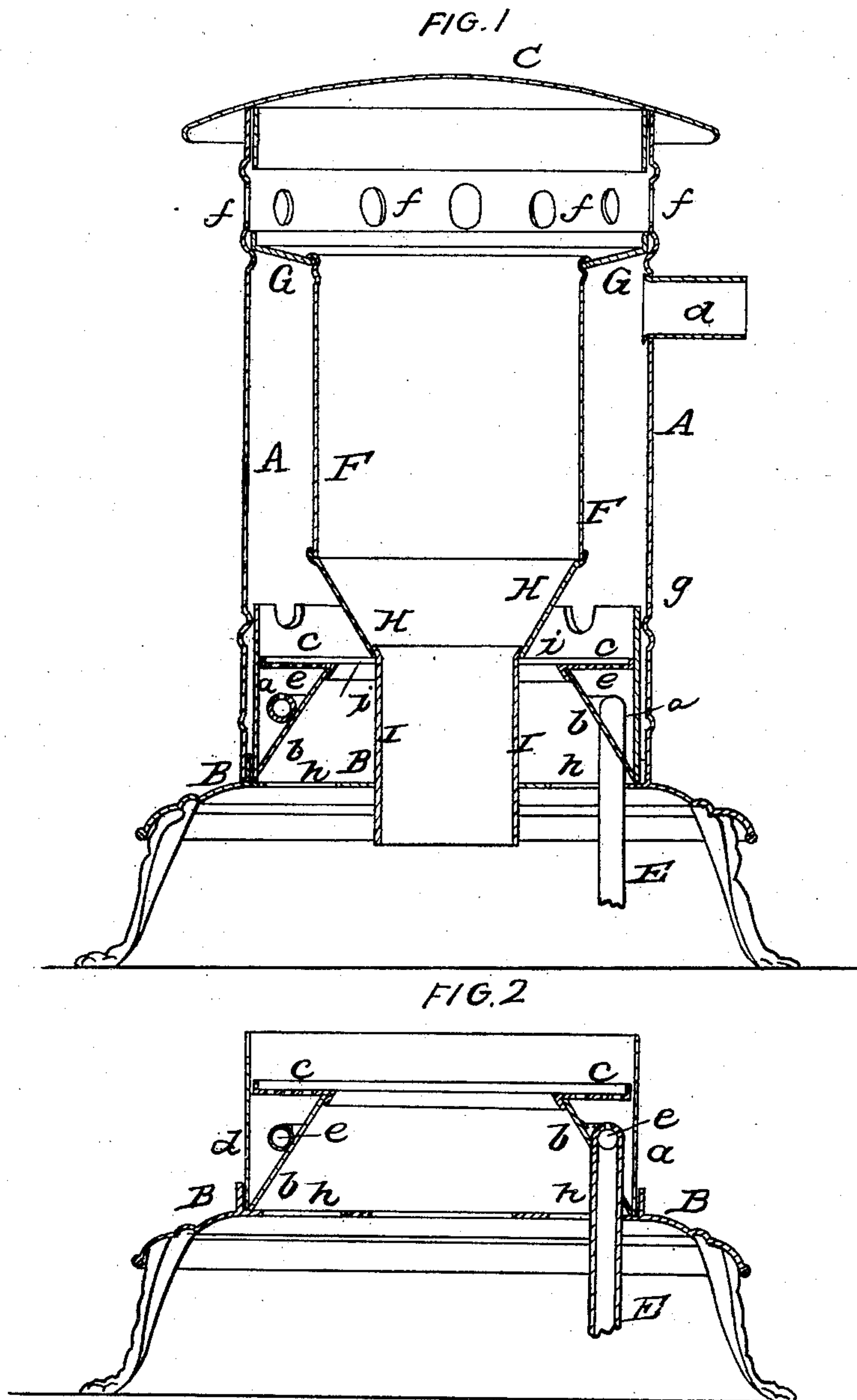


E. A. LELAND.

Gas Stove.

No. 27,595.

Patented March 20, 1860.



WITNESSES
Charles Duntton
James Greig

INVENTOR
E. A. Leland.

UNITED STATES PATENT OFFICE.

E. A. LELAND, OF JACKSONVILLE, ILLINOIS, ASSIGNOR TO HIMSELF AND STEPHENSON & TOMKINS, OF SAME PLACE.

IMPROVEMENT IN GAS-STOVES.

Specification forming part of Letters Patent No. 27,595, dated March 20, 1860.

To all whom it may concern:

Be it known that I, E. A. LELAND, of Jacksonville, in the county of Morgan and State of Illinois, have invented a new and useful Improvement in Air-Heating Gas-Stoves; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical section of a stove constructed according to my invention. Fig. 2 is a central section of the base of the stove and the gas-box.

Similar letters of reference indicate corresponding parts in both figures.

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

A is an upright cylinder, with an open base B and a close top C, constituting the body of the stove.

a b c is what I call the "gas-box," of annular form, surrounding the lower part of the interior of the cylinder, said box being composed of an outer cylinder *a*, an inner hollow frustum of a cone *b*, and a perforated top plate *c*, the outer cylinder and inner cone being united at their lower edges and connected at their upper edges by the plate *c*, which constitutes a grate or fire-bed.

E is the gas-pipe entering the gas-box through the cone *b* and terminating in a ring *e*, which is perforated to admit the gas all round the box.

F is a hollow cylinder somewhat smaller than the cylinder A, arranged within and concentric with it. This cylinder has its upper end connected with A, not far from the top of the latter, by means of a nearly-flat annular plate G, and has attached to its lower end a hollow inverted frustum of a cone H, from which there descends a cylindrical tube I, which passes through the base B and is open throughout. The bottom of the cone H is arranged nearly opposite to the top of the cone *b*, and the cones are respectively of such size at these parts that a contracted throat is formed between them, as shown at *ii* in Fig. 1. Below the plate G there is an opening in the cylinder A, to which is connected the pipe

d for conveying away the products of combustion to a chimney to the exterior of the building, and above the said plate G there are numerous openings *f f*, through which the heated pure air issues. A little above the gas-box there is an opening *g* in the cylinder A for the introduction of a lighted match to light the gas.

The operation of the stove is as follows: The gas, being turned on at the pipe E, issues from the ring *e* and keeps the box *a b c* constantly full, and issues from the said box in numerous small jets through the perforations in the grate or bed *c*. When a light is applied at the hole *g*, the gas takes fire upon the grate or bed *c*, where its combustion is kept up by a copious supply of air admitted through the openings *h h* in the base B. The air thus admitted is directed by the cone *b* against the cone H, which deflects it over the surface of the grate *c* in such a manner as to meet the gas issuing from the perforations thereof and produce a very perfect combustion. The hot products of combustion, circulating within the space between the cylinder A and the cylinder F and cone H on their way to the chimney, heat both cylinders, as well as the cone H and plate G, and a constant upward current of air is induced through the tube I, cone H, and cylinder F into the upper part of the cylinder A, and heated by contact with the inner surfaces of I, H, and F and the upper surface of the plate G, and delivered in a pure state, free from any of the gases of combustion, at the holes *f f*. The cylinder A also heats the surrounding air by radiation.

It will be observed that the gas-chamber *a b c*, supply-pipe E, and base B are connected together, and that the cylinder A rests within a cup or circular flange upon the upper part of the base B, said cylinder A being, with its contained parts F H I, readily detachable from the base B. When thus separated, the base B and its attached parts form a gas cooking-stove, upon which meats and other articles may be treated in any desired manner. It will also be observed that the cylinder *a* (which forms one side of the gas-chamber *a b c*) rises above the level of the perforated plate *c*, and thereby protects the cylinder A from the direct effects of the flame

produced by the burning gas. The cone H would have a tendency to drive the flame over against the cylinder A and cause it soon to be burned through and destroyed; but this difficulty is overcome by having the cylinder *a* made to rise above the level of the plate *c*, as shown.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with the base B and cylinder A, of the gas-box *a b c* and supply-pipe E, as herein shown and described, so that the device may be used as a cooking or air-heating stove, at pleasure, all as set forth.

E. A. LELAND.

Witnesses:

CHARLES DAULTON,

JAMES GREGG.