

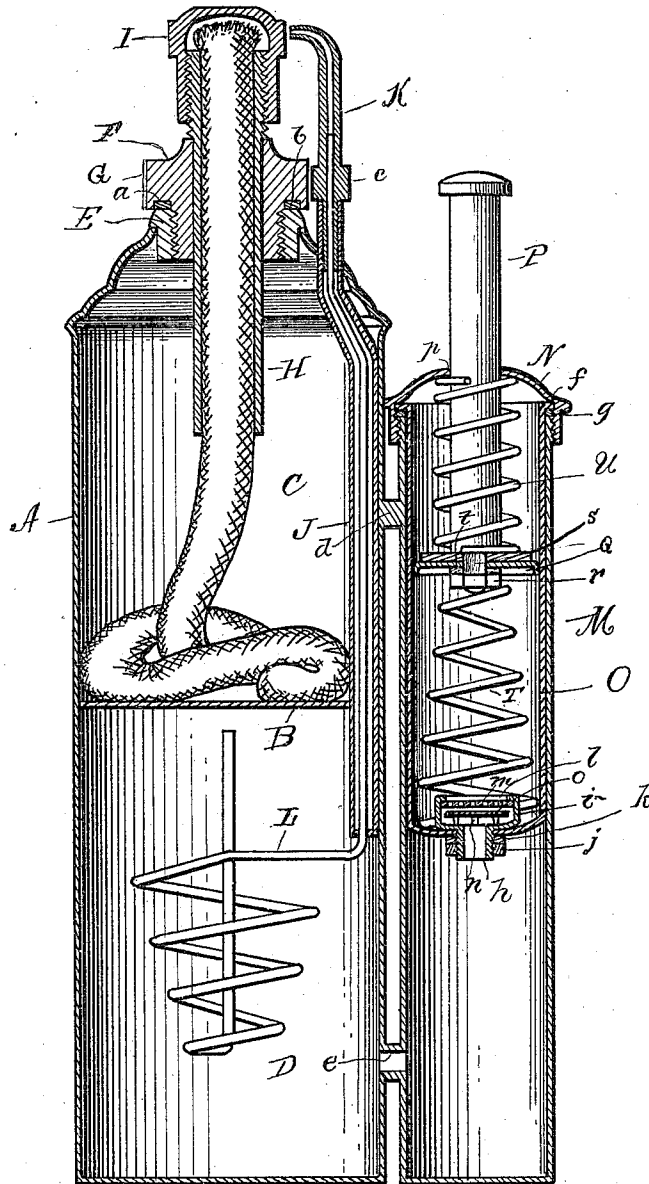
E. G. BRANDT.

BLOW TORCH.

APPLICATION FILED JULY 19, 1910

985,391.

Patented Feb. 28, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

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BLOW-TORCH.

985,391.

Specification of Letters Patent.

Patented Feb. 28, 1911.

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To all whom it may concern:

Be it known that I, EDWARD G. BRANDT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Blow-Torch, of which the following is a specification.

This invention relates generally to blow or blast torches, and particularly to such devices in which alcohol is used as the fuel, and it has for its object to provide a simple, comparatively inexpensive and durable apparatus adapted to provide a steady, uniform and continuous current of air across the flame generated from alcohol and thereby create a strong even blast, and also to provide means for adjusting the flame directing medium to correspond to the size of the flame, and it consists of the parts and combinations of parts hereinafter described and claimed.

In the accompanying drawings forming a part of this specification my improved blow torch is shown in vertical section.

A represents a cylinder of any desired or convenient size which is divided by a horizontal diaphragm B into an upper chamber C for the liquid fuel, and a lower chamber D which serves as an air reservoir. The top of the cylinder is preferably formed conical and is provided with a fixed threaded collar E in the inlet opening thereof to receive the burner. The burner consists of the threaded plug F having the annular serrated flange G, through which the wick tube H extends into the fuel chamber C. The upper end of the tube H is exteriorly threaded to receive the cap I which serves to cover the projecting end of the wick and prevents evaporation of the fuel when the torch is not in use.

A groove, *a*, is formed in the under side of the flange G in order to receive a rubber or leather or other flexible washer *b*, to form an air tight joint between the plug F and the fuel chamber.

J represents a tube arranged to pass through the top of the cylinder and through the fuel chamber C and enters the air reservoir D through a suitable opening formed in the diaphragm. The opening in the top of the cylinder and that in the diaphragm through which the tube J extends are made tight by soldering or otherwise so that

neither the fuel nor the air may leak from their respective chambers. The projecting upper end of the tube J is interiorly threaded to receive the threaded end of a nozzle K, the free end of which is bent or curved over toward the burner tube and is contracted at its discharge end to reduce the size of the current escaping therethrough. The nozzle is enlarged and serrated, as at *c*, in order to enable it to be grasped to adjust it in the tube J to any desired height. Thus when a large flame is desired or found necessary the wick is pulled up in the tube H to the necessary height and the nozzle raised to adjust it to correspond to the height of the wick in order to direct the current into the flame.

L represents a tube arranged in the air chamber, and coiled or wound in a helix and having one end bent upwardly through the coil and the other extending upwardly through the tube and into the nozzle K. The lower end of the tube J is closed or made tight around the tubular coil in any desired manner in order to prevent leakage of the air into the tube. The purpose of coiling the tube L is to govern the escape of the air from the air chamber D, this being accomplished by the resistance offered the air in passing through the coil and also insuring the delivery of the air in a steady, unbroken or continuous stream to the flame.

M represents a pump cylinder secured by a bridge *d* to the side of the cylinder A near its upper end and by a tubular bridge *e* near its lower end. The pump cylinder is formed with exterior screw threads at its top to receive the cap or cover N, and within the cylinder M is supported a barrel O having an open upper end and a surrounding outwardly extending flange *f* which rests on a washer *g* arranged on the upper edge or top of the cylinder M. The barrel O fits snugly within the cylinder and an opening is formed centrally in its bottom to receive the threaded tubular projection *h* of a valve casing *i*. The casing is held in place by a nut *j* run on the projection *h* against an interposed washer *k*. The top, *l*, of the valve casing is centrally perforated to form a port *m*, and is preferably held in place by crimping over the edge of the casing thereon, as shown. Within the valve casing a plurality of upright supports *n*, are arranged, preferably in

a circle, to afford a rest for the valve *o*. The valve *o* is formed of a disk of leather or rubber or any other suitable material.

P represents a piston rod, having an enlarged outer end or head, which enters the cylinder M through an opening *p* in its top, said opening being of slightly greater diameter than the rod P in order to permit of air being drawn into the cylinder around said rod. The end of the rod P within the barrel is reduced and threaded to receive a nut *r*, and carries a metal disk or plate *s* and a piston Q. The piston Q is held in place against the plate *s* by the nut *r* and an interposed washer *t*. The piston may be of leather or rubber or any other suitable material.

Within the barrel is a spring T coiled in conical shape and having its base resting on the bottom of the barrel while its apex engages the under side of the piston. The purpose of this spring is to return the piston rod to its normal or raised position after each downward stroke. A coiled spring U is arranged to rest on the upper surface of the plate *s* and to bear against the under side of the top of the pump cylinder. The purpose of this spring, which is relatively weaker than spring T, is to act as a buffer and prevent the too rapid or violent return of the rod after its downward stroke.

In operation the chamber C is supplied with alcohol and the wick adjusted to the desired height and lighted. The apparatus is held by the pump cylinder and the piston is depressed by the thumb or index finger of the operator. This action forces the air through the valve casing and into the lower part of the pump cylinder and from there through the tubular bridge into the air chamber D. From the air chamber it passes, under pressure, through the tubular coil and is forced through the nozzle and into the flame from the wick. The return stroke of the piston is caused by the conical spring and its upward movement draws up the valve *o* and closes the port *m* thus preventing the escape of the air which the downward stroke pumped into the cylinder and air chamber, and owing to the small size of

the tubular coil through which the air escapes relative to the size of the air reservoir, sufficient air is always in reserve to supply the nozzle during the period of the upward stroke of the piston.

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

1. A blow torch, comprising a fuel and an air chamber, a burner for said fuel chamber, a nozzle for directing the flame, a helically coiled tube arranged in the air chamber and communicating with the nozzle, and an air pump for supplying air under pressure to the air chamber.

2. A blow torch, comprising a fuel and an air chamber, a burner for said fuel chamber, a fixed tube extending through the fuel chamber and into the air chamber, a nozzle adjustably secured to said tube, an air tube arranged in said air chamber and extending through said fixed tube and entering said nozzle, and means for supplying air under pressure to the air chamber.

3. A blow torch, comprising a cylinder having a liquid fuel chamber and an air chamber, a burner for said fuel chamber, a nozzle for directing the flame from said burner, a helically coiled tube connecting said air chamber and nozzle, and an air pump for supplying air under pressure to the air chamber.

4. A blow torch, comprising a cylinder having a fuel chamber and an air chamber, a burner for said fuel chamber, a fixed tube extending through said fuel chamber and into said air chamber, a nozzle connected to said tube, a helically coiled air tube extending through said fixed tube and connecting the nozzle and the air chamber, and a pump connected to said cylinder for supplying air under pressure to the air chamber.

In testimony whereof, I affix my signature, in the presence of two witnesses.

EDWARD G. BRANDT.

Witnesses:

MODIE HARRIS,
LOUIS BARNET.