

T. SHAW.

Gas Stove.

No. 22,335.

Patented Dec. 14, 1858.

Fig. 1,

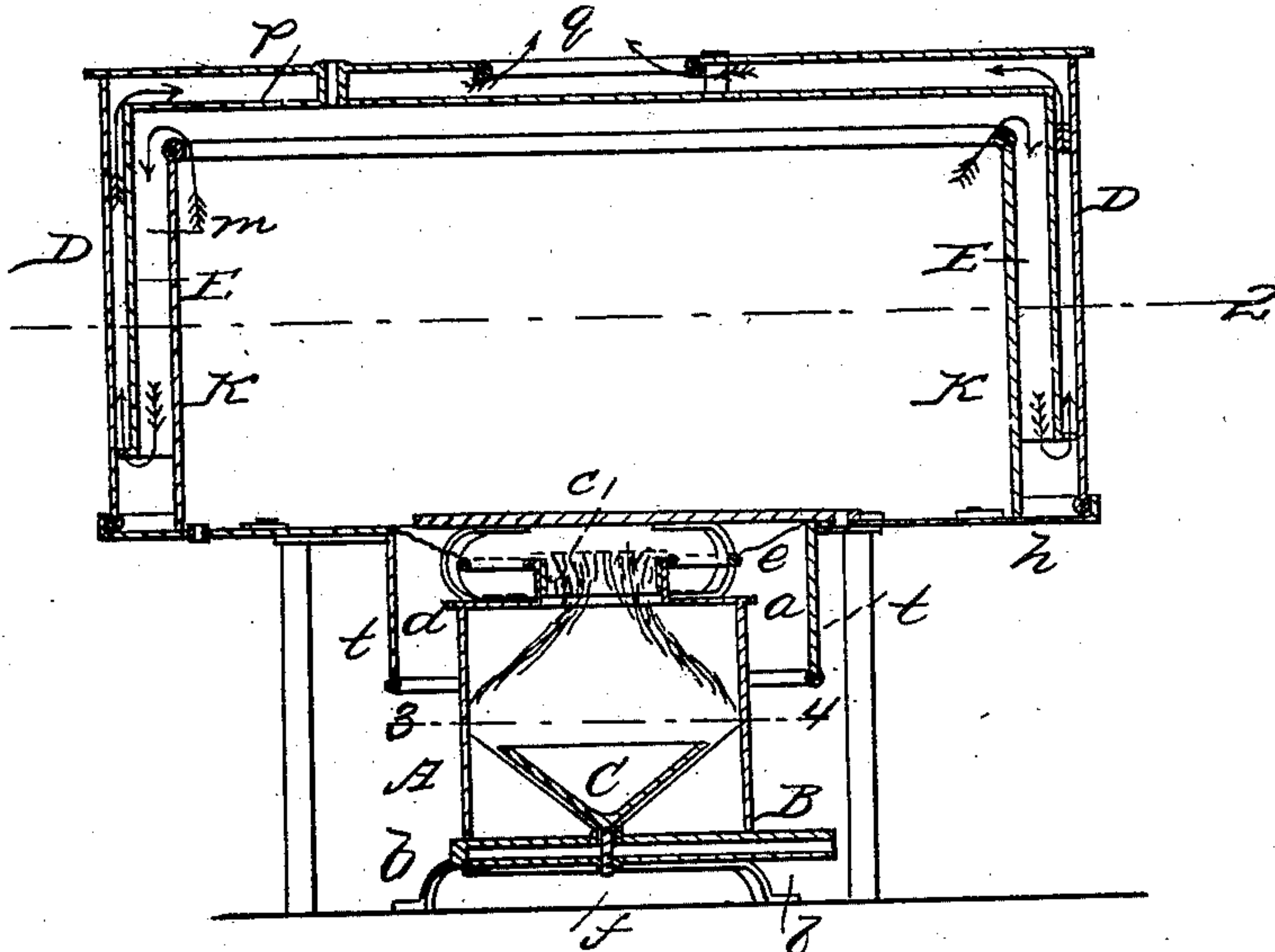


Fig. 2,

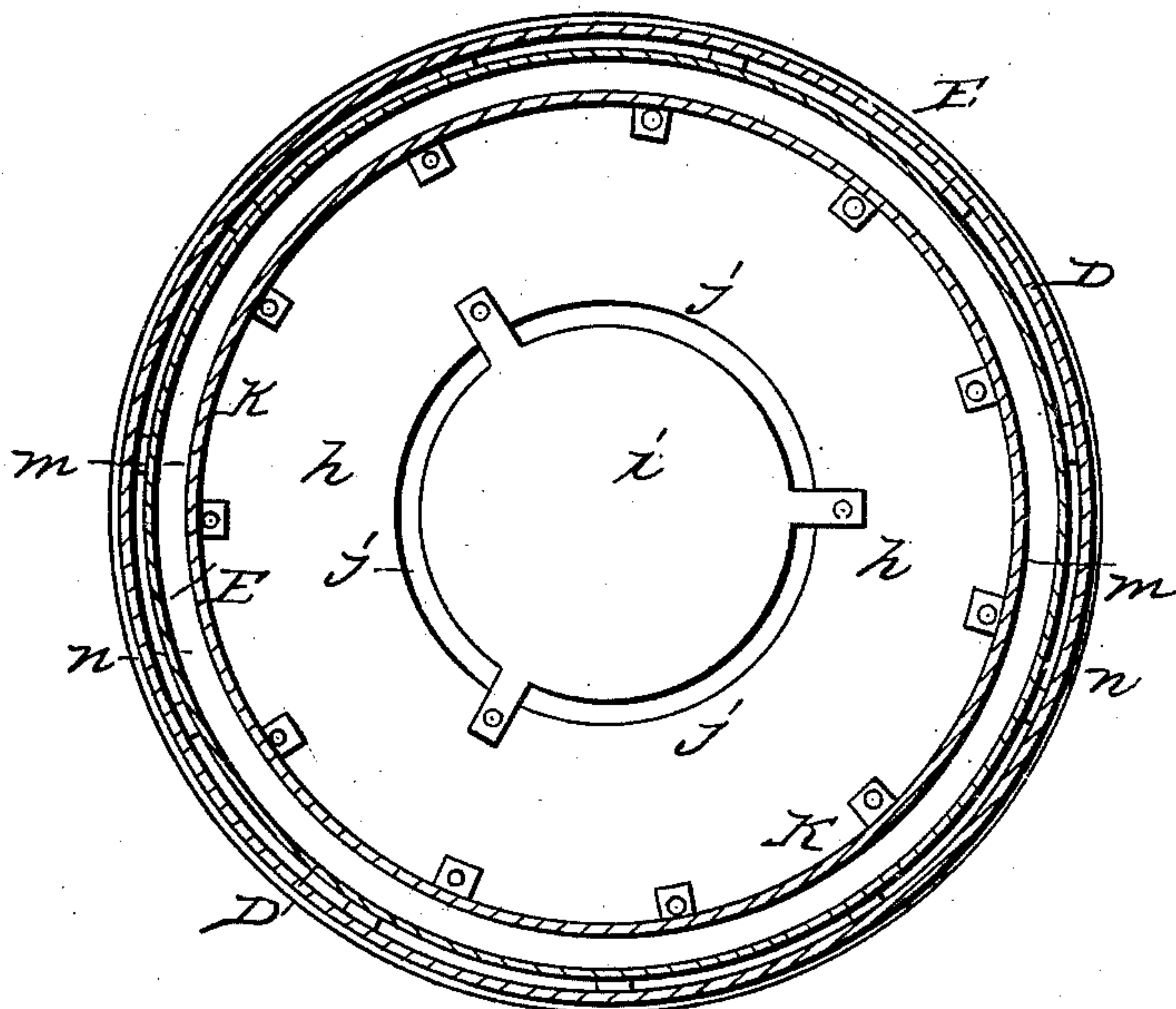
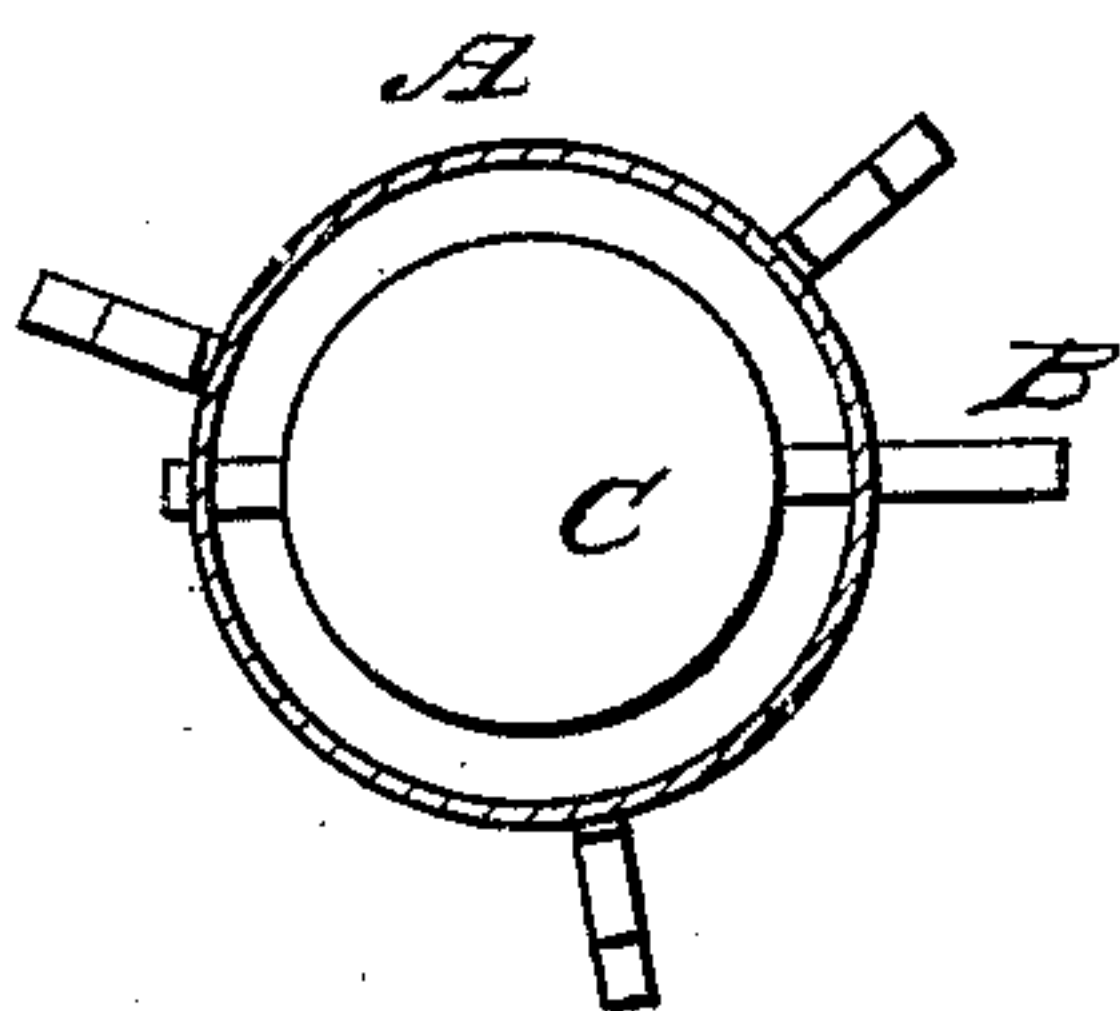


Fig. 3,



WITNESSES:

Henry Howson
Henry Odiorne

INVENTOR:

Thomas Shaw

UNITED STATES PATENT OFFICE.

THOMAS SHAW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND C. S. PATTERSON, OF SAME PLACE.

GAS-BURNING STOVE.

Specification of Letters Patent No. 22,335, dated December 14, 1858.

To all whom it may concern:

Be it known that I, THOMAS SHAW, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and
5 Improved Gas-Burning Stove; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked
10 thereon.

My invention relates to stoves heated by gas; and consists in an arrangement of an inverted cone within a cylinder, said cone being attached to a gas pipe, and so ar-
15 ranged, in respect to a hollow projection on the said pipe, that the gas may be spread out in a thin stream and be exposed to a current of air, the gas being thus mixed with oxygen prior to passing through a wire gauze
20 disk, above which it is ignited. This wire gauze disk is arranged to overhang the opening, through which the gas passes to the gauze, in such a manner that the exterior air may have free access to the under-
25 side of the overhanging portion of the gauze, thus insuring a perfect combustion of the gas, and an extended flame of intense heat.

The oven is constructed in a peculiar manner, described hereafter, to retain the heat
30 and, at the same time, to insure a perfect circulation of heated air through the interior. The whole is designed for the purpose of avoiding that large consumption of gas, which has hitherto rendered its use for
35 heating and cooking purposes expensive.

In order to enable others to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawing, which forms a part of this specification; Figure 1, is a sectional elevation of my
40 improved gas-burning stove. Fig. 2, a sectional plan, on the line 1, 2 (Fig. 1). Fig. 3, a sectional plan, on the line 3, 4 (Fig. 1).

45 Similar letters refer to similar parts throughout the several views.

A is a hollow cylinder of Russian sheet iron or other suitable material, open at the bottom and supported on legs *b*, *b*. This
50 cylinder is partially closed on the top by a cover *a*, on which is a smaller cylinder *c*, communicating with the interior of the larger cylinder A. A disk *e* of wire gauze is attached to and overhangs the smaller
55 cylinder *c*, so that the exterior air may have

access to the under side of the gauze, without having to pass through the larger cylinder A. Through the lower end of the latter passes a small pipe B, which is connected
60 to a gas pipe or any ordinary gas burner by an elastic tube or in any other suitable manner. A rod *f*, on the end of the inverted cone C, screws into the pipe B, the apex of the cone being so situated, in respect to a
65 hollow projection on the pipe, that the proper quantity of gas may pass through the said projection and, following the direction of the inverted cone, pass upward through the wire gauze disk, where it is ignited.

The oven is constructed as follows: To a
70 plain, annular plate *h* is secured another circular plate *i*, somewhat less in diameter than the opening in the annular plate, so that there may be narrow spaces *j*, *j*, between the two, as seen in Fig. 2. A cylinder
75 *k* of a convenient size is secured to the annular plate *h*, and over all is placed the inverted cylindrical box D, the edge of which rests on the outer edge of the annular plate
80 *h*. Another inverted, cylindrical box E, secured to the outer box, intervenes between the latter and the cylinder *k*, in such a manner that the heated air shall pass, in the
85 direction of the arrows, from the interior of the oven down through the annular space *m*, up through the annular space *n*, along the upper space *p*, and thence, through the opening *q*, to the external air. To the bottom
90 plate *h* of the oven is secured a cylinder *t*, which surrounds the upper portion of the cylinder A, leaving an annular space between the two. This cylinder serves the
95 threefold purpose, of preventing the flame from being agitated by drafts in the room, of directing a supply of air to the under- side of the overhanging portion of the gauze
100 disk, as well as to the flame which extends beyond the disk, and also of limiting the extent of the flame and directing it to the openings *j*, *j*.

It is well known, that, in order to insure that perfect combustion of the gas which
105 imparts the greatest heat, the flame should be brought in contact with a liberal supply of oxygen. In other gas-burning stoves, this supply of oxygen has been limited, owing to the confinement of the burners and other
110 disadvantageous arrangements. A number of jets of gas have, therefore, been resorted to, to produce the desired amount of heat.

So inordinate a consumption of gas, however, has, hitherto, caused gas-burning stoves to be far from economical.

By the above described improvement, I have found a single jet of gas, no larger than that of an ordinary burner, amply sufficient to cook a large joint, and that in as short a time as the cooking could be accomplished in an ordinary stove.

It will be observed, that the gas is, in the first instance spread out into a thin stream by the inverted cone *c*, and that this stream is exposed to the current of air which rushes through the cylinder A, a constant draft being maintained through the latter by the ignited gas above. The oxygen of the air thus becomes thoroughly mixed with the gas, prior to the latter passing through the gauze disk. Should the latter be limited to the size of the cylinder *c*, the flame of ignited gas would extend but a short distance beyond it. By means of the overhanging portion of the disk, however, so arranged that a supply of pure air may be admitted to the underside, not only is the flame extended, but, through the new supply of oxygen, it is caused to burn with a light blue flame, which is a certain indication of an intense heat. The flame extends beyond the openings *j*, *j*, and even passes through the same into the interior of the oven, and the air which passes up through the annular space between the cylinders A and *t*, must, of necessity, be brought in contact with the flame, and thus become thoroughly heated

before it can enter the oven. As the heated air from the oven passes down the passage *m* and up through the passage *n*, before it can escape, it will be evident, that but little loss of heat from radiation can take place. In fact, the exterior casing of the oven is, by this arrangement, maintained at a comparatively low temperature, while the interior of the oven is hot enough for all cooking purposes.

I claim and desire to secure by Letters Patent—

1. The inverted cone *c*, when arranged within and in respect to the hollow cylinder A, and connected to the gas pipe B, substantially as and for the purpose herein set forth.

2. Extending the gauze disk *e* beyond the opening for the passage of the gas, and so arranging the overhanging portion of the said disk, that it shall be exposed to the air, as herein set forth and for the purpose specified.

3. The construction of the oven, consisting of the inverted box D, its opening *q* and lining E, and the inner cylinder *k*, the whole being arranged to form the intervening passages *m*, *n* and *p*, for the purpose set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS SHAW.

Witnesses:

HENRY HOWSON,
HENRY ODIORNE.