

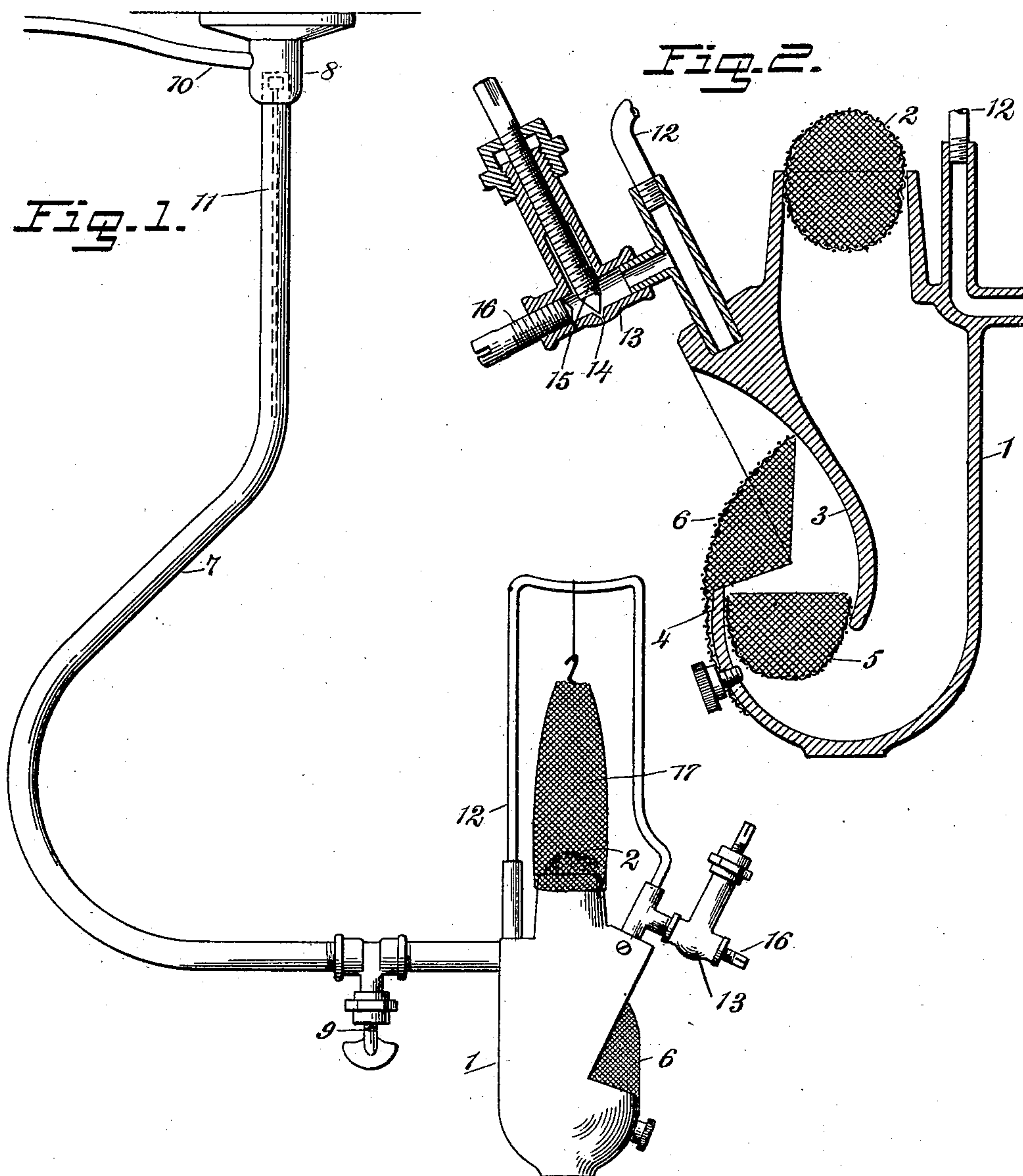
**No. 705,948.**

**Patented July 29, 1902.**

**M. W. MORGAN.**  
**HYDROCARBON BURNER.**

(Application filed Aug. 1, 1901.)

(No Model.)



**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

MARSHAL W. MORGAN, OF MOUNT VERNON, INDIANA.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 705,948, dated July 29, 1902.

Application filed August 1, 1901. Serial No. 70,496. (No model.)

*To all whom it may concern:*

Be it known that I, MARSHAL W. MORGAN, a citizen of the United States, and a resident of Mount Vernon, in the county of Posey and State of Indiana, have invented a new and Improved Hydrocarbon-Gas Burner, of which the following is a full, clear, and exact description.

This invention relates to improvements in burners for gas generated from gasolene or other hydrocarbon oil; and the object is to provide a burner of simple construction for either house or street lighting purposes and with which a strong white light is produced with a very small consumption of oil.

I will describe a hydrocarbon-gas burner embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a side elevation of a hydrocarbon-burner embodying my invention, and Fig. 2 is a vertical section of the burner.

The burner comprises a shell 1, the interior of which forms a gas or air mixing chamber. At the outlet end of the mixing-chamber is a burner 2, consisting of gauze or of perforated metal. As here shown, this burner-tube is made substantially spherical. With this form of burner I find that it thoroughly breaks the gas before its final exhaust, and, further, it reflects downward a considerable amount of heat, holding a very hot stratum of air, through which the gas has to pass, insuring perfect incorporation of the air and gasolene.

At one side of the burner-body 1 its wall 3 is curved downward and inward, leaving an inlet-space between the lower end of said wall and the bottom upwardly-turned wall 4 of the burner. Arranged at the inlet between the said walls 3 and 4 is a screen 5, consisting of gauze or perforated metal, and, as here shown, this screen is made cup-shaped, and extended from the upper end of the wall 4 and inclosing an opening in the side wall is a screen 6, the upper end of which engages with the outer surface of the wall 3. This screen 6 is designed to prevent an undue entrance of atmospheric air.

A supply-pipe 7, here shown as forming a

hanger for the lamp, is extended from a rosette 8 or the like designed to be attached to a ceiling or other support. This supply-pipe 7 is provided with a cut-off valve 9. Leading into the rosette 8, and consequently discharging into the pipe 7, is a tube 10, of any suitable material and having a very small bore. This tube 10 leads from a gasolene-tank in which the gasolene is placed under air-pressure. It may be here stated that the gasolene-tank may be placed at any suitable point, either in a building or room thereof, so that there is very little, if any, danger of the gasolene in the tank becoming ignited, and, further, the gasolene may be supplied from one tank to any number of burners. In street-lighting a large tank may be placed at some central station.

A small tube 11 passes a short distance from the rosette 8 downward into the tube 7. This tube 11 has a very small bore for the gasolene to pass through, and it serves to equalize the pressure, so that all lights connected with the system are steady. The gasolene from the pipe 7 passes into a receiving pipe or tube 12, the said tube 12 being extended upward at one side, then across the burner and down to the opposite side, the lower end of said opposite side having communication with a valve-casing 13, having an outlet 14 for the gasolene under air-pressure, and this outlet 14 is controlled by a needle-valve 15.

It will be understood that the air and gasolene are originally mixed or mingled in the supply-tank and under pressure.

The casing 13 is provided at one end with a screw-plug 16, which may be removed when it is desired to clean the valve-casing or the valve. As the gasolene, with a certain amount of air, passes through the tube 12 it will be heated and generated into gas, which will pass through the opening 14, the open air, and the screens 6 and 5 into the mixing-chamber in the burner-body, where it will become thoroughly mixed with a certain amount of air passing through the said screens. The screen 6 will serve to protect the volume of heated gas from any draft of air that might interfere with its course, but at the same time permits of a sufficient circulation of air, insuring a permanent lighting-gas. The



screen 5 serves two purposes—first, it breaks up the gas discharged from the needle-valve and brings it more evenly in contact with air in the mixing-chamber, and, second, by breaking the exhaust force of the volume of gas makes the burner noiseless. Supported over the burner by means of the tube 12 is an incandescent mantle 17, and as this mantle at its lower end engages around the upper end of the burner-body it will be prevented from lateral movement or striking against the side members of the tube 12.

It will be noted that the needle-valve is quite close to the combustion-point of the burner, and therefore gas generation is always perfect and not subject to the influence of air-currents.

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

1. In a hydrocarbon-burner, a body having a fixed chamber, a side wall of the body being curved downward and inward forming one wall of an inlet, a perforated burner at the outlet end, spaced screens at the inlet end of said chamber, a tube attached at its ends to the burner-body, a valve-casing having communication with said tube, a valve controlling

the outlet of said casing, there being an open-air space between said outlet and the screens, and a supply-tube communicating with the first-named tube, substantially as specified.

2. In a hydrocarbon-burner, a body having a fixed chamber, a side wall of the body being curved downward and inward, forming one wall of an inlet, a perforated burner at the outlet end, spaced screens at the inlet end of said chamber, a tube attached at its ends to the burner-body and extended vertically and having a portion extended transversely for supporting a mantle, a valve-casing having communication with said tube, a valve controlling the outlet of said casing, there being an open-air space between said outlet and the screens, and a supply-tube communicating with the first-named tube, substantially as specified.

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

MARSHAL W. MORGAN.

Witnesses:

A. A. GRAHAM,  
HENRY SCHIELA.