

(No Model.)

Z. DAVIS.
COAL OIL TORCH.

No. 306,004.

Patented Sept. 30, 1884.

Fig. 1.

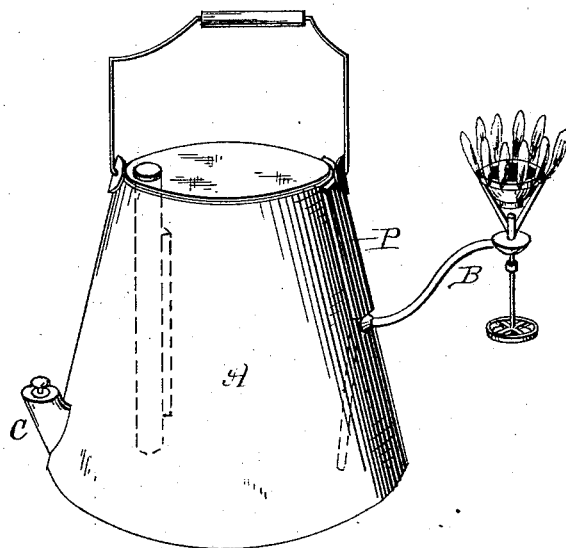


Fig. 2.

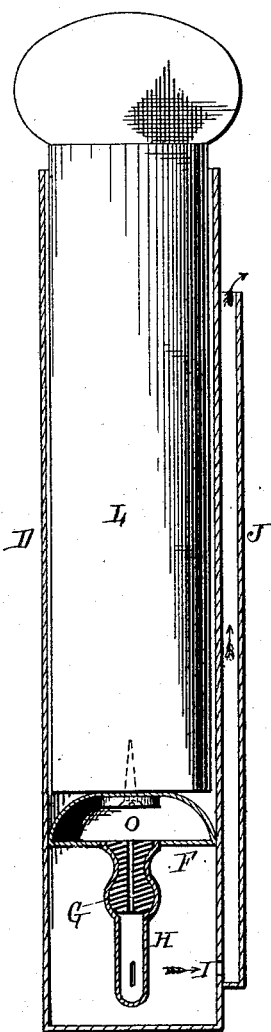


Fig. 3.



—Witnesses.—

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UNITED STATES PATENT OFFICE.

ZEBULON DAVIS, OF CANTON, OHIO.

COAL-OIL TORCH.

SPECIFICATION forming part of Letters Patent No. 306,004, dated September 30, 1884.

Application filed December 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, ZEBULON DAVIS, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Coal-Oil Torches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in coal-oil torches; and it consists in the combination of the reservoir, the bail having the hand-piece on one side, the burner, and a shield, which is attached to the reservoir opposite to the burner, so as to protect the reservoir from heat, all of which will be more fully described hereinafter.

Figure 1 is a perspective of a torch embodying my invention complete. Fig. 2 is a vertical section of the air-pump. Fig. 3 is a detail view of the air-tube.

A represents a reservoir, vessel, or tank of any shape, form, size, or construction that may be preferred. As here shown, this reservoir A is preferably larger at the bottom than the top; but I do not limit myself to this construction.

Projecting from one side of the reservoir at any suitable point is a supply-pipe, B, which has secured to its outer end a vapor-burner of any suitable construction. The inner end of this pipe B projects down to or near to the bottom of the reservoir A in the usual manner. As this burner projects beyond the base of the reservoir it is heavier upon one side than the other, and hence the handle must be constructed especially to counterbalance this burner. As is here shown, the ends of the handle of the bail are attached to the top of the reservoir in a direct line with the burner, and the handle itself is applied to the bail to one side of the center of the reservoir just far enough to cause the reservoir to hang evenly in the hand while being carried.

In order to always preserve ample space in which to compress air in the top of the reservoir, the filling-orifice C is made upon one side of the tank at a suitable distance below the top of the reservoir. When the reservoir is being filled, the oil will never rise above this

filling-orifice, and hence the air-chamber is never encroached upon by the oil. As it is necessary that this air-space should be sufficiently large to allow considerable air to be pressed therein, so as to feed the oil for a suitable length of time, it is necessary that some provision should be made to prevent the reservoir from being filled beyond a certain limit, as would be the case if the reservoir were filled from the top.

Secured to the top of the reservoir is a cylinder, D, of the air-pump, and which cylinder is provided with a perforated diaphragm, F, on the under side of which is made a teat or projection, G, to which the slitted rubber tube H is applied. Through the side of the cylinder below the diaphragm F is made the air-hole I, through which the air escapes into the air-pipe J, which extends up near the top of the vessel or reservoir, in which the pump is placed.

The piston L consists of a slide or plunger, to the lower end of which is fastened the cup-shaped packing O. When this plunger or piston L is drawn upward, the air passes in between the sides of the plunger and the cylinder, collapses the packing O, and passes down into the cylinder above the top of the orifice I. When the plunger is forced downward, this packing O expands against the side of the cylinder and forms a tight joint, so that the air cannot escape upward, and hence is forced down from the rubber slitted tube H into the bottom of the cylinder. The downward pressure of the air causes the slit in the tube to open and allow the air to pass through; but the expansibility of the rubber causes the slit to instantly close again, and thus check any backward pressure of the air as the plunger is raised upward. Owing to the very frail nature of the rubber, it is necessary that it should be protected from the liquid in which the pump is immersed, and hence it becomes necessary to have the air-tube J extend from the lower end of the cylinder up above the top of the liquid, as shown. Were it not for this air-tube the solvent action of the coal-oil would soon destroy the rubber. This tube is also necessary where the pump is raised above the fluid, so as to prevent the splashing about of the fluid from touching the rubber tube. By means of this pump a suitable volume of air

is pressed in the top of the reservoir upon the oil, so as to force it up to the burner in a constant steady stream.

5 In order to prevent the heat from the burner from affecting the reservoir, a shield, P, is applied to the side of the reservoir above the supply-pipe B, and this shield is made to project far enough from the side of the reservoir to allow a constant free passage of the air between the inner side of the shield and the outer side of the reservoir, thus keeping the reservoir always cool. While the torch is being carried around with the burner forward the air carries the flames of the burner back
15 against the side of the reservoir and heats the reservoir to such an extent as to endanger the

soldered joints, and hence a shield to protect the reservoir is absolutely necessary.

Having thus described my invention, I claim— 20

The combination of the reservoir, the bail connected thereto and having its hand-piece located on one side toward the burner, the burner, and a shield, which is connected to the reservoir opposite to the burner, substantially as shown and described. 25

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

ZEBULON DAVIS.

Witnesses:

F. A. LEHMANN,

B. LEWIS BLACKFORD.