

WILLIAM DOYLE.

Stove-Grate.

No. 127,684.

Patented June 11, 1872.

Fig. 1.

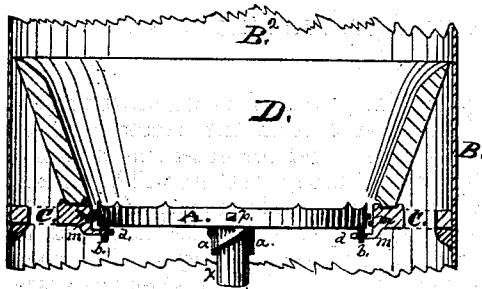


Fig. 3.

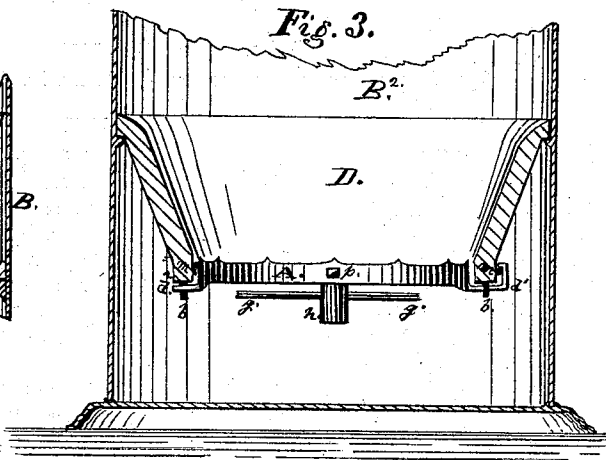


Fig. 2.

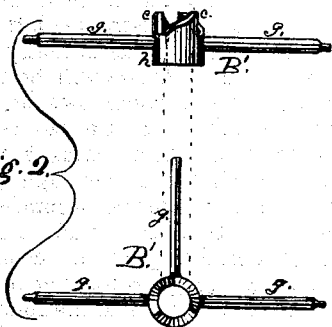
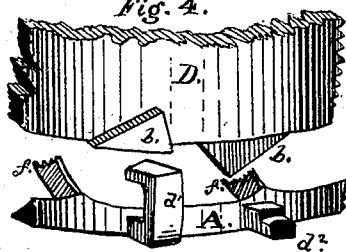


Fig. 4.



Witnesses:

L. W. Lurtis.

Thos. M. Reed.

Inventor.

William Doyle,
by his Attorney
Thos. M. Reed.

UNITED STATES PATENT OFFICE.

WILLIAM DOYLE, OF ALBANY, NEW YORK.

IMPROVEMENT IN STOVE-GRATES.

Specification forming part of Letters Patent No. 127,684, dated June 11, 1872.

To all whom it may concern:

Be it known that I, WILLIAM DOYLE, of Albany, in the county of Albany and State of New York, have invented certain Improvements in Grates for Stoves and Furnaces, of which the following is a specification:

My invention consists in the combination and arrangement of cams or dentiform projections upon the under side of a grate or under the lower edge of a fire-pot, or attached to the grate-frame or on the outside of a fire-pot, and operating upon or against suitable stops or bearings so as to convert the horizontal motion of the grate into an alternate rising-and-falling motion, for the purpose of clearing out the ashes which accumulate within the mass of incandescent fuel upon the grate.

Figures 1 and 3 are central vertical sections of a portion of the lower part of a stove embodying my invention. Fig. 2 shows the sustaining-bar or grate-rest. Fig. 4 is a perspective view of a portion of the grate and of the lower edge of a suspended fire-pot having inclines upon its outer surface and lower edge.

A is a circular grate, constructed with arms *ff*, of any desirable form. B is the grate-bar, consisting of three radial arms, *ggg*, and a central body or hub, *h*. C is a central vertical section of a grate-frame; and D, a section of a fire-pot. *aa* and *bb* are cams or dentiform projections; the former are placed around the center-pin *x* of the grate, and the latter may be placed under the outer rim of the grate or attached to the arms of the grate at any desirable distance between its center and circumference, as shown in Fig. 1. Upon the top of hub *h* are dentiform projections *cc*, corresponding in number and of a reverse shape to projections *aa* on center-pin *x* of grate A. Said projections *cc* are clearly shown in Fig. 2. The height of cams *a* or *b* are equal to the rise of the grate required for the given part of a revolution to which the grate may be subjected when shaking the same, and the length of the said cams will be equal to the length of the arc of the circle described by said cams between the two radiuses limiting the extent of motion required in the grate. Should cams *b* be placed on the arms of the grate away from the center-pin, then they will work upon the arms *g g* of the grate-bar B, not need-

ing any special provision of separate projections like those around the center. When cams *b* are used under the outer rim or at the circumference of the grate there will be a bearing, *d*, provided. Said bearing *d* depends from and is cast or otherwise attached to grate-frame C, as shown in Fig. 1. The position of bearing *d* is such that when the grate is in its normal position the cam or dentiform projection *b* will be off or at one side of said projection *d*, as shown in Fig. 1, so that as the grate is revolved horizontally it will be raised by means of said cam *b* pressing upon projection *d*. By reversing the motion of the grate projections *d*² will come in contact with reversed cams *b* placed under the grate-frame, as shown in Fig. 4.

The above-described arrangements of cams and projections are applicable to a circular grate depending from a grate-frame; but when a suspended fire-pot is used, as in many base-burning stoves, no grate-frame will be necessary. In such a case I make two or more cams, *b*, upon the outside and at the bottom of the fire-pot, and two or more cams, *b*, at any convenient place upon the lower edge of the fire-pot; and extending from the circumference of the grate are projections *d*¹ and *d*². The former, by pressing upon the upper surface of cam *b*, will cause the grate to rise whenever it is rotated by the shaker in the usual manner, and the latter, by bearing against the lower edge of the cam *b* on the bottom or lower edge of fire-pot D as the grate is revolved in a reverse direction, will cause the grate to descend to its former position. In this manner the rising and falling of the grate A may be continued until all the ashes are completely shaken from the fire-pot, which will be done as thoroughly as if it had been done in a sifter.

I am aware that an independent ring having a vertical motion has been used in combination with a rotating grate, as shown in the patent of James Old for furnace-stoves, dated December 20, 1870. I do not use the said James Old's combination, and, therefore, do not claim anything conflicting with it.

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

1. A grate, A, provided with inclined projections on the under side thereof, so combined

with the lugs on the grate-bar B as to cause the grate to alternately rise and fall when it is vibrated, as herein set forth.

2. A grate, A, provided with inclined projections reversed in their positions to those of the preceding claim, and combined with corresponding lugs or bearings on the grate-bar B.

3. A grate, A, constructed with inclined projections on its under side, so located as to engage directly upon the arms of the grate-bar B, so as to operate in the manner and for the purpose herein shown.

4. A fire-pot, suspended and provided with inclined projections or bearings on its lower

edge, as shown in Fig. 4, either within or without said fire-pot, on which the grate rests directly, or by means of lugs, so that the grate when shaken will operate in the manner herein shown.

5. A grate, A, provided with lugs, and resting upon inclines located on the walls of the ash-pit, or vice versa, and operating in the manner herein described.

WM. DOYLE.

Witnesses:

JAMES WRIGHT,
EDWARD H. DOYLE.