

No. 887,304.

PATENTED MAY 12, 1908.

A. BLANCHARD & H. WOOD.  
INCANDESCENT VAPOR BURNER.

APPLICATION FILED JUNE 10, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

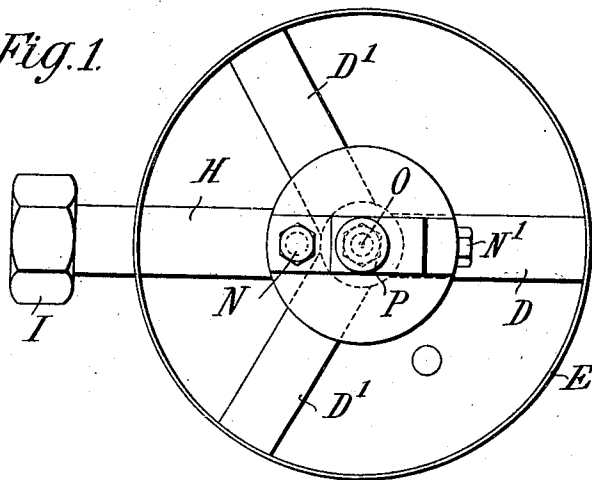
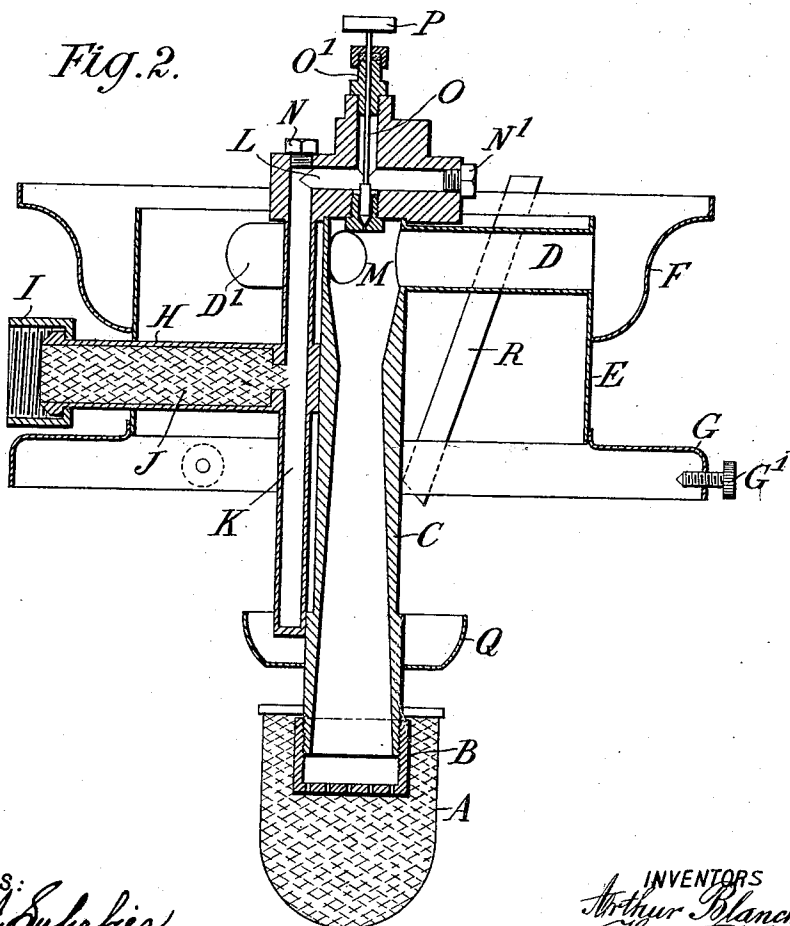


Fig. 2.



WITNESSES:

Henry J. Burkier.  
Edward S. Stubbs.

INVENTORS

Arthur Blanchard  
Harry Wood  
BY *Lowell S. Jones*  
ATTORNEYS.

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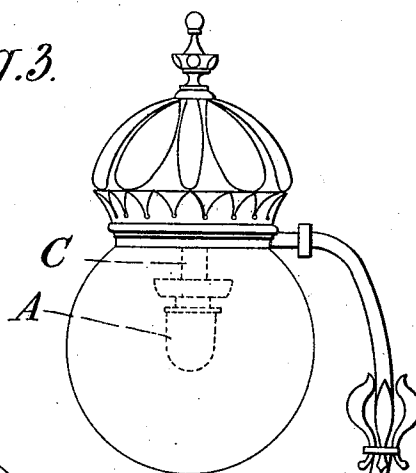
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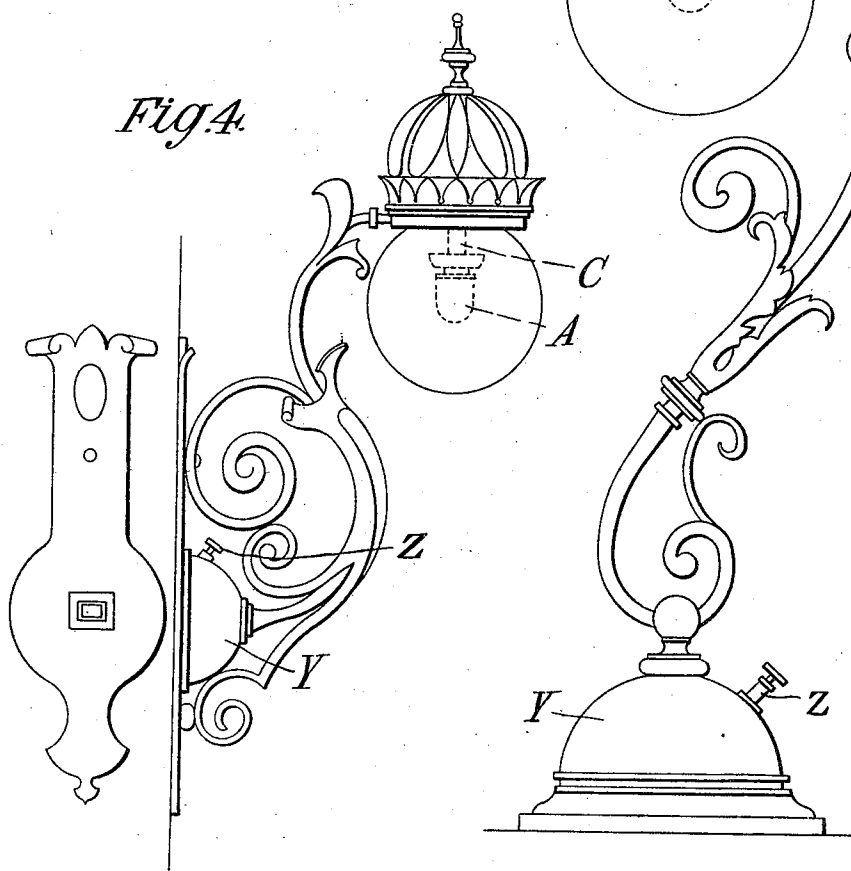
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2 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 4.*



WITNESSES

*Henry J. Suker.*  
*Eloa Newburg*

INVENTORS

*Arthur Blanchard*  
*Harry Wood*  
BY *James C. Green*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ARTHUR BLANCHARD, OF HORNSEY, AND HARRY WOOD, OF HIGHBURY, ENGLAND.

## INCANDESCENT VAPOR-BURNER.

No. 887,304.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed June 10, 1905. Serial No. 264,719.

*To all whom it may concern:*

Be it known that we, ARTHUR BLANCHARD, electrical engineer, residing at 199 Inderwick road, Hornsey, London, England, and  
5 HARRY WOOD, engineer, residing at 55 Wyatt road, Highbury, London, England, both subjects of the King of Great Britain, have invented certain new and useful Improvements in Incandescent Vapor-Burners, of  
10 which the following is a specification.

This invention relates to an inverted flame oil vapor incandescence burner; and has for its object improvements in oil vapor burners particularly adapted for burning petroleum  
15 of high flash-point although other suitable liquid fuel may be used as for example the lighter liquid hydro-carbons or alcohol. The liquid fuel is supplied to the burner under a pressure preferably of from one to  
20 ten pounds per square inch.

The invention consists of an oil vapor burner in which are combined the thorough heating of the liquid hydro-carbons (which for the sake of brevity we will hereinafter  
25 refer to as the "oil") before reaching the jet orifice, an even vaporization producing a continuous stream of vapor insuring a steady flame which is downwardly directed, quick and simple means of lighting, with facility  
30 for clearing or cleaning the parts of carbon deposit, etc.

The burner is constructed in the following manner:—A properly proportioned injector or mixing tube (the outlet from which is ar-  
35 ranged to cause the flame issuing therefrom to be directed downwards into the incandescence mantle) is provided below with a perforated head and suitable means of attachment for an incandescence mantle after  
40 the manner of the inverted type of incandescent gas burner. At the top of the said tube is placed, centrally the jet orifice from whence the vapor escapes in a downward direction.

45 Air inlets are provided and arranged in the shape of one or more tubes radiating horizontally outwards from the upper end of the injector tube and terminating on the outside of a vertically disposed tube surrounding  
50 the upper portion of the injector tube and forming the flue for the escape of the products of combustion. Any suitable globe holder may be provided as desired for example a ring (carrying the globe of any de-

sired character) depends from the said flue 55 and may be attached by a bayonet joint or other suitable means, which may serve both to detach and form a means to raise or lower the globe. On the outside of the said flue a coronet or other device is disposed around  
60 the air supplies as a protection against drafts.

The vaporizing apparatus is constructed as follows:—A tube which may advantageously be disposed horizontally (contain-  
65 ing a removable filling of wire gauze or the like) is provided with a suitable connection for the oil supply and may advantageously also serve to support the burner and passes  
70 into and across the aforesaid flue into communication with a tube advantageously a vertically disposed tube adjacent to and if  
desired attached to the side of the injector tube, this vertical tube extends downward—  
75 below its connection to the horizontal tube—to a point just above the mantle, the lower end being closed with a stout cap to withstand the high temperature of the flame  
80 which comes in contact with it. The upper end of the said vertical tube terminates at the top or upper part of the burner where a screw plug is provided for cleaning purposes;  
and said vertical tube communicates with  
85 the jet orifice by a small duct, which latter is also provided with a plug for cleaning purposes, etc.

Means are provided for cleaning the jet orifice in suchwise that same can be operated from the exterior without permitting escape  
90 of the vapor such means consisting for example of a small pin actuated through a stuffing box.

To supply the initial heat for vaporization a receptacle for alcohol is suitably arranged  
95 as for example an annular cup for alcohol may be mounted on the exterior of said injector tube and a funnel or conductor tube arranged to direct into said cup the quantum  
of alcohol necessary to start the lamp.

Referring to the accompanying draw-  
100 ings:—Figure 1 is a plan and Fig. 2 a vertical section through the burner and its appurtenances. Fig. 3 shows a complete portable lamp with our burner and reservoir attached; and Fig. 4 shows a bracket lamp.

105 A is a mantle attached in the usual or any suitable manner to the perforated burner head B.

C is the mixing or injector tube.

D and D<sup>1</sup> are air inlet tubes extending to the outside of the tube E, the space inclosed by tube E forming the flue for the escape of the products of combustion.

F is a coronet surrounding the tube E for shielding the air-ways against draft.

G is a circular flange attached to the tube E to carry the globe which latter may be attached thereto by the screws G<sup>1</sup> or by any other suitable means.

I is a screwed union for attaching the burner to its support or fitting and to the oil supply.

H is the horizontal part of the vaporizer containing a removable filling of wire gauze J.

K is vertical tube communicating with the vaporizer tube H.

L is a duct connecting the tube K with the jet orifice M.

N and N<sup>1</sup> are screwed plugs for cleaning purposes.

O is a pin (for keeping the jet orifice clear) passing through the stuffing box O<sup>1</sup> and operated by the milled head P.

Q is a cup for alcohol for supplying the initial heat required to start the vaporizing of the oil.

R is the tube through which the cup Q is filled.

Z is pump to pump air into the oil reservoir Y until the required air pressure is produced (inside the reservoir) on the oil.

To operate the lamp a suitable quantity of alcohol is poured through the tube R into the cup Q and ignited; and when the alcohol is nearly consumed oil is supplied to the tube H either by opening a cock (not shown) situated in any convenient point in the supply

pipe, or in certain cases (as in Figs. 3 and 4) by simply operating the pump Z.

The vaporizing is accomplished in the tubes H and K; and the vertical tube K tends to separate any particles of oil or moist vapor which may emerge from the tube H—which oil or vapor will descend by gravity into the lower and hotter part of the tube K, the dry vapor therein produced then ascending and passing through the duct L to the jet orifice M whence it escapes into the mixing tube and after drawing in and being mixed with the requisite quantity of air such mixture is ignited at the burner head B. Alcohol may be employed as the liquid fuel in place of liquid hydro-carbons if desired.

What we claim is:—

In an oil-burner, the combination, with an upright mixing tube, of a burner carried at the lower end of said tube, air-supply tubes leading laterally to said mixing tube at the upper end thereof, an upright vaporizing tube located alongside said mixing tube and closed at its lower end, said vaporizing tube and said mixing tube communicating with each other at their upper ends, means to control the passage of vapor from said vaporizing tube to said mixing tube, and a horizontal vaporizing tube through which the vapor is supplied connected to said upright vaporizing tube intermediately of the length of the latter.

In witness whereof we have hereunto set our hands in presence of two witnesses.

ARTHUR BLANCHARD,  
HARRY WOOD.

Witnesses:

HENRY BIRKBECK,  
R. HASELDEN.