No. 764,764. PATENTED JULY 12, 1904.

A. PRINCEN.

BLOW TORCH.

APPLICATION FILED AUG. 15, 1903.

NO MODEL.

Fig. 2.

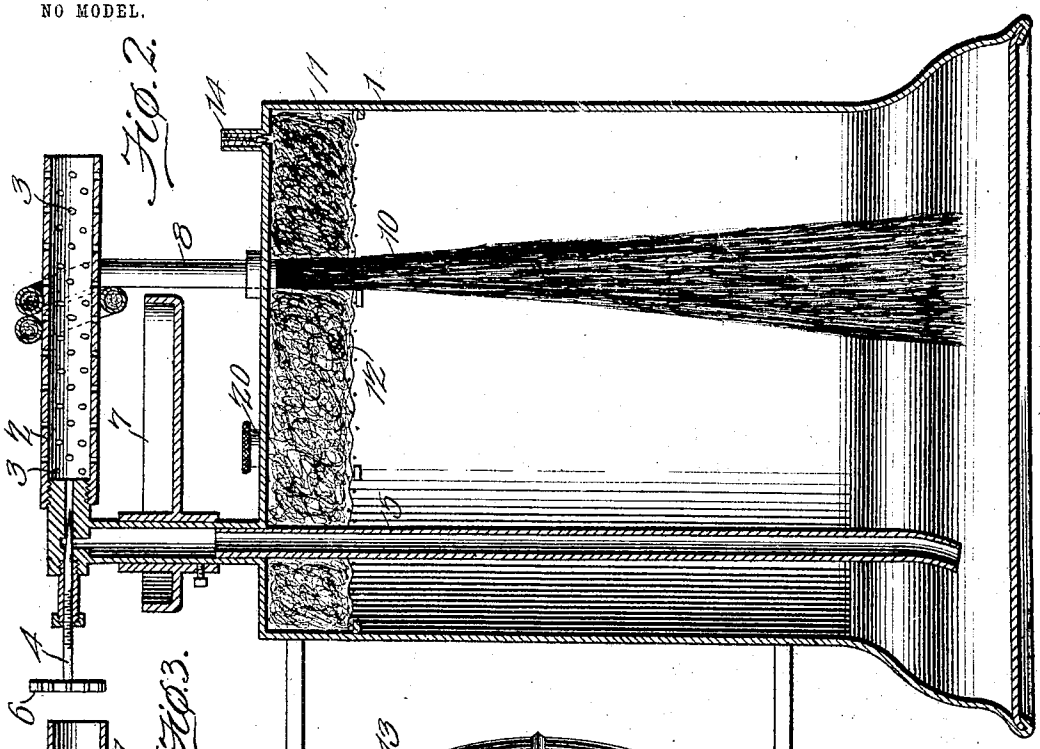


Fig. 3.

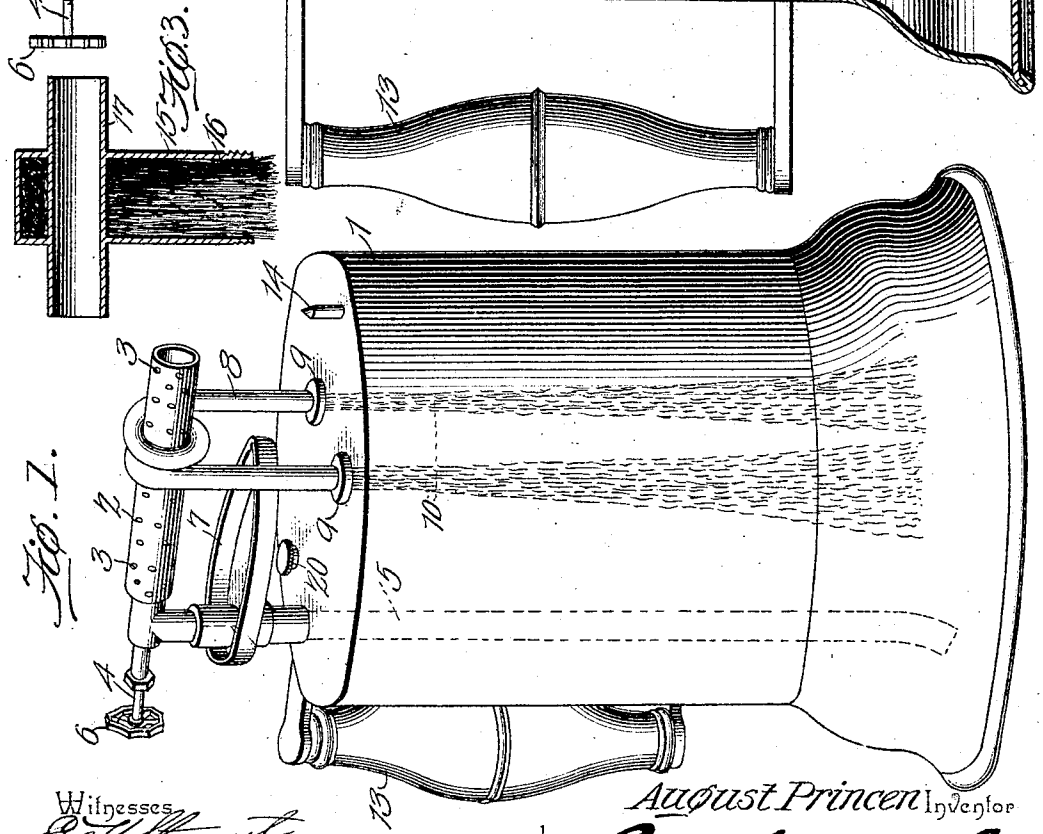


Fig. 1.

Witnesses
E. P. Stewart
Baxter Morton

August Princen Inventor
by C. A. Snow & Co
Attorneys

No. 764,764. Patented July 12, 1904.

UNITED STATES PATENT OFFICE.

AUGUST PRINCEN, OF MINNEOTA, MINNESOTA.

BLOW-TORCH.

SPECIFICATION forming part of Letters Patent No. 764,764, dated July 12, 1904.

Application filed August 15, 1903. Serial No. 169,632. (No model.)

To all whom it may concern:

Be it known that I, AUGUST PRINCEN, a citizen of the United States, residing at Minneota, in the county of Lyon and State of Minnesota, have invented a new and useful Blow-Torch, of which the following is a specification.

This invention relates to blow-torches for use by jewelers, tinners, plumbers, and other artisans; and it consists in the construction and combination of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, forming part of this specification, it being understood that various changes in the form, proportion, and exact mode of assemblage of the elements exhibited may be resorted to without departing from the spirit of the invention or sacrificing the advantages thereof.

The object of the invention is to provide a blow-torch in which gasolene or some other hydrocarbon of low specific gravity may be used as a fuel and in which the necessity of pumping to supply air-pressure to maintain a blast will be done away with and a flame of any desired intensity be produced by the pressure within the reservoir of the torch of the gas generated by the heat of the apparatus.

A further object of the invention is generally to simplify and improve the construction of blow-torches, thereby reducing the cost of such device and materially increasing their efficiency.

In describing the invention reference will be had to the accompanying drawings, in which corresponding parts are designated by the same characters of reference throughout the several views.

In the drawings, Figure 1 is a perspective view of a blow-torch constructed in accordance with this invention. Fig. 2 is a vertical section through the blow-torch shown in Fig. 1 in the plane of the axis of the generator-tube, the view being on a larger scale than Fig. 1. Fig. 3 is a detail sectional view of a structure which may be substituted for the tube shown in Fig. 1 coiled around the generator-tube.

Referring to the drawings in detail, 1 designates a suitable receptacle formed, preferably, of brass, which may be of any desired capacity, as, say, one quart. Mounted above the tank 1 is a cast-iron pipe 2, provided with a plurality of perforations 3 for the admission of air to the interior thereof and having at the end a valve 4, which controls the passage of hydrocarbon from a pipe 5, extending upward from the reservoir to the pipe 2, which may be designated the "generator-pipe."

The valve 4, which will be, preferably, of the needle type, is provided with a head 6 for turning the same and is arranged above a shallow cup or receptacle 7, which is mounted on the pipe 5 and extends for some distance under the generator-pipe 2.

Rising above the top of the reservoir is a tube 8, formed, preferably, of seamless brass and coiled one or more times around the generator-tube 2 near the mouth thereof, as shown. Within the tube 8, which is attached to the reservoir 1 by means of hollow screws 9, is a wick 10, which extends downward at both ends into the liquid hydrocarbon contained within the reservoir. In the upper portion of the reservoir above the hydrocarbon there is preferably placed a layer of absorbent cotton 11, which is supported upon a horizontal partition 12 of woven wire.

At the back of the apparatus is provided a suitable handle 13, which is preferably made of some non-conducting material, such as wood or compressed asbestos, and on top of the tank at any suitable point there should be provided a safety-valve, as indicated at 14, in order to permit the escape of gas from the reservoir before the internal pressure becomes sufficient to cause an explosion.

In Fig. 3 there is illustrated a substitute which may take the place of the tube 8, coiled around the generator-pipe and provided with the wick 10. This comprises a single vertical tube 15, formed, preferably, of seamless brass and closed at the top. The tube 15 is screwed into the top of the reservoir and is filled with wicking 16, extending down into the interior of the reservoir, and is provided near the top with a transverse tube 17, which is attached to the vertical tube 15 by means of hard solder. The transverse tube lies closely adjacent to the generator-tube 2 and receives heat

from the generator-tube in substantially the same way that the coiled tube 8, shown in the preferred form of the invention, does.

When it is desired to set the blow-torch in operation, a suitable quantity of gasolene or other light hydrocarbon will be introduced into the reservoir through the inlet-opening 20, which will then be closed, and a small quantity of gasolene, methyl-alcohol, or other suitable fuel will be placed in the cup 6 and ignited. The heating effect upon the generator-tube will be sufficient to cause the vaporization of some of the hydrocarbon absorbed by the wick within the tube extending up to and encircling the generator-tube, and the vaporization so produced will increase the vapor-pressure within the reservoir sufficiently to force upward through the pipe 5 a supply of gasolene to the generator-tube 2. Meanwhile the valve 4 and the rear portion of the generator-tube will have become sufficiently heated to vaporize gasolene, which is allowed to escape through the valve when opened to a slight degree, and the gasolene vapor thus formed will pass toward the mouth of the generator-tube, becoming mixed on the way thither with air admitted through the openings 3, so that by the time it reaches the mouth of the tube it will be in suitable condition for ignition. After vaporization of the gasolene at the valve 4 has been effected and a flame produced at the mouth of the generator-tube the action of the blow-torch will be continuous and may be regulated to meet the requirements of various kinds of work.

While the invention has been shown and described as embodied in a blow-torch, it will be obvious that the same form of automatic feed may be employed in connection with burners of other sorts, and I wish it to be understood that I reserve the right to apply the same type of feed mechanism to any other form of burner with which it may be successfully used.

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

1. In a blow-torch, the combination of a reservoir, a burner-tube above the reservoir, a feed-pipe extending from within the reservoir to the burner-tube, a tube having both ends communicating with the reservoir and encircling the burner-tube, and a wick arranged in the last-named tube and having its ends extending downward into the reservoir a sufficient distance to enter the liquid fuel contained in the reservoir.

2. In a blow-torch, the combination of a reservoir, a burner-tube above the reservoir, a feed-pipe extending from the reservoir to the burner-tube, a tube having both ends communicating with the reservoir and coiled around said burner-tube, and a wick disposed in said last-named tube and having the ends thereof extending downward into the liquid fuel contained within the reservoir.

3. A blow-torch comprising a suitable reservoir, a layer of absorbent material in the upper portion of said reservoir, a wire screen disposed below said material, a burner-tube, a supply-pipe leading to said burner-tube, and a wick-filled tube having its ends communicating with said reservoir and being coiled intermediate of its ends about said burner-tube.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

AUGUST PRINCEN.

Witnesses:
C. T. DAHL,
J. H. FROST.