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V. W. BLANCHARD.

GAS BURNER.

APPLICATION FILED JAN. 22, 1906.

Fig. 1.

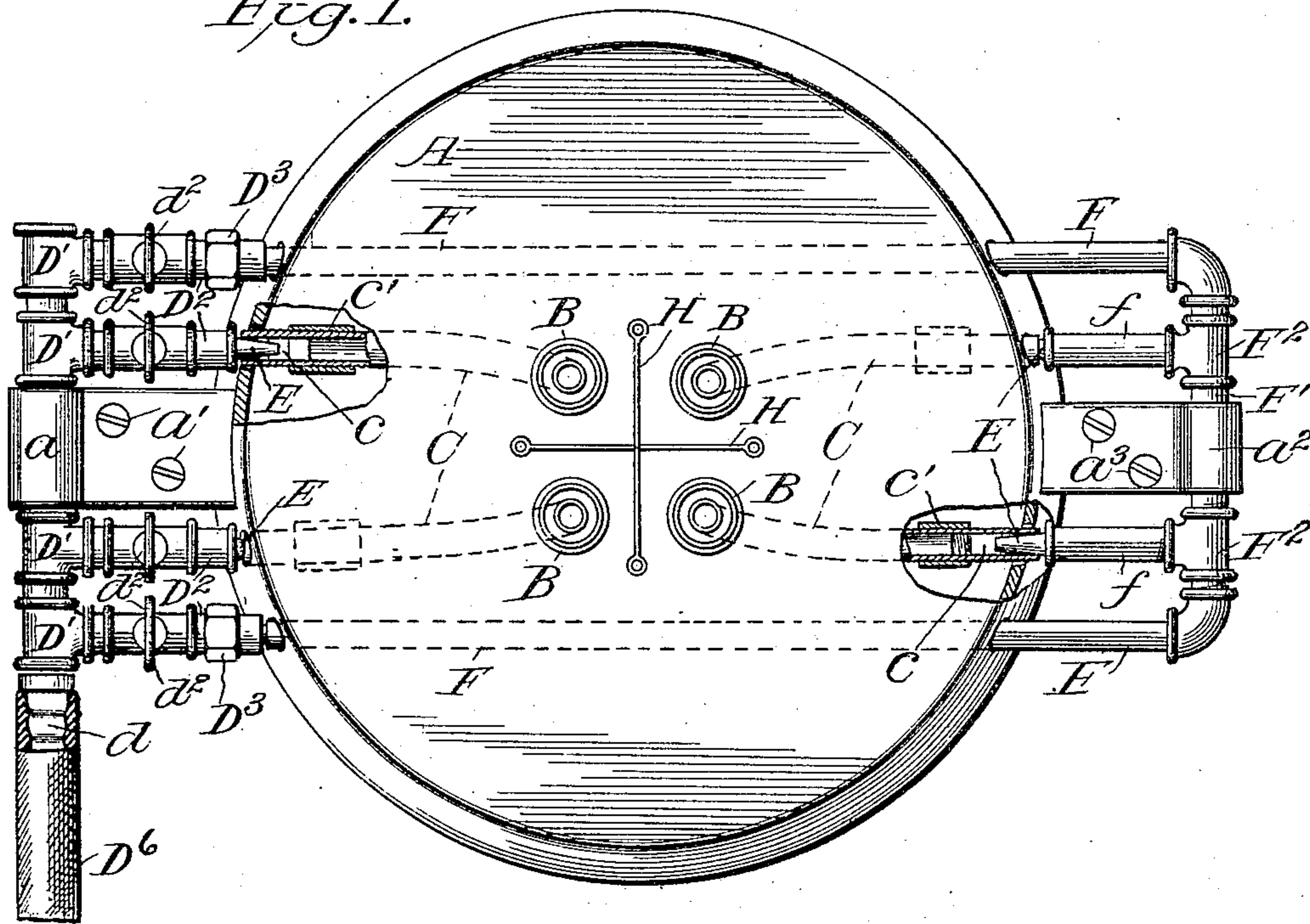
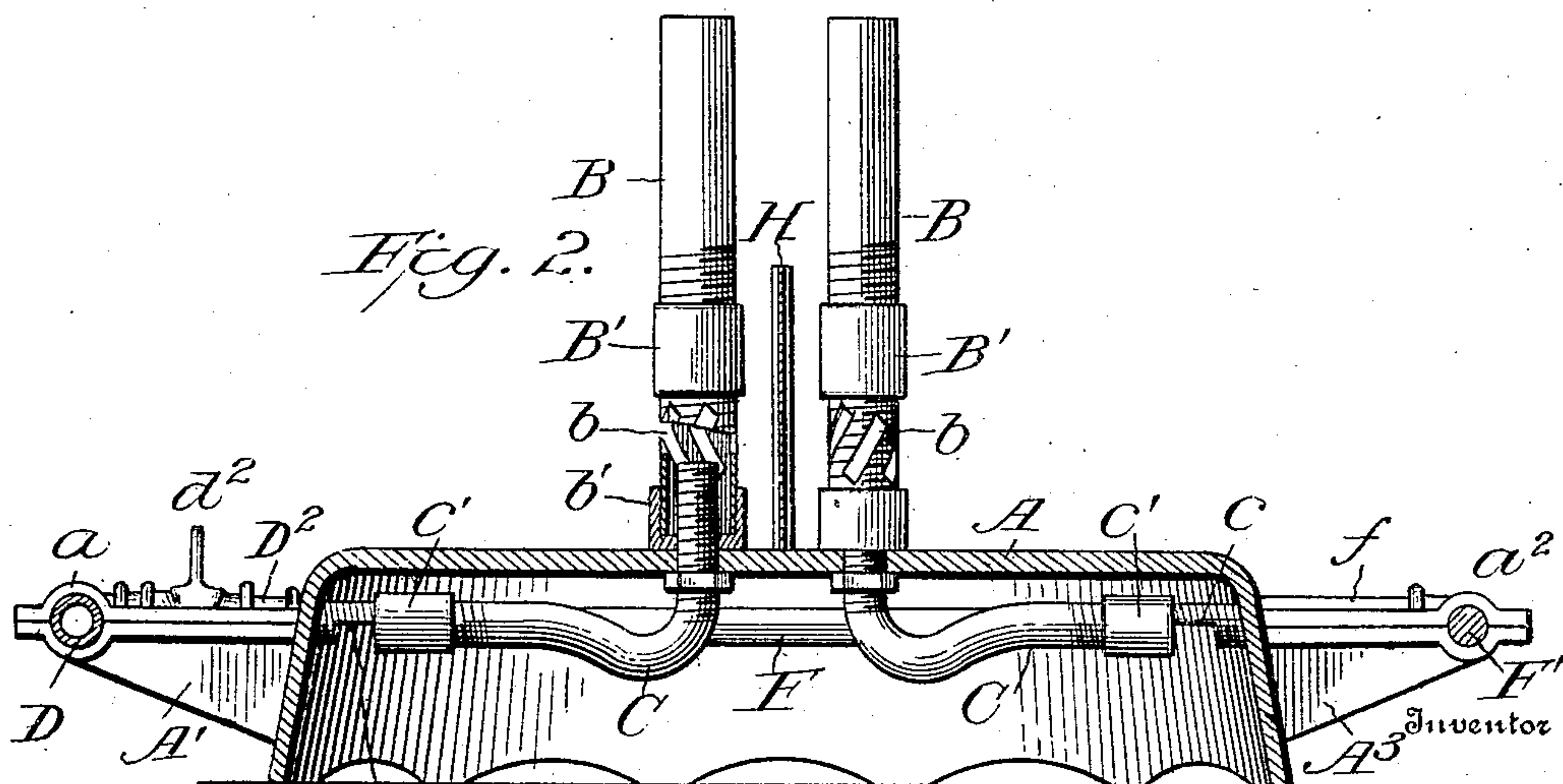


Fig. 2.



Witnesses

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VIRGIL W. BLANCHARD, OF NEW YORK, N. Y.

GAS-BURNER.

No. 868,249.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed January 22, 1906. Serial No. 297,239.

To all whom it may concern:

Be it known that I, VIRGIL W. BLANCHARD, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gas-Burners; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improved gas burner, particularly adapted for use in heating stoves and furnaces, and its object is to produce a burner of great maximum heating capacity but also of great flexibility, so that the amount of gas consumed and the amount of heat produced can be regulated with great nicety to suit the varying conditions and uses to which the burner may be applied.

This invention is an improvement upon the burner shown in my applications for gas burners, filed January 22, 1906, serially numbered 297,236 and 297,237, and will be thoroughly understood from the following description in connection with the drawings, which illustrate a practical form of the burner; but of course the invention is not restricted to the particular form and dimensions of parts shown therein.

Figure 1 is a top plan view of the burner partly broken away, and Fig. 2 is a longitudinal sectional elevation thereof.

The base A of the burner may be of any suitable form, being conventionally illustrated in the drawings. Upon this base are mounted four burners or secondary mixing-tubes B, which are substantially alike, so that the description of one explains all.

Each burner is provided at its lower end with diagonally arranged over-lapping air inlet slots *b*, which are adapted to admit air entirely around the circumference of the tube, and the extent of the opening of these slots can be regulated by means of adjustable sleeves B', which are preferably threaded onto the tubes as shown.

The tubes are provided with caps *b'* at bottom, which are screwed on to the discharge ends of primary mixing-tubes C, the main portions of which underlie the base. Four of these primary mixing-tubes are shown, arranged in pairs which extend in opposite directions to opposite sides of the base and are there connected with the gas supply. Each of these primary mixing-tubes C is provided near its outer or receiving end with an air inlet port *c*, the size of which can be regulated by an adjustable sleeve *c'*.

At the left-hand side of the base is a bracket A', upon which is removably secured a pipe section D, by means of a clamp-plate *a*, removably secured to bracket A' by screws *a'*. This pipe D is provided with a hose connection *d* at one end, which may be connected to any ordinary gas-fixture in the house by means of a flexible hose D^b, or in any other suitable manner.

The pipe D is provided with four tees D', two at each

side of the bracket A', and to these tees are connected pipe sections D², provided with valves *d*², and to each of the inner pipe sections D² is screwed a removable jet-head E, which is preferably constructed as described in my application for gas burner, Serial No. 297,236 aforesaid. These two jet-heads E—E are adapted to project into the ends of the two left-hand primary mixing-tubes C—C, adjacent to the opening *c'* therein and supply gas thereto when the valves *d*² are open. The two outermost pipe sections D² are connected by screw-couplings D³, of any suitable construction, with pipes F, which extend through the base and are connected at the opposite side of the base to a pipe section F' removably secured to a bracket A³ by means of clamp *a*² and screws *a*³ as shown.

The pipe F' is provided with tees F², to which are connected short pipe sections *f*, *f*, which extend inward toward the base and have secured in their inner ends jet-heads E, similar to those above described; which jet-heads project into the receiving ends of the right-hand primary mixing-tubes C, as shown in the drawings, and will supply gas to said mixing-tubes when the proper valves *d*² are opened. By this means gas can be supplied to each of the burners B, and the gas supplied to any burner can be independently regulated.

The couplings D³ and pipes F form adjustable bonds between the pipe sections D and F', so that when the couplings are screwed up tightly, the said pipe sections are drawn toward each other, and consequently the jet-heads are held closely and securely to the ends of the primary mixing-tubes, and loose joints are tightened up.

When the maximum heat is desired, all the burners should be operated at full capacity; if less heat is desired, one or more of the burners can be put out of operation by closing the proper gas inlet valve.

The jet-heads E are interchangeable, as explained in my said application, and whenever it is desired to change these heads the couplings D³ are disconnected, and the clamp-plates *a*, *a*² removed after which the pipe D with its connected parts, including the two left-hand jet-heads, can be removed from the base, and the pipe F' with its connected parts, including the jet-heads E, can also be removed from the base, and then the jet-heads E therein can be removed and replaced by others of the desired capacity.

Mounted on the base between the burners B is a flame arrester, which is preferably composed of two intersecting plates H, H, that extend above the slots *b* in the burners B, and are so arranged as to be interposed between each adjacent pair of burners B. These plates H may be of ordinary sheet metal. The object and effect of these plates is to prevent flame or sparks passing from one burner to the other through the slots *b*, and in case the gas from one burner should be turned off the stationary air and gas contained in the lower

connecting pipe will be prevented from igniting the gaseous mixture in the adjacent burner. This is particularly useful when cutting in or out one or more of the burners, while the others are in operation, as when
 5 the gas supply to any burner is cut off the small quantity of gas retained in the burners and mixing-tubes is apt to fire back through the tubes when the flame is finally extinguished.

The burner described, when operating at its maximum capacity, gives an intense heat. The air admitted to the burner at the ports *c* and *b* insures a thorough admixture of the oxygen and oxidizable elements of the gas, and produces approximately perfect combustion, with little flame and without odor.

15 Having thus described my invention what I therefore claim as new and desire to secure by Letters Patent thereon is:

1. In a burner, the combination of the base, adjacent burner tubes thereon, oppositely extending primary mixing
 20 tubes respectively connected with the said burner-tubes, a pipe section attached to the base adjacent the end of one set of primary mixing tubes, jet-heads connected with said pipe and entering the adjacent mixing tubes, a second pipe section attached to the opposite side of the base and
 25 provided with jet-heads entering the primary mixing tubes

at that side of the base, and pipes connecting said pipe sections.

2. In a burner, the combination of a base, primary mixing tubes attached thereto and thereunder, means for admitting gas to the outer ends of each of said tubes, and
 30 means for regulating the supply of air to said tubes, burner tubes above the base and connected to the inner end of the primary mixing tubes and having adjacent air inlet ports, and means for regulating the amount of air admitted to said burner tubes, and a baffle on the base
 35 interposed between the air inlet ports of the adjacent burner tubes.

3. In a burner, the combination of a base, longitudinally disposed mixing tubes attached thereunder, means for admitting gas to the outer ends of each of said tubes, and valves for regulating the supply of air to each tube,
 40 vertically disposed burners arranged on and above the base and connected to the inner ends of said tubes, each burner having an air inlet near its receiving end, a sleeve on each burner for regulating the amount of air admitted
 45 thereto, and a baffle exterior to the burners and interposed between the air inlets of each adjacent pair of burners to prevent cross firing at such points.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

VIRGIL W. BLANCHARD.

In presence of—

JAMES R. MANSFIELD,
 L. E. WITHAM.