

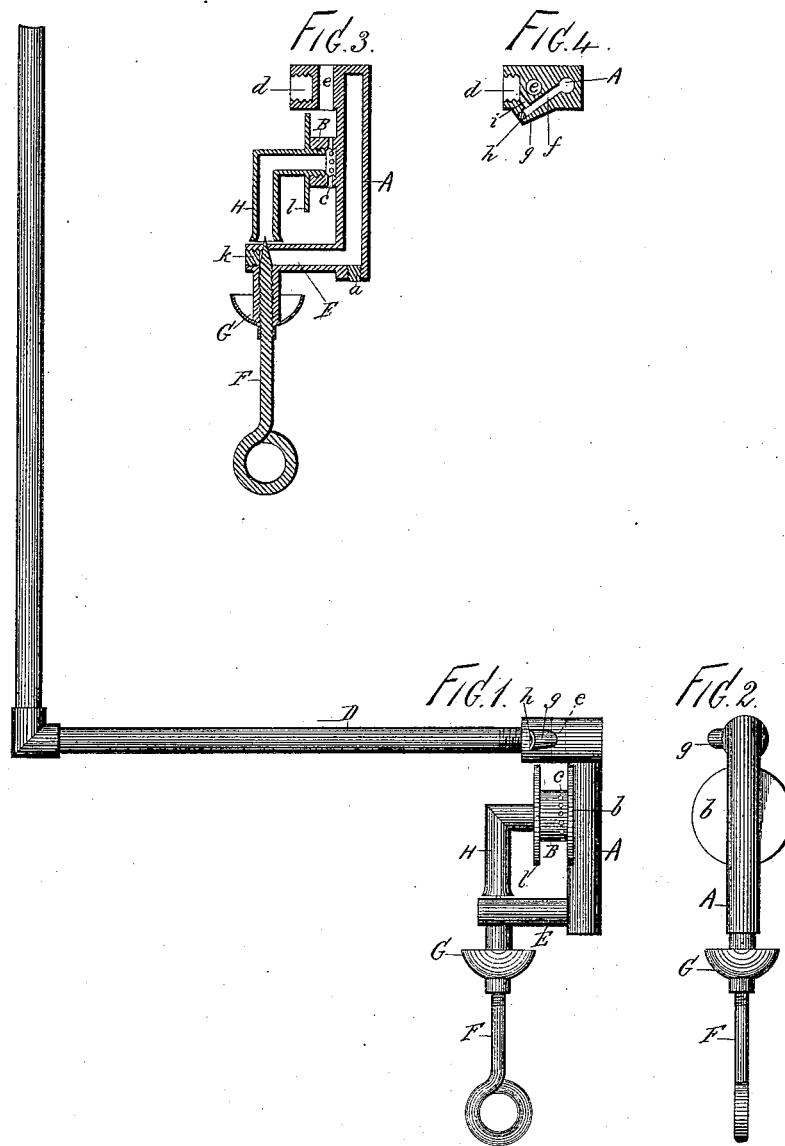
(No Model.)

H. WELLINGTON.

VAPOR BURNER.

No. 304,387.

Patented Sept. 2, 1884.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY WELLINGTON, OF BROOKLYN, NEW YORK.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 304,387, dated September 2, 1884.

Application filed October 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY WELLINGTON, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Vapor-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has relation to vapor-burners intended for use in connection with light hydrocarbons or other easily-vaporizing burning materials, and especially to that species of vapor-burners employed for outdoor use; but my improvements, as will be readily understood, may also be applied upon burners for indoor use, as well as for any other use. These burners, because of being specially designed with reference to outdoor use, are sometimes called "torches."

The object of my invention is to produce a simple, cheap, compact, and durable burner of the character named above, wherein the burning material shall be rapidly and thoroughly vaporized by the heat of the flame; wherein the flame shall be comparatively steady and spread out in a substantially vertical plane, so as to afford a more than ordinarily effective illumination; wherein the disturbances of the flame due to passing wind or air-currents will not be liable to affect the vaporizing capabilities of the burner, thus insuring at all times (when the burner is in operation) a steady and certain supply of vapor or gas to feed the flame, and wherein the parts are so united that they may be readily accessible for cleaning, &c. To accomplish all of this my improvements involve certain novel and useful arrangements or combinations of parts, peculiarities of construction, and principles of operation, all of which will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a burner constructed and arranged for operation in accordance with my invention, the same being shown as connected with any ordinary supply-pipe. Fig. 2 is a front elevation of the burner; Fig. 3, a vertical section thereof; and Fig. 4, a horizontal section through the upper part, showing the manner

of constructing and locating the oil-channels so that they will escape the orifice provided for the passage of a portion of the flame through the top of the burner.

In all these figures like letters of reference, wherever they occur, indicate corresponding parts.

The burner is, like others of the class to which it relates, preferably made of brass, though it might be of other material.

A is the main vertical tube of the burner, the same being preferably formed by drilling into the solid material of which the body of the burner is first cast, and plugging the lower end of the channel so formed by a short screw-plug, as shown at *a*. Upon A is cast a flat flame-plate, *b*, around the socket B, wherein the flame-orifices *c* are drilled. These orifices are drilled perpendicularly to the axis of B, so that the burning gas or vapor will form a flame also vertical to said axis, which is intended to be placed generally in a horizontal position.

D is an oil-supply pipe, upon which the burner may be applied. It is intended to lead down from any suitable reservoir or receptacle, so that the liquid will be fed to the burner under pressure, and it enters the threaded socket *d* upon the upper part of the burner above the location of the flame-orifices. Through the top of the burner is the vertical perforation *e*, for the passage of a portion of the flame, which portion maintains the top of the burner always in a highly-heated condition. To lead the oil or liquid around this perforation *e*, I drill a channel, *f*, through an enlargement, *g*, upon one side of the top of the burner, specially provided for the purpose, and far enough in to tap the tube A, and then stop the outer end of *f* by a short screw-plug, as *h*. Then to reach this channel *f* from the socket *d*, I drill a channel, *i*, as plainly shown in Fig. 4. Thus I provide for an entrance of oil or liquid to the main body of the burner.

At E is a horizontal tube communicating with the lower end of A, and formed by drilling in from the outer end and stopping the exterior by a short screw-plug, as *k*. This tube E is made to support the needle-screw valve F and the drip-cup G. The valve serves to regulate the amount of escaping gas or

vapor, and the drip-cup to catch any drip and to hold the supply of liquid for the initial firing of the burner, as in ordinary forms of vapor-burners.

5 Over the gas-jet orifice, which is controlled by the needle-valve, is located the air and gas receiving tube H, the same being open at bottom, bent at right angles, substantially as shown, and threaded into the end of socket
10 B, by which it is supported. Of course this tube or its supporting-socket has no direct communication with A.

Upon the tube H is cast or otherwise formed a projecting plate or disk, *l*, similar to *b*.
15 The flame projects outwardly between *b* and *l*, by which it is protected from the disturbing effects of air-currents; and these plates also serve to assist in maintaining the high degree of heat throughout the burner which is necessary to its successful operation.

The flame-orifice immediately beneath *e* is formed by drilling directly down through *e*, so that the flame is always properly directed, it being impossible to vary the relative positions of *e* and this flame-orifice. If necessary
25 to clean or wipe the gas-jet orifice, the tube H may be turned to one side upon its threaded support and immediately replaced.

The burner being so constructed and arranged, oil or liquid may be admitted through
30 pipe D. To light the burner, a small quantity of the oil is allowed to enter the drip-cup, which, being fired, produces the necessary initial heat by which the contents of the
35 burner are converted into gas or vapor. Then by lowering the needle-valve the issuing gas or vapor enters the tube H, drawing with it a proper quantity of air, and the mixture issues at the flame-orifices, producing the required
40 flame. After being started the flame keeps up the heat required for vaporizing the oil as rapidly as it is fed into the burner. The passage of a portion of the flame directly through the top of the burner, as set forth, insures an
45 effectual heating without detracting from the illuminating qualities of the burner, and this is uniform and constant so long as the burner is in operation, because of the manner in which the flame is protected from disturbing
50 action of air-currents to which it may be exposed. The flame, being vertical, renders the

burner peculiarly serviceable as an illuminator, especially for outdoor purposes, and generally the burner has been found in practice to admirably answer the purpose or object of
55 the invention, as previously set forth.

I am aware that the air and gas conducting tube of vapor-burners has heretofore been carried up through an oil-chamber, and do not wish to be understood as claiming such
60 construction herein. In such former construction the flame is made to occupy the usual horizontal position, and the gas, and not the flame, is made to pass through the opening in the oil-chamber.

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

1. In a vapor-burner of the character herein set forth, the top arranged to receive the oil-
70 supply pipe, and provided with the channel for the passage therethrough of a portion of the flame above the flame-plate, and with oil-channels leading around said flame-channel and communicating with the main vertical
75 tube of the burner, and the vertical flame-plate having the horizontal perforated socket for receiving the air and gas conducting tube, arranged and combined substantially as shown and described.

2. In a vapor-burner, the combination, with the main vertical tube, of the flame-plate and horizontal socket formed thereon, said socket being arranged to receive the air and gas
85 conducting tube, and provided with flame-orifices located at right angles to its axis, substantially as and for the purposes set forth.

3. The herein-described vapor-burner, composed of the main tube, the top provided with flame and oil chambers, the air and gas
90 conducting tube, the socket having the flame-orifices, the flame-plates, and a needle-valve, all constructed and arranged substantially as shown and described, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

HENRY WELLINGTON.

Witnesses:

JOHN BUCKLER,
WORTH OSGOOD.