

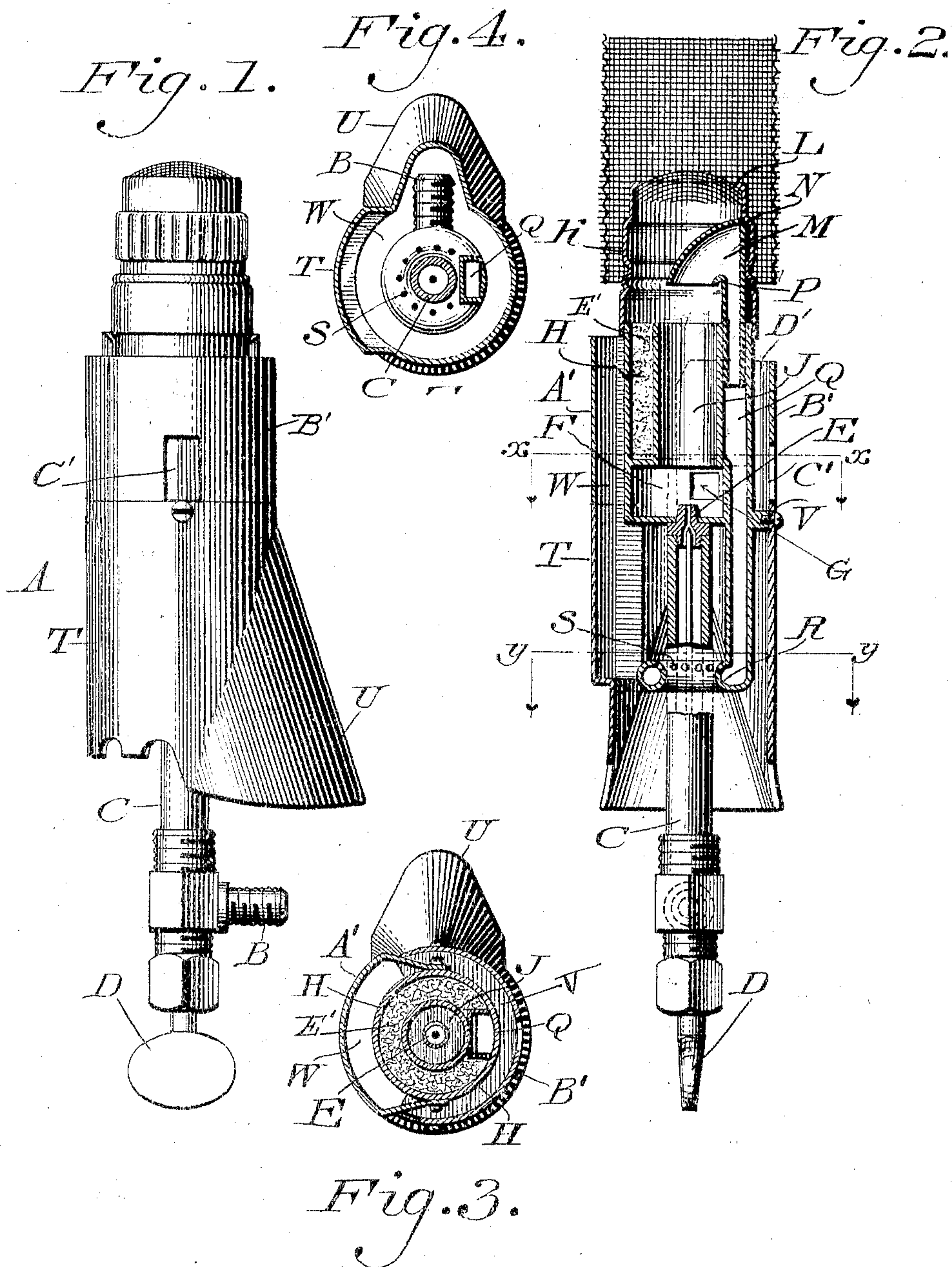
No. 777,665.

PATENTED DEC. 20, 1904.

E. T. CURRAN.
HYDROCARBON BURNER.

APPLICATION FILED SEPT. 24, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 777,665, dated December 20, 1904.

Application filed September 24, 1902. Serial No. 124,604.

To all whom it may concern:

Be it known that I, EDWARD T. CURRAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Hydrocarbon-Burners, of which the following is a specification.

My invention consists of an improvement in hydrocarbon-burners wherein I provide a trap for directing a portion of the vaporized gas away from the burner and to conduct the same to a suitable point for vaporizing the hydrocarbon.

It further consists in forming said hood with a curved upper wall and a curved lower wall in order to overcome friction.

It further consists in providing means whereby the vaporizing-burner will be reignited should the same for any reason be inadvertently extinguished.

It further consists in novel details of construction, all of which will be hereinafter fully set forth.

Figure 1 represents a side elevation of a burner embodying my invention. Fig. 2 represents a vertical sectional view thereof. Fig. 3 represents a sectional view on line *xx*, Fig. 2. Fig. 4 represents a sectional view on line *yy*, Fig. 2.

Similar letters refer to corresponding parts in the various figures.

Referring to the drawings, A designates a hydrocarbon-burner having a suitable inlet B, communicating with the pipe C, in which is the usual needle-valve D, said pipe C having a nozzle E and which discharges into the mixing-chamber F, which is provided with suitable openings G, said mixing-chamber being formed by the casing H, which is provided with a suitable passage or tube J, which communicates with the mixing-chamber and discharges into the tube K, at the upper end of which is the burner L, provided with suitable gauze. Situated within said tube K and projecting over a portion of the opening of the passage J is a hood or trap M, the upper wall N of which is curved, as is shown, as is also the lower wall P, it being understood that the curvature of the walls of said trap are so arranged as to produce the least possible friction

upon the incoming vapor, so that the same passes downwardly through the pipe or passage Q, which communicates with the vaporizing-burner R, which surrounds the pipe C, said burner being provided with suitable openings S adjacent said pipe.

T designates a casing having a hood or projecting portion U, said casing being secured to a lug V on the pipe Q, said lug extending part way around the interior of the casing, leaving a portion open, as will best be understood from Fig. 3.

A' designates a shell which is suitably secured to the casing H and forms a passage W therebetween, said shell conforming to the shape of the casing T, whereby a continuous passage is formed from the open bottom of the hood to the open top of the shell A'.

B' designates a tubular shell secured above the lug V and forming a passage D' between it and the casing H, said passage being closed with respect to the passage W, as will be understood from Fig. 3, said shell B' being provided with an opening C' for admitting air to the mixing-chamber F.

Around a portion of the tube J is formed a chamber in which is placed a suitable packing E', such as asbestos, for evident purposes. A suitable mantle and other necessary and usual parts are provided.

The operation is as follows: The hydrocarbon is fed into the pipe C through the inlet B, and by auxiliary means the hydrocarbon is vaporized in the pipe C and the vapor passes through the nozzle E into the mixing-chamber F, where it commingles with air and passes up through the pipe J, a portion of the vapor being conducted to the burner L, where it is ignited and the mantle is caused to glow or incandesce. The trap M receives a portion of the vapor from the pipe J and conducts the same with the least possible friction through the pipe Q to the vaporizer-burner R, where it is ignited and the flames from the openings S impinge against the pipe C and vaporize the hydrocarbon.

It will be seen that owing to the open passage W air passes up therethrough from the hood U out through the open top, and should for any reason the burner R be extinguished

when it is not desired the vapor therefrom will pass up through the passage W, at the top of which it will be lighted by the mantle and so pass down to the burner R, which will thus be reignited. In this way the burner becomes a self-relighter and burns properly and under all conditions until the supply of hydrocarbon is turned off.

It is to be noted on the drawings that the trap M is situated some distance above the discharge-opening of the passage or tube J and that the center of the opening of the hood or trap is substantially in line with the center of the tube J. It is also to be noted that the area in cross-section of the tube J is less than the area in cross-section of the mixing-chamber F. It will be further seen that as the vaporizing-burner R surrounds the pipe C, forming the vaporizer, the flames from the burner are so arranged as to impinge against the said pipe C, and as the burner is directed beneath the mixing-chamber and as the flames shoot upward they will also strike against the mixing-chamber and also against the pipe Q, which conducts a portion of the vapor to the burner. In this way I am enabled to hold the parts at a uniform heat, the beneficial effects of which are evident.

It will be evident that various changes may be made by those skilled in the art which will come within the scope of my invention, and I do not, therefore, desire to be limited to the construction herein shown and described.

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

1. A hydrocarbon - burner comprising a main burner, a vaporizer, a vaporizing-burner, a mixing-chamber, a pipe leading upward from said mixing-chamber, a trap located above said pipe, a tube connecting said trap

and said vaporizing-burner, said trap having a curved outer wall and being of substantially greater diameter than said tube and a casing open at its upper end adjacent said main burner surrounding said tube and said vaporizing-burner and enlarged at its lower end to direct air into said vaporizing-burner.

2. A hydrocarbon - burner comprising a main burner, a vaporizer, a vaporizing-burner surrounding said vaporizer, a wall also surrounding said vaporizer and forming a chamber adapted to receive the products of combustion from said vaporizing-burner, and means forming a draft-passage communicating with said chamber and extending a substantial distance thereabove.

3. A hydrocarbon - burner comprising a main burner, a vaporizing-burner surrounding said vaporizer, a wall also surrounding said vaporizer and forming a chamber adapted to receive the products of combustion from said vaporizing-burner, and means forming a draft-passage communicating with said chamber and extending to a point adjacent the upper end of said main burner.

4. A hydrocarbon - burner comprising a main burner, a vaporizer, a vaporizing-burner surrounding said vaporizer, a wall also surrounding said vaporizer and forming a chamber adapted to receive the products of combustion from said vaporizing-burner, and an imperforate tube communicating with said chamber and extending to a point adjacent the upper end of said burner and adapted to convey the products of combustion from said main chamber.

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Witnesses:

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