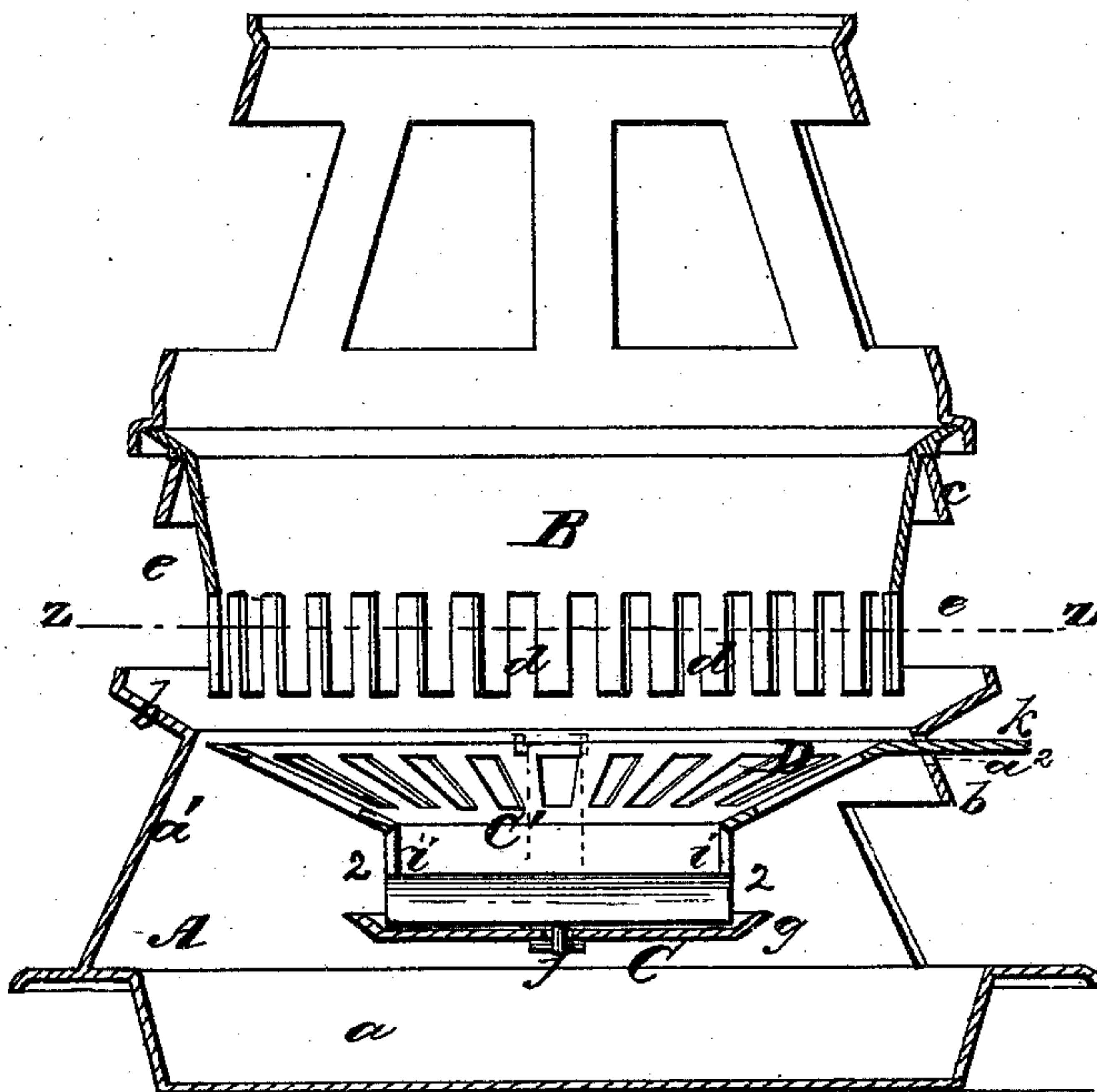


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Coal Stoves.

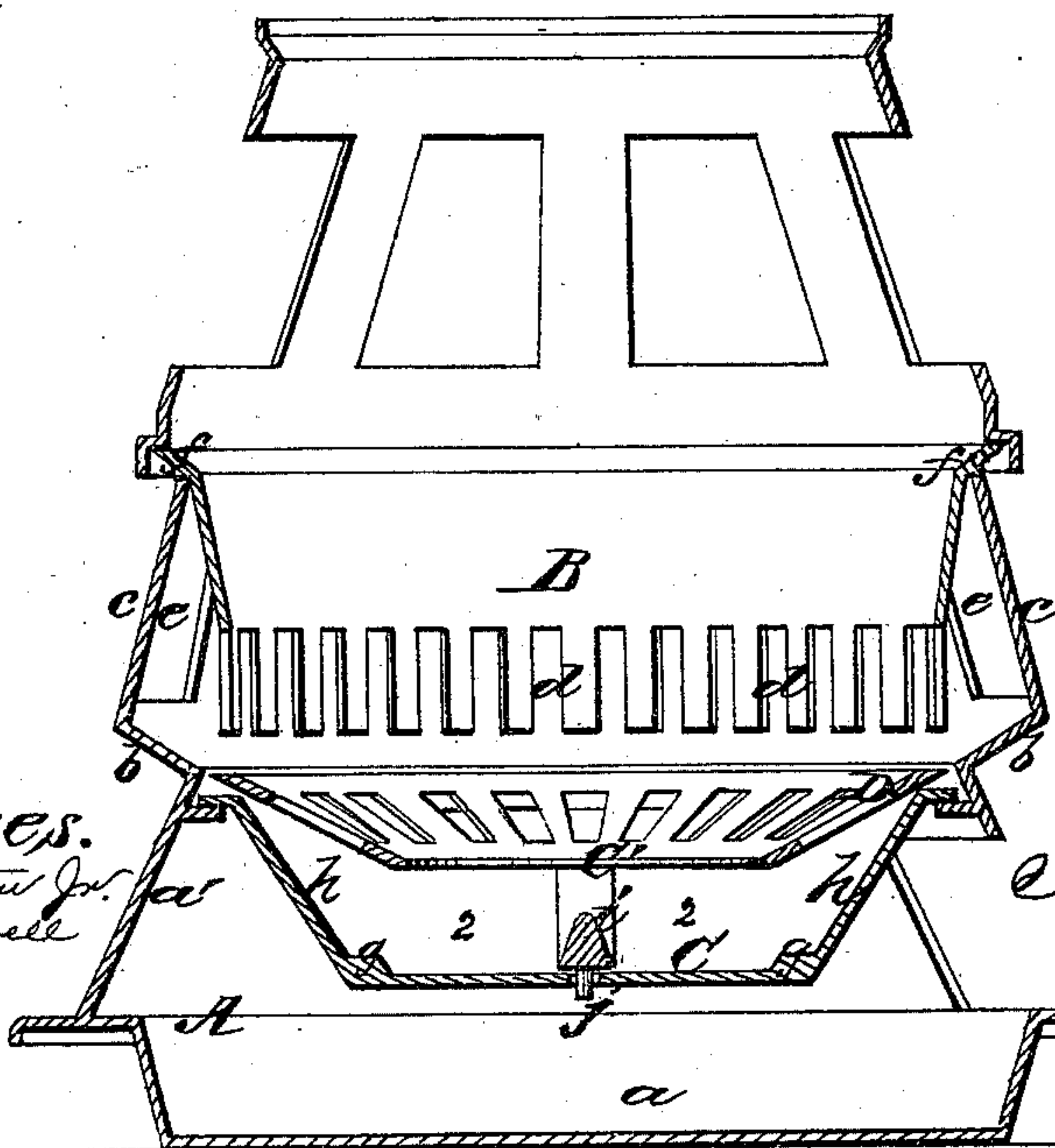
No. 149,487.

Patented April 7, 1874.

*Fig. 1*



*Fig. 2*



*Witnesses.*  
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*Inventor.*  
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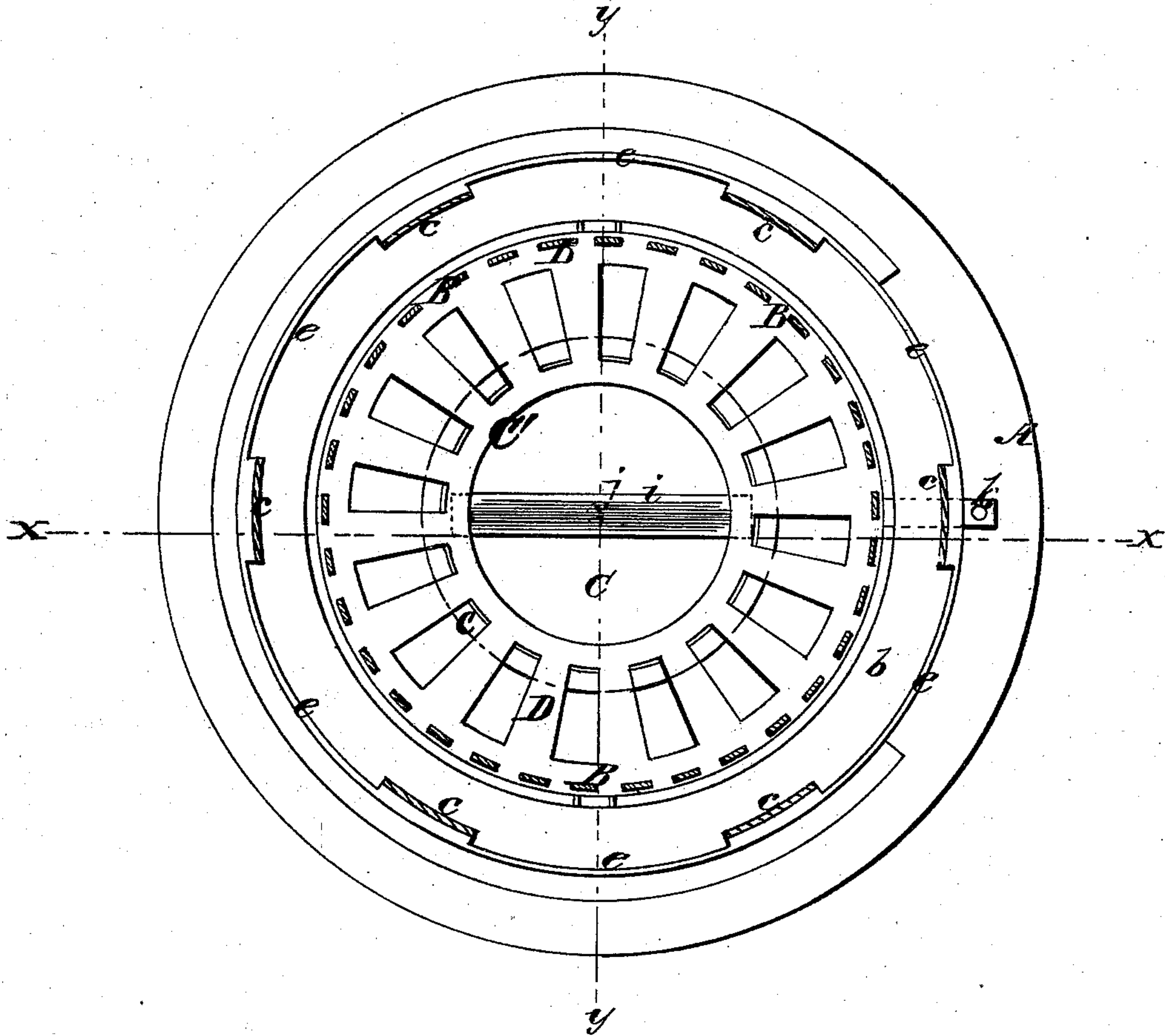
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Fig. 3



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# UNITED STATES PATENT OFFICE

SILAS H. LA RUE, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN COAL-STOVES.

Specification forming part of Letters Patent No. 149,487, dated April 7, 1874; application filed March 10, 1874.

*To all whom it may concern:*

Be it known that I, SILAS H. LA RUE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Coal-Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a vertical section of the same in the line *x x* of Fig. 3. Fig. 2 is a similar section in the line *y y* of Fig. 3. Fig. 3 is a horizontal section of the same in the line *z z*.

The nature of my invention consists, first, in a stationary central imperforated fire-bed, in combination with a horizontally-vibrating grated fire-bed surface, made with a depressed transverse agitating-bar, and with a central passage through it, and arranged on a plane considerably above the imperforated bed, so as to have a free lateral discharge-passage into the ash-pit. By this combination, the clinkers upon the surface of the imperforated bed can be forced to one side, and, over the edge of the imperforated bed, into the ash-pit below, by the simple vibration of the grated surface. Second, in the combination of a suspended fire-pot, having a grated lower edge, with the annular vibrating grated fire-bed surface, and the stationary imperforated fire-bed, whereby facilities for introducing a poker, if necessary, into the mass of coals above the annular vibrating fire-bed surface, for the purpose of freeing clinkers from the fire-pot, and whereby, when thus freed, the clinkers can be discharged, by a vibration of the grated surface, over the edge of the stationary fire-bed into the ash-pit, as will be presently described. Third, my invention consists in the combination of a series of doors in the outer wall of the stove with the suspended fire-pot, the annular vibrating grated surface, and the stationary imperforated fire-bed, whereby facilities for readily getting to the interior of the stove at different points of its circumference, for the purpose of poking the fire, are afforded. Fourth, it consists in the sweep or agitating-bar, for the purpose described; fifth, in a combination of a flange or ledge of the base wall

of the stove with the inclined vibrating grate-surface.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

A represents the base of a coal-stove. This base is made with a flanged depressed ash-pit portion, *a*, a tapering portion, *a*<sup>1</sup>, and a slightly-inclined flaring portion, *b*, and, from the outer edge of the portion *b*, it takes a slightly-conical form, as shown at *c*. In the portion *a*<sup>1</sup> the opening for the ash-drawer is cut, and above this opening a horizontal slot, *a*<sup>2</sup>, for the shake-bar of the grated fire-bed, is provided; and in the portion *c* a series of doors, *e*, which are closed by mica or other transparent material, is formed. B is the fire-pot, made with a slotted lower edge, *d*. It is suspended within the base of the stove by means of a flange, *f*, on its upper edge, or in any other convenient way. C is the imperforated fire-bed, and D the annular grated fire-bed surface. The imperforated bed is of much less diameter than the outer diameter of the grate-surface, but a little larger than the central opening C' in the ring forming said grated surface. The bed C is formed with a slight flange or flaring ledge, as at *g*, and it is suspended firmly in position by means of brackets *h h* below the grated surface, as shown. A lateral space, 2, is left all round, except where the brackets *h h* are applied, for the escape of clinkers and other matters. The grated surface is made of a flaring or inclined surface, it being somewhat in form of an inverted truncated cone, as shown. It is kept in position by means of a horizontal bridge-bar, *i*, which extends down from its bottom on opposite sides of the central opening, and then runs across the stationary fire-bed, bearing close against it, as represented. The bridge-bar and the stationary fire-bed are connected by a pivot, *j*, so that the former, with the grated surface, can be vibrated horizontally, while the latter remains stationary. The shake-bar *k* is attached to the edge of the grated surface, and passed through the slot *a*<sup>2</sup>, in the manner shown.

It will be observed that the bridge-bar in cross-section is of nearly V form, and thus



presents bevel surfaces to any objects it may sweep against on the stationary bed when the grated surface is vibrated. This bar acts as a sweep for removing clinkers or any other obstructing matter which may be upon the stationary fire-bed when the grated surface is vibrated, and thus the stove can be cleaned of its clinkers or matters which clog the draft by a simple vibration of the grated surface. The clinkers and other matters fall over the edges of the stationary bed into the ash-pit below.

In some cases it may be necessary to poke the fire within the fire-pot, and for this purpose I have provided slots in the lower part of the fire-pot, and also have provided the doors in the uppermost section of the base of the stove.

The upper structure on the ash-pit may be a single perforated wall with mica or illumination windows; or it may be a stove of the magazine or base-burning construction.

The walls of the stove may be made with doors or apertures, which are without mica or illuminating material set in them at the points where the poke-holes are provided.

The advantages of having the central stationary fire-bed closed is this, the bar can be swept over it more readily, and the ashes and clinkers are caused to close up the lateral clinker-discharge passage during the ordinary burning of the stove, and thereby the draft is compelled to pass up through the grated surface, and thus insure the burning of the fuel near the outer as well as the inner edge of the grate, and thus a greater and more direct radiation of heat and light through the lower base-section of the stove is secured. The ashes and clinkers banked up on the fire-bed prevent the bed from burning out as rapidly as when cleared of these matters through a grated bottom. Another advantage of my stove is this, the inclined flange of the base-section forms a lateral extension to the vibrating grate-surface, and the coals, as they are shaken, will find a support upon this flange, and when the grated surface is quiet they will roll back upon the

grate, instead of falling down over the periphery of the grate, as in other plans, into the ash-pit.

I would state that the sweep agitating-bar may be provided with wings or arms to assist it in sweeping off the clinkers and ashes.

I do not claim specifically under this patent the fire-pot notched or slotted at the lower end, as this is not new at this date. Nor do I claim under this patent the broad combination of a grate, a lateral clinker-discharging passage, and a fire-pot, with its lower end slotted or scalloped.

What I claim as new is—

1. The combination of the stationary imperforated fire-bed, the annular grated surface, and the transverse agitating-bar, substantially as and for the purpose described.

2. The imperforated stationary fire-bed, constructed as described, in combination with the vibrating grated surface pivoted upon the stationary fire-bed, the two being applied together and having a horizontal lateral discharge-passage between them into the ash-pit, substantially in the manner shown and described.

3. The outwardly-extended inclined flange *b* of the specified base-section, in combination with the fire-pot B, the inclined annular grated surface, and the stationary imperforated fire-bed, substantially in the manner shown and described.

4. The combination of the suspended fire-pot, having its lower edge slotted, with the vibrating flaring inclined grated surface, the imperforated fire-bed, and the series of poke-hole doors in the base-section of the stove, substantially as described.

5. The sweep-bar applied between the fire-bed and the grated surface, and attached to the latter and moving with it, substantially in the manner and for the purpose described.

SILAS H. LA RUE.

Witnesses:

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JAS. MARTIN, Jr.