

A. E. HAUCK.
KEROSENE TORCH.

APPLICATION FILED AUG. 15, 1914. RENEWED JAN. 6, 1917.

1,216,115.

Patented Feb. 13, 1917.

Fig. 1.

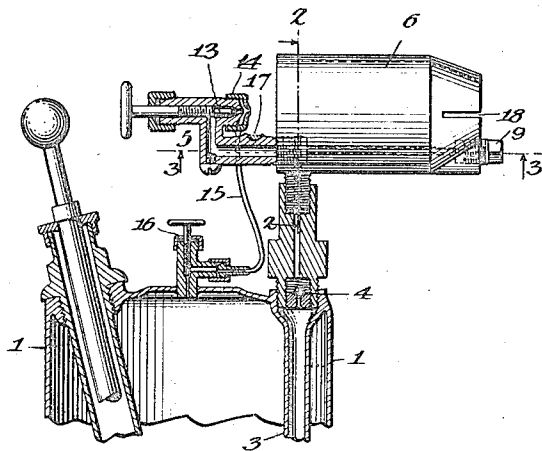


Fig. 2.

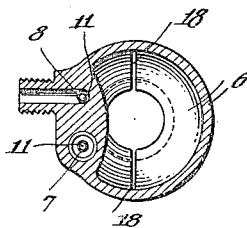


Fig. 3.

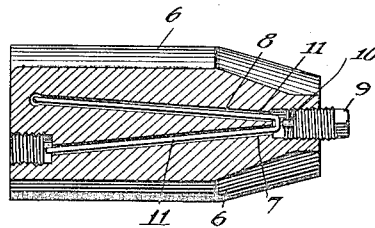


Fig. 4.

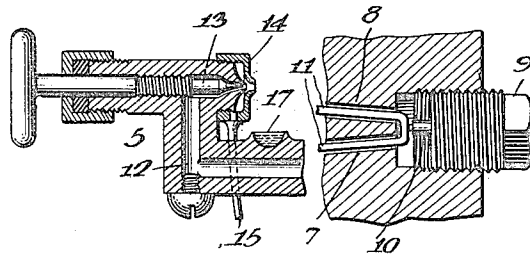
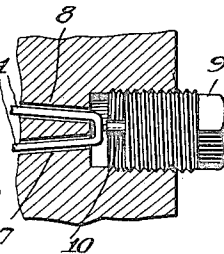


Fig. 5.



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UNITED STATES PATENT OFFICE.

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KEROSENE-TORCH.

1,216,115.

Specification of Letters Patent.

Patented Feb. 13, 1917.

Application filed August 15, 1914, Serial No. 856,919. Renewed January 6, 1917. Serial No. 141,057.

To all whom it may concern:

Be it known that I, ARTHUR E. HAUCK, a citizen of the United States, and a resident of the city and State of New York, county of Kings, borough of Brooklyn, and whose post-office address is No. 140 Livingston street, Brooklyn, have invented a new and useful Improvement in Kerosene-Torches, of which the following is a specification.

The object of my invention is to provide a torch which is especially adapted to kerosene, although it may be used with gasoline or alcohol, if desired. Heretofore, when gasoline or alcohol has been used in a torch, there has been danger of an explosion, and the liquid employed is exceedingly inflammable, and therefore likely to give trouble. Kerosene contains more heat units than either gasoline or alcohol, and is much cheaper, but it is difficult to ignite and keep ignited, so that it will burn without smoke. The object of my invention is to provide a torch in which kerosene can be used without smoke, and without trouble, and in which kerosene may be lighted more easily than gasoline or alcohol can be lighted in an ordinary torch. This and other objects are accomplished by my invention, one embodiment of which is hereinafter set forth.

For a more particular description of my invention, reference is to be had to the accompanying drawings, forming a part hereof, in which—

Figure 1 is a view of the burner top of my improved torch, parts being shown in cross-section.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1, looking in the direction of the arrows.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1, looking in the direction of the arrows.

Fig. 4 is a sectional view of the atomizer.

Fig. 5 is an enlarged sectional view of a portion of the front of the burner, taken on the line 3—3 of Fig. 1.

Throughout the various views of the drawings similar reference characters designate similar parts.

My improved torch has a tank 1 of the conventional kind, in which is mounted the usual pump 2, in the customary manner. Also near the bottom of this tank 1 runs the usual upwardly-extending pipe 3 to the top of the tank so that the liquid at the bot-

tom of the tank is forced by the air resting thereon upwardly through this pipe 3, thence by a check-valve 4 to the passages in the burner 6, and from thence to the atomizer 5, from which the oil, or other fuel may be atomized and blown into the burner 6, in the conventional manner.

The bottom of the burner 6 is made solid, except for passages 7 and 8, which run in converging paths to an opening closed by a screw-plug 9. The passage 8 connects with the check-valve 4, and the passage 7 runs to the atomizer 5.

The screw-plug 9, which closes the forward ends of the passages 7 and 8, is provided with a swivel 10, in which is carried a V-wire 11. The function of this wire is to rest in the passages 7 and 8, and force the liquid in the same into a space between the wire and the bottom of the burner 6, so that the incoming kerosene, or other fuel, will be thoroughly vaporized by the burner 6 before reaching the atomizer 5. As the screw-plug 9 can be readily removed, it is obvious that the passages 7 and 8 and the wire 11 can be readily cleaned.

The atomizer 5 has a passage 12 of the conventional kind running from the bottom of the burner 6 to the needle-valve 13, which is mounted in the usual way. This atomizer also has an auxiliary nozzle 14 placed over its forward end; that is, the end next the burner 6, and separated slightly therefrom, and this auxiliary nozzle 14 is connected by a tube 15 to a needle-valve 16 mounted in the top of the tank 1, so that air may pass through the passage 15 when the valve 16 is opened sufficiently to permit this. This valve 16 may be used as a regulating valve, so as to admit more or less air to the torch when the same is in use, whereby the temperature of the flame issuing from the burner may be varied, and it also serves to supply air to the oil vapor issuing from the needle valve 13 before the burner 6 is heated so that this oil is thoroughly atomized, and while so atomized and mixed with air, it may be readily ignited without smoke. To facilitate this operation a small cup 17, provided with asbestos, or other suitable material, is placed right below the nozzle 14, as shown, and the leakage in this cup, when the needle-valve 13 is first opened will constitute a sufficient supply of the oil on the asbestos to be readily lighted, and then when

the valve 16 is opened and the fuel through the valve 13 is thereby thoroughly sprayed, the flame from the pilot cup 17 will light the atomized and aerated fuel, and thereby
 5 cause the same to heat the burner 6. This heating takes place without any smoke whatsoever and soon the burner 6 is sufficiently heated to thoroughly vaporize the fuel passing by the wire 11 in the passages
 10 7 and 8, and then the valve 16 may be closed tight, or, if an intensely hot flame is desired, the valve 16 will be more or less open, in which event the pump will have to be operated more frequently.

15 It will be noted that the extreme end of the burner 6 is not only coned to reduce the area of its part near the flame, but it is also slotted, as shown at 18, so as to permit more air to mingle with the flame prior to its is-
 20 suing from the burner, as I have found by so doing a hotter flame may be produced with the same oil consumption.

In view of the foregoing, the operation of my improved torch will be readily under-
 25 stood. Assuming that the tank 1 has a suitable amount of oil in it, and the operator desires to use this torch, he first opens the needle-valve 13 of the atomizer 5, and permits a little oil to leak into the pilot cup 17.
 30 He then lights the oil in this cup 17 and then opens the valve 16 so that the oil issuing from the nozzle 14 will be thoroughly atomized and aerated while in a vaporous state. This atomized and aerated oil burns without
 35 smoke and in a few seconds the torch 6 is so hot that the valve 16 may be closed, and the intensity of the flame regulated by the valve 13 in the atomizer 5, although if desired as above stated, the heat may be intensified by
 40 admitting additional air through the valve 16. When the operator is through with the torch, he closes both the valves 13 and 16—if

the valve 16 is open—and then the flame is extinguished immediately.

While I have shown and described one embodiment of my invention, it is obvious that
 45 it is not restricted thereby, as it is broad enough to cover all structures that come within the scope of the annexed claims.

What I claim is:—

1. In a device of the class described, a burner with a slotted and coned end at the flame edge of said burner. 50

2. In a device of the class described, a burner tube having a bottom wall with passages therein running to a common opening, and a screw-plug closing said opening. 55

3. In a device of the class described, a burner tube, passages in the bottom wall of said burner running to a common opening, and a removable wire resting in said pas-
 60 sages.

4. In a device of the class described, converging passages running to a common opening, a removable wire resting in said pas-
 65 sages removable through said opening and means for closing said opening.

5. In a device of the class described, a burner with converging passages therein, and a screw-plug with a wire attached there-
 70 to, said wire extending into said passages, whereby fuel passing through said passages is forced against the walls of the passages.

6. In a torch of the class described, a fuel tank, a pipe running below the top of the
 75 fuel level in said tank, a burner connected to said pipe, an atomizer connected to said burner and to the top of said tank, an auxiliary nozzle on said atomizer, and a pilot cup adjacent to said auxiliary nozzle.

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Witnesses:

O. E. EDWARDS, Jr.,
 H. RODZINSKY.