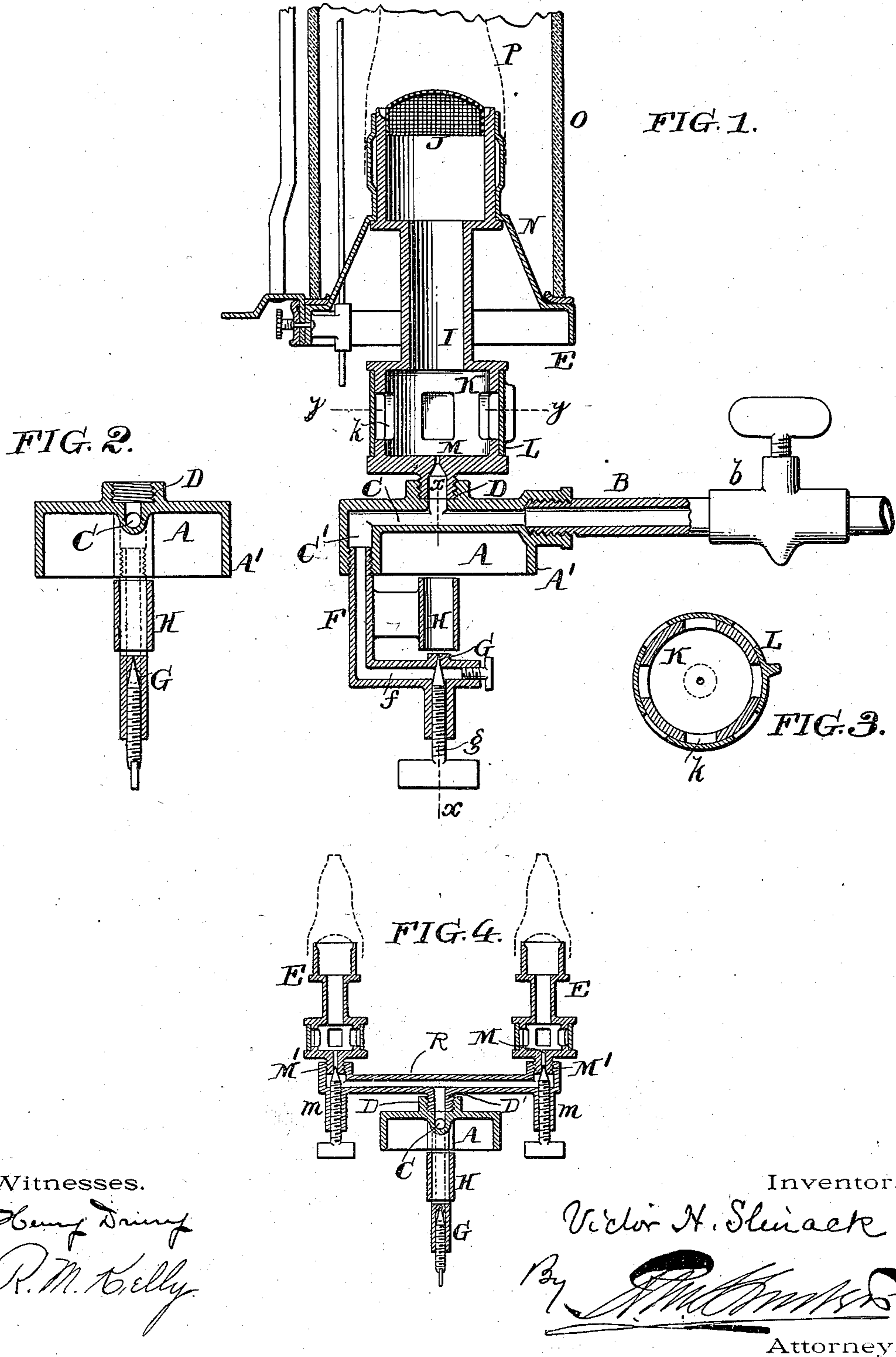


(No Model.)

V. H. SLINACK.  
INCANDESCENT BURNER.

No. 561,449.

Patented June 2, 1896.



Witnesses.

*Henry Drury*  
*R. M. Kelly*

Inventor.

*Victor H. Slinack*

By *[Signature]*

Attorney.

# UNITED STATES PATENT OFFICE.

VICTOR H. SLINACK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE PENNSYLVANIA GLOBE GAS LIGHT COMPANY, OF PENNSYLVANIA.

## INCANDESCENT BURNER.

SPECIFICATION forming part of Letters Patent No. 561,449, dated June 2, 1896.

Application filed November 6, 1895. Serial No. 568,108. (No model.)

*To all whom it may concern:*

Be it known that I, VICTOR H. SLINACK, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improvement in Incandescent Burners, of which the following is a specification.

My invention has reference to incandescent burners for hydrocarbon oils; and it consists of certain improvements, all of which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to simplify the construction of an incandescent burner especially adapted for incandescent lighting, in which the hydrocarbon oil is vaporized and consumed in the presence of a mantle of refractory material, which is thereby raised to incandescence.

More specifically my object is to so construct the burner that the vapor is directly delivered to the burner as soon as formed, thereby avoiding circuitous passages and reducing the number of valves necessary.

My object, furthermore, is to avoid excessive heating of the hydrocarbon vapor, which has heretofore been found exceedingly troublesome in burners as commonly found upon the market.

My invention will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation of an incandescent hydrocarbon-burner embodying my improvements. Fig. 2 is a vertical section on line *xx* of Fig. 1. Fig. 3 is a sectional view on line *yy*; and Fig. 4 is a sectional elevation of a modification of my burner, showing it applied to a case where the burners are duplicated.

A is the generator, and consists of an inverted cup or box shaped casting open at the bottom and formed with a rim *A'*. Extending across the under side of the top portion of the casting is a flue C, which connects with the pipe B, screwed into the casting A at one side and leading to a suitable source of gasolene or hydrocarbon oil. Pipe B is provided with a valve *b* for controlling the flow of oil to the generator. The top of the casting A is provided with a screw-threaded socket

which opens into the horizontal flue C. Into this socket is screwed the burner proper, E. The flue C of the burner A, after extending across the casting, opens downward, as at *C'*, and into this is screwed the auxiliary-burner structure. As shown, this burner consists of an angular flue *F f*, terminating in a vapor-nozzle G, controlled by a valve *g*. Arranged above the nozzle G, and between it and the generator-casting A, is a tubular hood H, through which the vapor, together with the air drawn in at the bottom, passes, and above which it is burned in the under part of the generator A. The hood H extends down near the nozzle G, so as to protect the flame therefrom being blown out by excessive drafts of air.

The burner E consists, essentially, of a vertical tubular part I, having a nozzle M at its lower portion which fits into the socket D of the generator and a suitable burner J at the upper part. The lower portion of the tubular part I is provided with a chamber K, having air-passages *k* and a valve-plate L for controlling the supply of air to the incoming vapor. The vapor passes through the nozzle M, and after being mixed with the necessary quantity of air finds its way upward to the burner J, from which it is burned with additional supplies of air in contact with the hood P, of refractory incandescing material.

O is a chimney supported upon a base N, suitably carried upon the burner-tube I. It is immaterial what form of incandescing refractory hood may be employed or what the special construction of the burner proper may be, as these parts may be modified.

It will be observed that oil entering the generator A is brought to that portion which is highly heated by the flame from the auxiliary burner, and the vapor so generated instantly passes upward through the nozzle M into the burner and has practically no time in which to remain in the generator. It will be further observed that there are no circuitous or long passages through which the vapor and oil are required to pass. This avoids irregular heating of the hydrocarbon oil and insures a more uniform temperature being maintained. Furthermore, it will be observed that as the hydrocarbon oil is delivered to the

burner instantly upon its being vaporized no excessive or extended area of heating is necessary, and consequently the lower portion of the burner-tube I does not become sufficiently heated to cause ignition of the vapor within the chamber K.

In the construction shown in Fig. 4 we have substantially that illustrated in Fig. 1, but with the employment of two burners E E, which are connected with the generator through a transverse tubular arm R, having a central nipple D' for attachment with the socket D and provided at its extremities with valves *m* to control the amount of vapor entering each of the burners. Ordinarily the valves *m* would not be necessary, but in the case of two or more burners E being supplied from the same generator it is advisable to employ these additional valves to prevent excessive supply of vapor to one of the burners at a sacrifice of the supply to the other. The lower parts of the burner-tubes I are provided with nipples M' and nozzles M, as above, and the valves *m* are adapted to work in connection with the said nozzles to control the flow of hydrocarbon vapor.

I do not confine myself to the minor details of construction, as they may be modified without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a hydrocarbon incandescent burner, the combination of a generator consisting of an inverted-box-shaped casting open at the bottom and having arranged transversely across its top and integral with the walls thereof a flue or passage-way formed with an upward opening at or near the middle, a supply-pipe for delivering hydrocarbon oil into the said flue or passage-way of the said generator at one end, an auxiliary burner arranged below the generator-casting arranged to project its flame vertically upward into the box-shaped casting of the generator and provided with a vapor-flue opening into the passage-way of the generator at the opposite end, and a burner arranged above the generator and opening into the upper passage-way thereof and provided with means for supplying air to the vapor before being burned.

2. In a hydrocarbon incandescent burner, the combination of a generator consisting of an inverted-box-shaped casting open at the bottom and having arranged transversely across its top and integral with the walls thereof a flue or passage-way formed with an upward opening at or near the middle, a supply-pipe for delivering hydrocarbon oil into the said flue or passage-way of the said generator at one end, an auxiliary burner arranged below the generator-casting arranged to project its flame vertically upward into the box-shaped casting of the generator and provided with a vapor-flue opening into the passage-way of the generator at the opposite end, a circular burner arranged above the genera-

tor and opening into the upper passage-way thereof and provided with adjustable means for supplying air to the vapor before being burned, and a refractory incandescing material arranged above the burner and adapted to be heated by the flame therefrom.

3. In a hydrocarbon incandescent burner, the combination of a generator consisting of an inverted-box-shaped casting open at the bottom and having arranged transversely across its top and integral with the walls thereof a flue or passage-way formed with an upward opening at or near the middle, a supply-pipe for delivering hydrocarbon oil into the said flue or passage-way of the said generator at one end, an auxiliary burner arranged below the generator-casting arranged to project its flame vertically upward into the box-shaped casting of the generator and provided with a vapor-flue opening into the passage-way of the generator at the opposite end, a burner arranged above the generator and opening into the upper passage-way thereof and provided with means for supplying air to the vapor before being burned, and a hood arranged intermediate of the auxiliary burner and generator to protect the flame against excessive drafts and thoroughly mix the vapor and air before being burned.

4. In a vapor-burner, the combination of a generator consisting of a casting having a transverse flue open at each end and also formed with an upward passage-way at or near the middle, a supply-pipe connecting with the one end of the said flue of the generator for supplying hydrocarbon oil to it, an auxiliary burner arranged below the said generator arranged to project its flame vertically upward into the box-shaped casting of the generator and its flue and provided with a flue connecting with the other open end of the generator, a burner arranged above the central and upward opening of the generator formed with an air-contracted orifice at its lower part and a vapor-burner at its upper part, and an air-valve arranged upon the said burner for supplying air to the vapor before being burned, whereby the hydrocarbon oil is vaporized and instantly delivered to the vapor-burner together with the requisite quantity of air.

5. In a vapor-burner, the combination of a generator consisting of a casting having a transverse flue formed in its upper wall open at each end and also formed with an upward passage-way at or near the middle, a supply-pipe connecting with the one end of the said flue of the generator for supplying hydrocarbon oil to it, a burner structure consisting of two parts connected with the upper central passage-way of the generator by suitable flues and each part comprising a burner proper, an air-valve to supply air to the vapor before being burned, and a valve to control the supply of vapor to either portion of the burner structure.

6. In a vapor-burner, the combination of a generator A provided with the transverse flue

C formed in its upper wall open at both ends and also opening into a socket D at its top, a supply-pipe C provided with a valve for delivering hydrocarbon oil to one end of the flue C of the generator, an auxiliary burner G arranged below the generator arranged to project the flame vertically upward into the generator and provided with a flue F, *f* opening into the opposite end of the flue C of the generator and provided with a valve *g*, a hood H arranged above the auxiliary burner to insure proper admixture of air and protect the flame from excessive drafts, a burner E ar-

ranged above the generator and consisting of a tube I fitting to the socket D of the generator and having a contracted nozzle M at the lower part and a burner J at the upper part, a valve L for controlling the air to the tube I, and a hood of incandescent refractory material P arranged above the burner J.

In testimony of which invention I hereunto set my hand.

VICTOR H. SLINACK.

Witnesses:

ARTHUR E. SHAW,  
ERNEST HOWARD HUNTER.