

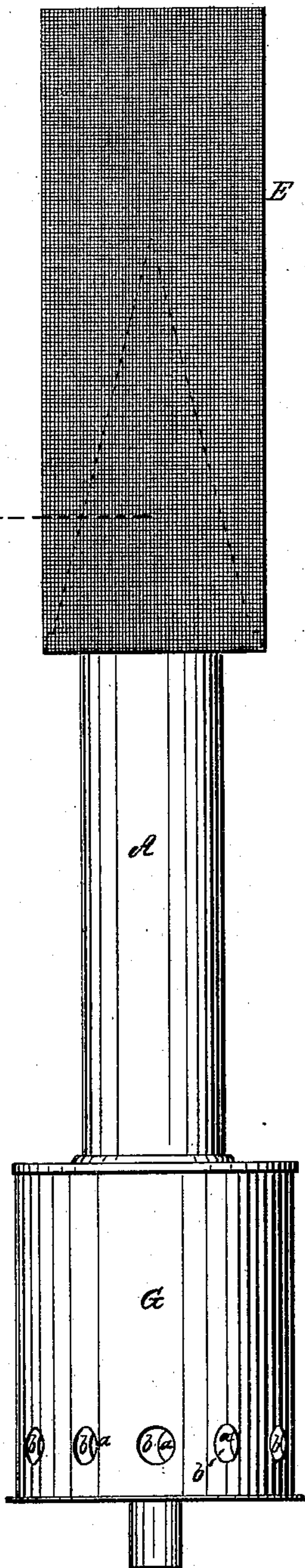
W. F. SHAW.

Vapor Stove.

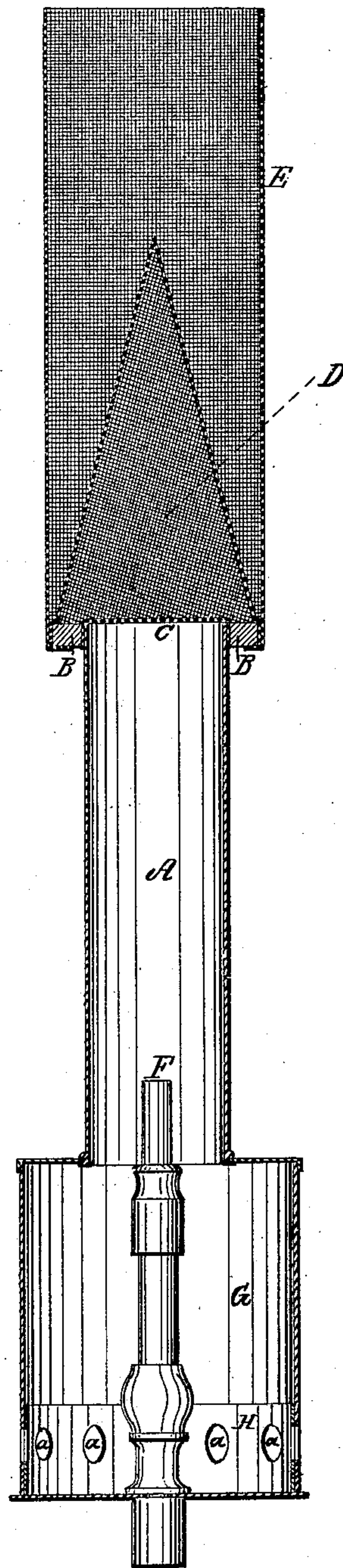
No. 14,414.

Patented March 11, 1856.

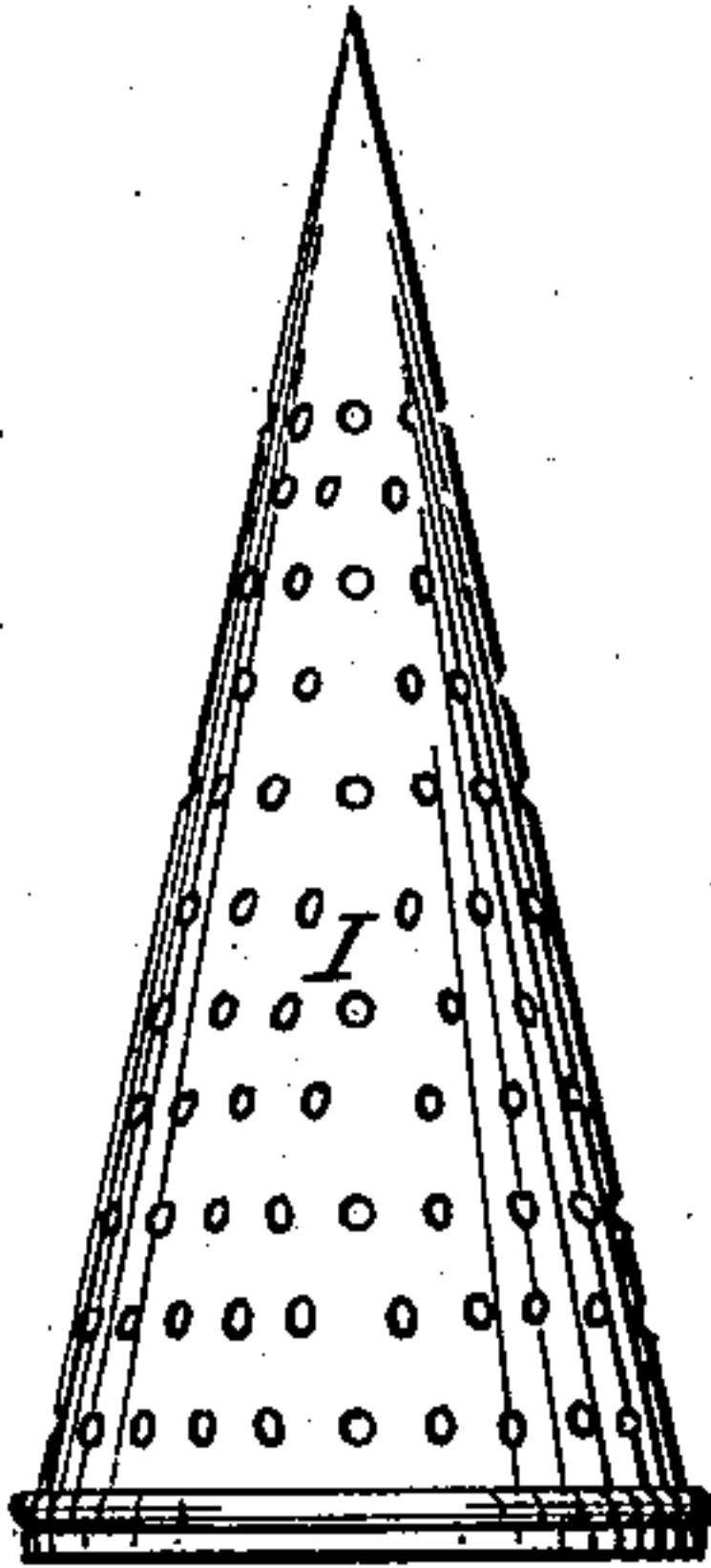
*Fig: 1.*



*Fig: 2.*



*Fig: 3.*





# UNITED STATES PATENT OFFICE.

WILLIAM F. SHAW, OF BOSTON, MASSACHUSETTS.

## APPARATUS FOR HEATING OR COOKING BY GAS.

Specification of Letters Patent No. 14,414, dated March 11, 1856.

*To all whom it may concern:*

Be it known that I, WILLIAM F. SHAW, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Burner for Burning Mixtures of Atmospheric Air and Inflammable Gases or Vapors; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 represents an elevation; Fig. 2, a central vertical section, and Fig. 3 represents an auxiliary cone which may be advantageously used, for certain purposes.

The nature of my invention consists in the application, of a cone or dome, formed of wire gauze, or pierced metal, to a wire gauze gas burner, for burning mixed gases and air, as will be described.

I have found that, if the wire gauze surface of a gas heater be horizontally extended, unburned and partially burned gases escape with the products of the combustion of the remaining gas. And, as in applying the heat produced to culinary operations, the odor of the not fully consumed gas, is imparted to the food, and vitiates the air of the apartment, I have been led to make the improvement which is herein claimed.

Taking the ordinary gauze covered cylinder, either narrow or wide, I place on it a cone, or hemisphere of wire gauze, lighting the escaping gas on the outside of the gauze cone, by which arrangement I obtain a greatly increased surface for the combustion of the gas issuing, and have the general form of the outline of a sandle-flame; while the mixed gases divided by one mesh of gauze into cylindrical jets, escape from the gauze cone, or gauze dome, also in pencils, ready for instant combustion. At a small distance from this cone burner, I place a plain cylinder of wire gauze, which closed at the bottom, permits the air at a high temperature necessary for the complete combustion of the mixed gas, to enter in the form of minute cylinders, and burn the mixed gas without the slightest odor. This perfect combustion of the mixture of air and inflammable gas, or gas charged with vapors, being essential I am by this device enabled to economically obtain all the resulting heat.

To enable others skilled in the art to make and use my invention I will proceed to describe the same with reference to the drawings.

On a tube A, of any required diameter, and about three diameters in length, I clasp on by a ferrule B, Fig. 2, a disk C, of wire gauze horizontally, over the open end of said tube. On this ferrule, the gauze cone D is locked by folding it over or under as seen in Fig. 2. By this arrangement the cone can be easily removed or its parts restored. My cones are made about two and a half diameters high, and I use wire gauze of about 32 openings to the linear inch, or pierced metal with about 20 openings to the linear inch. Domes may be attached to the gauze covered cylinder A in the same way, but as the extension of surface is, in the dome, attended by some nearly vertical openings, I prefer the conical form. Another reason for preferring the cone, is, that any fluid dropping on it from food, or cold surfaces condensing vapor, runs down without penetrating especially if the cone be formed of pierced metal. Outside of the cone D, is attached by friction or otherwise, a wire gauze cylinder E, shutting closely on the cone at the bottom, and extending above the apex of the cone, said cylinder having about 32 spaces or openings in the linear inch, through which the atmospheric air in minute jets enters to burn the mixed gases without allowing any portions to escape.

It will be seen that in this improved form of burner, the gas escaping at the base of the cone through the gauze, is met by the jets of atmospheric air at the moment, and as more gas escapes at the base, the shortness of entering air, is favorable to combination. A gradation of action takes place in this form precisely as occurs in the flame of a candle.

F, represents the burner, or gas issue. It is surrounded by a cylinder G perforated at its base, and within the cylinder G, is another cylinder H, having openings *a*, in it, to fit over those *b*, in the outer cylinder—the two cylinders with their openings forming a register, for the admission of atmospheric air, in regulated quantities.

I, Fig. 3, represents another cone, having fewer but larger, perforations in it. This cone may be advantageously used over the finer cone D, when heavy cooking or heating is to be done, and it also shields the finer cone from drippings of any kind. I have described but a single burner. They may be arranged in any numbers, and inclosed in a stove or heater as may be desired.

Having thus fully described the nature of

my invention I would state that I am aware that perforated cones have been used for admitting atmospheric air to ordinary fuel for promoting combustion. This I do not  
5 claim; but

What I claim herein as new and desire to secure by Letters Patent is—

The application of a cone, or dome,  
10 an ordinary wire gauze gas burner for burn-

ing mixed gases and air, in combination with an outer cylinder of wire gauze, or pierced metal, for the supply of atmospheric air divided into jets, substantially as herein described.

WM. F. SHAW.

Witnesses:

A. B. STOUGHTON,

THOS. H. UPPERMAN.