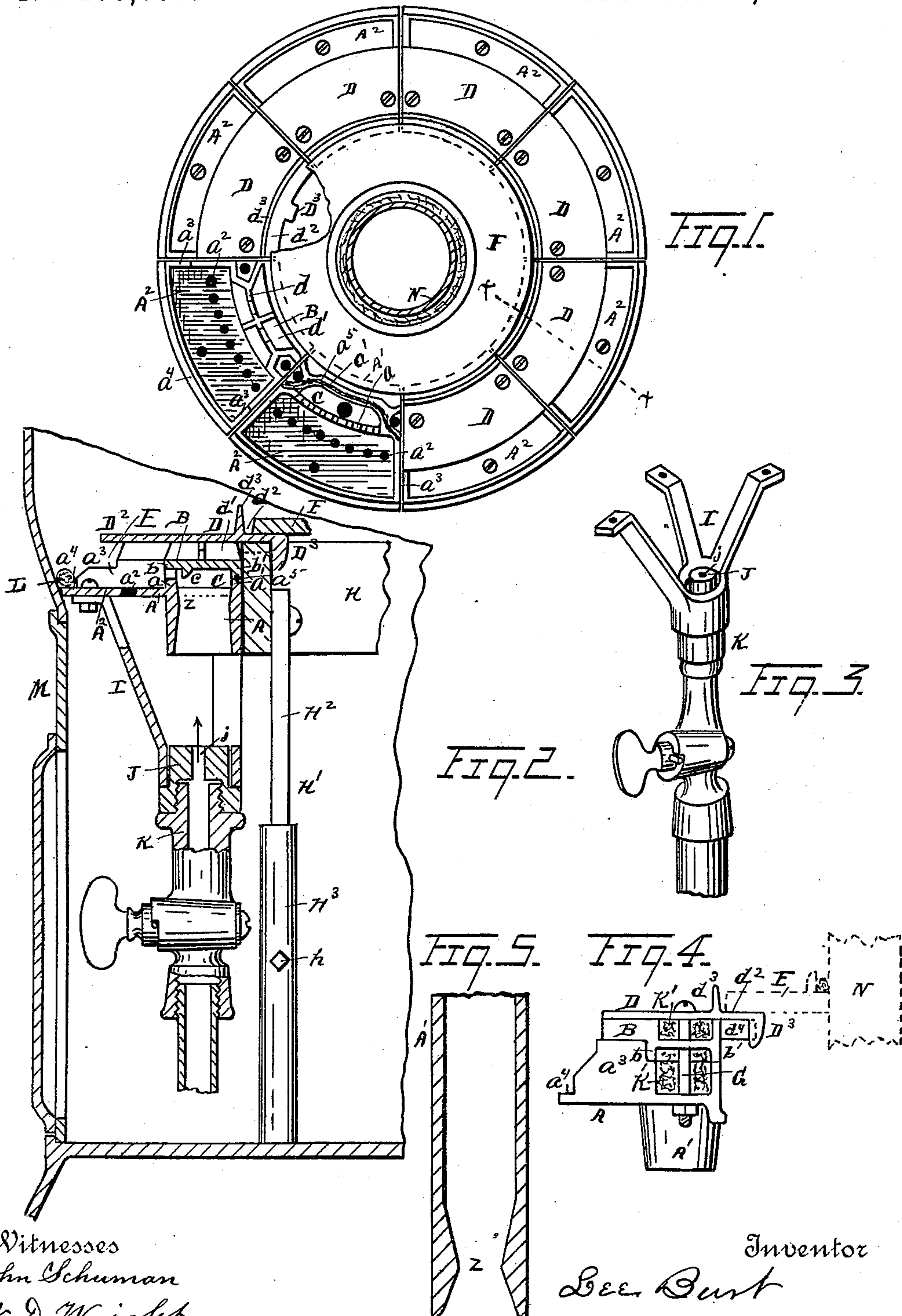


(No Model.)

L. BURT.
GAS BURNER.

No. 466,091.

Patented Dec. 29, 1891.



Witnesses
John Schuman
N. D. Wright.

By his Attorney

Newell S. Wright.

Inventor

Lee Burt

UNITED STATES PATENT OFFICE.

LEE BURT, OF DETROIT, MICHIGAN.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 466,091, dated December 29, 1891.

Application filed January 5, 1891. Serial No. 376,756. (No model.)

To all whom it may concern:

Be it known that I, LEE BURT, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Gas-Burners; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in gas-burners, the same being more particularly designed and adapted for heating purposes; and it consists of the construction, combinations, and arrangements of devices and appliances, hereinafter specified and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view embodying my invention. Fig. 2 is a vertical section on the line xx , Fig. 1. Fig. 3 is a separate view of the support for the jet-cap, showing a jet engaged therewith. Fig. 4 is an end view of one of the sections of my improved burner; Fig. 5, a detail view of the inlet-pipe A' .

I carry out my invention as follows: I contemplate constructing my improved burner of one or more sections, in which A represents a base-plate provided with an inlet-opening A' and preferably with upwardly-extended flanges a a' , one of which is recessed upon its upper edge. The inlet-opening A' may either be integral with the plate or be engaged therewith in any desired manner. It may also be of any desired length. I prefer, moreover, that the inlet shall be provided with a conical-shaped passage at its lower end, as shown more particularly in Fig. 5, to better concentrate and unite the gas and air admitted thereto. The said inlet is thus narrowed, as preferred, from the entrance at a desired point, as at z , Fig. 5. Beyond said point the inlet-passage may again be enlarged. By this construction any liability of the gas being drawn back to the gas-jet is obviated. The base is also constructed with an extended lip A^2 , perforated, as shown at a^2 , having

flanges a^3 projecting upward at its ends, and a sealing-groove a^4 upon its outer edge.

B denotes a cap provided with downwardly-projecting marginal flanges bb' , one of which is recessed on its under edge. The cap and the base-plate as so constructed form, when brought together, a mixing-chamber C .

D is a cover located over the cap and separated therefrom in any suitable manner, as by ribs d , forming an air space or chamber d' between the cap and said cover. This cover preferably projects forward beyond the cap, as shown at D^2 , forming between the said projection and the base-plate a reverberatory chamber E . One edge of said cover is preferably formed with a hook or analogous suspending device D^3 , providing a seat d^2 for a center plate F . There is a flange d^3 , forming a guide for the center plate and preventing the warping of the cover. The cap and the base-plate are preferably sealed at their adjacent rear edges, as at a^5 . It will be seen that the air space or chamber d' between the cap and the cover admits air into the reverberatory chamber E over the recesses or jets of the mixing-chamber C . The base-plate A , cap B , and cover D are united in any suitable manner, as by bolts G .

H denotes a ring upon which one or more sections, constructed as above described, are engaged, as by the hook D^3 , above mentioned.

The under surface of the cover is preferably provided with downward projected ribs d^4 to prevent the ring H from closing the chamber d' , so that it shall not stop the circulation of air therethrough. H' denotes any suitable supports or legs for said ring.

To facilitate raising the ring to any desired height, I prefer to make the legs extensible. Accordingly the legs may consist of parts H^2 H^3 , the one telescoping the other, a set-screw h serving to hold the parts in any desired adjustment. Engaged with the base-plate is a support I , forming a support for a jet-cap or nipple J . This jet-cap or nipple I prefer to have removably engaged in said support, so that any one of various sizes of caps may be interchangeably employed, according to the size of the gas-jet K , used in connection there-

with. The cap or nipple is screw-threaded to receive the gas-jet and perforated, as at *j*, for the passage of the gas therethrough. It will be observed by reference to Figs. 2 and 3 that the orifice *j* terminates at a distance below the entrance to the inlet-opening *A'*, allowing the air to freely mix with the gas while ascending from said orifice to said entrance. This construction and arrangement thus serves every purpose of a separate mixing device, as heretofore employed.

By means of the interchangeable cap or nipple I am able to use a smaller or larger gas-jet, as may be demanded, with different gases or differences of pressure.

I do not limit myself to any particular form of the individual burners so constructed, as they may be made arc-shaped or straight, or otherwise, as may be desired. When made arc-shaped, as shown, it is evident that a single burner may be employed for a given purpose, or a series of them may be located so as to form a continuous circle of burners, or two or more burners may be employed, separated from each other in a suitable manner. So, also, each individual burner may be fed by separate supply-pipes, or a series of them may be supplied from a manifold and arranged to be run independently or collectively. The jet-cap may be held in position in any suitable manner. The individual sections may have their respective reverberating-chambers sealed or closed at their ends. Upon the under side of the cap I locate a flange *c*, arranged to spread the mixed gas and air admitted into the chamber *C*, and prevent its immediate exit from said chamber wholly adjacent to its entrance thereinto. I prefer to unite the plate-cap and cover by bolts *G*, passed through ears external to the mixing-chamber, the intermediate spaces between said ears being filled with asbestos or other suitable packing, as shown at *K*.

L denotes the packing located in the packing-ring *a*⁴.

M is the wall of a furnace in which my improved burner is located.

In order to supply heated air to the burner, I lead through the region of combustion or through the combustion-chamber of a stove, furnace, or other device in which the burner is located, a hot-air flue *N*, opening beneath the top of the burner to supply heated air to aid combustion. Where a center plate *F* is employed said hot-air flue may be led therethrough, as shown in the drawings, although I do not confine myself thereto.

What I claim as my invention is—

1. The combination, in a gas-burner, of a base-plate having an extended perforated lip and an inlet-pipe secured thereto, said inlet-pipe contracted intermediate its ends, and a cap arranged over said inlet-pipe.

2. The combination, in a gas-burner, of a supporting-plate having an integral perforated sealing-lip, an integral inlet-pipe, and a cap supported above said inlet-pipe.

3. The combination, in a gas-burner, of a supporting-ring, inlet-pipes, caps supported above said inlet-pipes to form mixing-chambers therebetween, covers supported above said caps, means for securing said inlet-pipes, caps, and covers together, and means for securing them to the supporting-ring.

4. The combination, in a gas-burner, of a vertically adjustable supporting-ring, inlet-pipes, caps supported above said inlet-pipes to form mixing-chambers therebetween, covers supported above said caps, means for securing said inlet-pipes, caps, and covers together, and means for securing said cap to the supporting-ring.

5. The combination, in a gas-burner, of a supporting-ring, inlet-pipes, caps arranged above said inlet-pipes to form mixing-chambers therebetween, covers located above said caps and provided with hooks *D*³ to engage the supporting-ring, and bolts for securing the caps, covers, and pipes together.

6. The combination, in a gas-burner, of a supporting-plate having an inlet-pipe, a cap located above the inlet-pipe and spaced at one edge therefrom, a lip depending from said cap adjacent to the space between the cap and inlet-pipe, and a cover located above and spaced from the cap, said cover projecting forward of the cap.

7. The combination, with a base-plate provided with an inlet-pipe and constructed with an extended perforated lip *A*², of a cap located thereupon, forming a mixing-chamber, and a cover located above the cap forming an air-passage therebetween, said cover projecting forward of the cap, substantially as described.

8. The combination, in a gas-burner, of a base-plate provided with an inlet-opening and constructed with an extended perforated lip, a cap located above the plate forming a mixing-chamber therebetween, a cover located above the cap forming an air-passage therebetween, said plate and cover forming a reverberatory chamber communicating with the mixing-chamber and with said air-passage, substantially as described.

9. The combination, in a gas-burner, of a supporting-ring, a series of segmental perforated supporting-plates provided with extended sealing-lips, an inlet-pipe for each plate, a segmental cap located over each inlet-pipe, a segmental cover located over each cap and spaced therefrom and connected to said supporting-ring, said cover projecting forward of the cap, means for securing the plate, cap, and cover together, and a gas-supply pipe located beneath each inlet-pipe.

10. The combination, with a base-plate con-

structed with a projecting lip provided with a sealing-flange, of an inlet-pipe, a cap located over said plate forming a mixing-chamber therebetween, and a cover located over
5 said cap forming an air-passage therebetween, said cover constructed with a seat d^2 , substantially as and for the purpose described.

11. A gas-burner constructed with a base-

plate provided with an extended perforated sealing-lip, substantially as set forth. 10

In testimony whereof I sign this specification in the presence of two witnesses.

LEE BURT.

Witnesses:

N. S. WRIGHT,

JOHN F. MILLER.