *h*, precisely as shown in Fig. 2, the hole *i* in the lever engaging with the said pin, and the right hand grasping the handle of the lever. The shifting-rod F is now drawn with the left hand, which has the effect of moving the catch *e* from beneath the lip *d* on the grate-section C, and the latter may be dumped gradually or let fall suddenly, as desired. The catch *e* is brought again to its vertical position by the action of gravity upon the crank E; or, if that will not suffice, the rod F must be pushed back. When the grate-section is brought up again to its horizontal position, the lip *d* presses back the catch *e* and passes above it, and the said catch drops or springs forward and again assumes its supporting position under said lip.

I prefer that the catches *e e′* should have snug oscillatory bearings in the sides of the ash-box, and be elastic or springy in their nature; but they may be rigid and non-elastic, have loose bearings, and be so arranged as to drop back to their respective positions under the lips *d d′* by the action of gravity.

It will be observed that when the grate-sections are in their usual horizontal position the pins *h h′* are vertical, or nearly so. It will also be seen that the opening *n* in the front of the

ash-box and front plate, through which the journals *c c'* pass, is elongated laterally. The object of this is to enable the grate to be shaken.

The dumping or shaking lever G is hooked onto the pins *h h'*, precisely as shown in Fig. 3, the flat side down, and the slot *j* engaging one pin, and the hole *i* the other. The grate may now be shaken, either by imparting a horizontal oscillatory movement to one or both grate-sections, or an alternate longitudinal reciprocatory movement, as may be considered most desirable, the elongation of the opening *n* permitting a sufficient amount of lateral motion.

The grate may be in more than two sections, and they need not necessarily be hinged at the line of division. They could be hinged or pivoted at the margins and dump in the center without material change in my described device.

I am aware that sectional dumping-grates are old, and have been long in use, and make no claim to these features; but,

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

1. A grate for stoves or furnaces made in sections, and provided with journals *b b'* and *c c'* and lips *d d'*, in combination with the catches *e e'*, cranks E E', and shifting-rods F F', all arranged to operate together in the manner shown, and for the purposes set forth.

2. The combination, in a dumping-grate, of the sectional grates C C', catches *e e'*, cranks E E', and shifting-rods F F' with the pins *h h'* and dumping-lever G, the latter constructed as shown, and all arranged to operate substantially in the manner shown, and for the purposes specified.

3. In combination with the sectional grate C C', having journals *c c'*, provided with pins *h h'*, the dumping-lever G, provided with a hole, *i*, and elongated slot *j*, to engage with the said pins, substantially in the manner shown, and for the purposes herein set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM B. HOSFORD.

Witnesses:
JOHN M. FISHER,
J. M. PHELPS.