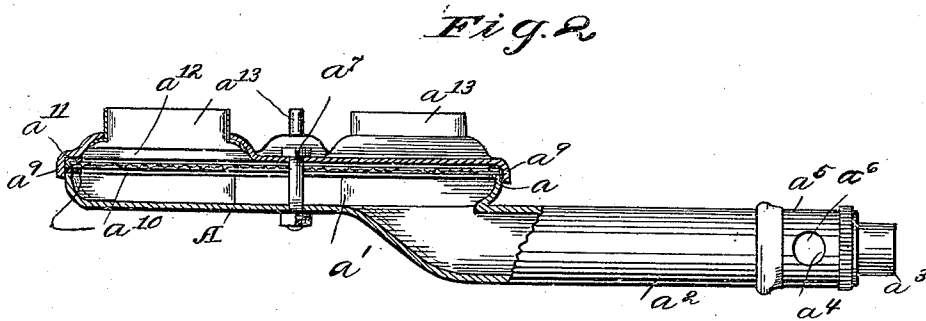
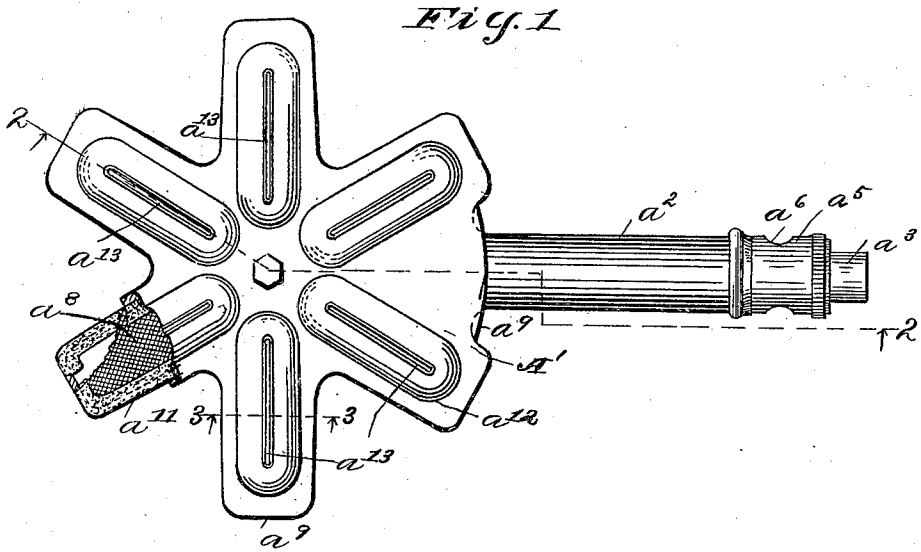


F. M. CASTO.
ACETYLENE BURNER.
APPLICATION FILED SEPT. 12, 1907.

960,818.

Patented June 7, 1910.



Witnesses:
J. C. Turner,
Jno. F. Oberlin

Inventor:
Frank M. Casto,
by J. B. Fay
Attorney.

UNITED STATES PATENT OFFICE.

FRANK M. CASTO, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO CAROLINE A. HARRIS, OF CLEVELAND, OHIO.

ACETYLENE-BURNER.

960,818.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed September 12, 1907. Serial No. 392,425.

To all whom it may concern:

Be it known that I, FRANK M. CASTO, citizen of the United States, resident of Cleveland, county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Acetylene-Burners, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

This my present invention relates to improvements in gas-burners such as are employed for heating purposes in connection with stoves and the like, and has particular regard to the provision of a burner of the character noted wherein acetylene-gas may be utilized.

The object of the invention is to devise a burner of this character that will have a large and even heating capacity, and that will be simple and durable in construction.

Said invention has as a further object, the avoidance of back lighting or the ingress of the flame within the burner.

To the accomplishment of the above and related objects, then, said invention consists of means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing: Figure 1 represents a plan view of one form of my improved burner, a portion of the same being broken away to reveal the inner construction thereof; Fig. 2 represents a partial side elevation and vertical section thereof, such section being taken on the line 2—2 Fig. 1; and Fig. 3 is a transverse cross section of a detail of the burner tip and burner chamber which said tip surmounts, the line of the section being indicated as 3—3 on Fig. 1.

From an inspection of the figures of the drawing just described, the base of my improved burner will be seen to consist primarily of a plate A, of substantially circular, or more specifically stellar, outline provided on its upper face with a peripheral flange a , such flange being adapted in conjunction with the upper cover plate A', of shape similar to that of the lower plate, to

form a mixing chamber a' . Said upper plate is formed on its under side with a flange a^9 of a proper diameter to enable it to laterally inclose flange a , as shown, Fig. 2. Extending horizontally from the under side of bottom plate A is a supply pipe a^2 . The gas is admitted to said supply pipe through a nozzle a^3 of smaller bore than said pipe, the air being allowed to enter, as will be readily understood, through lateral openings a^4 in the pipe a^2 , the size of which is controlled by a collar or sleeve a^5 rotatably mounted upon the pipe and provided with similar openings a^6 adapted to register with the openings a^4 . Upper plate A' is secured to bottom plate A by means of a short bolt or screw a^7 passing centrally through the two plates. Interposed between said upper or cover plate A' and bottom plate A and lying close to the under surface of the former is a partition a^8 of fine wire gauze, between the outer edges of which, however, and the corresponding portions of the two plates are inserted two rings or washers a^{10} of asbestos or similar heat-insulating material, whereby not only is the gauze partition more or less insulated from the two plates but such upper plate quite thoroughly insulated from the lower plate by reason of the double thickness of such material. Formed in the under surface of the upper plate are a plurality of elongated recesses a^{12} radially disposed with respect to the center of the plate and forming burner chambers. These it will be obvious are separated from the mixing chamber a' by means of the interposed partition of wire gauze, which latter also serves to isolate the respective burner chambers from each other. Inserted in the cover plate A', in alinement with the respective burner chambers and freely communicating therewith, are corresponding burner tips a^{13} of flattened tubular form, so as to project some distance above the upper surface of plate A'.

The mode of operation of my improved burner should be quite evident from the foregoing description of the details of its construction. The acetylene gas, derived from any suitable source, being admitted even under a low pressure through the nozzle a^3 will carry with it, upon proper adjustment of ring a^5 , the required amount of air to form the most efficient combustible mixture. This entering mixing chamber a' , escapes through

the gauze partition a^8 into the several burner chambers a^{12} and thus upwardly through the narrow contracted burner tips a^{13} where it is lighted. The actual combustion of the mixture takes place hence along the slit like mouths of such tips and at a distance effectively removed from the relatively small body of the mixture combined in the burner chambers and much more effectively removed from the larger body in mixing chamber a' . By reason of this construction there is a very slight heating effect produced, so far as such mixture in either chamber is concerned and the polymerization of the molecules of acetylene, or in other words the condensation of the gas into benzene is prevented, the burner body never becoming heated to a temperature of 200 degrees C. at which temperature such condensation of the acetylene begins to take place. The isolation or segregation of the several burners preventing communication between the same except through the gauze partition is also an advantage in that by this means the sputtering of the flame, as well as the flashing of one flame from the tip of the slot to the top of the screen and thence to other tips is prevented.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a gas-burner, the combination of a mixing chamber, a horizontally elongated burner chamber opening therefrom, a partition of gauze separating said burner chamber from said mixing chamber, and a burner tip surmounting said burner chamber and freely communicating therewith, said tip being of flattened tubular form, whereby an elongated discharge orifice is provided.

2. In a gas-burner, the combination of a mixing chamber, a plurality of horizontally elongated burner chambers opening therefrom, a partition of wire gauze separating said burner chambers from said mixing chamber and isolating the former from each other, and a burner tip surmounting each of said burner chambers and freely

communicating therewith, said tip being of flattened tubular form, whereby an elongated discharge orifice alined with the corresponding burner chamber, is provided.

3. In a gas-burner, the combination of a mixing chamber, a plurality of elongated burner chambers opening therefrom and radially disposed with respect to a common center, a partition of wire gauze separating said burner chambers from said mixing chamber and isolating the former from each other, and a burner tip surmounting each of said burner chambers and freely communicating therewith, said tip being of flattened tubular form, whereby an elongated discharge orifice alined with the corresponding burner chamber, is provided.

4. In a gas burner, the combination of a peripherally flanged bottom plate, a top or cover plate secured to the same to form a mixing chamber, a partition of wire gauze interposed between said two plates and lying close to the under surface of the cover plate, said cover plate being formed on such under face with a plurality of radially disposed elongated recesses forming burner chambers, and burner tips of flattened tubular form mounted upon said cover plate, said tips being respectively alined with said burner chambers and communicating freely with the same.

5. In a gas-burner, the combination of a substantially stellar peripherally flanged bottom plate, a top or cover plate of similar shape secured to the same to form a mixing chamber, an annular layer of heat-insulating material interposed between said two plates, a partition of wire gauze also interposed between said two plates and lying close to the under surface of the cover plate, said cover plate being formed upon such under face with a plurality of recesses forming burner chambers radially disposed with respect to the center of said plate, and burner tips of flattened tubular form mounted upon said cover plate, said tips being respectively alined with said burner chambers and communicating freely with the same.

Signed by me this 28th day of August, 1907.

FRANK M. CASTO.

Attested by—

MARY ISRAEL,
Jno. F. OBERLIN.