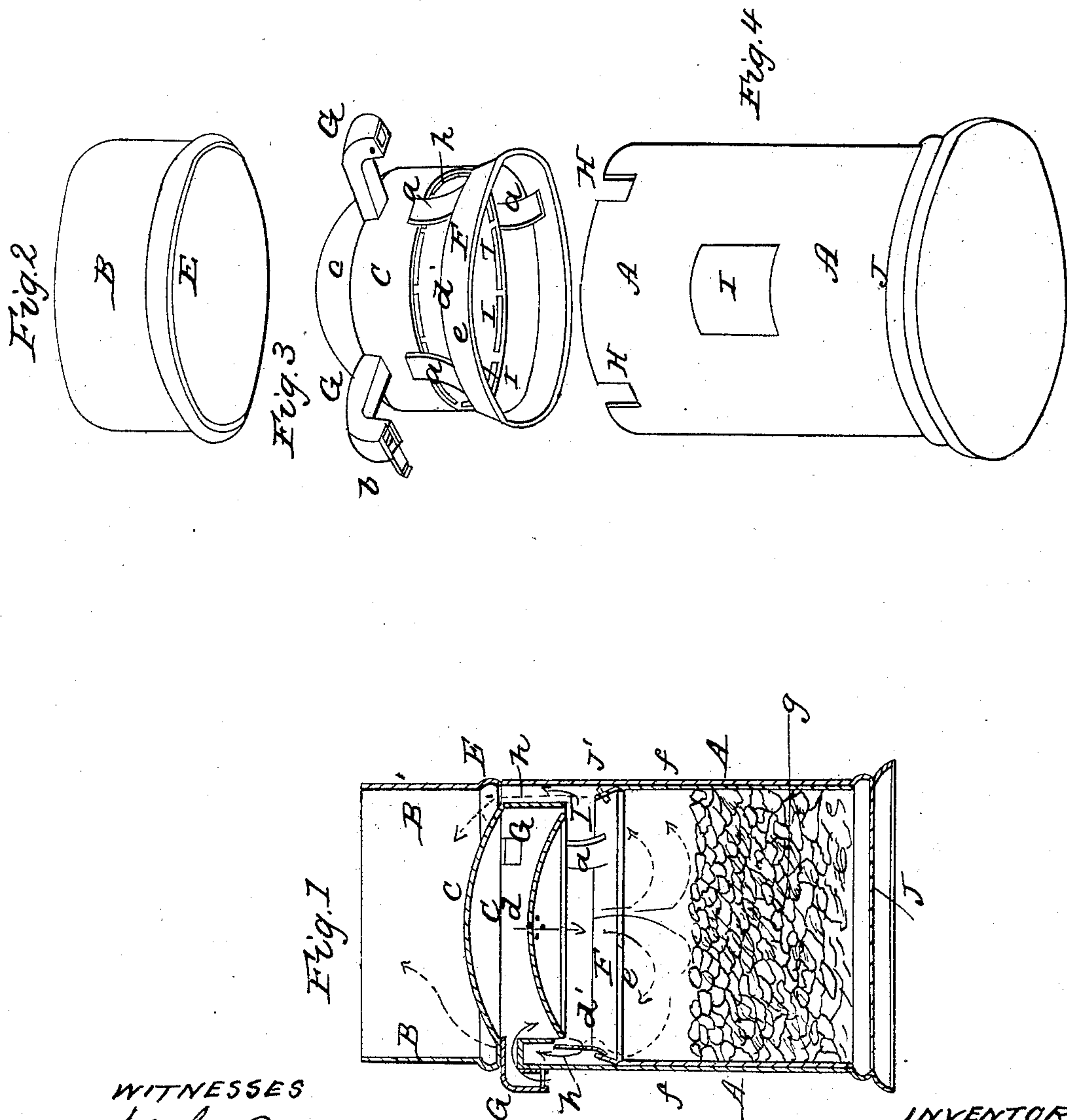


F. E. TUPPER.

Coal Stove.

No. 23,412.

Patented March 29, 1859.



WITNESSES

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FREEMAN E. TUPPER, OF NASHUA, NEW HAMPSHIRE.

STOVE.

Specification of Letters Patent No. 23,412, dated March 29, 1859.

To all whom it may concern:

Be it known that I, FREEMAN E. TUPPER, of Nashua, in the county of Hillsboro and State of New Hampshire, 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, and letters of reference marked thereon, forming a part of this specification.

To enable those skilled in the art to which my invention belongs, to make and use the same, I will proceed to describe it.

Figure 1, is a vertical section taken through the center of the stove. Figs. 2, 3, and 4, are perspective views of the component parts of the stove.

Similar letters of reference refer to like parts in all of the figures.

A, A, represents the part of the stove which contains the coal, and which is to be provided with a lining in the usual manner.

J represents a base to support the part A. This base J, is to rest on a bottom containing an ash pit &c. similar to the coal stoves now in common use.

The upper end of A, A, is provided with notches or openings H, H, two of which are seen in Fig. 2. There are usually three of these openings or notches, one on the back of the stove and one on each side.

C, Figs. 1, and 2, represents an air chamber. This air chamber it will be observed, is concave on the under side and convex on the upper side as seen at *c*, while extending from its lower side are curved arms *a, a, a*. The lower ends of arms *a, a, a*, are attached to a supporting deflecting collar F. The upper edge *d'*, of this collar is a little larger than the lower end of the air chamber C, while its lower edge *e*, is just large enough to fill the body A, of the stove. The upper part of the air chamber C, is provided with ventilating and air supplying tubes or passages G, G, &c. The form of these tubes or passages is fully shown in the drawings. The air chamber is also provided with long narrow openings *i, i, i*, &c. See Fig. 3. It is also provided with small apertures *d*, in the center of the under side, as fully shown in Fig. 1.

By reference to Fig. 1, it will be seen that there is quite a space between the upper part of A, and the air chamber C.

B, is the top of the stove, and is provided with an ornamental base E.

The air tubes or passages G, G, G, are provided on their outer ends with registers, one of which is seen at *b*, Fig. 3. I is the door of the stove.

Operation: The air chamber C, is dropped down into the body A, of the stove, until the tubes or passages G, G, G, rest on the bottom of the notches H, H, H, formed in the upper part of A. The cap B, is then placed over the chamber C, its base E, resting on the upper sides of the tubes or passages G, G, G, and the upper edge of A. When the air chamber is in place, the supporting and deflecting collar F, rests on the stove lining as seen at *f, f*, Fig. 1. The coal being fired as represented at *g*, the heated air and gas rises up until it reaches the top of F, when the draft causes it to diverge from the center of the stove toward the space *h*, between the air chamber C, and the upper end of A, thus causing a partial vacuum directly under the center of the lower side of C, and under the apertures *d*, by which the cool air which is admitted through the tubes G, G, G, is caused to descend through the apertures *d*, down toward the heated coal as shown by the arrows in Fig. 1, where the direction of the cold air is indicated by black arrows and that of the heated air and gases by red arrows. The object of the upper edge *d'*, of the collar F, is to deflect the heated air a little, so that as it passes under the openings *i, i, i*, &c of the air chamber C, it will cause quite a draft, at such points, and thus draw down a large proportion of the air which enters the chamber C, so that there will be but a small quantity to pass down through the apertures *d*. The air which passes down through the apertures *d*, descends until it comes in contact with the surface of the coal, and there mixing with the gas evolved creates a slow but perfect combustion.

The concave bottom of the air chamber C, is for the purpose of allowing the air to receive a downward pressure before it reaches a point below the outer lower edges of the air chamber, sufficient to carry it down onto the coal even though intensely heated. Again, this force is of importance in carrying down any gas which has escaped without being ignited.

By the above arrangement coal can be burned with great economy, while the room

can be well ventilated by means of the tubes or passages G, G, G, without the consumption of large quantities of coal.

5 A coal fire with the above arrangement, the door I, together with the dampers in the bottom of the stove under the coal being closed, can be kept for nearly two days without being replenished.

10 In stoves as usually constructed, there is great liability of the gas escaping into the rooms when the draft is shut off below the coal, but in my stove, it will be seen that there is no danger of the gas escaping.

15 In point of heat and economy I believe my stove to be far superior to any other stove

which has ever been designed for a similar purpose.

Having described my improved coal and gas stove, what I claim therein as new and desire to secure by Letters Patent, is—

20 The arrangement of the air chamber C, with its air passages or tubes G, and apertures *d*, and openings *i*, *i*, *i*, with the casing A, and supporting and deflecting collar F, substantially in the manner and for the purposes above set forth. 25

FREEMAN E. TUPPER.

Witnesses:

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