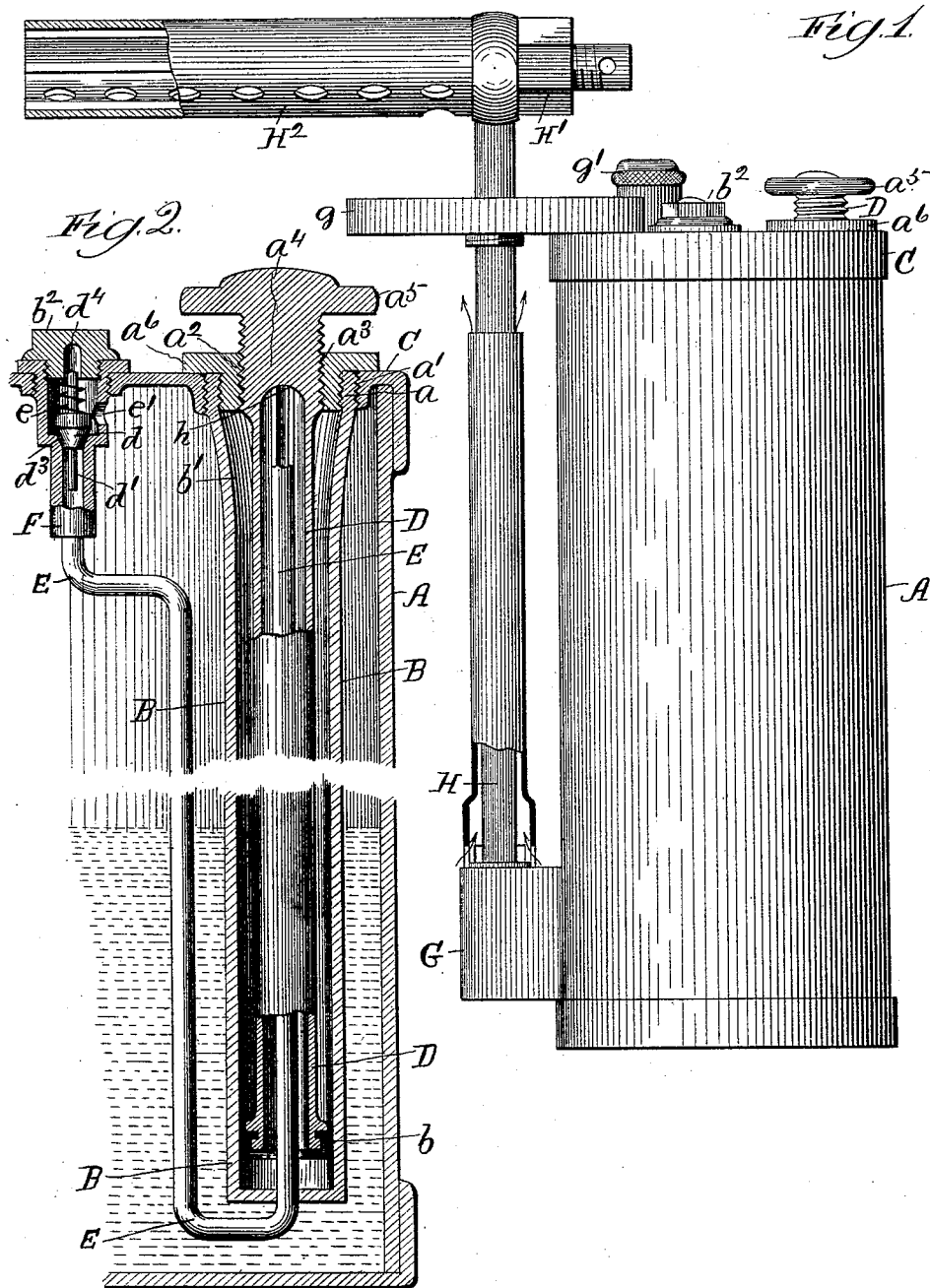


(No Model.)

J. C. WALSH.
PLUMBER'S TORCH.

No. 489,513.

Patented Jan. 10, 1893.



Witnesses:
E. B. Chyland,
Efford White.

Inventor:
J. C. Walsh.
By L. B. Coupland & Co
Atty's.

UNITED STATES PATENT OFFICE.

JOHN C. WALSH, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GASOLINE TORCH MANUFACTURING COMPANY, OF SAME PLACE.

PLUMBER'S TORCH.

SPECIFICATION forming part of Letters Patent No. 489,513, dated January 10, 1893.

Application filed May 9, 1891. Renewed October 28, 1892. Serial No. 450,292. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. WALSH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Plumbers' Torches, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation; and Fig. 2 a broken-away vertical longitudinal section.

The object of this invention is to provide a continuous blast torch which may be used for various purposes, but is more especially intended for the use of plumbers.

This invention relates to a combined air-pump and shut-off attachment, as will be hereinafter set forth.

Referring to the drawings, A represents a cylindrical reservoir which is tightly closed at both ends. This reservoir or tank contains the body of gasoline or other gas-producing liquid, and is ordinarily only partially filled, as shown; leaving the upper part of the tank to be used as a chamber in which a body of air is compressed. The pump-barrel B extends down on the inside of the tank and stops short of the bottom as shown in Fig. 2. The lower end of this barrel is tightly closed and submerged in the liquid body. The upper end a is screw-threaded and engages with the correspondingly threaded aperture a' in the head, C, of the tank. The interior upper end of the pump-barrel is also screw-threaded to receive the threaded bushing a^2 , which is inserted to reduce the diameter of the pump-barrel at this point. The bushing a^2 is provided centrally with the threaded aperture a^3 , which receives the upper enlarged solid, threaded end a^4 of the tubular plunger-rod D. This end of the plunger, when in its lowermost and closed position, as illustrated, projects a little above the end of the tank and terminates in a flanged head a^5 , to provide a hand grasp when manipulating the device. The bushing a^2 is also provided with a flange a^6 which extends over the opening made in the head end of the tank to receive the pump

parts and form an air-tight joint. The lower enlarged end of the plunger is provided with an annular groove in which is inserted the packing-ring b . The pump-barrel is of a uniform diameter from its lower end upwardly for about three-fourths of its length and then gradually enlarges as at b' , to the threaded end. This increased diameter provides for the passage of the air downwardly around the packing-ring when the plunger is raised to its highest point.

The air-conducting pipe E starts at a point near the upper end of the tank and inside of the tubular plunger and passes down and out through the bottom of the pump-barrel and then upwardly and terminates in the lower end of the valve-tube F, projecting into the tank through the upper end, as shown in Fig. 2. This valve-tube screws into place, the upper and outer end being closed by the screw-cap b^2 . The check-valve d is mounted on the spindle d' , and located inside of the tube F; d^3 being the valve-seat, the valve opening upwardly. The spindle d' projects both above and below the valve, such projecting ends acting as guides to retain the valve in its proper position; the upward movement of the valve being limited by the spindle end coming in contact with the bottom of the recess d^4 in the cap b^2 . The spring e , coiled around the spindle above the valve, serves to assist in returning the valve to its seat when the pressure on the underside is relaxed. The aperture e' in the valve-tube opens into the upper part or air-chamber of the tank, and through which the air is forced into the tank by the pump. Sufficient air-space is provided for between the plunger and air-pipe, as shown by the broken-away parts. The air-pipe is also broken-away at the end where it bottoms in the plunger. On one side and lower end is formed the chamber G which communicates with the liquid body in the tank. The lower end of the pipe H is inserted in this chamber; the other end being connected to the vaporizer H'. The burner-shield H² is connected to the vaporizer. The vaporizer and burner-shield form the subject matter of another application and will not therefore be here described in detail. The stationary cup g is in-

tended to hold a small quantity of the gas-generating liquid, which is first ignited to heat the vaporizer. The gasoline or other liquid is supplied to the tank through the capped tube *g'*.

In operation; the plunger should be rotated until unscrewed, then drawn clear up when the air will rush into the barrel and on the down stroke the air taken in will pass into the lower end of the tubular plunger and up to the terminus of the tubular part and, passing into the open end of the air-conducting pipe, will be forced into the air-chamber of the tank; the pumping process being continued until the tank is charged with a sufficient pressure to maintain a continuous flame for a number of hours. When the tank is charged, the plunger should be screwed into the position illustrated, the solid part, as at *h*, coming in contact with and closing the open end of the air-conducting pipe; thus shutting off any back pressure by reason of any leakage through the check-valve, and thus effectually avoid the diminishing of the compressed air pressure in the tank in this direction.

The tank when fully charged with air will maintain a continuous blast for a number of hours. The air-pipe also serves as a guide for the tubular plunger, and keeps the same in a central position so as to have an even bearing on the inclosing wall of the pump-barrel alike.

The stationary sleeve *k* incloses the gasoline pipe for a portion of its length, and is of a greater diameter for the purpose of providing for a circulation of air between the two, as indicated by the arrows, and keeping the gasoline pipe in a comparatively cool condition.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a plumber's torch, the combination with a reservoir or tank, of a pump-barrel, extending down on the inside of said reservoir and of a gradually increasing diameter near the upper end, the tubular plunger, open at the lower end and closed at the upper, and an air-pipe, having one part extending up into and opening inside of said plunger and the other part communicating with the air-space of the reservoir, whereby a body of air may be compressed therein on top of the liquid contents, substantially as and for the purpose set forth.

2. In a plumber's torch, the combination with a reservoir or tank, of the pump-barrel, rigidly secured in the head end and extending down inside thereof, the flanged reducing-bushing, screwed into the inside upper end of said barrel, the tubular plunger, having a closed, threaded head-end which is adapted to screw into said bushing, and the air-conducting pipe opening up inside of said plunger, whereby the open end of said air-pipe is closed when the plunger is screwed into its stationary position, substantially as and for the purpose set forth.

3. In a plumber's torch, the combination of the reservoir, the pump-barrel, the tubular plunger, having a closed upper end, and the air-pipe, opening up inside of said plunger, whereby air may be forced through said pipe and the same then tightly closed by screwing down the plunger in the head end of the reservoir, substantially as described.

JOHN C. WALSH.

Witnesses:

L. M. FREEMAN,

L. B. COUPLAND.