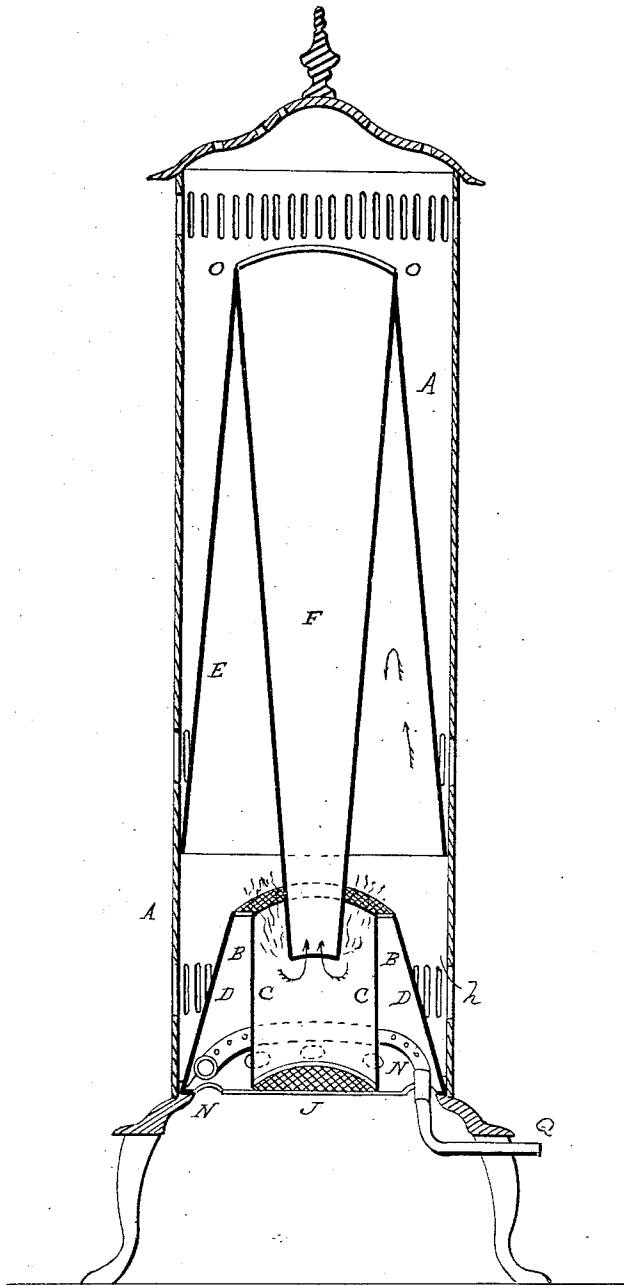


PENNIE & LELAND.

Gas Stove.

No. 56,677.

Patented July 24, 1866.



WITNESSES:

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INVENTOR.

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HENRY PENNIE AND E. A. LELAND, OF NEW YORK, N. Y.; SAID LELAND
ASSIGNOR TO SAID PENNIE.

GAS-STOVE.

Specification forming part of Letters Patent No. 56,677, dated July 24, 1866.

To all whom it may concern:

Be it known that we, HENRY PENNIE and EDWIN A. LELAND, of the State, county, and city of New York, have invented certain new and useful Improvements in Gas-Stoves; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

In the construction of gas-stoves, in the present state of the art, a burner is employed known as the "air and gas burner," consisting of a chamber into which, beneath a perforated cover, the air and gas is admitted and mixed previous to being ignited and burned on the outside of such perforated cover.

The object of our invention is to obtain or produce a consumption of the products of combustion incident to the flame of the burner that shall be approximately perfect, thereby removing the disagreeable and injurious odors and rendering the use of a chimney or flue entirely unnecessary. Heretofore this has been attempted by the use of two sets of burners arranged in different locations within the stove, the first to give heat and the second to consume the products of combustion of the first, those of the second being left unprovided for.

The nature of our invention consists in the employment of a single burner or set of burners so constructed and arranged, in connection with suitable chambers and passages for the admission and direction of the air, gas, and of the volatile products of such burner, substantially as herein described, as that such burner or burners, having a common location within the stove, shall themselves consume the products of combustion that are incident to their own flame.

To enable others skilled in the art to make and use our invention, we will proceed to describe the construction, arrangement, and operation thereof.

Referring to the drawing annexed, A is the outer cylinder of the stove. B is the air and gas burner, consisting of an annular chamber formed of two short cylinders, C D, with the space between them closed above by the usual wire-gauze or finely-perforated sheet metal employed on such burners, and below by a

bottom having the customary large apertures N, through one of which the gas is led into the chamber by a pipe, Q, while the air is admitted free through the others.

The cylinder D is connected below with the outer cylinder, A. Air is admitted through the apertures *h* to support the flame and create the draft, and the cylinder C is closed below by a bottom provided with comparatively fine perforations.

Above the burner are two cylinders, E F, each having the form of a truncated cone; and one of these, E, has its base united with the outer cylinder, A, of the stove, while the other, F, which is longer, is inverted and has its base united with the top of cylinder E at the point *o*; but the smaller end of cone or cylinder F extends down into the short cylinder C.

The operation of the stove is as follows: The gas being turned on, the burner is lighted. The excess of air admitted at *h* over that which enters at *h'* causes the flame of the burner to draw downward, and this has the effect of heating the lower end of the cylinder F to a red heat, here being the only opening of egress for the draft. The products of the flame of the burner rise into the chamber above formed of the two conical cylinders E F, and, unable to escape at the top, they pass downward again and over the flame which produced them, and are consumed, partly by the flame itself and partly by being brought in contact with the inner and outer red-hot surfaces of the cylinder F, as aforesaid, and also by means of the admission of the additional and fresh supply of air entering through the fine perforations at *j*, thus leaving nothing to escape through said cylinder F (the only egress) except the pure and simple heat generated by the burner, intense and entirely inodorous.

In the above-described invention we do not wish to be understood as confining ourselves to the specific construction and arrangement of parts, but shall always, however, retain the essential features which characterize our invention and distinguish it from others.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The burner or burners located within the stove, and burning air and gas, in combination

with the openings *h* for the admission of air to support the flame and produce the draft, and with a chamber above the burner, constructed and arranged substantially as described, by which combination and arrangement the flame is carried downward and toward the opening of egress, as set forth.

2. In combination with the burner, the openings *h* for draft, and the chamber above, substantially as specified, the employment of the very small apertures *j*, arranged, essentially as set forth, for the purpose of admitting a

comparatively small amount of air to mix with the volatile products of the flame and assist the consumption of such products as they are carried downward and over the flame, by which the burner is made use of to consume its own products of combustion, substantially as described.

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