Date of Application, 15th June, 1887.
Complete Left, 8th Aug., 1887.
Complete Accepted, 27th Sept., 1887.

A.D. 1887, 15*th* JUNE. N° 8643.

PROVISIONAL SPECIFICATION.

Improvements in Lamps for Burning Volatile Oils, Suitable for Cooking Purposes, Blow Pipes, Soldering Irons, and the like.

I, MAX SIEVERT of Stockholm in the Kingdom of Sweden Manufacturer, do hereby declare the nature of this invention to be as follows :—

My invention relates to that description of oil lamps with or without wicks, for burning light oils that are volatilized and are mixed with air on issuing from the burner so as to burn with a gas flame.

According to my invention I construct the body of such lamps with an inwardly bulged bottom to the inner surface of which is attached a rod that passes with a tapered upper end through a small hole in the top of the lamp so as to close the same ; when the lamp is unduly exposed to heat, the bottom is bulged outward by the pressure produced, and the rod, being thereby drawn downwards, open the hole and allows the gaseous pressure to escape, thus preventing an explosion from taking place. At the centre of the bottom is an opening closed by a screw cap, through which a wick is introduced into a central tube in the lamp, so as by its capillary action to conduct the whole of the oil up the tube. Above the end of the wick the tube terminates in a passage having small orifice, the size of which is regulated by a screw plug, the stem of which passes out through a stuffing box and is provided outside with a button. The orifice and screw plug are so arranged that on entirely withdrawing the latter access can be gained through the opening left thereby for the introduction of a cleansing implement for clearing the aperture and passage leading therefrom to the burner from deposit. The oil becoming volatilized by the heat of the burner on issuing from the orifice, passes up through a finely perforated

cap into a cylindrical chamber constituting the burner, which chamber has slits or openings for the entrance of air, which mixes with the oil gas and enters into combustion therewith, the flame issuing through the open upper end of the burner.

Surrounding the burner is a cylindrical slide by moving which so as to cover the air openings more or less, the supply of air can be regulated. Round the upper end of the before mentioned wick tube, where it projects beyond the body, is provided a small annular trough into which on first starting the lamp a small quantity of oil is poured and ignited so as to heat the tube sufficiently to volatilize the oil. When constructing such lamps of larger size, I combine with the body a small force pump by which air can be forced into the upper part of the lamp body so as to force the oil through a small pipe leading up from the bottom of the body to the burner, round which it is coiled once or twice and is then connected with a passage on the top of the lamp having the before described regulating screw plug and leading into the interior of the burner. Thus the small quantity of oil forced by the compressed air up the small tube becomes converted into gas on passing through the part coiled round the burner and then issues into the latter and becomes mixed with air as before. The burner may be arranged in a horizontal position when it is used as a blow pipe, in which case, on starting, a small receptacle charged with burning oil is suspended below the coil so as to heat this sufficiently to volatilize the oil in the first instance. The passage leading from the pump into the lamp is provided with a screw plug so as to close it effectually when the pump is not being worked.

When applying the lamp as first described for heating a soldering tool, the body of the lamp is made of a long cylindrical form, so as to serve as a handle, and the soldering tool is fixed at one end to an arm projecting from the side of the lamp so that the tool projects horizontally across the top of the burner, so as to become heated thereby.

The cylindrical burner is arranged to screw on to the upper end of the passage leading from the interior of the lamp, and it is provided with an internal shoulder by which is secures the before mentioned perforated cap through which the gas issues, so that by unscrewing the burner the cap can be removed and replaced by a new one.

When used for cooking or laboratory purposes, the burner of the lamp, instead of having a central opening for the issue of the flame, is formed with an enlarged head having a number of lateral openings through which the flame issues in a number of jets.

Dated this 15th day of June 1887.

ABEL & IMRAY,
Agents for the Applicant.

COMPLETE SPECIFICATION.

Improvements in Lamps for Burning Volatile Oils, Suitable for Cooking Purposes, Blow Pipes, Soldering Irons, and the like.

I, MAX SIEVERT of Stockholm in the Kingdom of Sweden, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement :—

My invention relates to that description of oil lamps with or without wick for burning light oils volatilized and are mixed with air on issuing from the burner so as to burn with a gas flame.

According to my invention I construct the body of such lamps with an inwardly bulged bottom to the inner surface of which is attached a rod that passes with a tapered upper end through a small hole in the top of the lamp, so as to close the same, when the lamp is unduly exposed to heat, the bottom is bulged outward by the pressure produced, and the rod, being thereby drawn downwards open the hole and allows the gaseous pressure to escape, thus preventing an explosion from taking place.

At the centre of the bottom is an opening closed by a screw cap, through which a wick is introduced into a central tube in the lamp, so as by its capillary action to conduct the whole of the oil up the tube. Above the end of the wick the tube terminates in a passage having small orifice, the size of which is regulated by a screw plug the stem of which passes out through a stuffing box and is provided outside with a button. The orifice and screw plug are so arranged that on entirely withdrawing the latter, access can be gained through the opening left thereby for the introduction of a cleansing implement for clearing the aperture and passage leading therefrom to the burner from deposit. The oil becoming volatilized by the heat of the burner on issuing from the orifice, passes up through a finely perforated cap into a cylindrical chamber constituting the burner, which chamber has slits or openings for the entrance of air, which mixes with the oil gas and enters into combination therewith, the flame issuing through the open upper end of the burner.

Surrounding the burner is a cylindrical slide by moving which so as to cover the air openings more or less, the supply of air can be regulated. Round the upper end of the before mentioned wick tube, where it projects beyond the body, is provided a small annular trough into which on first starting the lamp a small quantity of oil is poured and ignited so as to heat the tube sufficiently to volatilize the oil. When constructing such lamps of larger size, I combine with the body a small force pump by which air can be forced into the upper part of the lamp body, so as to force the oil through a small pipe leading up from the bottom of the body to the burner, round which it is coiled once or twice and is then connected with a passage on the top of the lamp having the before described regulating screw plug and leading into the interior of the burner. Thus the small quantity of oil forced by the compressed air up the small tube becomes converted into gas on passing through the part coiled

round the burner and then issues into the latter and becomes mixed with air as before.

The burner may be arranged in a horizontal position when it is used as a blow pipe, in which case on starting, a small receptacle charged with burning oil is suspended below the coil so as to heat this sufficiently to volatilize the oil in the first instance. The passage leading from the pump into the lamp is provided with a screw plug so as to close it effectually when the pump is not being worked.

When applying the lamp as first described for heating a soldering tool, the body of the lamp is made of a long cylindrical form so as to serve as a handle and the soldering tool is fixed at one end to an arm projecting from the side of the lamp so that the tool projects horizontally across the top of the burner so as to become heated thereby.

The cylindrical burner is arranged to screw on to the upper end of the passage leading from the interior of the lamp, and it is provided with an internal shoulder by which it secures the before mentioned perforated cap through which the gas issues, so that by unscrewing the burner the cap can be removed and replaced by a new one.

When used for cooking or laboratory purposes, the burner of the lamp, instead of having a central opening for the issue of the flame, is formed with an enlarged head having a number of lateral openings through which the flame issues in a number of jets.

Fig. 1 of the accompanying drawings shews a vertical section of a lamp constructed according to my above described invention.

The casing A of the lamp has an inwardly bulged bottom *a* to which is attached the rod *r* the upper tapered end of which passes through and closes a hole in the top of the casing. On excessive pressure occuring in the lamp through over heating, the bottom is bulged outwards and the rod being thus withdrawn from the hole, the pressure will escape through the latter. The lamp has a central tube *c* in which is a wick *d* held by a twisted wire which is introduced through an opening in the bottom closed by a cap *b* and which serves to raise the liquid to the burner by capillary action.

Surrounding the upper end of the tube *c* is a small annular cup *g*, in which a small quantity of oil is poured and ignited on first starting the lamp in order to vaporize the oil raised up by the wick and the vapour then passes through the small passages $e\ e^1\ e^2$ to the burner, the opening of the passage *e* being regulated by the screw plug *f*.

From the passage e_2 the vapour passes up through the perforated cap *i*, above which it meets and enters into combustion with the supply of air entering through the slots *m* of the burner or nozzle *z*; the latter screws on to the neck of the lamp and has an internal shoulder *k* which secures the cap *i* in position, so that the latter can be readily changed on unscrewing the nozzle. On removing the cap *i* and screw plug *f* access can be gained to the passages $e^1\ e^2$ for clearing them of deposit by means of suitably formed rods, while the passage *e*, can be cleared by a rod introduced through the lower end of the tube *c*.

A cylindrical slide *o* is provided on the nozzle for regulating the supply of air, by moving it up or down so as to cover more or less of the openings *m*.

Fig. 2 shews a perspective view of a lamp of larger size, in which the feeding of the oil in the reservoir A to the burner is effected by air pressure forced into the top of the reservoir by a small force pump B from the lower end of which a pipe B^1 shewn in dotted lines leads up to the top of the reservoir.

The communication between the pump and the reservoir at bottom is provided with a screw valve D by which the communication can be closed when sufficient air pressure has been forced into the reservoir.

From the bottom of the reservoir a pipe C is led up and is coiled round the nozzle E of the burner, whence it passes to a vertical pipe G fixed on the reservoir and leading into the rear end of the burner, so that the liquid forced up the pipe C by the air pressure, becomes vaporised by the heat of the burner on passing round the coil, and

the vapour issues through the pipe G into the burner which is constructed as previously described. The issue of the vapour into the pipe G is regulated by a screw plug F as before. On first starting the lamp a small vessel H—Fig. 3—filled with gazoline and ignited, is hung underneath coil C so as to volatilize the liquid. This is in the first instance forced up by moderate pressure from the pump, and after the lamp is well alight a few more strokes are given by the pump and the valve D is then closed until by the sinking of the oil level in the reservoir the pressure has decreased to such an extent as to require further action of the pump.

The burner E is in this case arranged horizontally, to act as a blow pipe, but it may also be arranged vertically or at any angle.

Fig. 4 shews a section of the lamp as applied to the heating of a soldering iron, in which the handle A forms the oil reservoir. The construction and action of the lamp is otherwise similar to that first described, with the exception that there is no inner tube for the capillary wick. Over the top of the burner is fixed the soldering block *v*, secured to the lamp by a bracket *b* and having a hollow *w* into which the flame enters from below and from which it issues both through an end opening and through side holes *x*. The cylindrical slide *o* for regulating the air supply is in this arrangement placed inside the nozzle *z*.

Fig. 5 shews another modification of the first described construction of lamp suitable for cooking and laboratory purposes in which the burner is provided with a number of lateral holes for the issue of the flame, instead of a central one; the lamp is otherwise the same as first described.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed I declare that what I claim is:—

1. In lamps burning volatile oil connecting to the inwardly bulged bottom of the oil reservoir a rod with tapered end entering a hole in the top of the lamp, so that on the occurrence of undue pressure in the lamp the rod is automatically withdrawn from the lamp so as to allow the pressure to escape, substantially as herein described.

2. In lamps burning volatile oils regulating the air supply to the burner by means of a cylindrical slide that can be slid up and down over the burner so as to cover more or less the openings for the inlet of air, substantially as herein described.

3. In lamps burning volatile oils the arrangement of the passages e, e^1, e^2 for the issue of the combustible vapour so that they can be readily cleansed substantially as herein described with reference to Fig. 1 of the drawings.

4. In lamps burning volatile oils forming an opening in the bottom of the oil reservoir closed by a screw cap, for facilitating the introduction of a capillary wick, substantially as herein described.

5. The construction of lamps burning volatile oils wherein the oil is forced by compressed air up an external tube to the burner, and is caused to pass through a coil surrounding the burner so as to become volatilized by the heat thereof, substantially as herein described with reference to Fig. 2 of the drawings.

6. The construction of lamps for burning volatile oils, combined and operating as herein described with reference to Fig. 1 of the drawings.

7. The construction of lamps burning volatile oils combined with a soldering iron arranged and operating as herein described with reference to Fig. 4 of the drawings.

Dated this 3rd day of August 1887.

ABEL & IMRAY,
Agents for the Applicant.

LONDON: Printed by DARLING AND SON.
For Her Majesty's Stationery Office.
1887.

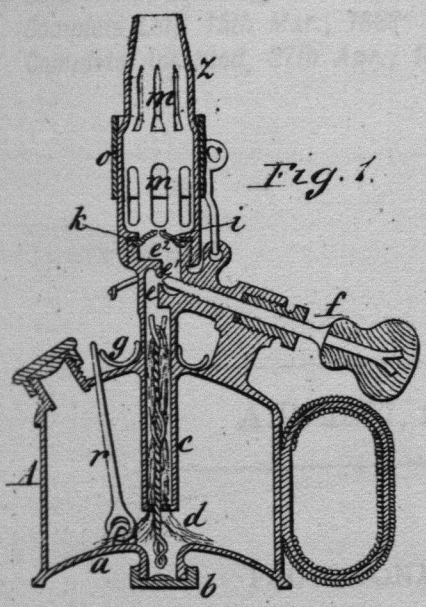


Fig. 1.

Fig. 2.

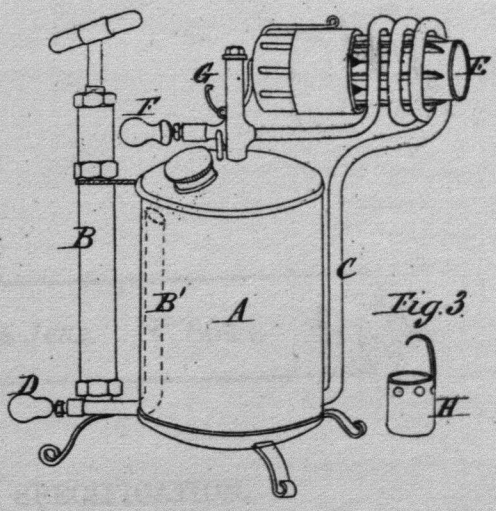


Fig. 3.

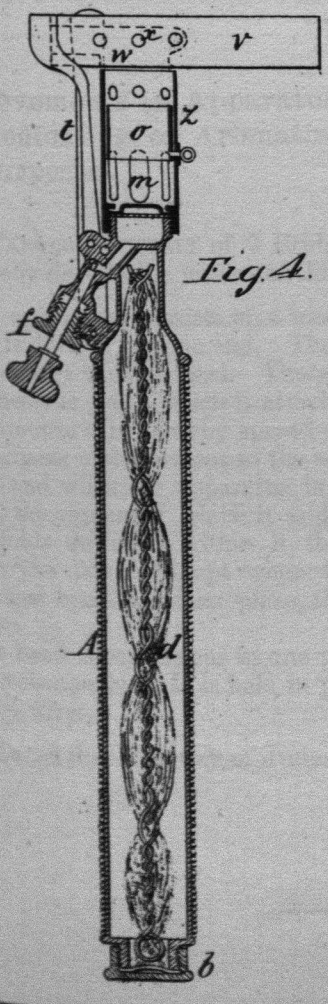
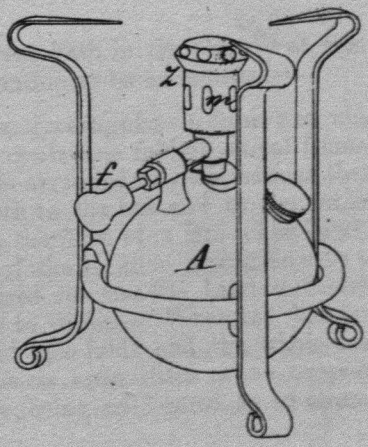


Fig. 4.

Fig. 5.



[This Drawing is a reproduction of the Original on a reduced scale.]

LONDON: Printed by DARLING and SON
for Her Majesty's Stationery Office. 1887
Malby & Sons, Photo-Litho.