No. 828,028. PATENTED AUG. 7, 1906.

C. HOLMOK.

ACETYLENE MANTLE BURNER.

APPLICATION FILED MAR. 21, 1905.

Fig. 1

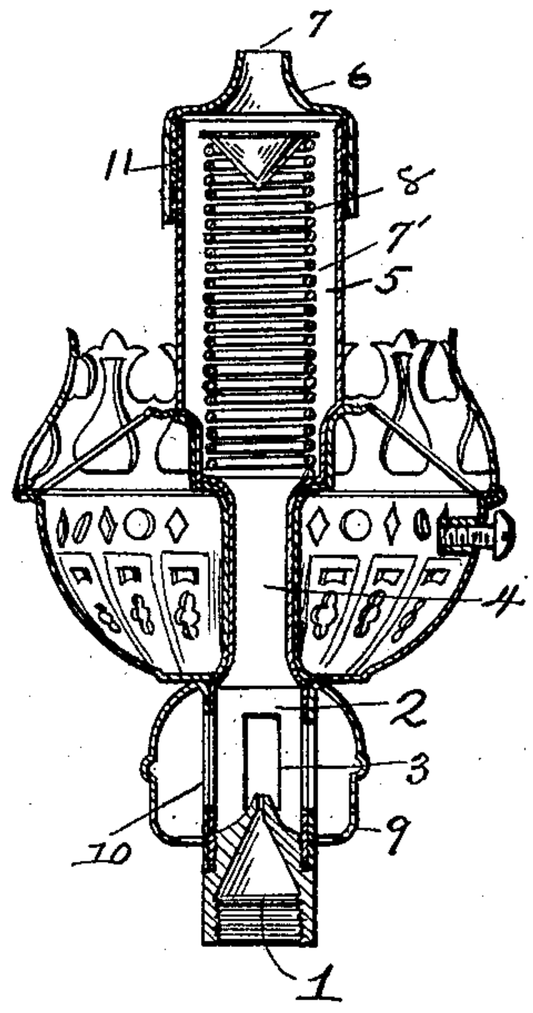
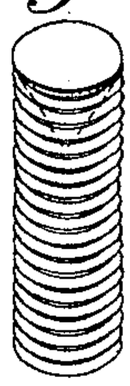


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES HOLMOK, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE ALLRIGHT MANUFACTURING COMPANY, OF OLMSTED FALLS, OHIO, A CORPORATION OF OHIO.

ACETYLENE MANTLE-BURNER.

No. 828,028. Specification of Letters Patent. Patented Aug. 7, 1906.

Application filed March 21, 1905. Serial No. 251,338.

To all whom it may concern:

Be it known that I, CHARLES HOLMOK, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Acetylene Mantle-Burners, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The objects of the invention are to provide a gas-burner for incandescent-mantle lights and in which the gas employed is rich in carbon, such as acetylene or other analogous gas.

A further object is to provide a noiseless burner in which the objectionable feature of backing up of the flame into the burner is eliminated and in which the capacity of the commingling agency or medium for gas and air is largely increased, whereby a more complete commingling or mixing of the gas and air is assured and the production of carbon in solid form is avoided, as well as the inevitable clogging of the burner when the carbon is deposited therein.

The objects are also to provide a more efficient and practical form of device than that described in Letters Patent of the United States granted August 20, 1901, bearing No. 681,052, and a more efficient form of commingling device for the gas and air than is described in those Letters Patent.

To obtain these advantages, I employ the forms of construction and combination and arrangement of parts hereinafter described, shown in the accompanying drawings, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical central section of the complete burner. Fig. 2 is an exterior view of the helical mixing device, which serves as a screen to prevent the return of the flame into the burner.

In the views, 1 is the gas nipple or jet through which the gas enters the inlet-tube 2, leading to the burner. Lateral openings 3 in the sides of this tube admit air, which with the gas rises through a reduced vertical passage 4 in this tube into the commingling-chamber 5 above. A cap 6 closes the open upper end of this chamber, except for a central orifice 7, through which the gas highly charged with oxygen escapes ready for lighting. The leading feature of the invention, however, is shown to consist in the device whereby the air is thoroughly commingled with the gas before it rises to the outlet 6. This is accomplished by means of a long and narrow aperture 7′ of spiral form, which is obtained by means of a wire helix 8, between the coils of which sufficient space is reserved to permit of the passage of the gas and air in the form of a thin sheet. This helix is placed in the commingling-chamber over the mouth of the inlet-passage, so that all the entering gas and air must pass through it. The component gases then flow through the narrow spiral passage between the wire coils and are thereby drawn out into a very thin sheet and mingled together throughout the entire length of the coil, so that a thorough commingling is obtained before entering the annular space between the coils of the mixer and the walls of the commingling and equalizing chamber, and a pure gas is thereby obtained which contains sufficient oxygen to provide a perfect combustion and a flame which will not deposit carbon upon the mantle or parts of the burner. The coils of the wire helix being close together also serve as a screen to prevent the return of the flame into the burner, and hence prevent an explosion which would destroy the mantle.

A sleeve 9 upon the inlet-tube is provided with corresponding openings 10, so that by turning the sleeve to open or close the openings a complete control of air admission is obtained to the burner.

I believe myself to be the first to provide a commingling device which will also serve to prevent the return of the flame to the burner and to invent a coiled metal device provided with narrow spirally-arranged openings for this purpose.

The advantages of the device are obvious. The commingling device being tubular or hollow receives the mixture of gas and air into its interior and permits it to escape through the extended narrow aperture in attenuated form from the top to the bottom of the commingling device, thus discharging the mixed air and gas in a thin sheet, which greatly promotes the final complete commingling and equalizing thereof in the annular space about the coil.

The coil can be a simple wire helix or the extended aperture can be formed in a metal tube in any convenient manner. The invention, however, is not limited to the exact manner of constructing the device.

A cap 12 over the helix 8 prevents the vertical escape of the gases.

In Fig. 1 is seen a lining for the cap 6, of asbestos, which serves as an insulator to prevent the transmission of heat therefrom to the burner.

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

1. In combination in an incandescent-mantle burner, an inlet-tube provided with lateral openings for air, and a vertical passage at its upper end, a gas-jet in the lower end thereof, means for controlling the air admission to said openings a vertical chamber over said inlet-tube and passage, a closed top for said chamber, provided with a central opening, and a tubular commingling device for gas and air centrally located over said vertical passage and closed at its upper end, and communicating with said chamber, the said tubular commingling device being provided with an extended narrow aperture from top to bottom, for combined air and gas discharge.

2. In combination with the commingling-chamber of an acetylene-gas burner, having an inlet-tube provided with air-openings, a helical device communicating therewith, through which the air and gas pass to the chamber, and a cap over said helical device, the coils of said helix being slightly separated, substantially as and for the purpose set forth.

In testimony whereof I hereunto set my hand this 28th day of February, 1905.

CHARLES HOLMOK.

In presence of—
GEO. S. COLE,
WM. M. MONROE.