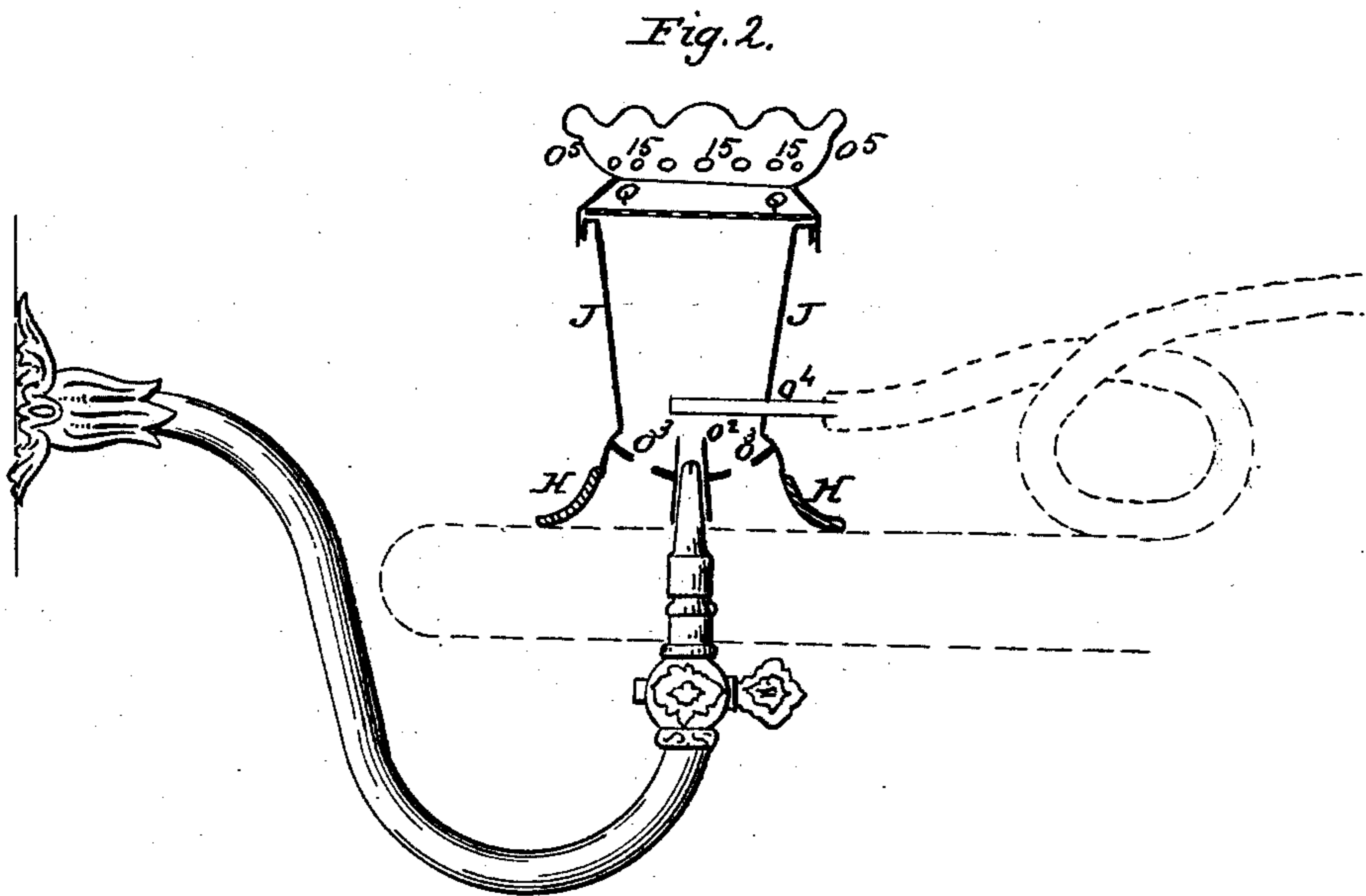
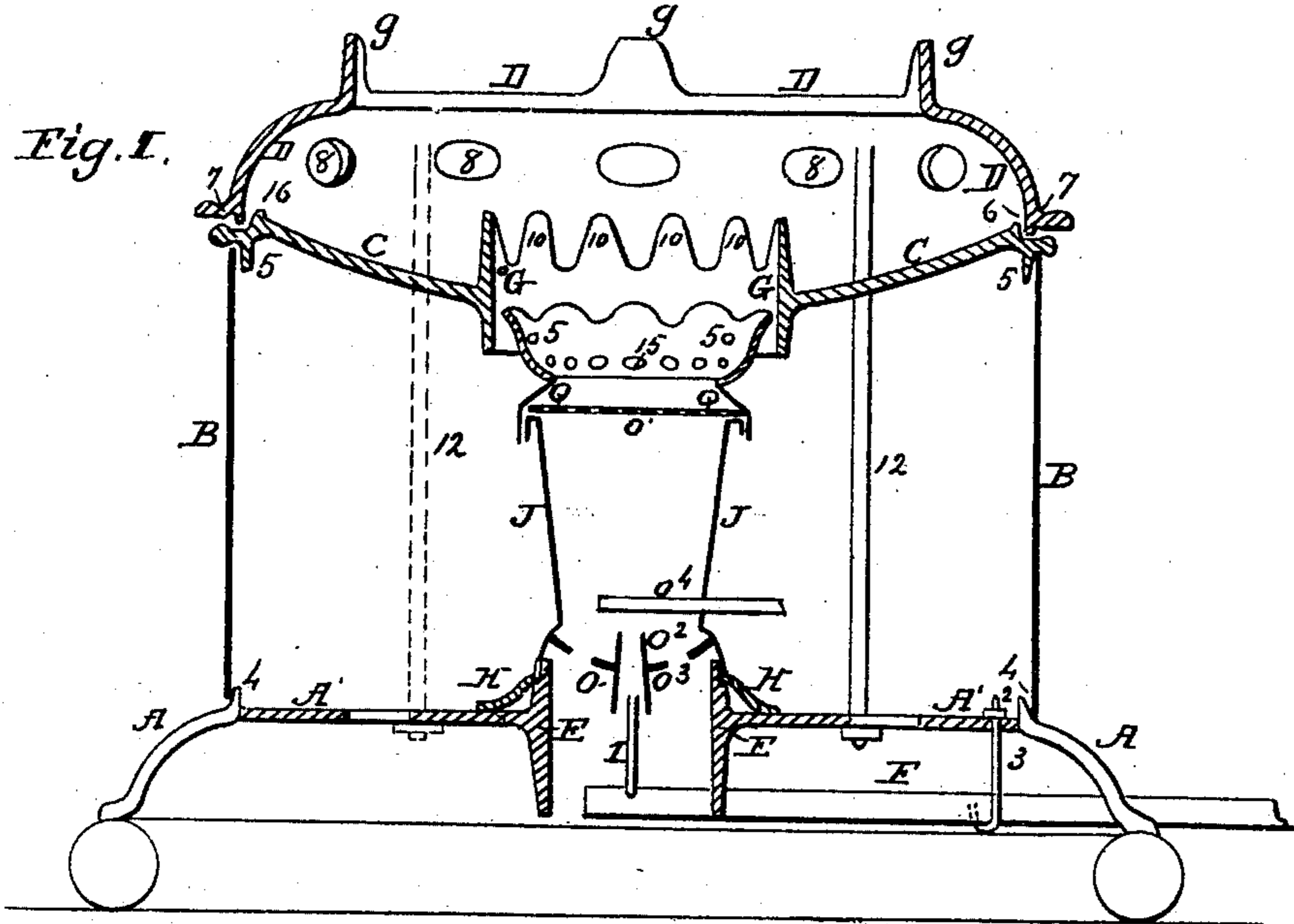


S. T. McDOUGALL.

Gas Stove.

No. 35,769.

Patented July 1, 1862.



Witnesses:

Clinton Roosevelt
Henry Smith

Inventor:

S. T. McDougall

UNITED STATES PATENT OFFICE.

S. T. McDOUGALL, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN GAS-STOVES.

Specification forming part of Letters Patent No. 35,769, dated July 1, 1862.

To all whom it may concern:

Be it known that I, S. T. McDOUGALL, of the city of Brooklyn, Kings county, and State of New York, have invented certain Improvements in 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, which form part of this specification, in which the stove and its parts are represented at half the usual size, and wherein—

Figure 1 is a sectional view of the stove complete, with the burner; and Fig. 2 shows the modes of using the burner separately.

My said invention relates to gas-stoves in which the gas is mixed with atmospheric air in a small chamber, commonly called a "burner," and distributed through a plate of wire-gauze or perforated metal, on the outer surface of which plate the gas thus mixed is burned; and my invention has for its object the simplifying and cheapening of the stove, while improving the efficiency and enhancing the utility and durability.

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

In the drawings annexed, wherein the marks of reference correspond in all the figures, Fig. 1 is a sectional diagram of the stove, with its interior parts in place all ready for use. The stove proper is made up of the base A, wall or cylinder B, breast C, and top D. The base, breast, and top are of cast metal, usually iron, and the cylinder of sheet metal. The breast C and top D could be cast together in one piece. The base A has a perforated floor, A', in the center of which is a section of tube, E, cast therewith and projecting above and below said floor. Above a shoulder is formed on said tube to receive the burner J, and below the tube is slitted on one side to receive the supply-pipe F and maintain the same in the center of the tube E. Said pipe F is secured in its place by a hook and nut, 2 3.

The cylinder B is placed on the base A and held in position by a rim, 4. The breast F is placed on the cylinder and held in position by a rim, 5. The top D rests on the breast, and is held in its proper situation laterally by a rim, 6, on the upper side of said breast, and a rim, 7, on the under side of the top.

The breast aforesaid has the form of an an-

nular disk, with a short section of tube fixed in the central opening, and, like E, extending above and below the disk. Above it serves the office of a rest, to sustain such vessels or articles—flat-irons, for example—as are too small to rest on the top D, and below it reaches down sufficiently near the burner to admit and direct a current of air which rises through the perforations in the floor of the base, and, passing up around the outside of the burner, supplies the required oxygen to maintain the combustion.

A series of bolts, 12, passing through the plates A C D firmly secures and holds the parts A B C D together.

The burner employed in this stove may be of any form and construction adaptable thereto common to gas-stoves. It should be adapted in size of its lower end to the size of the tube E, over which it sits, and must be sufficiently small at the top or have such form as to permit the passage up from below between it and the inside of G of a free current of air. Said burner is, strictly speaking, a mixing-chamber for mixing atmospheric air with the gas, and thus charging it with an excess of oxygen before it reaches the flame, producing a perfect combustion and giving intense heat. With regard to form and construction, I prefer that of the burner J, consisting of a cylinder tapering toward the lower end, and having the top turned over and downward, as represented, receiving a cone-shaped cap, Q, fitted snugly thereto, and securing the perforated plate O' between said cap and the top of the cylinder. The bottom part of said cylinder is flared out and curved downward or otherwise shaped, so as to fit over the tube B. It has a vertical tube, O², fixed in a floor, O³, which has holes to let the air pass up, and has an auxiliary tube, O⁴, fixed in the side of said cylinder.

The cap Q performs an important office. The perforated plate, as generally used in gas-stoves, becomes heated to redness and in a very short time burns out, requiring renewal quite often. The use of said cap furnishes an orifice contracted to a less diameter than that of the said plate and removed a distance above it, and has the effect of raising the flame from off the plate, preserving said plate in a great degree from injury by heat, and hence greatly enhancing the durability thereof. The said cap has a cast-metal crown, O⁵, and the cylinder has a

similar base, H. To prevent undue heating of the latter, it is sometimes made of zinc or spelter. The apertures 15 in the crown serve a similar purpose by admitting air from below. The burner on which the cap is used is not confined to any specific form, nor is the form of the cap material, so long as the orifice, as aforesaid, is contracted and elevated sufficiently to produce the above effect, and the proportion of said orifice to and elevation from said surface (shown in the drawings) is that adapted to receive the supply of gas through an ordinary five or six foot Scotch-tip or bathing burner.

In Fig. 1 the stove is seen in order for use. The gas is admitted through the supply-pipe F and escapes through a tip, 1, (a simple aperture in the upper side of the tube will answer as well,) into the tube E, and up into the burner J. The air also enters the tube E from below and passes up into the burner and is there mixed with the gas, and escapes through the perforated plate O', on the upperside of which it is lighted and burned, producing a blue flame and giving intense heat. The combustion is supported by a current of air which enters the stove through the perforated floor A', and is drawn up around the burner through the space between it and the inside of the tube G.

The burner J is not permanently fastened to the stove, and may be removed and lifted out

by means of a bail, which at other times falls down out of the way. This bail is shown dotted in Fig. 1. When so removed, the said burner J may be placed on an ordinary gas-burner, the latter fitting into the tube O', as shown in full lines in Fig. 2. The dotted lines under the base of the burner J in that figure indicate a table on which the burner is adapted to be placed, if desired. In that case the auxiliary tube O' becomes of service, a flexible tube being placed over it leading to any gas-burner conveniently near. When the said burner J is used in stoves for heating purposes only, the crown O' is not required.

The above invention may be variously modified, while retaining all its essential principles.

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

1. The burner J, having a contracted top, Q, with tight joints between the sides of the burner and the circumference of the perforated plate O' when used for heating purposes, substantially as specified.

2. The above-described burner or its equivalent, in combination with a gas-stove composed of the base A, cylinder B, breast C, and top D, substantially as described.

S. T. McDOUGALL.

Witnesses:

CLINTON ROOSEVELT,

E. HARRY SMITH.