

G. G. Hunt.

Base Burning Stove.

N<sup>o</sup> 71306

Patented Nov. 26, 1867.

Fig. 1.

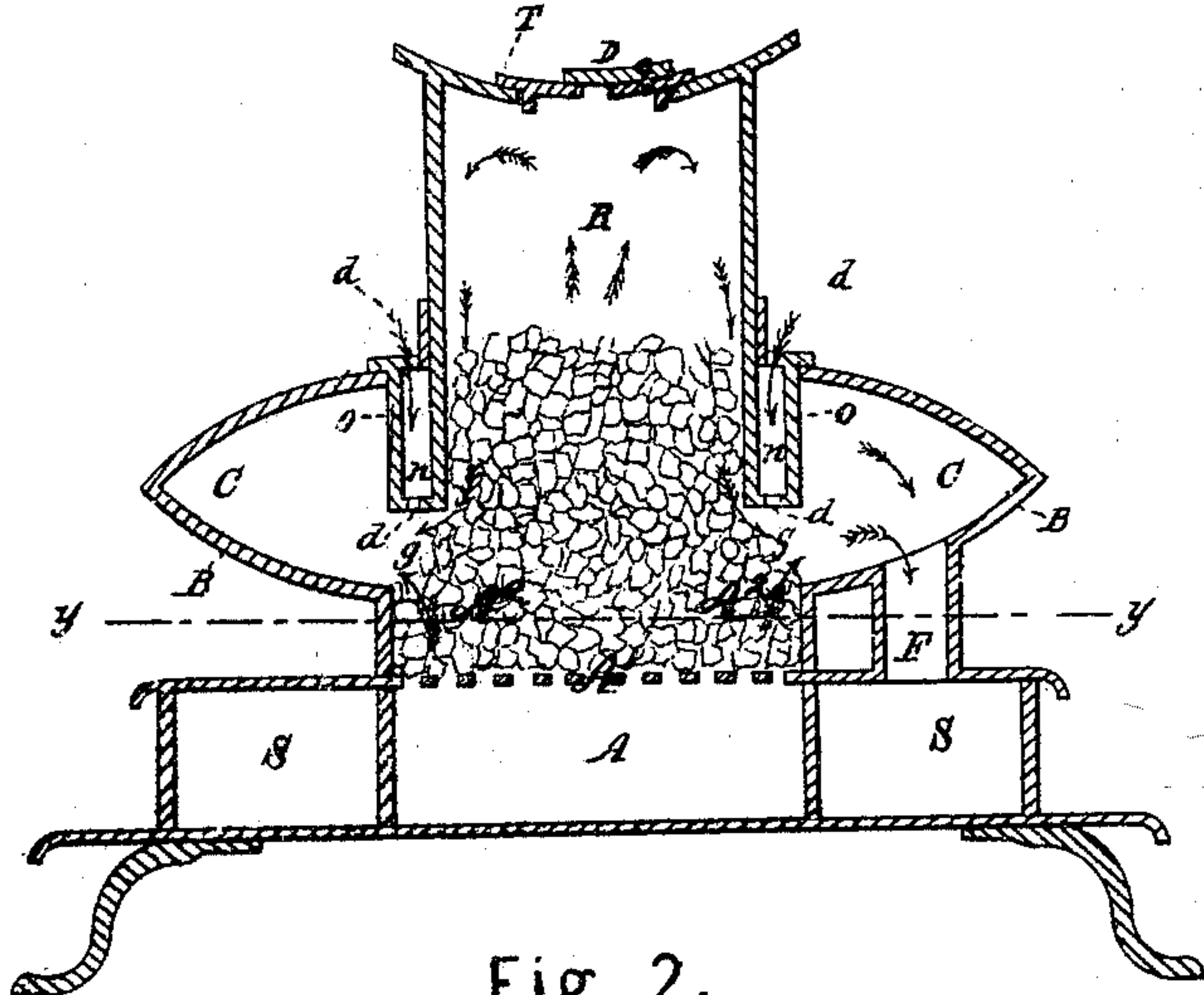


Fig. 2.

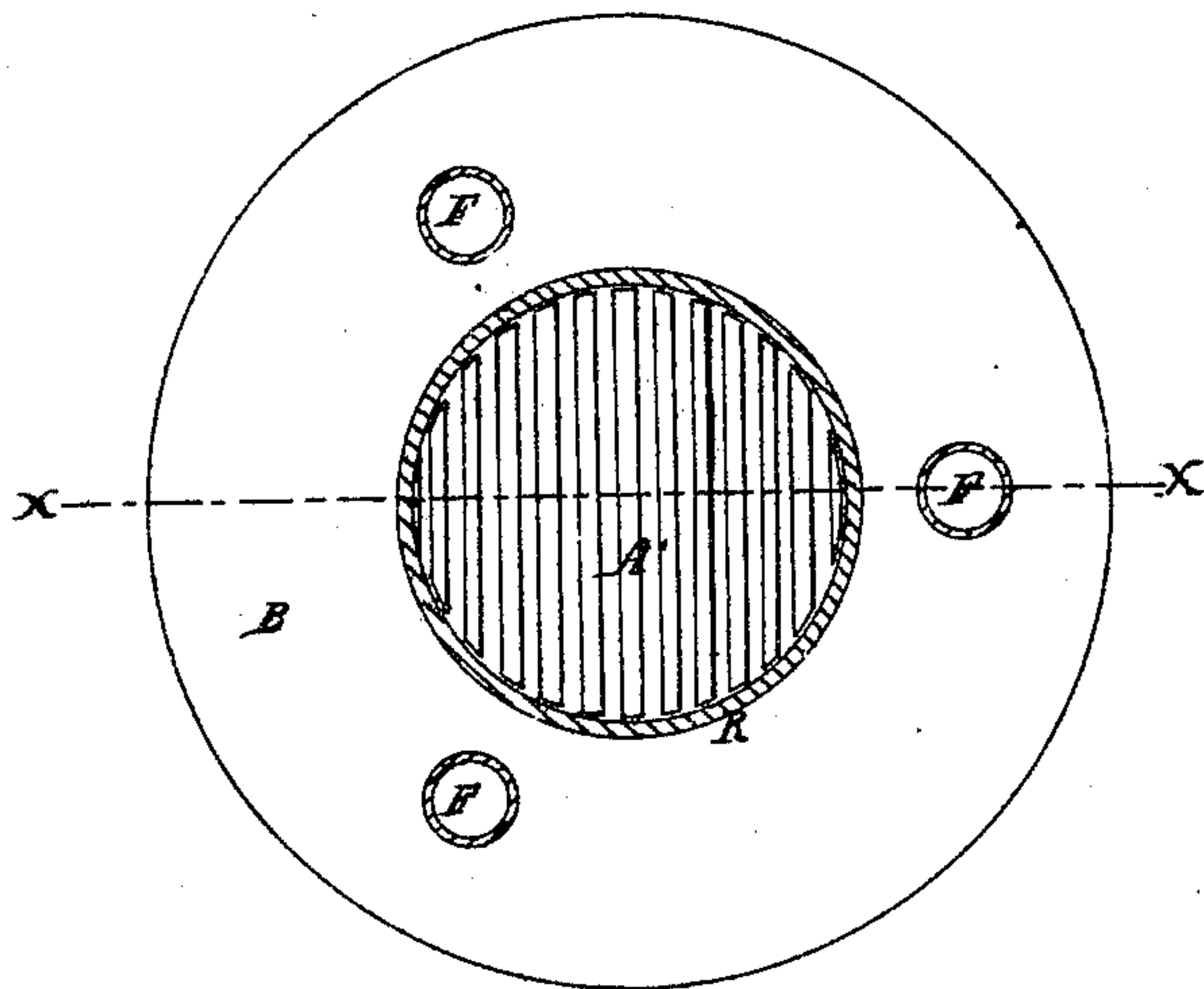
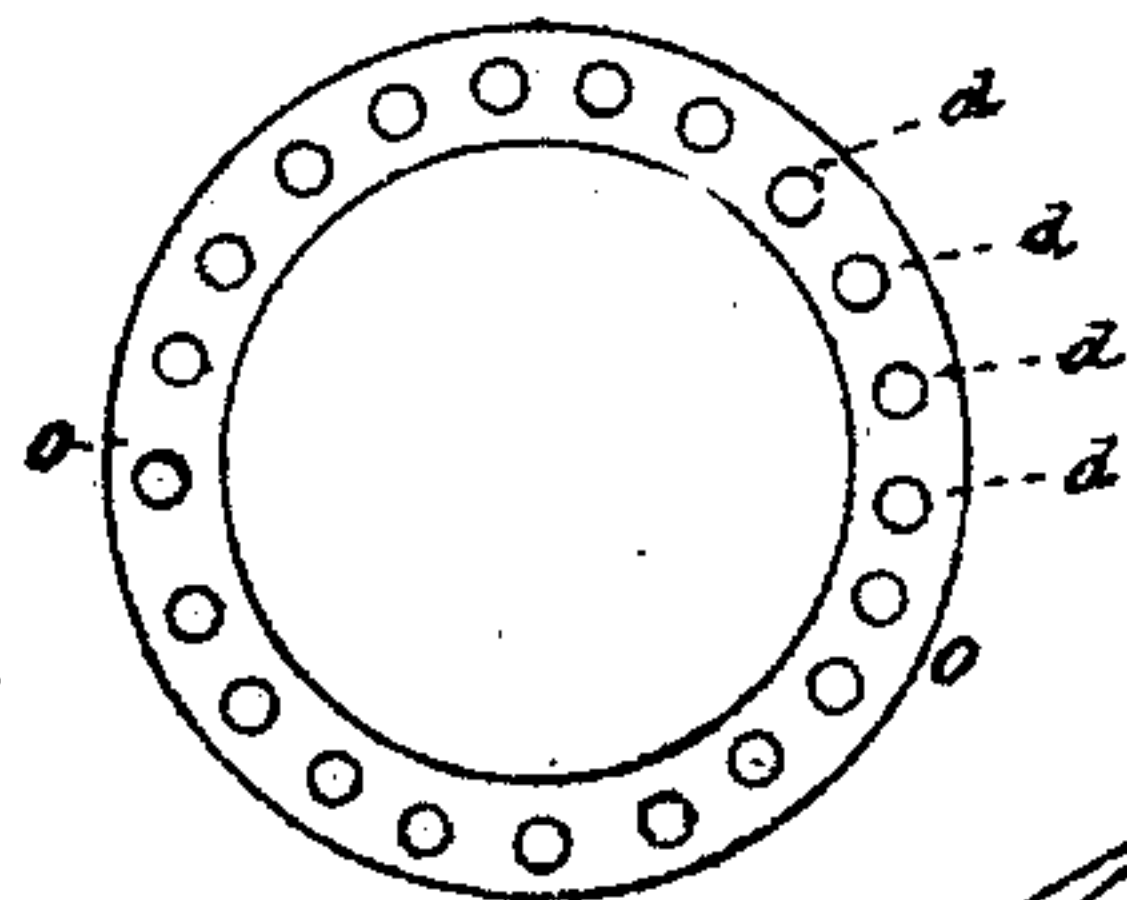


Fig. 3.



Witnesses.

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# UNITED STATES PATENT OFFICE

GEO. G. HUNT, OF BRIDGEPORT, CONNECTICUT.

## IMPROVEMENT IN BASE-BURNING STOVES.

Specification forming part of Letters Patent No. 71,306, dated November 26, 1867.

*To all whom it may concern:*

Be it known that I, GEORGE G. HUNT, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented an Improved Stove; and I do hereby declare the following to be 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 central section through the improved stove, taken in a vertical plane. Fig. 2 is a section taken through the stove in the horizontal plane indicated by red line *yy* in Fig. 1. Fig. 3 is a top view of the double-wall air-chamber.

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

The object of this invention is to adapt a stove for practically and economically burning soft or bituminous coal, by employing a gas-receiving and reverberating chamber, which terminates at its lower end in double-wall inlet-passages, and in combining therewith a fire-box which is extended laterally, so as to form also a combustion and flue chamber, said parts being constructed and arranged in such manner that the gas escaping from the reverberating-chamber will be mixed with air and burned at a point where the heat is most intense in the fire-box, thereby effecting complete combustion of the gas from the coal, and at the same time preventing a rapid burning out of the lower end of the cylinder inclosing the reverberating-chamber, as will be hereinafter described.

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

In the accompanying drawings, A represents the ash-pit of the stove, which is located in the base of the stove, and entirely surrounded by a flue-chamber, S, as shown in Fig. 1. Above this ash-pit A is the grate  $A^1$ , forming the base of the fire-chamber  $A^2$ , and surrounding the upper part of this fire-chamber is a gas-combustion chamber, C, which is formed by two concavo-convex plates united together at their circumference, so as to expose very large heat-radiating surfaces on top and bottom.

Within the fire-box and combustion-chamber the lower end of a cylinder, R, extends,

so as to leave an annular space, *g*, below it, that communicates with the enlarged chamber C. This cylinder extends above the chamber C, and is closed at top by a plate, T, and door D, so that no gases can escape from this point. The lower part of the cylinder R, or that part which extends into the combustion-chambers, is cast with a jacket, *o*, around it, which forms an annular chamber, *n*, as shown in Figs. 1 and 3. Perforations *d d* are made through the ends of this chambered jacket *o* for the free admission of air into the combustion-chambers, and a flange is cast on the upper end of this chambered jacket for the purpose of supporting it and the cylinder R upon the upper wall of the double-convex chamber C.

F F F represent vertical descending flues, which form communications between the gas-combustion chamber C and the hollow base of the stove, from which the smoke passes from the stove.

It will be seen from the above description that the combustion-chamber C is considerably larger in diameter than the fire box or chamber  $A^2$ ; also, that the diameter of the grate  $A^1$  is considerably greater than the diameter of the cylinder B. This being the case, the coal which is upon the grate  $A^1$  will have a greater superficial area than the surface of the coal which is in the cylinder R, and consequently the coal will extend outward beneath the chambered jacket *o* and the openings *d*, which are through it. At this latter point the most perfect combustion of the coal will take place, for the reason that air can ascend freely through it from the ash-pit, and pass into the combustion-chamber, and also for the reason that air is introduced at this point through the jacket-chamber *n*, as shown in Fig. 1. The coal which is at and near the circumference of the grate and about the lower end of the jacket *o* will be kept in an incandescent state, while the coal which is in the center of the bed of coals and on top thereof will be sufficiently heated to generate considerable gas from it. This gas rises and fills the reverberating-chamber R above the surface of the coal therein, and when this chamber becomes filled the gas, which is highly charged with inflammable matter, passes downward, and is consumed by the



incandescent coal which is at and below the lower end of the air-chamber *n*.

As the coal which is subjected to the greatest degree of heat is burned away, the coal which is above it in cylinder *R* will slowly descend and fill its place. This coal, which is subjected to the least degree of heat, will be more or less deprived of its rich carbon and converted into coke by distillation before it descends beneath the chamber *n* to be burned; consequently there will be little or no inflammable smoke carried off through the flues.

The great object of my invention is to construct the lower end of the cast-iron cylinder *R* so that it will not readily burn out where it is exposed to the intense heat of the coals. This I do by making the air-chamber *n*, and allowing of a free circulation of air therein, the air being drawn down through the perforations *d* at points where it will commingle with the gases from the reverberating-chamber *R*, and thus facilitate combustion.

Let it be understood that I do not lay claim to the principle of introducing air into the fire for the purpose of supplying oxygen and facilitating combustion of the gases. Nor do I make claim of invention to the use of a coal-supply cylinder for feeding fuel to the fire.

Nor do I claim the conducting of the draft laterally outward from a fire-chamber, *A*<sup>2</sup>, below the lower end of a coal-supply reservoir, as these features are all found in base-burning stoves.

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

1. The single-wall cylinder *R*, extending above the laterally-extended chamber *C*, and terminated within the fire-chamber *A*<sup>2</sup> in a double-wall chamber, through which air is admitted to the fire, substantially as described.

2. The single-wall cylinder *R*, terminating in a double-wall air-heating cylinder within the chamber *C*, in combination with the flues or pipes *F*, leading into the chamber *S*, substantially as described.

3. The combination of cylinder *R*, chambers *C*, *g*, and *A*<sup>2</sup>, descending flues *F*, and chamber *S*, when these parts are constructed and arranged so that they will operate as herein described.

GEO. G. HUNT.

Witnesses:

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S. S. MARE.