

No. 765,509.

PATENTED JULY 19, 1904.

W. C. OBERWALDER.

GAS BURNER.

APPLICATION FILED APR. 14, 1904.

NO MODEL.

FIG. 1.

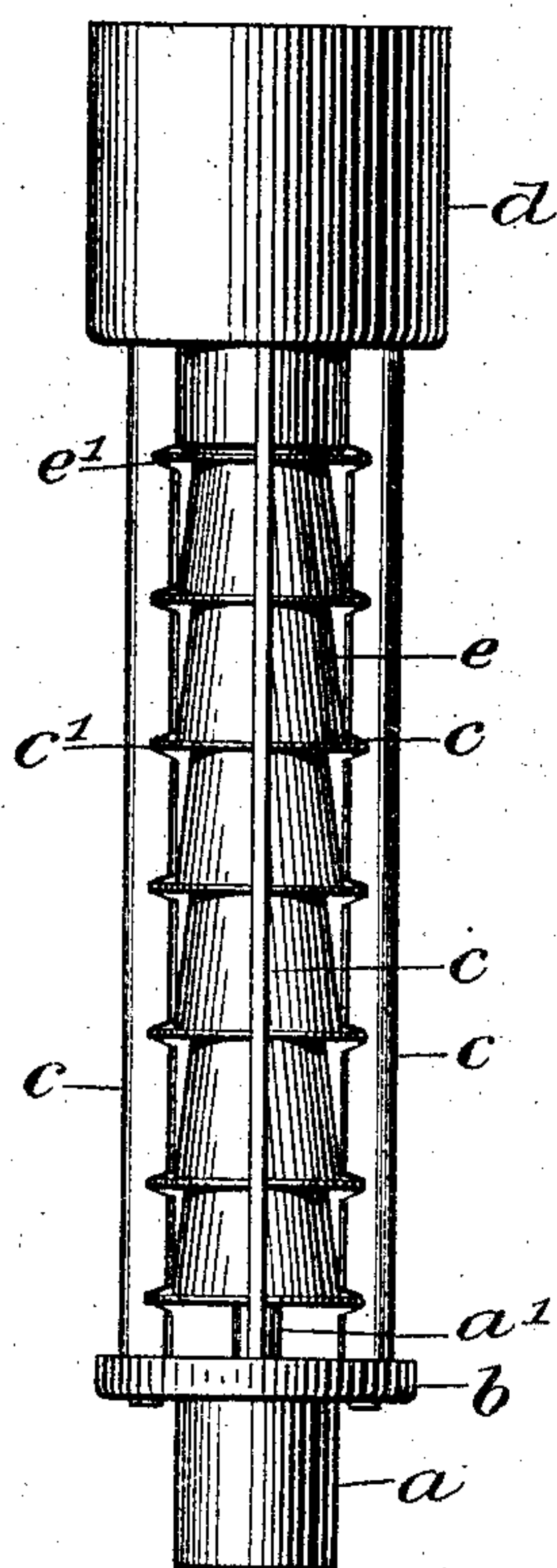
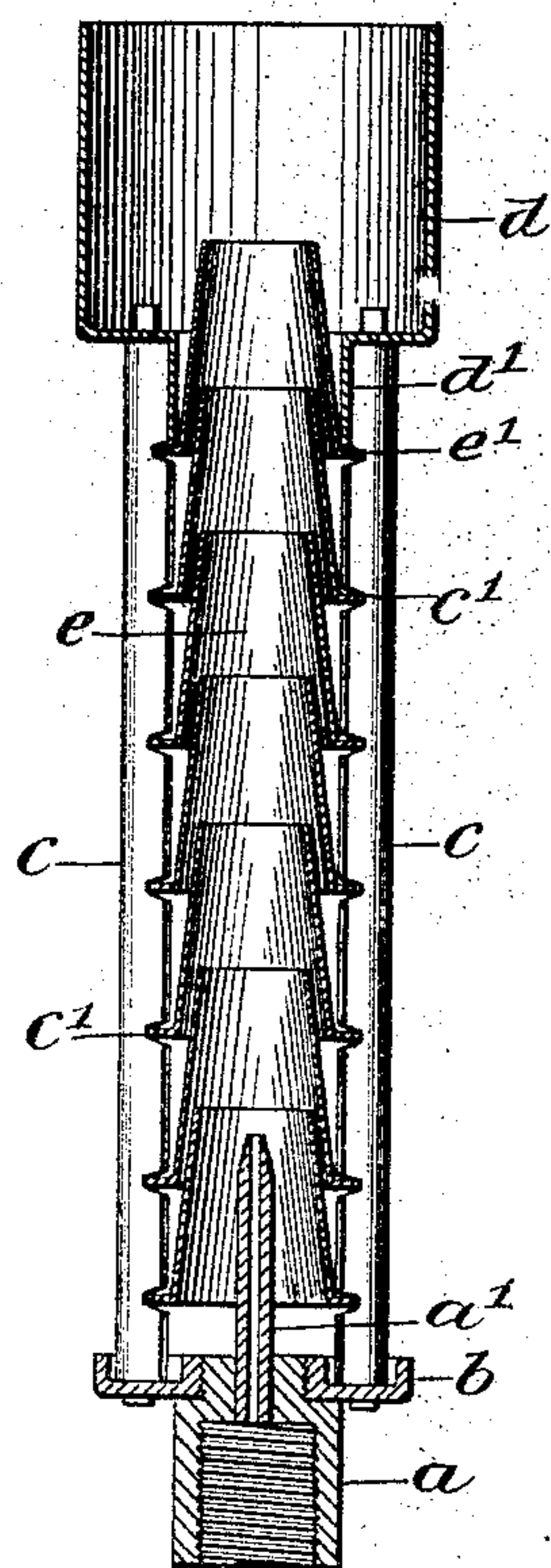


FIG. 2.



WITNESSES:

C. Munter

Laack Owens

INVENTOR

William C. Oberwalder

BY

Munster
ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM C. OBERWALDER, OF NEW YORK, N. Y.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 765,509, dated July 19, 1904.

Application filed April 14, 1904. Serial No. 203,127. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. OBERWALDER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Gas-Burner, of which the following is a full, clear, and exact description.

The prime object of this invention is to provide a gas-burner adaptable particularly to incandescent mantles and in which the mixture of air with the gas to produce a Bunsen flame will be uniform and automatically regulated, according to the pressure of the gas, and also a burner in which there will be no danger of back-flashing of the flame or of interference with the flame by currents of air.

According to the embodiment of the invention herein shown I attain this end by means constituting an unobstructed passage for the gas to the point of combustion and a plurality of relatively restricted passages leading from the atmosphere to the said gas-passage along lines inclining into the gas-passage in the direction of the flow of the gas, so that a thorough admixture of the air and gas is obtained, and as the gas-pressure increases it draws in a correspondingly-increased air volume, in this manner automatically regulating the air-supply in proper proportion to the gas-supply.

The invention resides in certain features of structure and organization, which will be fully set forth hereinafter and defined in the claims.

Referring to the accompanying drawings, which illustrate, as an example, the preferred embodiment of my invention and in which drawings like characters of reference indicate like parts in both views—

Figure 1 is a side elevation of the invention, and Fig. 2 is a longitudinal section thereof.

a indicates an internally and externally threaded nipple adapted to be connected with the gas-supply pipe and having a centrally-disposed reduced portion *a'*, constituting a gas-nozzle. Said nipple *a* screws or is otherwise fastened into an annulus *b*, to which are attached a number, preferably three, vertically-extending rods *c*, provided on their in-

ner sides with notches *c'*. At their upper ends the rods *c* are fastened to a burner member *d*, which, according to the present illustration, is cylindrical and formed with a reduced downwardly-extending portion *d'*, lying within the upper portions of the rods *c*.

Held by the rods *c* at points between the annulus *b* and the burner member *d* are a series of mixing-thimbles *e*. These thimbles, according to the form of the invention illustrated in the drawings, are frusto-conical in shape and are provided with peripheral flanges *e'* at their bases, which flanges are engaged in the notches *c'* of the rods *c* and by which means the thimbles *e* are held in the proper relative position. These thimbles have their reduced portions entered within the enlarged portions of the thimbles next contiguous and furnish by their opposing walls the aforesaid air-passages. The aforesaid gas-passage runs centrally through the thimbles in axial coincidence with the nozzle *a'*, and it will therefore be seen that the air-passages run into the central gas-passage at an angle inclining toward the gas-passage in the direction of the flow of the gas. By means of this structure as the gas is turned on it passes through the central passage to the burner, a member of which is illustrated at *d*, and at this point the gas is ignited and consumed. This current of gas draws in a number of air-currents through the air-passages formed by the thimbles *e*, and since these air-currents meet the gas-current at a number of points along the length of the latter a most intimate admixture of the air and gas is secured. It is also clear that as the gas-pressure increases an increased suction is exerted in the air-passages, resulting in an increased flow of air, while if the gas-pressure drops this suction in the air-passages is correspondingly reduced. It is in this manner that the burner automatically regulates the admixture of the air and gas, and owing to the plurality of air-passages provided at different points along the length of the gas-passage a most intimate admixture is obtained, notwithstanding variations in the volumes of the air and gas. It will also be observed that it is impossible for the flame to flash back into the gas-passage below the burner, since the

pressure of the gas and the drafts of air through the air-passages constitute a continually-active barrier to the propagation of flame in the gas-passage, these forces serving
 5 to beat back the flame and confine the same to its proper point. Owing to the length of the air-passages, currents of air striking the burner will not interfere with its proper operation, since these currents in moving
 10 through the air-passages will be before reaching the gas turned and caused to flow uniformly through the air-passages.

The device is especially useful in connection with incandescent-mantle gas-lights, in
 15 which use it insures an absolutely blue flame, and consequently brings the mantle to a higher state of incandescence than with the ordinary burner, and as is equally important it avoids smoking or blacking the mantle. I desire it
 20 to be understood, however, that my invention is not confined to this specific embodiment, and I also desire it understood that various departures may be made in the details of the burner without in any way departing from
 25 the essential principles of my invention as are set forth in the claims.

The construction described is considered highly advantageous for its simplicity and also for the reason that the said construction
 30 materially facilitates the removal and replacing of any particular thimble or nozzle without disturbing or removing all of the others. In order to remove a nozzle or thimble, it would only be necessary to detach one of the
 35 bars and displace several of the nozzles or thimbles adjacent to the one to be removed, telescoping the same until sufficient space would be produced to permit the removal suggested.

40 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A gas-burner comprising end members, a plurality of longitudinally-disposed bars, a plurality of thimbles, said bars having an irregularity at intervals along the length thereof constituting means for engaging said thimbles and supporting the same.
 45

2. A gas-burner comprising a plurality of conical thimbles discharging successively into
 50 each other, a plurality of bars engaging the peripheries of said thimbles to support the same and surrounding the said thimbles to

limit the lateral movement thereof, and end pieces to which said bars attach.

3. A gas-burner comprising end members, 55 a plurality of thimbles disposed therebetween and discharging successively into each other, a plurality of bars connecting said end members and making connections with said thimbles, said connections comprising recesses and 60 projections extending into the same.

4. A gas-burner comprising a plurality of longitudinally-disposed bars arranged about an axis, said bars having notches in their edges adjacent to said axis, end members to which 65 bars attach, and conical thimbles opening successively into each other and having radially-projecting members received in said notches.

5. A gas-burner comprising a cage formed of longitudinally-extending rods with connecting parts at their ends, and a plurality of frusto-conical thimbles, the bases of which have notches engaging with said rods of the cage, and the smaller ends of the thimbles being respectively nested into the larger ends of 75 the thimbles next adjacent, whereby to form a central longitudinal gas-passage and a plurality of air-passages leading into the gas-passage at different points along the length of the same and inclined toward the direction of 80 the flow of the gas.

6. A gas-burner comprising a cage formed of parallel rods with connecting members at their ends, said rods having notched inner surfaces, and a plurality of frusto-conical thimbles having annular flanges at their larger ends respectively engaged with the notches of the rods whereby to hold the thimbles nested together with their smaller ends respectively fitted within and spaced from the larger ends 90 of the thimbles next adjacent, and forming thereby a central longitudinal gas-passage and a plurality of air-passages leading into the gas-passage at different points along the length thereof and inclined toward the direction of 95 the flow of the gas.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM C. OBERWALDER.

Witnesses:

ISAAC B. OWENS,
 E. C. NIELSON.