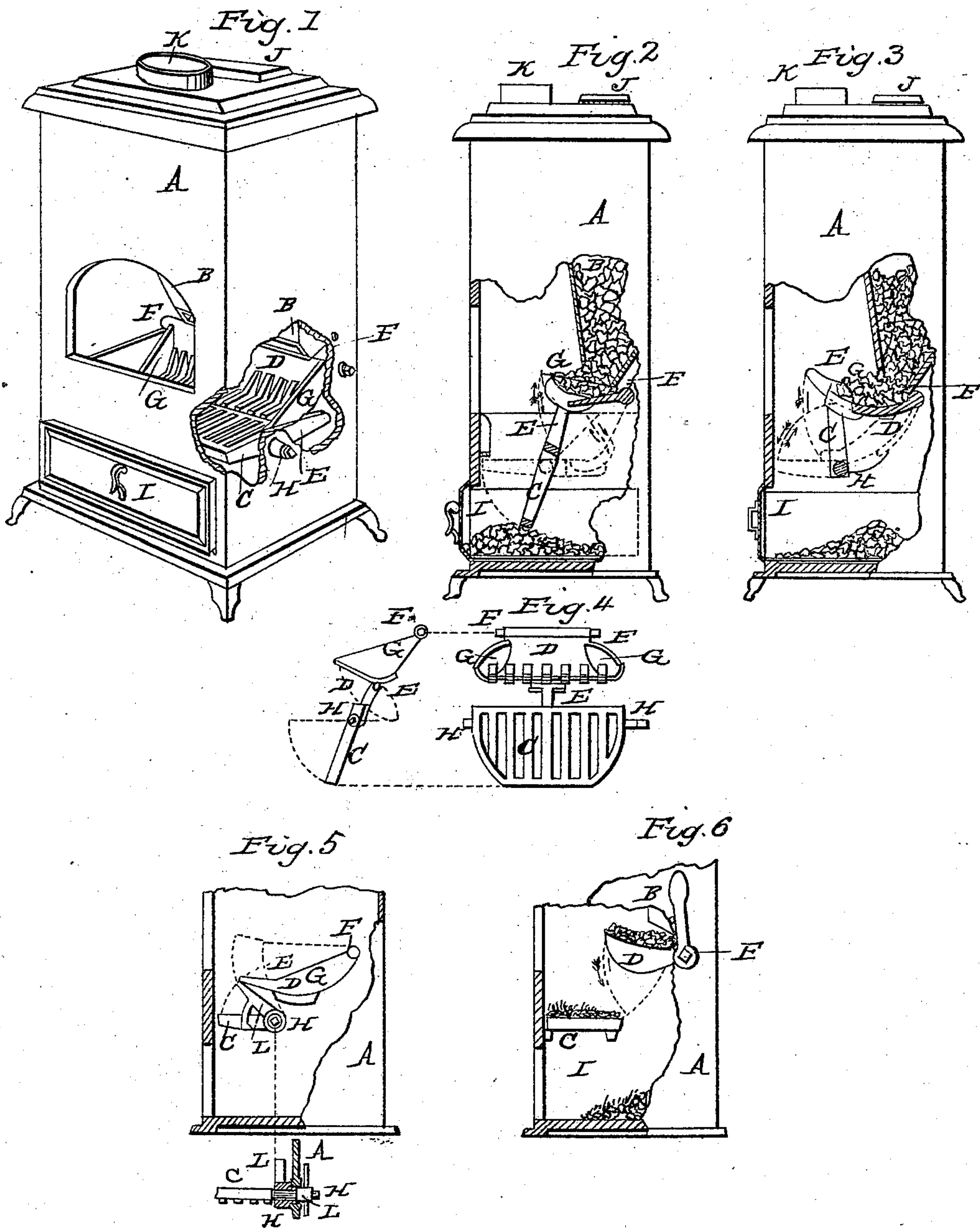


J. J. SAVAGE.

Stove Grate.

No. 66,743.

Patented July 16, 1867.



Witnesses
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Letters Patent No. 66,743, dated July 16, 1867.

GRATE FOR STOVES.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. J. SAVAGE, of Troy, in the county of Rensselaer, and State of New York, have invented a new and improved Grate for Stoves; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings and to the letters of reference marked thereon, forming part of this specification, in which—

Figure 1 is a perspective view of said improved grate as arranged and combined for use in a self-feeding stove.

Figure 2 is a vertical sectional view of said stove and grate, the end plate being in part removed to more clearly show the manner of operating said grate to dump clinkers and cinders therefrom, and also to show the manner of holding back the fuel in a reservoir of self-feeding stoves while dumping the grate of the same.

Figure 3 shows a modification of construction and arrangement of said improved grate, as shown in fig. 2.

Figure 4 shows another modification of the same.

Figure 5 shows an additional device to the arrangement and combination, as shown in fig. 3.

Figure 6 shows a manner of using my said improvements in combination with a non-dumping fire-grate.

The same letters refer to like parts in each of the said figures.

The nature of my said invention and improvements consists in constructing for stoves a fire-grate composed of a curved or angular-shaped lifting and hold-back grate part, provided with end or side pieces, and suspended within the fire-box by journals, that it may swing upward when operated, and having arranged to operate in combination therewith a horizontal or front fire-grate part, which jointly with said lifting and hold-back part constitutes a fire-grate, the same substantially as hereinafter fully described.

It also consists in the arrangement, in combination with a fuel-reservoir of stoves and a horizontal or front grate part thereof, of a lifting and hold-back grate part, arranged in such position thereto, respectively, as to operate to lift from the fire-box and retain within said hold-back grate part a portion of live coals, and likewise prevent fuel falling out of said fuel-reservoir while said horizontal or front grate part is cleaned of clinkers and other refuse matters, substantially as hereinafter fully set forth.

It also consists, in combination with a fuel-reservoir of stoves and fire-box thereof, of a lifting and hold-back grate part, arranged in connection with a dumping or tilting-grate part in such a manner that said hold-back grate part is operated simultaneously by and with the dumping or tilting-grate part, in manner substantially and for the purpose as hereinafter fully set forth.

It also consists in combining, with a fire-grate and a lifting and hold-back grate or plate, a lifter-arm arranged to work loose on the journal of the fire-grate, in manner substantially and for the purpose as hereinafter set forth.

To enable others skilled in the art of constructing stoves and fire-grates to construct and use my improved fire-grate, I will now proceed to fully describe the same, to wit:

In the annexed drawings, A shows a heating-stove, one of those provided with a fuel-reservoir, B, for holding a supply of fuel for self-feeding the fire in the usual known manner. C is a fire-grate, which occupies about one-half, more or less, of the horizontal area of the fire-box. D is a lifting and hold-back grate or plate, provided at its upper part with bearings or journals F F, or their equivalents, upon which it operates or turns when lifted up from or dropped down to the fire-grate used with it. The bottom or lower parts of this lifting-grate or plate can be formed into grate-bars, which may extend more or less up the back part of said lifting-plate or grate D, and at each end of the same may be side pieces G. One of the journals F projects through the side plate of the stove, so that it can receive a lever with which said lifting-plate D may be turned up and turned down, or it may be turned up by a loose lifter-arm hereinafter described, or any other suitable contrivance may be used to turn up and down said lifting-plate D whenever it is necessary to clean the fire-grate C from clinkers or slate. This lifting and hold-back grate or plate D is arranged in position between the feed-mouth of a fuel-reservoir of self-feeding stoves and the fire-grate used in connection with said reservoir, substantially in manner as shown in figs. 1 and 2 of annexed drawings.

The aforesaid fire-grate C may be either a non-dumping one or a dumping or tilting one, as the proposed manner of operating the aforesaid lifting and hold-back grate or plate may require, that is to say, when the aforesaid lifting and hold-back grate or plate D is operated by itself, to lift from the fire-box and hold-back a portion of live coals, and also to hold back the fuel in the reservoir, a non-dumping fire-grate can be used; but

when the aforesaid lifting and hold-back grate is to be operated by and in connection with a fire-grate, C, a dumping or tilting fire-grate is then to be used.

The operation of this lifting and hold-back grate or plate D, as placed in interposition between a fuel-reservoir and a non-dumping fire-grate of self-feeding stoves, is as follows: A lever is applied to the said projecting journal F, and the aforesaid lifting and hold-back grate or plate D is turned up by it, in manner as shown in fig. 6, thereby lifting and holding back from the fire-box a portion of live coals, and also at the same time holding back the fuel in the fuel-reservoir B, said lifting and hold-back grate being held up by catching the lifting-lever on a stud or hook, or any other suitable contrivance may be used to turn and hold said lifting-grate or plate up while clinkers and cinders are being removed from the fire-grate by means of a poker or other convenient article for such purpose. After removing the clinkers and cinders, the lifting and hold-back grate or plate is then dropped down to the fire-grate C again, and the live coals before lifted and held back from the fire-box now serve to again start the fire in the fire-box. Thus no material interruption of the fire is occasioned by the operation of cleaning the fire-grate C, as in manner above described.

When the aforesaid lifting and hold-back grate or plate D is to be operated by and in connection with a fire-grate, C, the fire-grate is then constructed to dump or tilt its contents into the ash-box or pit; and it is also constructed with lifting-arms E, extending back from the grate in manner substantially as shown in fig. 1, there being a lifting-arm at each end of said dumping-grate, or one arm arranged at and projecting from the central parts of the back of said fire-grate may be used, substantially in manner as shown in fig. 4. One of the journals H of said dumping-grate passes through the outer plate of the stove, and it is fitted to receive a lever and be turned by it, thereby dumping or tilting said grate C. The aforesaid lifting and hold-back grate or plate D is arranged in relation to the feeding-mouth of a fuel-reservoir of self-feeding stoves and combined with it so as to act in manner as hereinafter described.

A dumping or tilting fire-grate, C, and the aforesaid lifting and hold-back grate or plate D being arranged in a stove, in combination with each other and with a fuel-reservoir in manner substantially as herein shown, jointly form a good and efficient fire-grate surface for the fire-box of the same, and its operation when thus arranged and combined is as follows, to wit: A suitable lever is applied to the projecting journal-head H and turned quickly downwards, thereby dumping the fire-grate C, in manner as shown in fig. 2, so that the clinkers and cinders lying thereon are cast down into the ash-box or draw I, and at the same time the dumping motion of the fire-grate carries up the lifter-arms E, which in their up motion act upon the side pieces G of the aforesaid lifting and hold-back grate D, which causes the lower part of said grate D to turn up and lift from the fire-box and carry with it a portion of live coals to the mouth of the fuel-reservoir, where said grate or plate D acts to hold back and prevent the fuel in said reservoir from falling out of the same into the fire-box and ash-pit when clinkers and cinders are dumped from said grate C, in manner as shown in said fig. 2.

After said dumping fire-grate is cleaned from clinkers and cinders, the dumping-lever is quickly reversed in its motion, thereby causing the lifting and dumping-grates to return to their proper position as they were before, as shown in fig. 1, for supporting the fuel in the fire-box. The live coals lifted from the fire-box by the operation of said lifting-grate or plate D, falling down first on the fire-grate C, serve to kindle the fresh fuel fed from the reservoir upon said live coals, and thereby preventing any inconvenient or material interruption of the fire by the operation of dumping clinkers and cinders from the same.

Fig. 3 shows a modification of the construction, as shown in fig. 2. In this modification the lifter-arms E are affixed to the lifting and hold-back grate D instead of being attached to the tilting fire-grate C as before, and said grate is tilted or turned up, or in an opposite direction from that shown in fig. 2, by which operation the said grate, acting on the lifter-arms E attached to the lifting-grate D, lifts said grate up in manner as shown in fig. 3, thereby lifting up a portion of live coals from the fire-box and holding back the fuel in the fuel-reservoir, and also tilting the fire-grate C, so as to dump cinders and clinkers from the same, substantially in manner as is done by the arrangement as shown in fig. 2.

Fig. 4 shows a manner of arranging a lifter-arm, E, when the aforesaid improved grate is to be adapted to an oval or a circular form of fire-box.

Fig. 5 shows a combination of an additional device, with the arrangement and combination of dumping or tilting fire-grate and lifting and hold-back grate or plate, as described and shown in fig. 3, which is for the purpose of turning up the aforesaid lifting-grate or plate D a distance more or less, as previously arranged for before the tilting movement of said fire-grate C commences, thereby obtaining a more free discharge of clinkers and cinders from said fire-grate, when its succeeding tilting movement does commence than would have been had without using said additional device. Said device consists of a lifter-arm, L, arranged on the journal H of the dumping-grate C, and so as to work loose on said journal, while it first turns up the aforesaid lifting-grate or plate D without moving the tilting or dumping fire-grate C the distance arranged for it to so move. It then, together with completing the upward movement of said lifting-grate D, acts upon a pin or stud affixed to the dumping or tilting fire-grate by means of a connecting hook or link, a, or by other suitable means for that purpose, and thereby dumps or tilts the same, so as to cast the clinkers and cinders freely therefrom.

The advantages secured by my improved stove-grate are as follows, viz: When used in combination with a fuel-reservoir of self-feeding stoves it enables such a stove to dump readily and effectively all refuse matters from its front or horizontal fire-grate part without fuel falling from the reservoir into the ash-pit while so dumping and cleaning the grate. This improved fire-grate may likewise be used in stoves not having fuel-reservoirs, thereby enabling such stoves that use it to dump clinkers and other refuse substances from their fire-boxes without dumping the whole fire into the ash-pit to free the grate of clinkers as is done with the ordinary dumping fire-grate, but a portion of live coals is lifted from the fire-box by said lifting and hold-back grate part and retained within it until the horizontal fire-grate is dumped or cleaned of clinkers and cinders; then,

when said fire-grate is re-adjusted for use, the reserved portion of live coals serves to start the fire again by quickly igniting a fresh supply of fuel placed thereon.

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

1. I claim a fire-grate for stoves composed of a curved or angular-formed lifting and hold-back grate part D, having side or end pieces G G, and suspended within the fire-box by journals F F, or their equivalents, in such manner that it may swing upward, for the purpose herein set forth, and having arranged to operate in combination therewith a horizontal grate part, C, which, jointly with said grate part D, constitutes said fire-grate, in manner substantially as herein described and operating for the purpose set forth.

2. I claim the arrangement, in combination with a fuel-reservoir of stoves and front fire-grate part C thereof, of a lifting and hold-back grate part, D, constructed substantially as described, and arranged in such position thereto, respectively, as to operate for the purpose and in manner as herein set forth.

3. In combination with a fuel-reservoir of stoves and fire-box thereof, I claim a lifting and hold-back grate part, D, arranged in connection with a dumping or tilting grate part, C, in such manner as to be operated simultaneously by and with the same, as and for the purpose herein set forth, said grate parts, respectively, being constructed substantially as described.

4. I claim the combination of a lifting and hold-back grate part, D, with a dumping or tilting fire-grate part, C, constructed and arranged to operate by and in connection with each other, in manner substantially as shown.

5. In combination with a lifting and hold-back grate or plate, D, and a fire-grate, C, I claim a lifter-arm, L, arranged substantially in manner as herein described and for the purpose as set forth.

J. J. SAVAGE.

Witnesses:

WM. A. ROUSSEAU,
AUSTIN E. PARK.