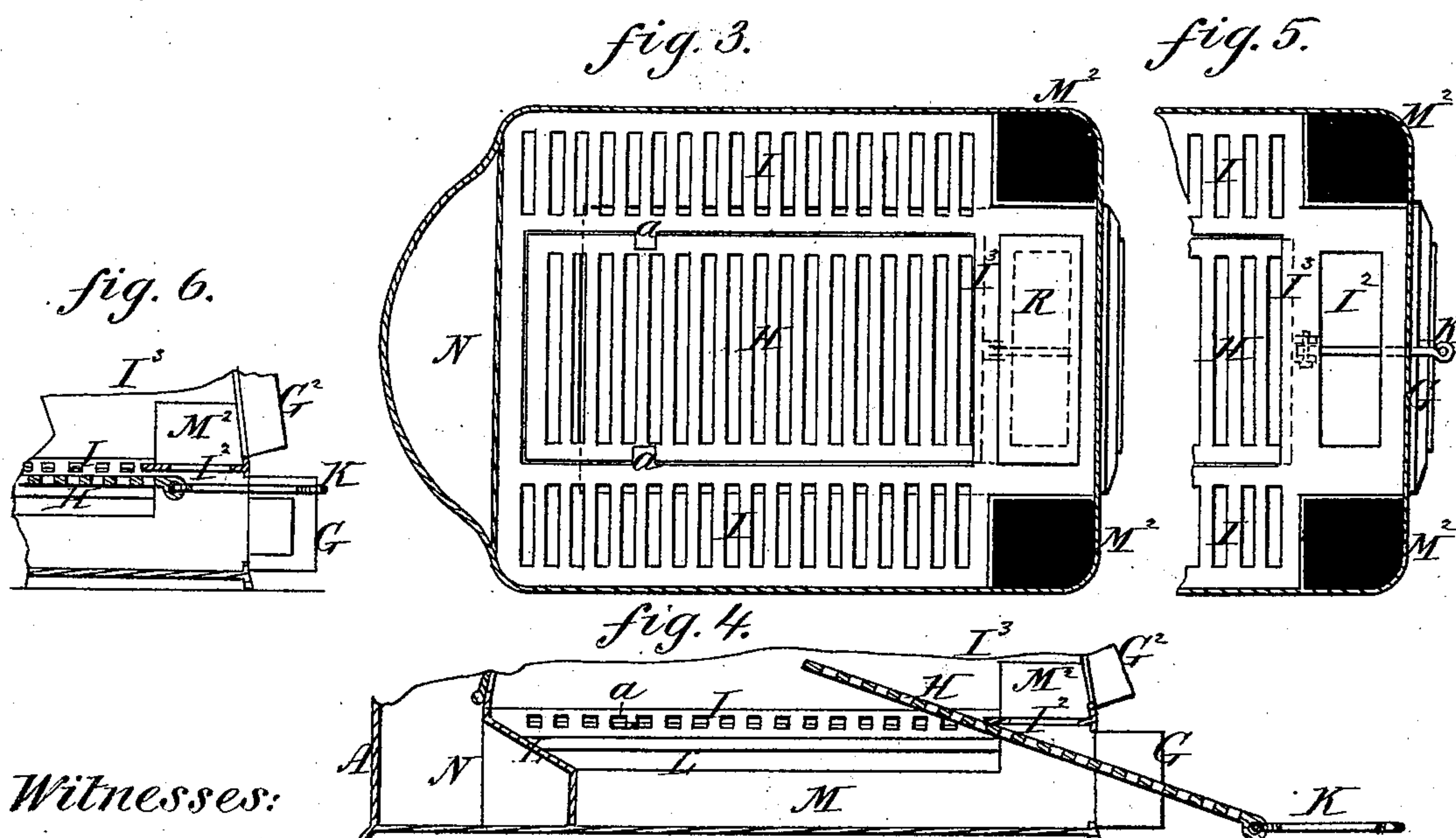
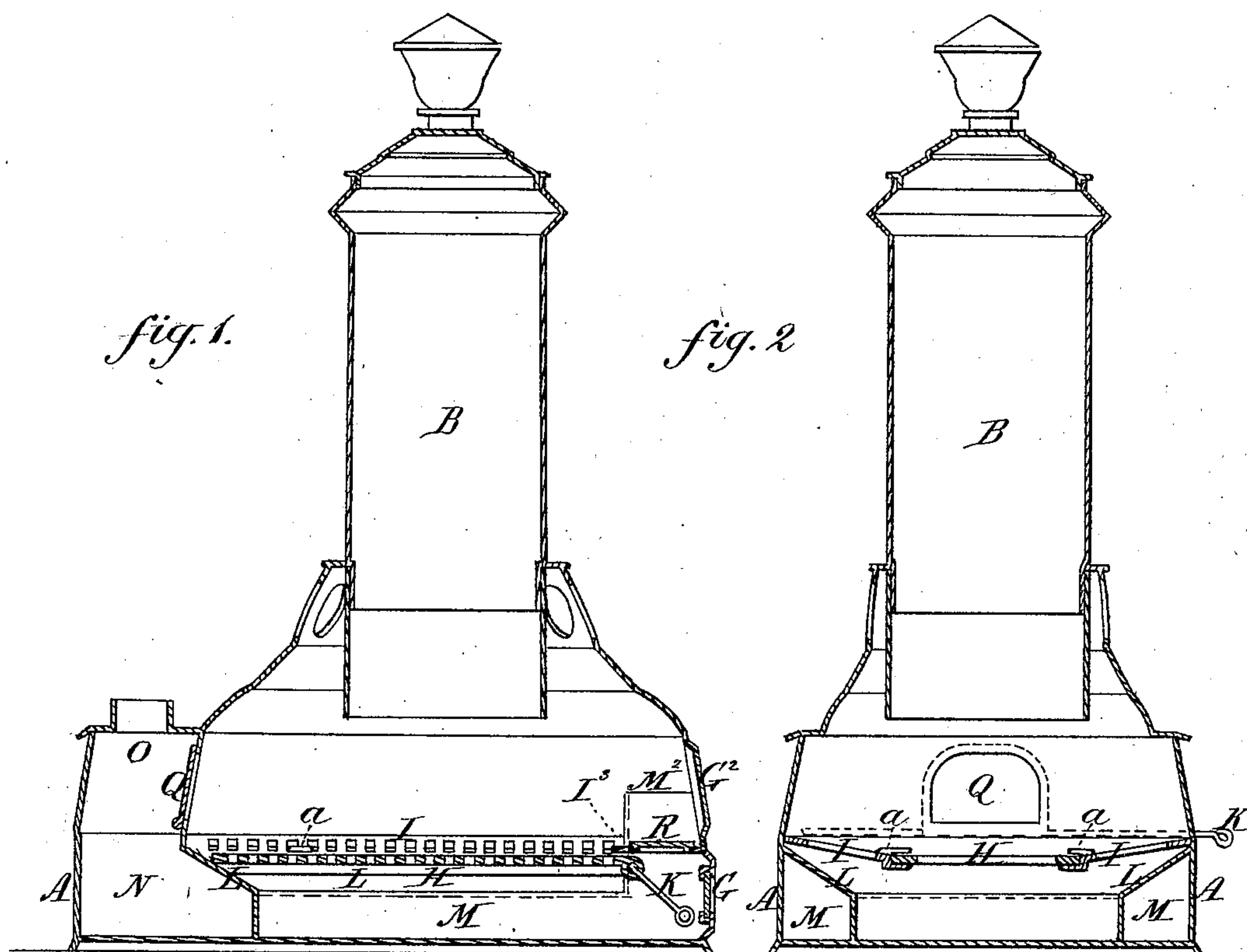


D. C. PROCTOR.

STOVE-GRADE.

No. 176,997.

Patented May 2, 1876.



Witnesses:

*J. West Wagner*  
*J. H. Rutherford*

Inventor

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by *Johnson & Johnson*  
Attys.



# UNITED STATES PATENT OFFICE.

DAVID C. PROCTOR, OF PEORIA, ILLINOIS.

## IMPROVEMENT IN STOVE-GRATES.

Specification forming part of Letters Patent No. **176,997**, dated May 2, 1876; application filed March 29, 1876.

*To all whom it may concern:*

Be it known that I, DAVID C. PROCTOR, of Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Grates for Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to grates applicable to stoves generally, and particularly to stoves in which the fuel is stored in a magazine located above the fire-chamber and fed therefrom to the fire, as in magazine and base-burners.

In a patent bearing even date herewith I have shown and described a base-burner specially adapted for my new grate, which consists of three sections forming one grate, the middle one whereof being made removable and capable of longitudinal reciprocation, and combined with means for discharging the cinders at the end, and for allowing it to be drawn out partially or entirely, and tilted through the lower front door, my object being a grate specially adapted for burning soft coal, and which, to produce the best effect, must have a broad, flat surface, in which a middle section has a longitudinally-shaking movement between two side grates, and an opening for the discharge of the cinders at the front end of the middle section.

In the accompanying drawings, Figure 1 represents a longitudinal section of a magazine-stove, showing my improved grate applied thereto; Fig. 2, a cross-section of the same; Fig. 3, a horizontal section taken above the grate; Fig. 4, a sectional view, showing the manner of dumping the grate by partially withdrawing it; Fig. 5, a detail, showing the front opening through which the cinders are withdrawn from the grate without drawing it out; and Fig. 6, a section of the same.

The stove proper, and the magazine for the fuel, may be of any construction best adapted for use with my new grate. The base A, however, I prefer to make of a square or oblong

form, and it is of much greater area horizontally than the magazine B. The body of the stove at the front is provided with doors G<sup>2</sup> G above and below the plane of the grate. The outer draft may be made in the lower door, or in any manner that will suit the purpose and the kind of fuel to be used, while base-flues M, arranged at each side of the stove below the grate, open into the combustion-chamber at the front of the stove by diving-flues M<sup>2</sup>, rising a suitable distance above the grate and the fire thereon, and communicating through the base-flues with the rear chamber N, whence the smoke and gases pass off through the flue O; or any other plan of draft may be adopted that will produce the best result.

My improved grate is made in three sections, H I I, with a continuous surface, the middle one being made removable and sliding longitudinally in guides *a a*, or seats, and capable of being shaken in that line to separate ashes and clinkers, and provided for this purpose with a link, K, accessible through the door, or which may project through the door, and the grate thereby drawn out far enough to be dumped as well as shaken. As the section H, or grate proper, runs from end to end of the stove, its endwise shaking causes the coal to descend upon the fire and spread it over the whole surface of the grate. It can be removed by drawing it out wholly from between the fixed sections, or dumping it forward to clean it of adhering products of combustion. The side sections I I need not be removable; they may, however, be so constructed, if preferred, but they do not receive any shaking motion to clear them, as they are of small area and the coal resting thereon will be sufficiently disturbed by the shaking of the grate H. The ashes and cinders which fall through the bars of the sections I I upon inclined wall-sheds L L, are thereby directed into the ash-pan.

In connection with the longitudinal shaking motion of the grate, an opening, I<sup>2</sup>, is made in a front cross-plate, I<sup>3</sup>, beneath which the grate moves when shaken or drawn out, and which cross-plate forms the fixed front portion of the grate. This front opening gives convenience for removing the cinders and clinkers.



It is closed by a cover, R, which is removed to rake forward and discharge the cinders, and in dumping the grate. The grate is dumped by drawing it forward through the lower doorway G, and beneath the opening I<sup>2</sup>, sufficient to allow it to be tilted down into the opening of the ash-pan door and bring the cinders in line with the opening I<sup>2</sup>, and in which position the grate forms an upward incline from this opening and the cinders and ashes are raked from the grate and fall through the opening I<sup>2</sup>. This clearing of the grate is effected through the upper door G<sup>2</sup> by means of a rod or scraper. Generally, however, it is only necessary to clean the grate by shaking it and then drawing the cinders and ashes over the grate to the front opening I<sup>2</sup>, and in which case the grate is not drawn out beneath said opening. The grate may be withdrawn through the front door, if desired, and when so withdrawn the side grates can be readily cleaned into the ash-pan. The long side grates may be inclined downward from the walls of the stove. Q is a valve by which to open a direct communication of the combustion-chamber with the smoke-flue.

No claim is made herein to the construction and arrangement of the several parts of the stove in connection with the magazine, as I have embraced my invention in the stove proper, in a separate patent, as stated. Nor is a longitudinally-reciprocating grate claimed, as this feature is not new, but such a grate as stated in the claim, and its combination with other elements, is new to me.

To allow the grate to be drawn out wholly or partially, as described, a way or guide is made beneath the cross-plate I<sup>3</sup>, within which

the cinder-discharging opening is made. This guide or gateway is simply a space beneath the cross-plate I<sup>3</sup>, and above the forward portion of the ash-pan, so that the grate can be drawn out upon the ways on which it has its horizontal motion.

The ways proper for the grate terminate at the inner edge of the cross-plate I<sup>2</sup> to allow the grate to be depressed as it is drawn out beneath said cross plate. The gateway proper, therefore, is the open space above the ash-pan and immediately beneath the cross-plate, and must be of a width equal to that of the grate.

I claim—

1. The combination, with the fixed side grates I I, of the longitudinally-reciprocating middle section H, substantially as described.

2. A longitudinally-shaking grate, H, in combination with the gateway beneath the fixed grate-plate, whereby the grate may be wholly or partially withdrawn and dumped through the front door.

3. The combination, with the opening I<sup>2</sup>, of the longitudinally shaking and tilting grate H, whereby the grate may be both shaken and dumped to discharge the cinders through said opening.

4. The combination, with the opening I<sup>2</sup> and the longitudinally-shaking and dumping grate H, of the removable cover R, as herein set forth.

In testimony that I claim the foregoing I have affixed my signature in presence of two witnesses.

DAVID C. PROCTOR.

Witnesses:

JNO. E. HUNTER,  
FRANK F. PROCTOR.