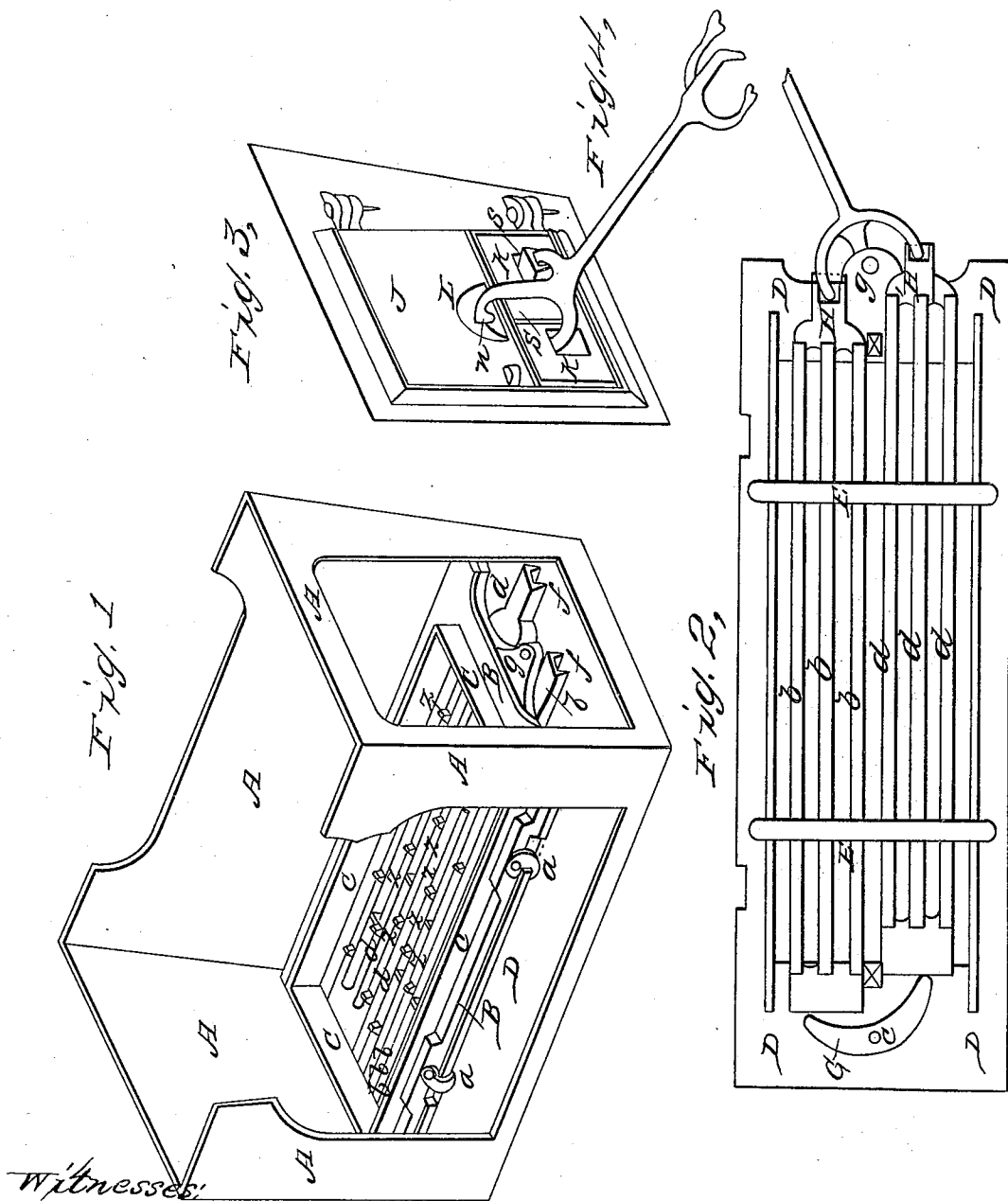


J. V. B. CARTER.

Grate.

No. 29,245.

Patented July 24, 1860.



Witnesses:
R. M. Delitt.
A. V. Delitt.

Inventor:
John V. B. Carter.

UNITED STATES PATENT OFFICE.

JOHN V. B. CARTER, OF ALBANY, NEW YORK.

STOVE AND FURNACE GRATE.

Specification of Letters Patent No. 29,245, dated July 24, 1860.

To all whom it may concern:

Be it known that I, JOHN V. B. CARTER, of the city of Albany, State of New York, have invented certain Improvements in the
5 Method of Constructing and Operating Grates for Coal Stoves and Furnaces; and I declare the following specification, with the drawings hereto attached as part of the same, to be a full and complete description thereof.

In the different figures of the drawings similar letters indicate the same parts of the apparatus.

In Figure 1 A, A, shows the walls of the
15 fire chamber or furnace of a stove, a portion of the front plate being represented as removed in order to show its interior. B, B, is the plate for the support of the fire-clay or other lining to surround the fire, and
20 which is kept in place by the upright ledges C, C. This plate B is supported several inches above the bottom of the stove. Immediately below and touching it is the grate-supporting plate D, D, similar in form to
25 plate B. This plate has its back edge supported by ledges projecting from the back plate of the furnace; its front edge being held up by hooks *a, a*, attached to plate B and passing under portions of D, so as to
30 permit the front of plate D to be easily detached from B and reattached to it.

Plate D is shown reversed in Fig. 2 in order to exhibit the grates with their appendages. The grates are shown as being
35 in groups of three attached to each other by end plates and cross pieces; two of the groups constituting the entire number of grates used, *b, b, b*, being one group and *d, d, d*, the other. They are suspended below
40 plate D by two or more bars or loops E, E, upon which they can slide freely endways. Upon the upper surfaces of the grates, at short intervals (see Fig. 1), there are to be cast pins or projections Z Z rising
45 a little above the surface to aid in agitating the coal when the bars are shaken. Upon one end of the plate D and behind the grates there is a vibrating bar G playing upon a centerpin *e* with its extremities resting
50 against the rear end of the grates in such a way, that the pressing back of one set will cause the other to advance and vice versa. The plates forming the front or door end of these bars, are extended into narrow bars
55 H, H', in the lower front ends of which are niches *f, f*, to hold the ends of the shaking

bar, (hereafter described). Upon the front end of plate D equidistant from H, H', and in range with the bottom of the niches *f, f*, is a pivot hole *g* to receive the center prong
60 of the shaking bar.

Fig. 3 represents the end plate with the door closed, and the arrangement by which the shaking can be done without the opening of the door J. In the lower part of the door
65 there are two small apertures *h, h*, large enough to permit the ends of the grate bars to protrude with a slide S to cover them, when their ends are opposite to or aline with
70 each other, thus keeping them in place. Above this slide there is a niche I cast into the door, so as to permit the making through its bottom, a pivot hole *n*, above and in
range with the hole *g* in plate D.

Fig. 4 represents the shaking-bar as used
75 when the door J is closed. It is a trident having an upper curved prong bent down into a hook at its upper end, so as when inserted into the hole *n* to operate as a fulcrum for the movements of the bar whose
80 lower prongs pass under the ends and into the niches *f, f*, of the grates. It will be seen that by shaking the bar sidewise, as the set of grates *d, d*, shall be thrown back, the set *b, b*, will be pressed forward by the
85 vibrating bar G, and thus the grates be worked past each other alternately by agitating the coal very thoroughly. It may sometimes be convenient to shake the grates when the door is open. To that end the
90 shaker has a trident at its other end, with its center prong nearly flat in order to hook into the center pivot hole *g* shown in Fig. 2, which is under and lower than hole *n*.

From the above described arrangement, it
95 will be seen that the grates can be withdrawn through the doorway, either for the dumping of the coal or any other purpose, and replaced without any derangement of the apparatus. Also that by unhooking and
100 dropping down the front of plate D more or less, the coal can be cleared from cinders or dumped into the ash pit, and if need be the plate with grates removed from the stove.

The grate bars are described as being
105 united into groups of three. It is obvious that they may be arranged into groups of two or more, or that each grate may be made to move by itself, alternating with its neighbor, varying the prongs of the shaker to
110 meet the case; or that some bars may be made to remain still while others slide back

and forth along them; all which methods effect substantially in the same manner the object of agitating the coal for the purpose of clearing it from ashes and cinders.

5 What I claim and desire to secure by Letters Patent is—

1. The arrangement of grate bars substantially as described: in order to their being moved past each other with a reciprocating movement for the purpose of agitating the coal.

10 2. The employment of a tridentated bar or

bars shaped as described, in combination with the fulcrum sockets *g* or *n*,—the grate bars, and the librating bar *G*.

3. The construction and arrangement of the door *J* with its openings *k*, *k*, to pass the ends of the grates, sliding door *S* to keep grates in place and niche *I* with its fulcrum socket *n*. 15

JOHN V. B. CARTER.

Witnesses:

RUD. VARUK DE WITT,
A. V. DEWITT.