F. E. ADAM.

Stove.

No. 53,252. Patented March 20, 1866.

Fig. 3

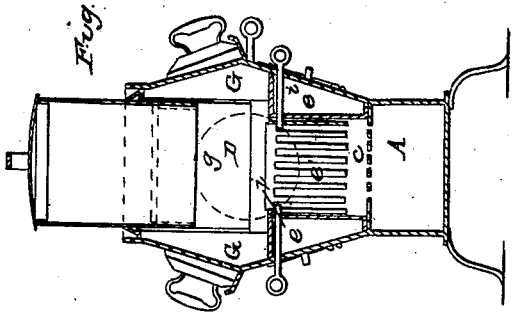


Fig. 4

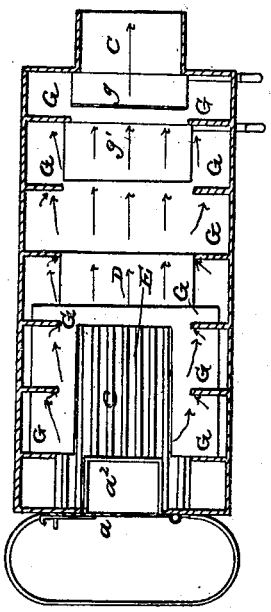


Fig. 1

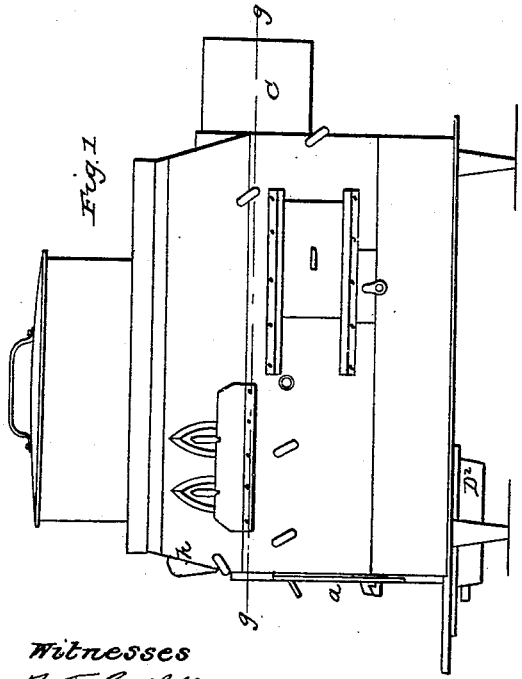
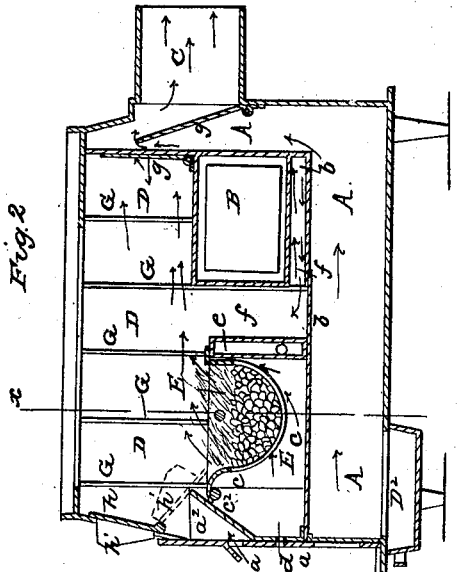


Fig. 2



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK E. ADAM, OF BALTIMORE, MARYLAND

STOVE.

Specification forming part of Letters Patent No. **53,252**, dated March 20, 1866; antedated March 9, 1866.

To all whom it may concern:

Be it known that I, FREDERICK E. ADAM, of the city and county of Baltimore, State of Maryland, have invented a new and Improved Stove; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation of my improved stove. Fig. 2 is a longitudinal section through the stove, taken in a vertical plane through its center. Fig. 3 is a vertical transverse section through the stove, taken at the point indicated by red line *x x*, Fig. 2. Fig. 4 is a section through the stove, taken in the horizontal plane indicated by red line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved stove for burning either wood or coal, which is so constructed that highly-heated air is caused to mix with the highly-heated products of combustion in a chamber which is directly over the oven, for the purpose of increasing combustion and obtaining the greatest amount of heat from the least amount of fuel, as will be hereinafter described.

Another object of my invention is to combine a turning coal-grate with a wood-grate in such manner as to facilitate the removal of the cinders from the coal-grate and the separation of the ashes, as will be hereinafter described.

Another object of my invention is to provide for introducing air through the furnace-door and over the coal-grate and also beneath this grate simultaneously, and to combine with such provision a means for supplying the coal-grate with coal without opening the furnace-door, as will be hereinafter described.

My invention has, finally, for its object so constructing a stove that the damper which is used for regulating the passage of the products of combustion into the escape-flue will also serve as a means for regulating the passage of the heated air into the fire-chamber, and also as a deflector for directing the heated air backward or toward the furnace-chamber, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

The side walls at the top and base of the stove are contracted so as to reduce the size of the grate-surface and the top-plate surface laterally, and to afford an enlarged fire-chamber extending the entire length of the stove. The flue A, which extends from the front door, *a*, of the stove to the back wall, and thence upward behind the oven B to the smoke-pipe C, is intended for the admission of air into the fire-chamber D, and is separated from this chamber by a plate, *b*, which is in a horizontal plane with the grate *c*, as shown in Fig. 2. The fire-chamber D occupies all that portion of the stove which is above the horizontal plate *b*, except that portion which is reserved for the oven. The fire-pot E is located at the front end of the stove, and its side and back walls are made double, with a space between them for water, as shown at *e e*, Figs. 2 and 3. Between the rear transverse wall of this fire-pot and the front wall of the oven B is a flue-space, *f*, which extends downward and is carried beneath the bottom plate of the oven, for the purpose of allowing the heated products of combustion to circulate beneath the oven, as indicated by the arrows in Fig. 2.

The smoke-flue C is provided with a damper, *g*, which is arranged within the vertical portion of the flue A and hinged to the rear end plate of the stove in such manner that this damper will serve to completely or partially cut off the communication between the stove and the escape-flue. Said damper also serves as a deflecting-plate for directing the air which passes through the flue A backward and upward, so that this air will mix with the heated products of combustion over the oven B. Another damper, *g'*, is arranged in front of the damper *g*, for regulating the draft through the fire-chamber and for directing the heated products of combustion upward.

There are two openings above the wood-grate *c*, through the front door, *a*, for the admission of air into the fire-chamber. The upper opening, *a'*, has a hood, a^2, applied to it on the inside of the door *a*, for the purpose of conducting the inflowing air upward and over the fire-pot and causing it to mix with the products of combustion as they rise into the fire-chamber D. The lower opening, a^3, admits air into the fire-pot. Beneath the grate *c* another opening through the door *a* is made for the purpose of admitting air into the flue A, as shown in Fig. 2.

When it is desired to use coal a semicircular grate, c', is introduced into the fire-pot and pivoted at i i, so that it may be shaken or tilted over. The rear edge of this grate c' has a lip formed on it, which rests upon the upper edge of the fire-back, as shown in Fig. 2. The opposite edge of the grate c' is supported by a transverse rod, c^2, which, when withdrawn, allows the grate to be tilted over forward so as to empty its contents upon the lower grate, c. This latter grate thus serves as a means for separating the ashes from the cinders, which latter are raked out and the ashes allowed to fall into the ash-pan D^2. When wood is burned the grate c' is removed.

I supply coal to the coal-grate through an opening in the front plate of the stove, above the door a. This opening is closed by a door, h, which is provided with plates or wings h' h', that form a chute when the door h is inclined, as indicated in red lines, Fig. 2, and conduct the coal over the hood a^2 into the grate c'. By this arrangement the coal-grate can be supplied with very little difficulty.

One of the most important features of my stove is the arrangement of a number of plates, G G, along the side plates, as shown in Figs. 2, 3, and 4. These plates may be arranged at regular or irregular intervals apart, so that they will form cells along each side of the stove and within the fire-chamber D. The object of these plates is to retain the heat by checking the circulation at the sides of the stove, yet allowing a direct passage of the heated gases through the center of the fire-chamber.

The main object of my invention being to economize fuel, I have so constructed the stove that it will admit large quantities of air within it at such points that this air will be caused to support combustion and to supply oxygen to the flame in the fire-chamber in such quantities as will give the best result.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of a number of plates, G G, along each side of the stove and within the fire-chamber D, so as to form a series of heat-retaining cells, with a central passage through said chamber, substantially as described.

2. The air-flue A, leading from the front door, a, beneath the grate c and oven B and back of this oven, in combination with the damper g and chamber D, substantially as described.

3. The arrangement and combination of flue A, chamber D, fire-pot E, space f, and oven B with the dampers g g', substantially as described.

4. The combination of two grates, c c', with open-top fire-pot E, hooded air-passage a', and the hinged door h, substantially as described.

5. The combination of a tilting grate, c', which can be removed from the fire-pot E, with the wood-grate c, substantially as described.

6. Providing the door h with plates h' h', which are so applied that when this door is inclined inward it will serve as a chute for directing the coal into the grate, substantially as described.

FREDERICK E. ADAM.

Witnesses:

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