E. C. ROBINSON.

Stove Grate.

No. 813. Patented June 30, 1838.

Fig. 4

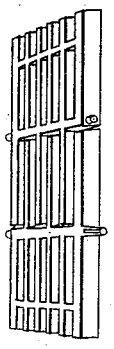


Fig. 3

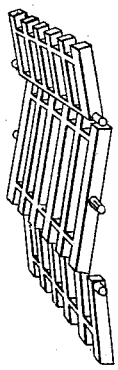


Fig. 2

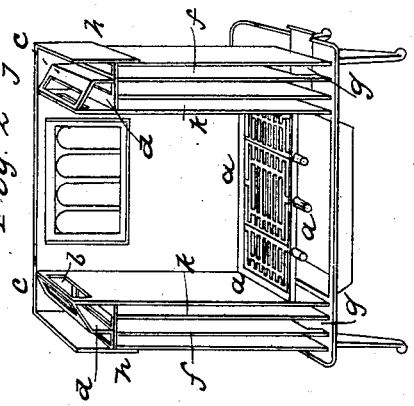
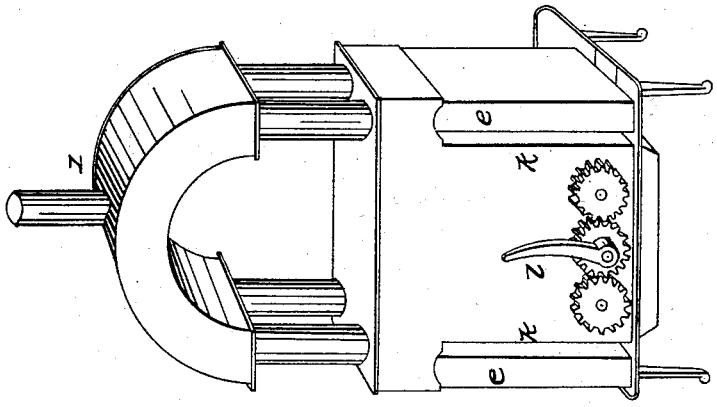


Fig. 1



UNITED STATES PATENT OFFICE.

ELI C. ROBINSON, OF TROY, NEW YORK.

STOVE AND GRATE FOR BURNING COAL.

Specification of Letters Patent No. 813, dated June 30, 1838; Antedated February 26, 1838.

To all whom it may concern:

Be it known that I, ELI C. ROBINSON, of the city of Troy, in the county of Rensselaer and State of New York, have invented new and useful Improvements in Stoves and also in Stove-Grates for Burning Coal; and I do hereby declare that the following is a full and exact description.

A stove constructed upon the principles of my improvements is represented in Figures I and II of the annexed drawings, Fig. I being a back side view of the stove entire and Fig. II a back view of the lower part of the same stove with the back and top plates off.

The fire place or furnace is in the center or body of the stove and has its sides formed by the front, back and end plates with a lining of fire brick or other suitable material similar to that of others for like purposes in common use. The lining is supported by flanges from the stove plates or from a rim or bar resting upon flanges—as shown at *a*, *a*, *a*, Fig. II. From the fire place I provide two passages as flues to the stove pipe—one at each end—entering first through an opening provided for the purpose at or near the top of the end plates, as shown at *b*, into the wing of the stove where an angular plate having its upper edge in contact with the end plate immediately above the opening divides the chamber of the wing, as seen at *c*, and thereby forms a continuation of the passage to an opening provided for it in the horizontal bottom plate of the wing as at *d*. This enters into a vertical tube represented in Fig. I at *c* as a single column but being divided by a vertical partition from front to rear as shown at *f*. Fig. II forms two passages between the wing and hearth that on the inside as the downward and that on the outside as the continuation upward of the same passage, being connected by an opening at the bottom of the partition as partially seen at *g*. At the top of the tube it passes into the outside division of the chamber of the wing through another opening in its bottom plate at *h*. Over this chamber and connected with openings from it through the top plate one or more cylindrical or other shaped tubes are placed through which the passage is extended into the foot of an arch resting upon the tubes and through the arch to the stove pipe which pipe I fix at its apex to an opening through its upper curved plate as at *i*, or through its back vertical plate, carrying the pipe therefrom horizontally. Either of these methods I adopt at discretion. The arch I make semicircular but its dimensions and the size and proportions of the tubes which support it I fix as taste or judgment directs. For the purpose of aiding the draft from the pipe through the passages as thus above described, I am careful to place these upper tubes as directly as need be over the passage below them. But in order to increase the draft from the fire place to the stove pipe by opening a passage still more direct for the purpose of kindling or continuing the fire when occasion requires, I provide an opening in the upper part of each angular plate in the wings as seen at *j*, this by means of a damper I close or open according to the direction to be given to the draft.

The descending and ascending passages for the flue between the wings and the hearth I have detached from the body of the stove so as to leave a space through and through between the columns which contains them and the end plate of the fire place of an inch more or less. This space is shown at *k*, and is for the purpose of giving free passage to the air of the apartment as induced by change of temperature or the like and as a means of distributing the effect and influence of the fire.

Immediately below the flange or rest for the lining of the fire place I fix my grate. It consists of two or more sections. That which is represented as in its place in the stoves in Fig. II and separately upon a larger scale in Fig. III is divided into three parts. The bars of each are in the direction of the length of the stoves, and when at rest are all upon the same level. Each division is supported by a shaft extending across it from front to rear or by a projection from each outside bar, one of which projections is introduced into a box or socket provided for it in the side plate of the stove or attached thereto and the other passes through a perforation in the other plate so as to rest and turn upon the end of the shaft or projections in nature of gudgeons or journals. The middle division when the grate consists of three is supported in this way at points opposite its center and the bars extend in length equally each way as shown in the drawing as wings. The division on each side of this is just half the

length of the middle section and consists of one wing having its shaft or gudgeons at the end of its bars next to the middle section. The end of the shaft or gudgeon which passes through the plate of the stove is extended far enough to fix thereto a small cog wheel one to each division so apportioned to each other and to the length of the grate and its divisions as to bring the cogs of the wheels in mesh with each other. The gudgeon of the middle section is still extended out beyond the wheel far enough to receive a key for turning it one way or the other as seen at *l* Fig. I. All this is for the purpose of shaking or agitating the grate or emptying its contents into the sink or drawer provided for the purpose underneath, and it will be perceived that by turning the keyed shaft or wheel one way or the other, one wing of the grate to which it is attached is thereby depressed and the other elevated and the wing of the division next to it is by means of the working together of the cog wheels turned to the same extent in reversed direction as shown by the position given to the bars of each in Fig. III. I provide a crossbar not far from the end of each wing as a support to the parallel bars of the grate as seen in each view thereof in the drawing.

When the grate is made to consist of two divisions only, I place the supporting gudgeons opposite the center of each and omit in the casting every alternate bar of the inside wing of each, and so arranging the bars provided that each bar passes in and occupies the center of the space between those of the other division, as shown in Fig. IV. These are also shaken or agitated upon the same principles as the other.

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

1. The manner of constructing the grate in combination with the apparatus for agitating and emptying it, as set forth.

2. I also claim the particular manner in which I have treated the passage for the drafts in each and of the top plate directly over the airing flues in combination with the flues arranged and operating as described.

ELI C. ROBINSON.

Witnesses:

EMET W. FURNALE,

DANIEL WHITING.