

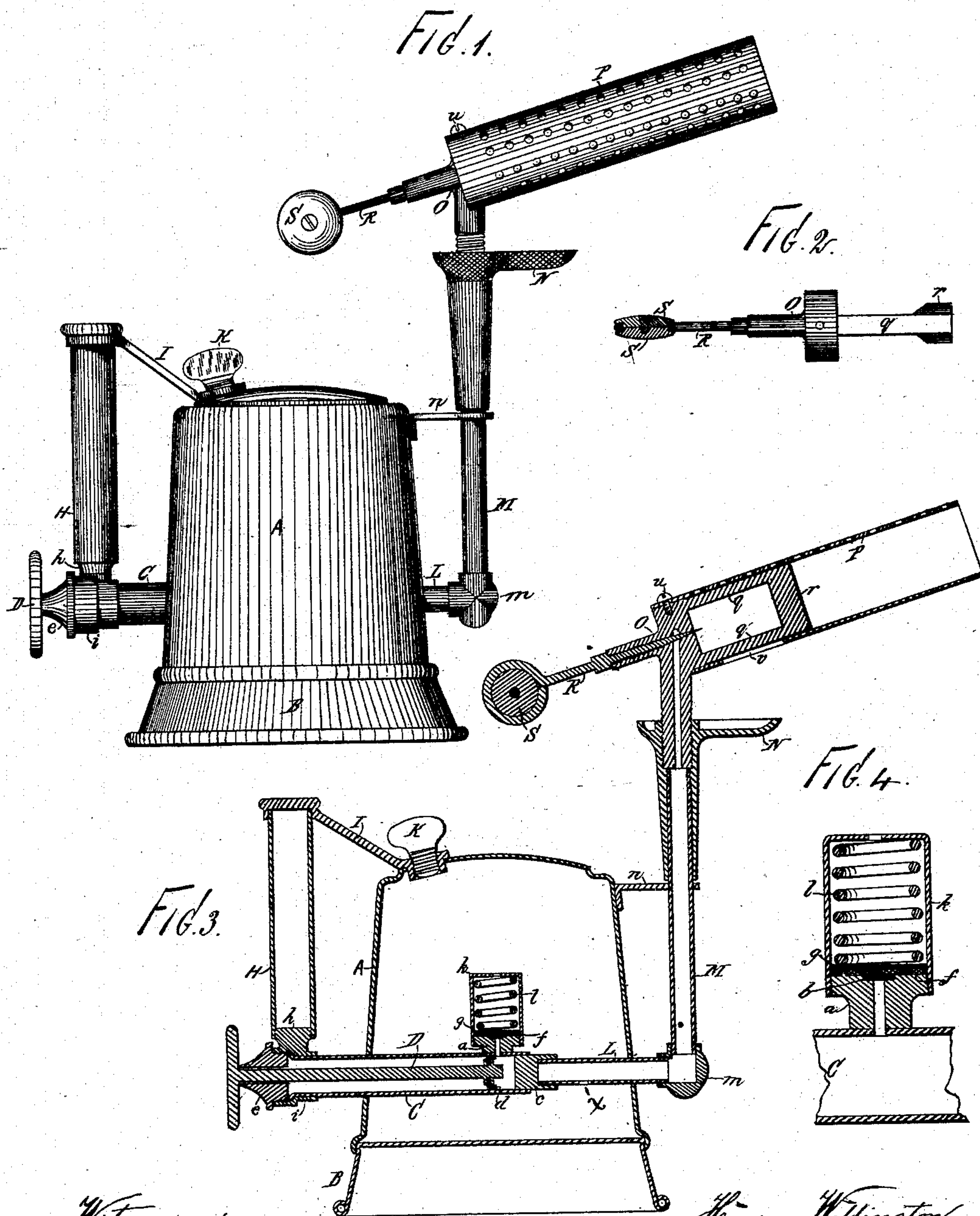
(No. Model.)

H. WELLINGTON.

TORCH.

No. 284,346.

Patented Sept. 4, 1883.



Witnesses:  
John Buckler,  
Henry Lib

Henry Wellington,  
Inventor.  
By North Osgood  
Attorney.



# UNITED STATES PATENT OFFICE.

HENRY WELLINGTON, OF BROOKLYN, NEW YORK.

## TORCH.

SPECIFICATION forming part of Letters Patent No. 284,346, dated September 4, 1883.

Application filed May 24, 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 Torches, 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 improvements have relation to torches, especially such as are intended to be carried about in the hand, burning hydrocarbon or other easily-vaporizing material, and employed for purposes of burning paint or varnish, for heating ordinary vapor-burners before lighting, and for other purposes in connection with heating and illuminating.

The object of my invention is to produce a simple, compact, safe, and durable torch where- in the pressure upon the liquid within the fount or reservoir is produced by compressed air, and which will afford an intense heat with an economical consumption of burning material; to simplify and improve the construction of the pump and the valve through which air is admitted to the reservoir; to provide simple and efficient means of connecting the perforated guard with the burner; to provide non-conducting finger-pieces for the needle-valve; to locate and arrange the supply-tube and packing-tube leading to the burner, so that a supply of fuel will always be provided for the burner, (when the air-pressure is on,) and so that the packing may be easily removed; to provide a convenient place for scratching matches; to simplify and improve the means of securing the handle in place, and to secure other advantages, as will hereinafter appear. To accomplish all of this, my improvements involve certain novel and useful peculiarities of construction, relative arrangements or combinations of parts, 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 my improved torch. Fig. 2 is a plan of the burner detached from the other parts, the finger-piece upon the needle-screw being shown in section. Fig. 3 is an axial section

of the torch, showing the parts assembled for use. Fig. 4 is an enlarged sectional view, showing the construction and arrangement of the air-valve.

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

A is the main body of the reservoir. It is preferably spun or otherwise formed of a single piece of metal, (so as to avoid joints.)

B is the bottom piece, having a narrow bead around its top, into which the lower edge of the reservoir-body is bent or turned, the two pieces being secured by solder or otherwise after the pump is located and fixed in place.

C is the pump-barrel, located in the lower part of the reservoir and projecting through one side thereof, so as to form the lower brace of the handle. To brace the inner end of the pump-barrel, it is connected with the oil-supply tube L by means of a dividing-plug, as *c*, and the tube L is carried through the opposite wall of the reservoir. The joints between the walls of the reservoir and the pump-barrel and supply-tube are secured by solder, which prevents leakage and sustains the parts in a solid and substantial manner, so that the working of the pump-piston will in no way disturb them or injure the joints, as frequently occurs in constructions wherein the pump-barrel is not sustained at both ends.

D is the piston-rod, made solid, and provided at its inner end with a cup-piston, *d*, of leather or other elastic material, the cup being turned toward the inner end of the pump-barrel, as shown in Fig. 3.

Upon the outer end of the pump-barrel is the ring *i*, which receives the removable centrally-perforated screw-plug, *e*, through which the piston-rod D passes loosely, in order that air may be admitted around the rod. The ring *i* is secured upon the end of the pump-barrel by swaging the end of the latter. This makes a simple and secure joint and facilitates the insertion of the cup-piston, the front opening in the pump-barrel being thus made amply large and quite smooth.

Upon the upper part of ring *i* is a screw-threaded disk, *h*, to receive the correspondingly-threaded lower end of the vertical piece H of the handle. This piece, being turned



down to its seat on the disk, is held at top by the brace I, the same being soldered to the top of H, and also upon the reservoir. Through the brace I and the top of the reservoir is the opening through which oil or liquid fuel is admitted to the interior, the opening being securely closed by the removable screw plug or stopper K, the screw-threaded seat for which is formed in the end of the brace, as shown.

Upon the inner end of the pump-barrel is secured in any substantial manner a seat, *a*, for the valve through which air is admitted to the reservoir. It is essential that this valve should freely admit the air and automatically close against the downward or outward passage of liquid from the reservoir. Over the perforation leading through the seat *a*, I place a thin disk of metal, *b*, in a suitable recess cut for it. Over this is a disk of elastic material—such as a compound of glue and glycerine or other oil-resisting material (represented at *f*)—and upon this is a protecting-plate of metal, *g*. The exterior of seat *a* is screw-threaded to receive the cap *k*, the same being perforated at top and made to hold the valve-spring *l* in place. The elastic disk, under the action or pressure of the spring, securely closes the air-opening in the seat, the same being protected against wearing action of the spring by the upper metallic disk and by wearing action upon the valve-seat by the lower metallic disk.

The pump and valve being thus constructed, when the piston is drawn out, the valve is automatically closed and air finds its way past the elastic cup on the end of the piston-rod or plunger. Then upon forcing the plunger inwardly the air in advance of it is compressed, elevates the valve, and is forced into the reservoir, wherein it may be compressed to any desired degree. The pipe L, through which oil is forced from the reservoir, is perforated at the bottom, as at *x*, so that as the instrument is inclined during use the oil or liquid will not be liable to uncover the orifice, and thus fail to be forced out through it.

Upon the exterior of pipe L is the elbow *m*, which also receives the packing-tube M, leading to the burner, the tube being supported at top by a suitable brace, *n*. This tube is intended to be packed with any granular or fibrous material, and may be easily removed for cleaning or repacking. Upon the top of tube M is screwed the drip-cup N, and this receives the burner O, which in turn supports the perforated shield or guard P. The under surface of the drip-cup is roughened, as shown in Fig. 1, and made to supply a convenient object upon which to scratch matches.

The burner is of simple form, having the heating-rods *q q* and cross-piece *r*. This burner might be otherwise formed, inasmuch as its particular construction is no essential part of my invention.

The under side of guard P is notched out, so as to fit around the neck of the burner, and

this, together with the screw *u*, holds the guard firmly in place.

On the underside of the perforated guard P is an elongated slot, *v*, to admit the passage of the flame from the drip-cup in the process of lighting the burner, which is accomplished in the usual way by burning oil or liquid in the drip-cup.

As will be readily understood, the needle-valve R is used to regulate the size of the flame, and usually becomes highly heated. To prevent burning of the fingers, I form the outer end of the valve-stem into a ring, and in this ring locate two wooden buttons, as S S, each having overhanging edges, and secured together by the central screw, as plainly shown. This forms a good non-conducting finger-piece, and is of marked advantage in connection with the valve.

As will be readily understood, the air above the supply of oil or liquid in the reservoir is compressed by a few movements of the pump-piston, and the compressed air furnishes a constant supply of fuel to the burner, the same being driven up with force sufficient to produce an intense heat. The construction of the burner and arrangement of the perforated guard are such that a proper supply of air will be mingled with the burning vapor.

As shown in Figs. 1 and 3, the guard and burner are inclined upwardly from the axis of the reservoir, and this is the preferred way of mounting these parts, so that the flame may be most advantageously employed while the torch is moved up or down or inclined in the hand.

The torch thus constructed is found in practice to be simple, durable, and thoroughly efficient, and to admirably answer the several purposes or objects of the invention, as previously set forth.

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

1. In a torch of the character herein set forth, the air-pump having the solid piston-rod with an elastic cup-piston applied thereon, the pump-barrel being sustained at both ends and connected with the vertical handle, the same being combined with the reservoir, substantially as shown and described.

2. In a torch, the combination, with the pump-barrel mounted and sustained within the reservoir, substantially as explained, of the air-valve located upon the pump-barrel within the reservoir, said valve being composed of the elastic disk protected on both sides by metallic plates, and operated upon by the spring, substantially as shown and described.

3. In combination with the pump-barrel extending through one side of the reservoir, the oil-pipe connected with said pump-barrel, extending through the opposite side of the reservoir, and perforated for the admission of oil to it, substantially as shown and described.

4. In combination with the burner, the nee-



dle screw-valve having a ring at its outer end, and the non-conducting buttons or finger-pieces, secured in said ring and to each other by the central screw, substantially as and for the purposes set forth.

5 5. In a torch having a pump for compressing air therein, the combination, with the oil-supply pipe, perforated as explained, and leading from the reservoir, the elbow mounted thereon, 10 and the packing-tube screwed therein, the latter being sustained at top by a bracket-piece connected with the reservoir and supporting the burner and drip-cup, substantially in the manner and for the purposes set forth.

15 6. In combination with the burner, the drip-cup mounted thereunder and having its under

surface ribbed, for the purposes and objects named.

7. In a torch, the vertical handle, threaded at bottom and secured at that point upon a 20 threaded ring applied upon the pump-barrel, the same being combined with the top brace secured to the reservoir, and having the oil-hole therethrough, substantially as shown and described.

25 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.