

(No Model.)

2 Sheets—Sheet 1.

F. RHIND.
VAPOR BURNING LAMP.

No. 494,938.

Patented Apr. 4, 1893.

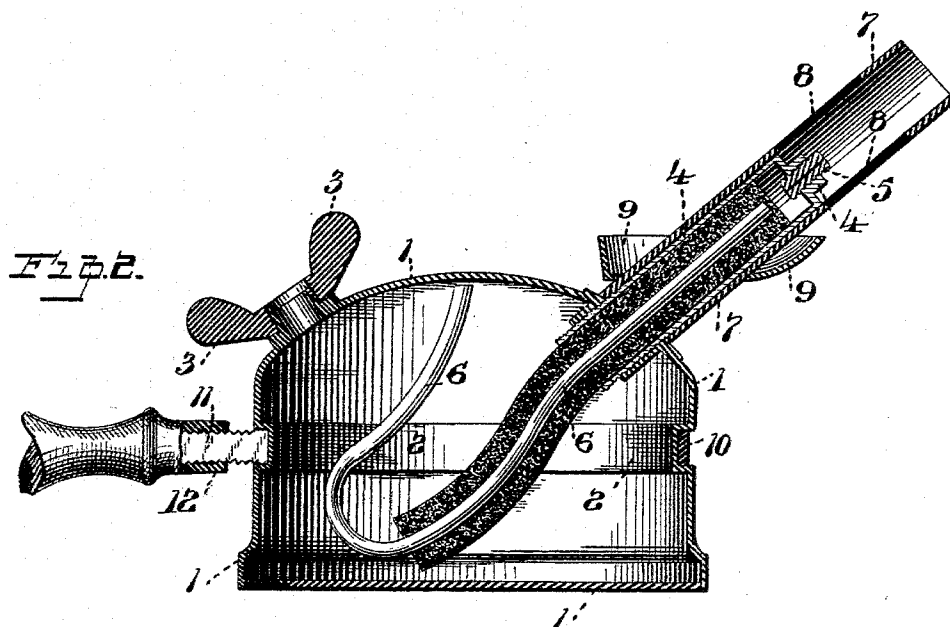
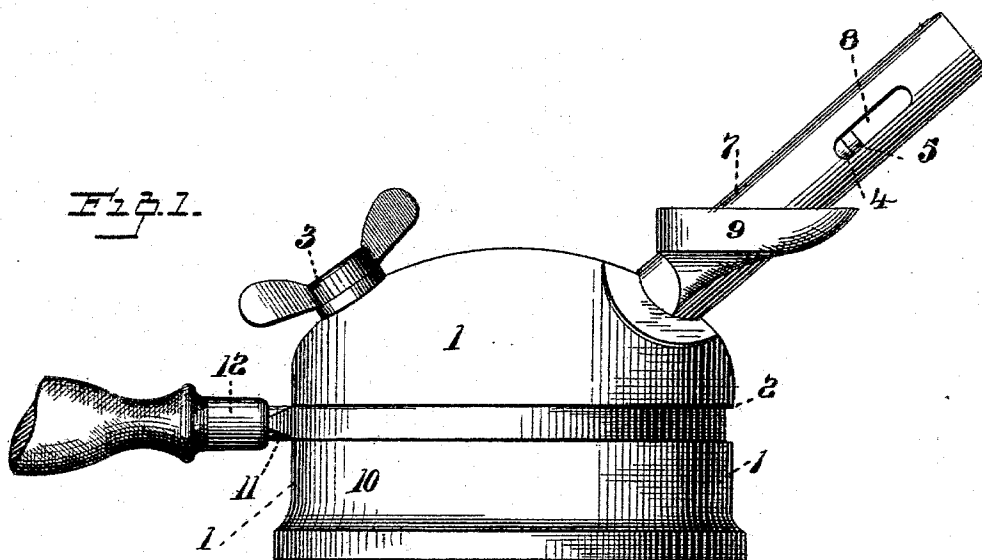
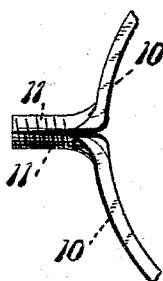


Fig. 3.

WITNESSES

A. J. Tanner.

C. M. Newman



INVENTOR

Frank Rhind,

by O. H. Hubbard

his Attorney

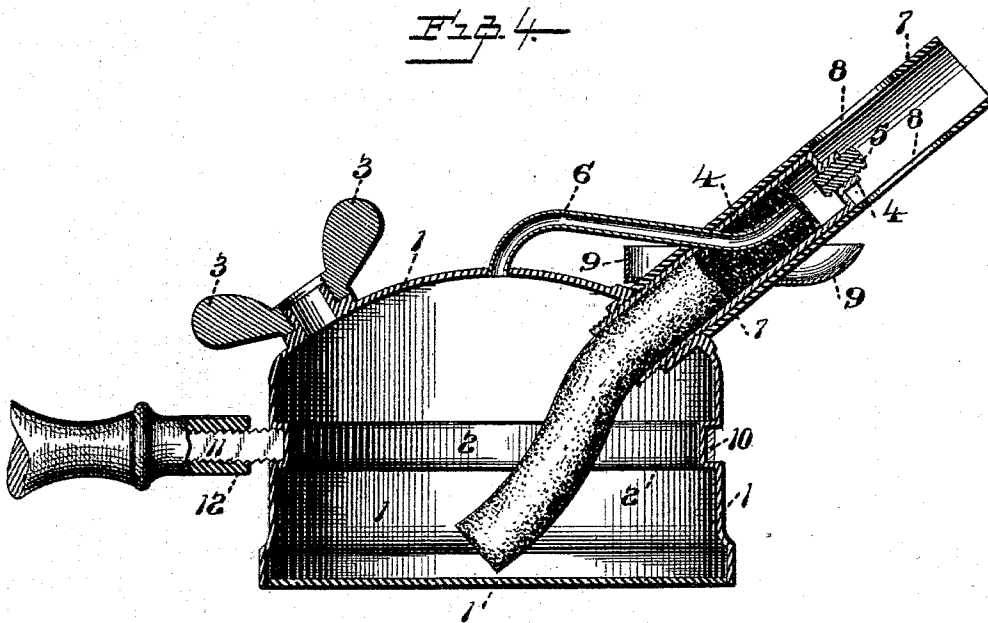
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WITNESSES
A. J. Tanner.
C. M. Newman

INVENTOR
Frauk Rhind
By *D. H. Hubbard*
Attorney

UNITED STATES PATENT OFFICE.

FRANK RHIND, OF MERIDEN, ASSIGNOR TO THE BRIDGEPORT BRASS
COMPANY, OF BRIDGEPORT, CONNECTICUT.

VAPOR-BURNING LAMP.

SPECIFICATION forming part of Letters Patent No. 494,938, dated April 4, 1893.

Application filed June 11, 1892. Serial No. 436,347. (No model.)

To all whom it may concern:

Be it known that I, FRANK RHIND, a citizen of the United States, residing at Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Vapor-Burning Lamps; 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 appertains to make and use the same.

This invention relates to certain new and useful improvements in vapor-burning, or naphtha torches, such as are used in lead burning, for soldering, and for heating soldering irons, and the like. In implements of this character as now made any considerable increase of heat, instead of simply vaporizing the contained hydro-carbon and ejecting the gas through the burner or nozzle, is liable to generate an increased and excessive pressure in the reservoir, and thereby throw out a stream of the liquid fuel, which is not only wasteful but is highly dangerous when ignited.

The object of my invention is to so arrange the parts of the torch that the pressure within the reservoir shall find relief through a pipe or tube which shall contain no naphtha, but which shall convey such pressure to a point near the burner and there discharge it as a sort of blast.

My invention has also for its object to provide the torch with a handle of such construction as shall be readily shiftable to various positions relative thereto.

With these ends in view my invention consists and resides in the construction and combination of elements hereinafter fully and in detail explained and then recited in the claims.

In order that those skilled in the art to which my invention appertains may fully understand how to make and use the same, I will explain it in detail, reference being had to the accompanying drawings which form a part of this specification, and in which,

Figure 1, is a side elevation; Fig. 2, a vertical longitudinal section; Fig. 3, a detail plan of the ends of the band to which the

handle is attached; Fig. 4, a view like Fig. 2, but showing a modified construction.

Like numerals denote the same parts in all the figures.

The reservoir 1 for containing the fuel is of metal of any usual or preferred construction and capable of resisting considerable pressure. At or near its center it has an annular groove or depression 2 adapted to form a seat for the band to which the handle is attached, as will be presently set forth. The filling opening is tightly closed by means of a screw cap or nut 3 and should be located below the top of the reservoir. Projecting outward at an angle from the reservoir is the wick tube 4 which may be permanently secured thereto, or may be screw-threaded to permit of its removal, as shown in the drawings at Fig. 2. The outer end of this tube is adapted to hold a burner or nipple 5, which like the wick tube may be immovable, but which is preferably screw-threaded in position as shown.

The wick tube has fitted therein a wick which substantially fills it and extends upward to within a short distance of the inner end of the nipple. Within this wick is a thin metal draft tube 6 whose outer end extends nearly, but preferably not quite to the upper end of the wick. The lower end of this tube extends downward and then curves upward and its open end terminates close to the top of the reservoir, as appears at Fig. 2. Upon the outside of the wick tube is fitted a chimney 7 having draft holes 8, and provided, as is usual in torches of this type, with an annular dish or shell 9 for containing a small quantity of free naphtha for initially heating the wick tube. For the purpose of attaching the handle and adjusting the same I provide a sheet metal band or ring 10 of such width and diameter as to fit closely in the annular seat in the periphery of the reservoir. This ring is split and its ends turned outward in parallelism as appears at 11, Fig. 3, and these are screw-threaded for co-operation with the internally threaded ferrule 12 on the handle. In attaching the handle to the torch, the ring is first sprung over the body of the reservoir and seated in the annular groove. The handle is then screwed upon the threaded ends,

and as these taper slightly the band is thereby caused to contract and grasp the reservoir. By loosening the band the handle may be slipped around to any position relative to the reservoir and there held by screwing on the handle.

In starting the torch a small quantity of free naphtha is placed in the annular dish on the chimney and ignited, and the heat thereby generated will vaporize the naphtha contained in the upper end of the wick and start a flow of the free hydro-carbon in the dish. Once the jet is started the heat thereof will by conduction through the wick-tube volatilize the naphtha in the wick and so long as the heat is not excessive the gas will be burned as fast as made and ejected through the nozzle to be burned. A slight increase of heat in the reservoir, however, is apt to generate within it an excessive pressure, and this, having no avenue of escape save through the wick, may force an excessive quantity of the liquid fuel up through the wick and out through the burner. The peculiar construction and arrangement of the tube which I employ prevents this, so long as there is no excess of pressure in the reservoir, the normal heat from the jet vaporizes naphtha from that part of the wick within the wick tube, and the naphtha so used is replaced by the capillary action of the wick. The pressure within the reservoir is by the tube conducted to the immediate vicinity of the nipple and there discharged, and as the outlet through the tube is much easier than through the wick no naphtha will be forced through the latter, but the supply will be regularly maintained by the ordinary capillary action undisturbed by and independent of the interior pressure.

In the construction shown and described the combination of the tube 6 with the wick is both useful and highly important, and while I deem the location of the tube shown, namely in the center of the wick, to be the best arrangement such exact position is not essential so long as said tube extends outward within the wick tube and has its opening close to the nozzle.

I claim—

1. In a torch of the character described, a reservoir for holding the fuel in combination with an outwardly extending wick tube provided with a nipple, a wick filling said tube and extending into the reservoir, and the pressure relief tube having one end extending into the wick tube and terminating adjacent to the inner end of the nipple and having its other end extending into the torch reservoir and terminating near the top of the latter.

2. In a torch as described, a reservoir for holding the fuel, in combination with an outwardly extending wick tube, a nipple at the end of said tube, a wick fitting said tube closely and extending into the reservoir, and a pressure relief tube contained within the wick and extending backward into the reservoir and then upward and terminating near the top of the reservoir, substantially as and for the purpose specified.

3. In a torch of the character described, the combination with the reservoir of the outwardly projecting wick tube provided with a nipple, the wick closely fitting said wick tube and terminating near the lower end of the nipple, and the tube 6 having its outer end contained within the wick and terminating near the outer end thereof and having its rear end opening into the reservoir near the top thereof, substantially as and for the purpose specified.

4. In a torch as described, the combination with the reservoir of the outwardly extending wick tube provided with a nipple, of a wick closely fitting said tube and the tube contained within said wick, the outer end of said tube terminating in the wick near the base of the nipple and the rear end of said tube extending downward through the wick into the reservoir and then upward to the opening near the top of the latter, substantially as described.

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

FRANK RHIND.

Witnesses:

S. H. HUBBARD,
M. C. HINCHCLIFFE.