

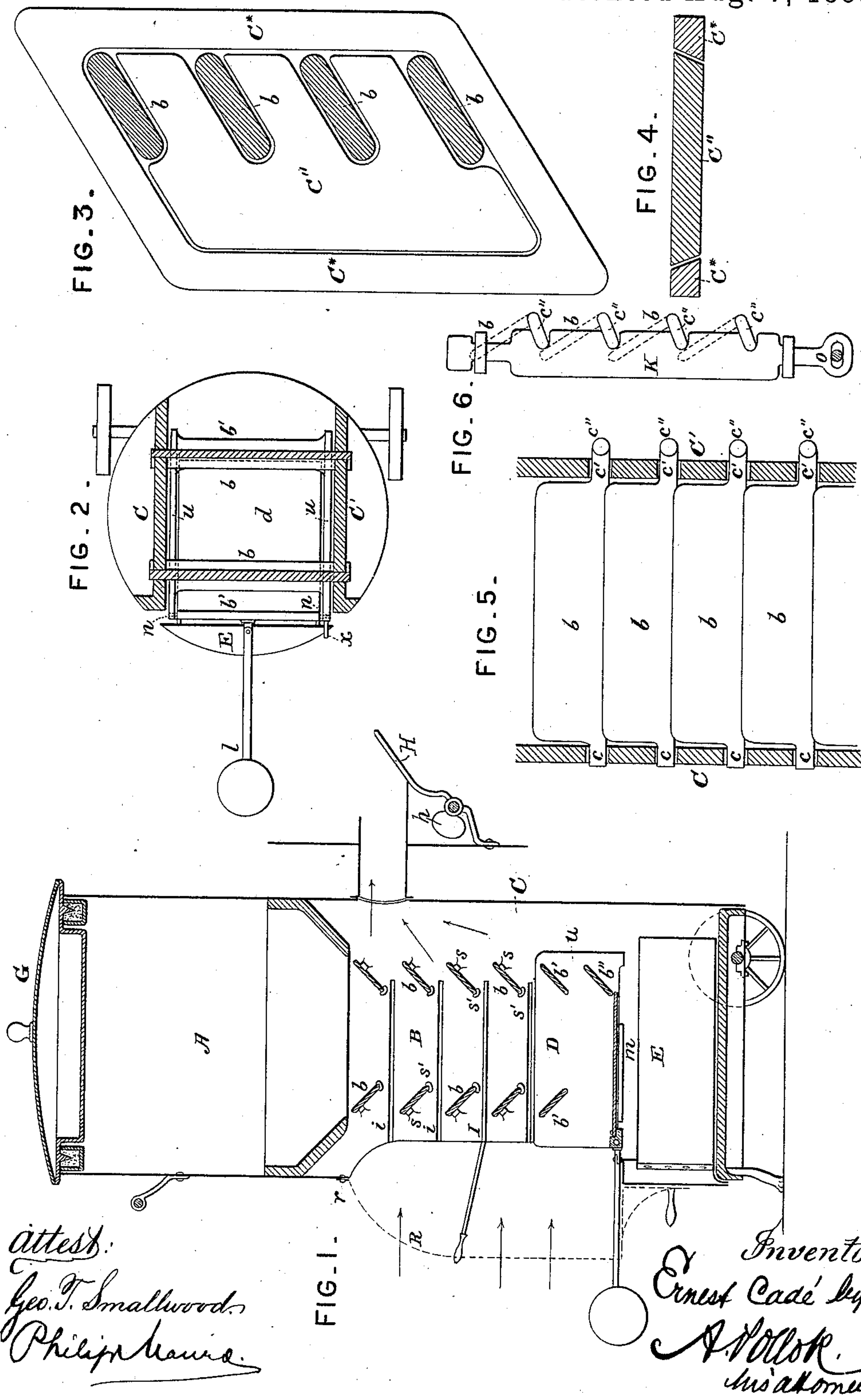
(No Model.)

E. CADÉ.

GRATE FOR STOVES OR OTHER HEATING APPARATUS.

No. 387,489.

Patented Aug. 7, 1888.



UNITED STATES PATENT OFFICE.

ERNEST CADÉ, OF PARIS, FRANCE.

GRATE FOR STOVES OR OTHER HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 387,489, dated August 7, 1888.

Application filed January 19, 1888. Serial No. 261,270. (No model.) Patented in France July 27, 1887, No. 185,035, and in Belgium October 4, 1887, No. 79,089.

To all whom it may concern:

Be it known that I, ERNEST CADÉ, of Paris, France, have invented a new and useful Improvement in Grates for Stoves and other Heating Apparatus, (for which I have obtained Letters Patent in France, dated July 27, 1887, No. 185,035, and in Belgium, dated October 4, 1887, No. 79,089,) and which is fully set forth in the following specification.

10 This invention relates to a new or improved means for burning fuel (coal) for domestic or other purposes.

It consists in certain special constructions, arrangements, and combinations of parts, as hereinafter particularly described and claimed.

15 In the accompanying drawings, which form part of this specification, Figure 1 is a vertical section of a stove having a fire-box constructed in accordance with the invention, also exhibiting an attachment to the fire-board which is useful in connection with said stove; and Fig. 2, a cross-section of said stove. Figs. 3 and 4 are detail views of a special mode of securing the bars to the side frames, and Figs. 5 and 6 25 detail views of an arrangement of devices for rocking the grate-bars.

Referring to Fig. 1, the hopper A, closed by a movable cover, G, which may contain water, receives the fuel, which descends into 30 the fire-box B, formed by the two side frames, C C', and the removable bars b, arranged like the slats of a window-blind. These bars pass through side plates or frames, C C', as shown in Fig. 2, or they are supported by projections s s', of suitable form, on which the ends rest, as in Fig. 1, or they are upheld by other suitable means.

Flanges m at the bottom of the fire-box, on the inner faces of the side frames, C C', support a carriage, D, whose purpose is to facilitate lighting. This carriage is formed by side plates, u, connected with each other by two fixed bars, b', and carrying a bar, b'', removable, like the bars b. The bottom of the carriage 45 is closed by the dumping-plate d, counterbalanced by a counter-weight, l, and capable of oscillating on the journals n. The arm of the counter-weight l can be turned into engagement with the stop X. Below the carriage is 50 the ash-pan E.

In each of the side walls of the fire-box are grooves i, into which the plate I may be introduced by sliding. This plate is provided with a handle, and when introduced forms a separator, dividing the fire into an upper and lower 55 portion.

The fire is started in the carriage D, which is temporarily drawn forward, and when in course of the combustion it is desired to remove the ashes and cinders in the lower part 60 of the fire-box they are separated from the burning fuel in the upper part of the fire-box by introducing the separator-plate I into one of the sets of grooves i, after which they are dropped into the ash-pan E by turning the 65 plate d. The separator I supports the burning and unburned fuel in the upper part of the fire-box, while the matter below said separator is being dumped into the ash-pan.

When the flue of the stove is passed through 70 a mantel into the chimney, the fire-board in the mantel is provided with a hinged plate, H, counterweighted at h, and so arranged that when the flue is withdrawn said plate closes the hole in said fire-board automatically and 75 prevents the entrance into the room of deleterious gases from the chimney.

The front of the fire-box is left open to give the benefit of the radiation, to expose the fire-box to view, and to facilitate poking. 80

If it be desired to close or screen the fire-box or to diminish the draft, a sheet-metal shell or screen, R, (shown in dotted lines, Fig. 1,) can be hung by a pin, r, from the outer casing or drum of the heater. 85

The bars b of the grate can be supported as shown in Figs. 3 and 4. To this end the frame C*, applied to the inner surface of the side walls of the fire-box, retains the plate C'' in position by overlapping its edges, as shown in 90 Fig. 4. The bars b fit in notches in the edge of the plate C'', so that by removing the frame C* the grate can be taken to pieces almost instantly for cleansing the fire-box or other purpose. 95

To facilitate the descent of the cinders, the bars b can be made to move at will by the means shown in Figs. 5 and 6. Each bar has journals c c', which engage in apertures or recesses in the side frames, C C', of the fire-box, 100

and by which it is supported. Each of them also has at the outer end of its journal *c'* a crank-arm, *c''*. The bar *K*, which is raised and lowered by the pin *o* of an ordinary or suitable shaking lever or device, engages the crank-arms *c''* by means of the notches on its edge, and actuates the bars *b* like the slats of a window-blind.

The use of the means shown in Figs. 3 and 4 and 5 and 6 for supporting the grate-bars is included in the invention, as well as that of the means shown in Figs. 1 and 2.

I claim as my invention or discovery—

1. The combination, with the side frames of the fire-box, of the grate-bars disposed in two vertical series and pivoted in the side frames of the fire-box, and the means for rocking said bars on their pivots, substantially as described.

2. The combination, with the grate-bars in the upper part of the fire-box, of the removable carriage constituting the lower part of the fire-box, said carriage being provided with grate-bars, forming continuations of the series in the upper part of the fire-box, substantially as described.

3. The fire-box provided with a movable carriage at the bottom and composed of removable bars between side walls, the latter being provided with grooves and the said carriage having a dumping-bottom, in combination with the separator and the hopper, substantially as described.

4. The combination, with the side walls of the fire-box, of the grate-bars arranged one above the other in two series, the side walls of the fire box being provided with horizontal grooves between the several bars of each series, and the separator-plate adapted to be inserted in said grooves, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ERNEST CADÉ.

Witnesses:

V. BIDAUX,
I. DUPONT.