

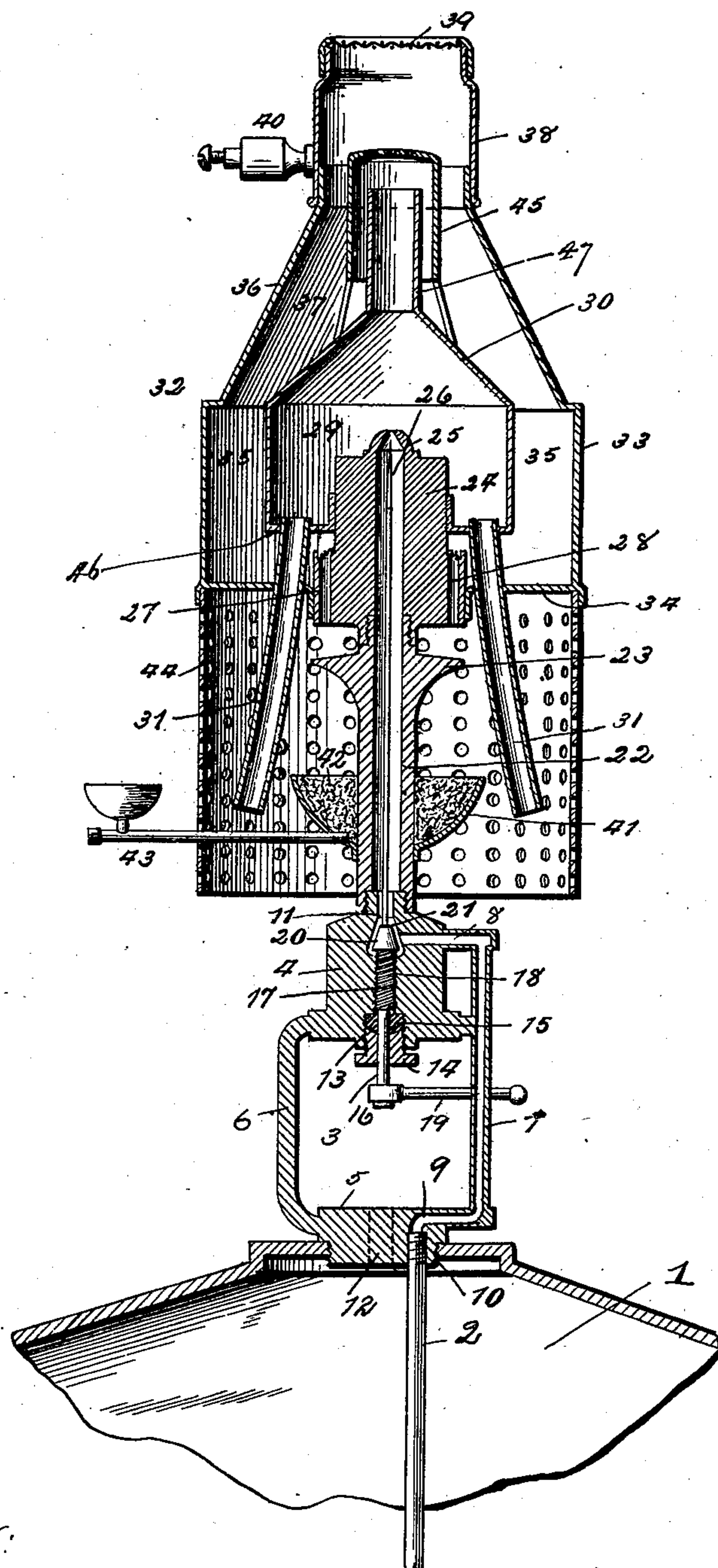
No. 670,630.

Patented Mar. 26, 1901.

P. B. CURRAN.
HYDROCARBON INCANDESCENT LAMP.

(Application filed July 23, 1900.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

PHILIP B. CURRAN, OF PHILADELPHIA, PENNSYLVANIA.

HYDROCARBON INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 670,630, dated March 26, 1901.

Application filed July 23, 1900. Serial No. 24,520. (No model.)

To all whom it may concern:

Be it known that I, PHILIP B. CURRAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Hydrocarbon Incandescent Lamp, of which the following is a specification.

The invention relates to hydrocarbon-vapor lamps and systems, and more particularly to the burners, one object being to produce an apparatus for giving light by incandescence from the use of comparatively little kerosene or heavy oil.

A further object is to control the candle-power, so that it can be made as high or as low as may be desired within reasonable limits.

Another object is to increase the general efficiency of the burner, so that it will be a commercial success.

To these and other ends the invention consists in the improved hydrocarbon-vapor burner and in the novel construction, arrangement, and combination of the parts thereof, as will be presently described and then defined in the claims.

The nature, characteristic features, and scope of the invention will readily be understood from the following specification, taken in connection with the accompanying drawing, forming a part hereof, which shows a central vertical section through a hydrocarbon-vapor burner constructed in accordance with my invention.

Referring to the drawing, 1 denotes a suitable source of liquid hydrocarbon, which may be a system, portable tank, or the like having supply-pipe 2, connecting with a casting 3. The casting 3 consists of upper and lower couplings 4 and 5, united by an arm 6 and by a tubular member 7, communicating with passages 8 and 9 of couplings 4 and 5, respectively. The coupling 5 is threaded in the present instance, as at 10, to be received in the top of the tank and has its passage 9 preferably to one side of its vertical axis, which is drilled to permit the entrance of a proper tool for forming the central bore or passage 11 of the coupling 4. The drilled opening in the lower coupling is then plugged, as shown dotted at 12. The member 7 is usually formed in one piece with the casting 3 and then

drilled lengthwise and at its elbow portions and properly plugged.

The central bore or passage 11 is enlarged at its bottom and threaded, as at 13, to receive a centrally-apertured threaded cap 14 and packing-gland 15. A valve-stem 16 is movable in said cap and is threaded at 17 to engage the quick thread 18 of passage 11, the stem being operated by a laterally-extended arm 19 or its equivalent. The plug or valve 20 is seated in a truncated-cone-shaped cavity 21.

22 denotes the primary vaporizer, which is screwed upon the threaded extension of coupling 4 and has its walls extended at 23 to form a baffle.

24 is a jet-tube having a tip 25, penetrated by a needle 26, borne upon the valve 20. The jet-tube 24 is surrounded by a blue-flame annular subburner 27, embodying a cluster of small Bunsen burners 28. The jet is inclosed in an innershell or air-chamber comprising the side walls 29 and bottom portion 46 and a funnel or cone shaped top portion 30, terminating in a tubular neck portion 47, which is constricted or of less diameter than the body portion of the shell.

32 denotes an outer concentric shell comprising the side walls 33, the bottom portion 34, adapted for the reception of the subburner 27, and the funnel or cone shaped top portion 36, terminating in a neck portion 38, which is constricted or of less diameter than the body portion of the shell 32. The neck portion 38 of the outer shell is provided with the usual burner-cap 39 and with a suitable mantle-support 40.

The annular space formed between the side walls of the respective shells constitutes a reservoir 35, with which the subburner communicates, and the space formed between the respective funnel-shaped top portions constitutes a passage 37 for a portion of the mixture of oil-gas and air to said reservoir 35.

31 denotes air-tubes which penetrate the bases of the shells and serve to supply air to and also to support the inner shell.

41 denotes an alcohol-cup or equivalent preheating source mounted upon the vaporizing-tube 22 and supplied with an absorbent material 42 and with a filling means 43.

44 denotes a perforated hood depending from and alined with the outer shell 32 and extending down to below the alcohol-cup.

The operation is as follows: Oil is supplied 5 to the vaporizing-tube 22 by unseating the valve 20, and heat is previously applied through the medium of alcohol-cup 41. As the oil is vaporized it passes into the air-chamber 29 and is there mixed with oxygen 10 supplied through the tubes 31. A portion of the mixture of oil-gas and air will naturally be deflected by the gauze cap 39 downward between the casings into the reservoir 35 and will supply the subburner 27, which will be 15 ignited from the alcohol-cup 41. If sufficient oil-gas and air are not deflected downward as described by the opposition of the part 39, use may be made of an additional baffle-cap 45, although the latter in all cases is not 20 necessary.

It will be obvious to those skilled in the art to which the invention appertains that modifications may be made in detail without departing from the spirit thereof. Hence I do 25 not limit myself to the precise construction and arrangement hereinabove set forth, and illustrated in the accompanying drawing; but,

Having thus described the nature and objects of my invention, what I claim as new, 30 and desire to secure by Letters Patent, is—

1. The combination of a burner consisting of shells arranged one within the other, the inner shell constituting an air-chamber and the space between the two constituting an 35 outer chamber for a mixture of oil-gas and air, each of said shells terminating in a constricted tubular neck, the neck of said inner shell constituting a mixing-tube and the space between the necks constituting an annular 40 passage, means for admitting air to the interior of the inner shell, a jet-tube extending through the bases of the shells and discharging oil-gas across the air-chamber into the inner neck, means for deflecting a portion of 45 the mixture of oil-gas and air downward between the shells into the outer chamber, and a blue-flame annular subburner communicating with the base of the outer chamber and arranged around the discharge end of 50 the jet-tube, substantially as described.

2. The combination of a burner consisting of concentric annular shells arranged one

within the other, the inner shell constituting an air-chamber and the space between the two constituting an outer chamber for a mix- 55 ture of oil-gas and air, each of said shells terminating in a constricted tubular neck, the neck of said inner shell constituting a mixing-tube and the space between the necks constituting an annular passage for a portion 60 of the mixture of oil-gas and air, a jet-tube extending through the bases of the shells and discharging oil-gas across the air-chamber into the inner neck, means for deflecting a portion of the mixture of oil-gas and air 65 downward between the shells into the outer chamber, air-tubes penetrating both shells and supporting the inner one, and a blue-flame annular subburner communicating with the base of the outer chamber and arranged 70 around the discharge end of the jet, substantially as described.

3. The combination of a burner consisting of concentric annular shells arranged one 75 within the other, the inner shell constituting an air-chamber and the space between the two constituting an outer chamber that receives a mixture of oil-gas and air, each of said shells terminating in a constricted tubular neck, the neck of said inner shell consti- 80 tuting a mixing-tube and the space between the necks constituting an annular passage for a portion of the mixture of oil-gas and air, a vaporizing-tube having a jet extending through the bases of the shells and discharg- 85 ing oil-gas across the air-chamber into the inner neck, means for deflecting a portion of the mixture of oil-gas and air downward between the shells into the outer chamber, air-tubes penetrating both shells and supporting 90 the inner one, a blue-flame annular subburner communicating with the base of the outer chamber and arranged around the discharge end of the jet, and a valve controlling the oil-supply to the vaporizing-tube and hav- 95 ing a needle designed to clean the jet, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

PHILIP B. CURRAN.

Witnesses:

A. B. STOUGHTON,
FRANKLIN T. KALAS.