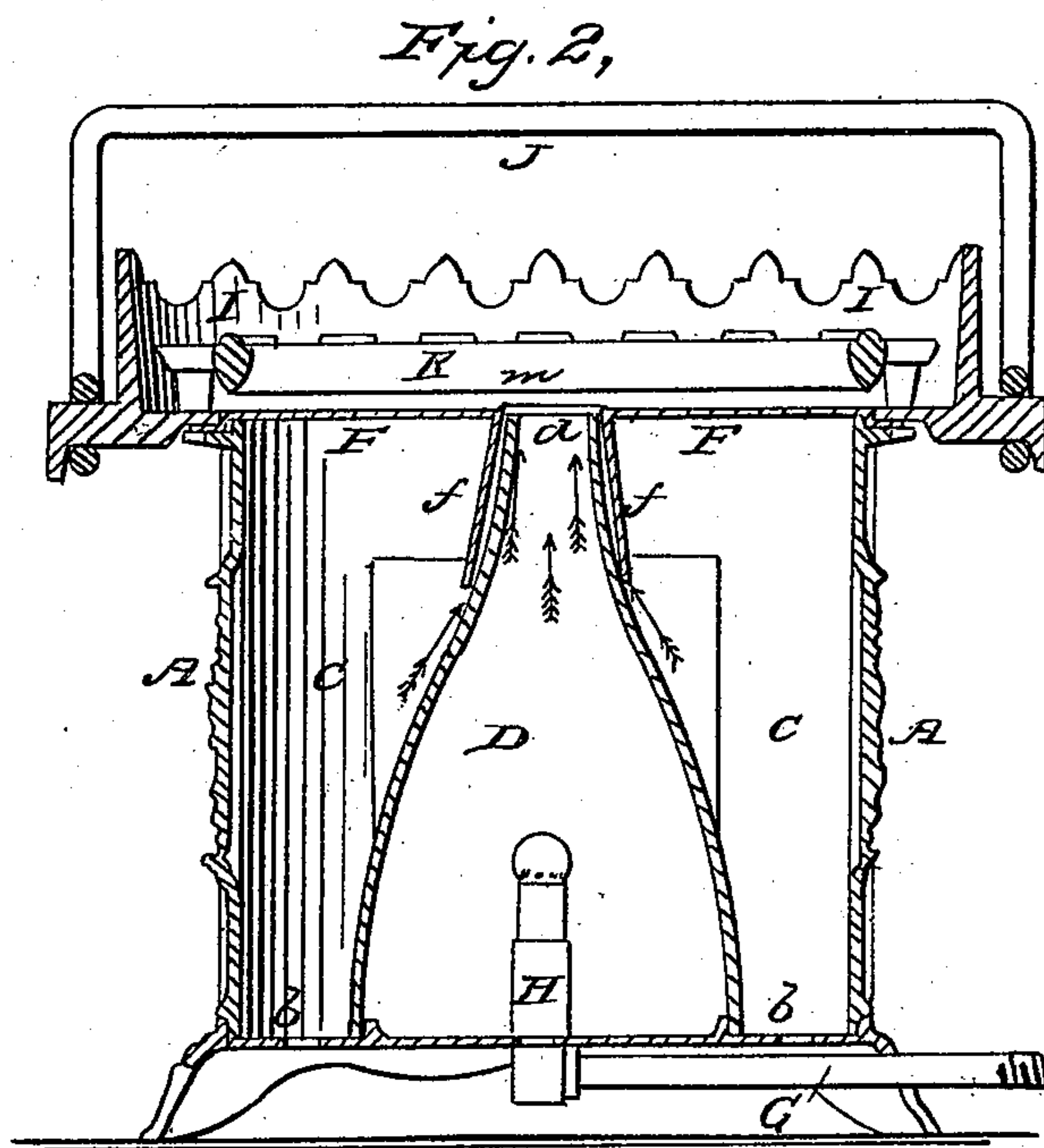
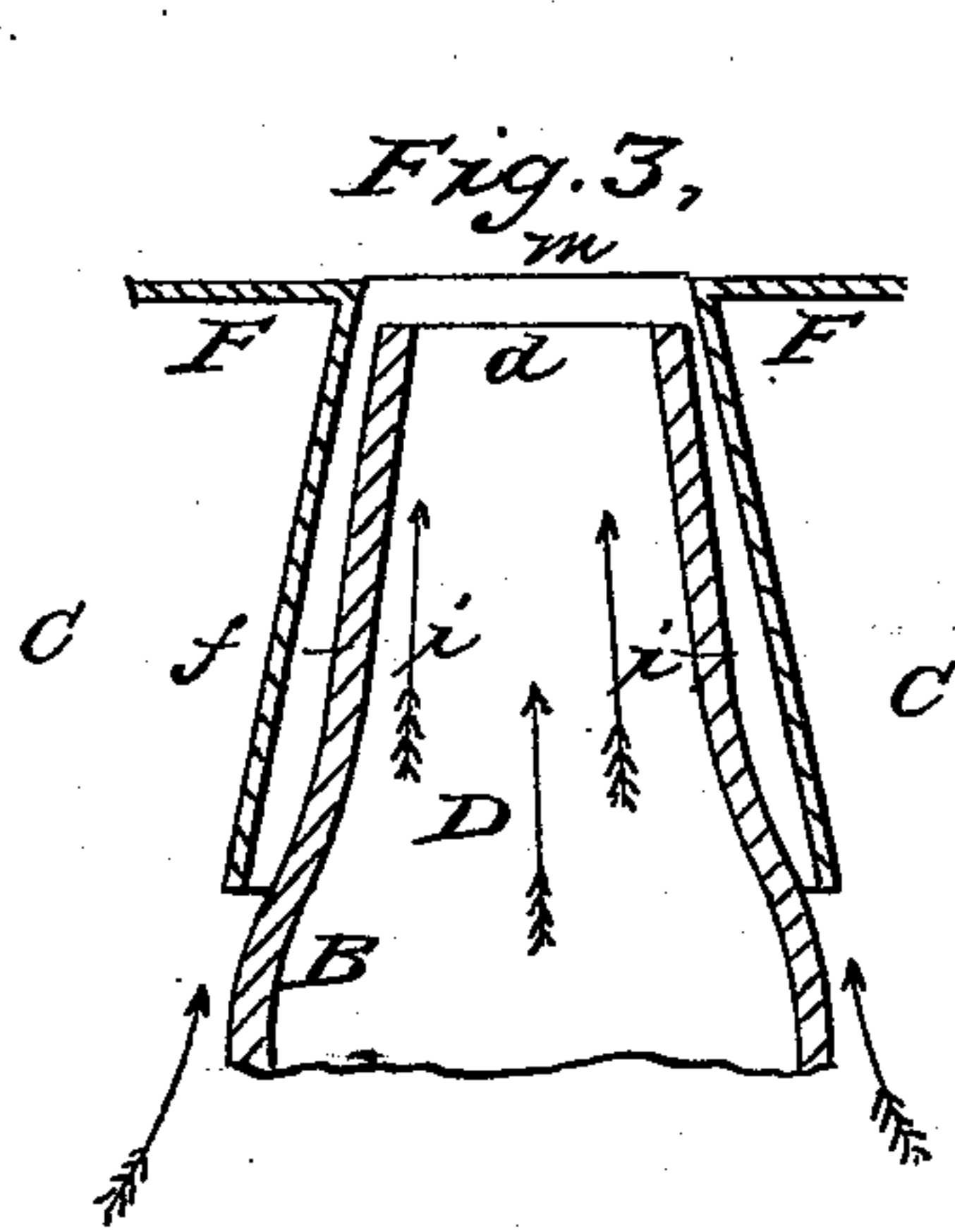
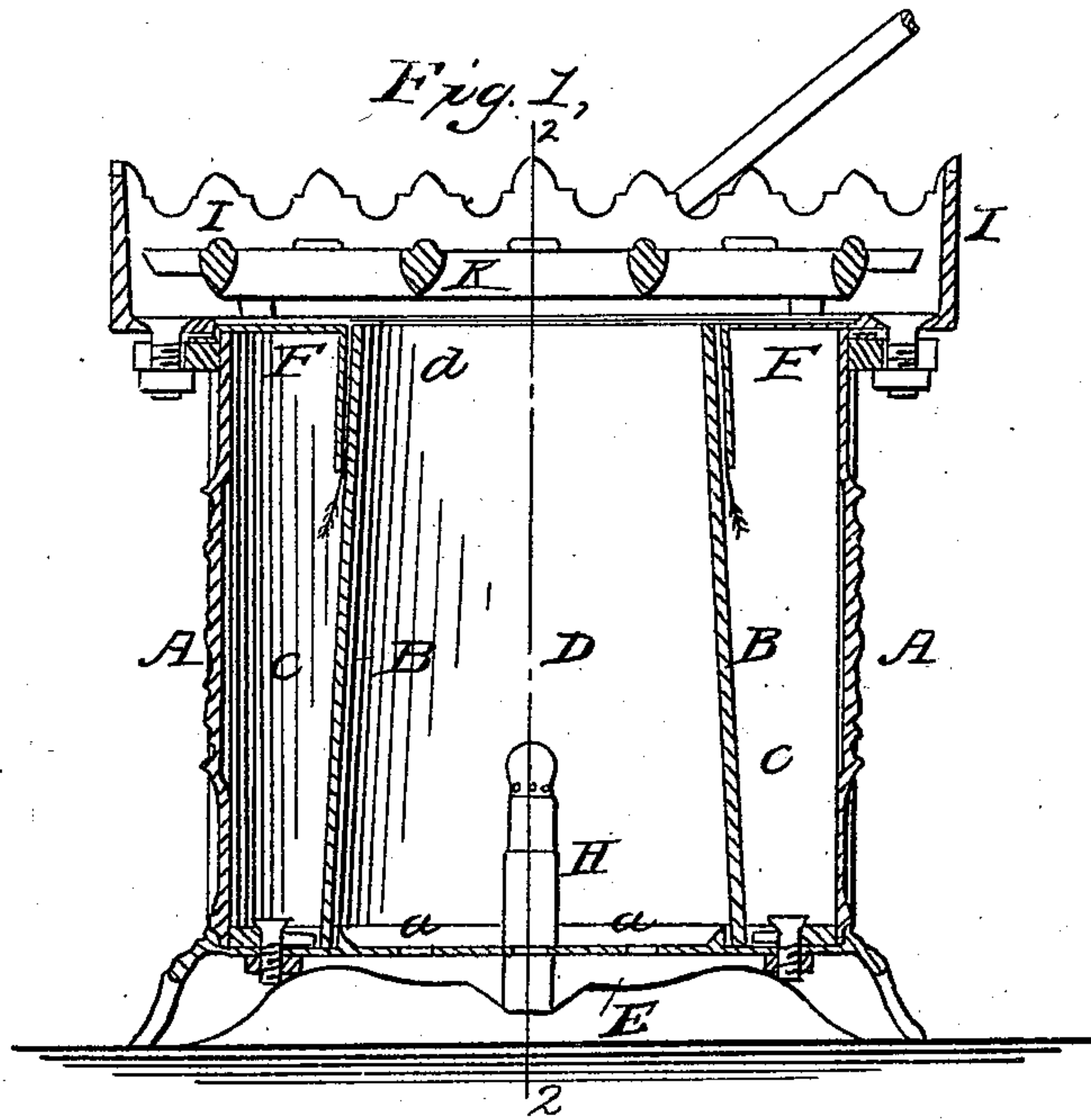


J. L. MAHAN.

Gas Stove.

No. 30,947.

Patented Dec. 18, 1860.



WITNESSES

*Henry Howden*

*Charles E. Foster*

INVENTOR

*J. L. Mahan*



# UNITED STATES PATENT OFFICE.

JOHN L. MAHAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO D. STUART AND R. PETERSON, OF SAME PLACE.

## GAS-STOVE.

Specification of Letters Patent No. 30,947, dated December 18, 1860.

*To all whom it may concern:*

Be it known that I, J. L. MAHAN, of Philadelphia, Pennsylvania, have invented certain new and useful Improvements in Gas-Burning Stoves; 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 thereon.

My invention relates to improvements in that class of stoves in which ordinary coal gas is used in place of the usual fuels; and my improvements consist of an inner gas chamber diminishing in size toward the top, a plain plate, a plate of wire gauze or its equivalent, a hot air passage, the plain plate forming a continuation of the gauze plate, and the whole being arranged in the manner described hereafter, for the purpose of producing a flame of intense heat, without creating the noxious vapors which emanate from gas burning stoves as hitherto constructed, and which are not only annoying but injurious to the health.

In order to enable others skilled in the art 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 vertical section of my improved gas burning stove. Fig. 2, a transverse vertical section on the line 1—2 Fig. 1; and Fig. 3, an enlarged sectional view of part of the stove.

Similar letters of reference allude to similar parts throughout the several views.

A is the exterior, and B the interior casing of the stove forming the two chambers C and D, and resting on the base E, which closes the two chambers at the bottom, with the exception of openings *a a* and *b b* in the said base, the former communicating with the chamber D and the latter with the chamber C. The opposite ends of the inner casing B are vertical, and the opposite sides curved, as seen in Fig. 2, so that the lower part of the chamber D shall be expanded and gradually diminish in size toward its mouth *d*.

F is a plate of sheet iron or other suitable material secured to the exterior casing A; and from this plate project the inclined flanges F, inclosing the upper end and approximating in form to the said upper end

of the inner casing B, there being a space *i* however between the flanges and the said casing, as best observed on reference to the enlarged views Fig. 3. In the plate F is an opening covered by a piece of wire gauze or a perforated plate *m*, which forms a continuation of the plate F, although very slightly elevated above the same, no air or gas being enabled to pass upward from the chambers below in any direction other than through the wire gauze, between which and the upper end of the inner casing is an intervening space for a purpose described hereafter.

G is a tube through which the gas passes to the tip H which occupies a central position within the expanded lower end of the chamber D, and which has lateral openings for the exit of the gas.

I is a cap secured to the upper edge of the exterior casing A and having projections for receiving a handle by means of which the stove is carried about, and K is a grating resting in the cap in such a manner as to be elevated above the plate F, and serving to receive the cooking utensils or other objects to be heated.

When the gas, passing through the wire gauze plate *m*, is ignited there is a tendency for the external air to rush through the openings *a a* into the chamber D, the air however is intercepted by the jets of gas passing laterally from the openings in the tip H, so that both gas and air must be thoroughly intermixed at a point in the chamber D where the enlargement of the chamber, affords ample room for this through intermixture, which is necessary for reducing the gas to the best state for producing a flame of intense heat. As the gas, thus prepared, for igniting, has to pass upward through a chamber gradually decreasing in size toward the mouth *d*, an impetus is given to it by the constantly accumulating gas and air in the lower expanded portion of the chamber, and consequently the gas passes through the wire gauze plate with an impetus which increases the intensity of the flame. The gas, although thoroughly intermixed with air is not yet in a condition for use owing to the noxious vapors which are produced when ignited, an evil experienced to such an extent with many of the gas burning stoves hitherto constructed that they have been for the



most part abandoned as being injurious to the health of the inmates of rooms in which they are used.

One of the main objects of this invention has been to remedy this evil. This is accomplished as follows: It has been remarked above that the wire gauze forms a continuation of the plate F which closes the top of the chamber C. This arrangement of the wire gauze in respect to the plate F tends to induce the flame to spread partly over and to lick the plain surface of the said plate, which has no perforations or other openings through which the air can pass to interfere with this tendency of the flame. The plate consequently becomes thoroughly heated, and imparts its heat to the air which has entered the chamber C through the openings *b b*, and as this heated air has no other exit than through the narrow space *i* between the flanges *f* of the plate F, and the inner casing B, it follows that a thin forcible stream of heated air will meet the gas on all sides of the mouth *d* as the said gas passes from the chamber D, and it is this stream of heated air which consumes the noxious vapors of the gas.

It will be evident that two or more chambers D and the necessary adjuncts may be arranged within an outer casing forming a hot air chamber, when a heating surface

more extended than that illustrated in the drawing, is required—and that the form of the exterior casing may be modified without interfering with the main features of my invention. 35

I wish it to be understood that I do not claim broadly mixing gas with air prior to discharging it through wire gauze, as a device for accomplishing this end is seen in the patent of Hiram Musgrave Jany 8th, 1856, and in other patents of more recent date, but, 40

I claim as my invention and desire to secure by Letters Patent— 45

The inner chamber D diminishing in size toward its mouth *d*, the outer chamber C, the plain plate F, the plate *m* of wire gauze or its equivalent, and the hot air passage *i*, when the said plain plate forms a continuation of the wire gauze, and when the whole of the above named parts are arranged in respect to each other, as, and for the purpose herein set forth. 50

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses. 55

J. L. MAHAN.

Witnesses:

HENRY HOWSON,  
JOHN WHITE.