(No Model.)

A. NEILSON & J. TAYLOR.

OIL SPRAY OR VAPOR LAMP.

No. 382,106. Patented May 1, 1888.

FIG. 2.

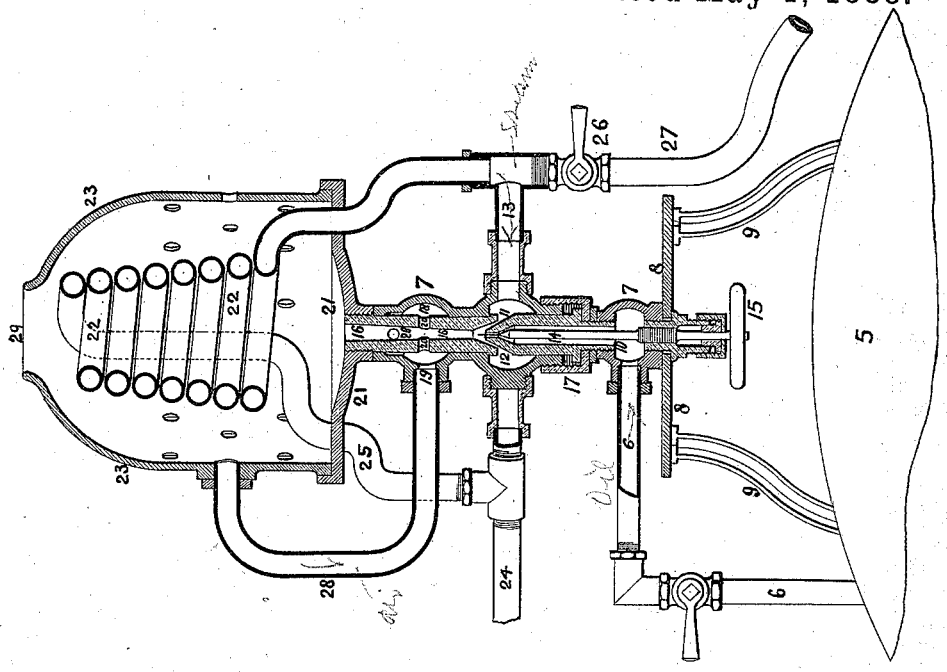
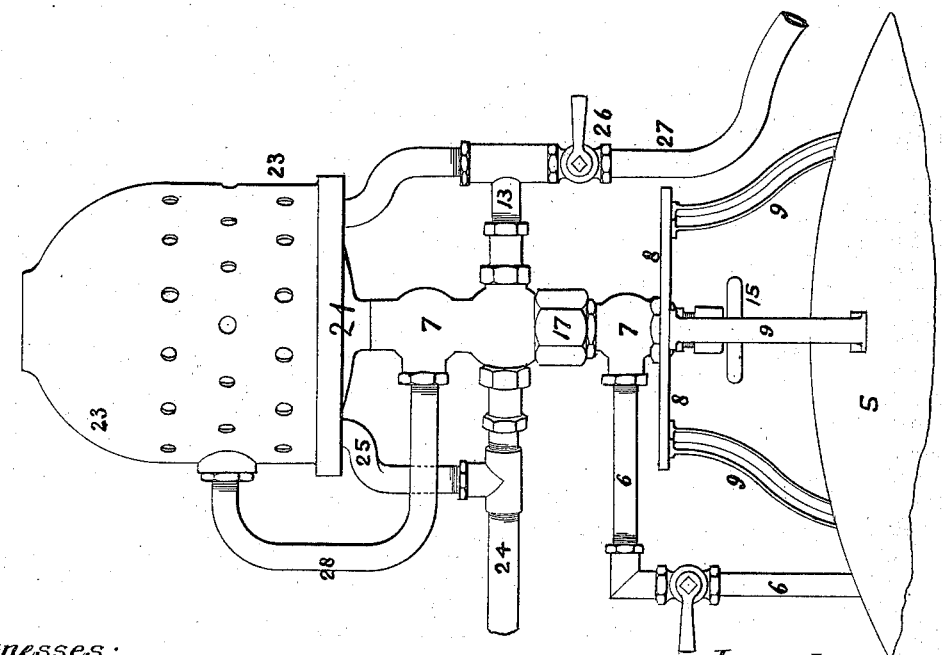


FIG. 1.



Witnesses:
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by their Attorneys.
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UNITED STATES PATENT OFFICE.

ALEXANDER NEILSON AND JAMES TAYLOR, OF INKERMANN, COUNTY OF RENFREW, SCOTLAND.

OIL SPRAY OR VAPOR LAMP.

SPECIFICATION forming part of Letters Patent No. 382,106, dated May 1, 1888.

Application filed March 29, 1887. Serial No. 232,882. (No model.) Patented in England June 15, 1886, No. 7,939.

To all whom it may concern:

Be it known that we, ALEXANDER NEILSON and JAMES TAYLOR, subjects of the Queen of Great Britain and Ireland, and residents of Inkermann, in the county of Renfrew, Scotland, have invented certain Improvements in Oil Spray or Vapor Lamps, (for which we have applied for a British Patent, to be dated June 15, 1886, No. 7,939,) of which the following is a specification.

Our said invention has for its object to improve the construction and action of lamps of the kind in which oil is burned for illuminating purposes in the form of spray or vapor.

Our improved lamps are designed for being worked with steam; but compressed air may be substituted for the steam, if thought desirable in any case.

In carrying out our invention we employ a vertical burner-body having the oil-supply pipe connected to the bottom of it. Above the oil-inlet the burner-body is made with an enlargement, to which is connected a pipe supplying the steam, and at a higher point there is another enlargement by which air is admitted. At the top of the burner-body there is a slightly dished or concave flange or disk, and at a small distance above this disk there is a combustion-chamber, which consists of a metal shell having within it a coil of tubing, and the steam or compressed air passes through it for the purpose of being superheated; but when dry steam of high pressure is available the special superheating of it may be dispensed with. The oil may be supplied with more or less of a head. The action of the steam or compressed air, if of sufficient pressure, will, however, draw it up from a lower level, if required.

Figure 1 of the accompanying drawings is an elevation of our oil spray or vapor lamp, and Fig. 2 is a corresponding vertical section.

The lamp is shown as supported upon a closed tank or vessel, 5, which contains the oil to be used in the lamp, and from which the oil is drawn up through a pipe, 6, dipping down nearly to the bottom of the tank, of which only the top is shown. The oil-supply pipe 6 is connected to the burner-body 7 of the lamp close to the bottom of that body, which is fixed upon a plate, 8, resting by legs 9 upon the top of the tank 5. The oil-inlet into the burner-body 7 communicates with an internal tube, 10, Fig. 2, formed with a conical nozzle, 11, at its upper end, the position of which nozzle 11 is at an enlargement, 12, formed in the body 7, and having in it the steam-inlet, the steam entering by a lateral pipe, 13. Within the oil-nozzle 11 there is an adjustable spindle, 14, by preference made, as shown, with a needle-point passing through the nozzle-orifice, this spindle passing out through a stuffing-box and having a hand-wheel, 15, fixed at its bottom end. Above the oil-nozzle 11 there is an internal burner-tube, 16, with its bottom end made concave or conical, as shown, and the steam enters between it and the oil-nozzle 11, which is adjustable for regulating the size of the annular passage from the enlargement 12 up between the nozzle and the conical mouth at the bottom of the inner burner-tube 16. The various parts of the burner-body 7 and the internal tubes, 10 and 16, are connected by a screw-coupling, 17, and other screwed parts, the nozzle-tube 10 being screwed into the lower body part 7, and having the upper body part 7 connected to it by the coupling 17, the adjusting of which determines the position of the nozzle 11 relatively to the bottom of the inner burner-tube 16. This inner burner-tube 16, the bore of which is of gradually-increasing size from its bottom upward, passes through an upper enlargement, 18, in the upper part of the burner-body 7, into which air enters by a side inlet, 19, and from this enlargement the air enters the inner burner-tube 16 through several apertures, 20, being drawn in by the upward current of steam through the tube. At the top of the burner-body 7 and inner burner-tube 16 there is a disk, 21, and at a small distance above this disk there is a coil of tubing, 22, forming a combustion-chamber, and inclosed in an outer dome-shaped shell, 23. The steam or compressed air is supplied by a pipe, 24, connected to the burner-body by a blind-coupling and communicating by a pipe, 25, with the coil 22, in passing through which the steam or air becomes superheated. The other end of the coil connects to the inlet-pipe 13,

and a stop-cock, 26, and pipe 27 are provided for drawing off water due to condensation.

The shell 23 is made with a top central aperture, 29, for the ignited jet, and is provided with holes to admit air which becomes heated between the shell and the superheating-coil 22, and part of the heated air is drawn beneath the bottom of the coil 22 into the jet of ignited spray, while another part is drawn through a pipe, 28, into the side inlet, 19, of the upper enlargement, 18, in the burner-body.

Our improved lamp may be used for heating as well as for illuminating purposes.

What we claim as our invention is—

The combination of the combustion-chamber of a vapor-burner with a burner-body below the chamber, and having upper and lower internal enlargements, a burner-tube within the burner-body opening into the combustion-chamber and extending through and past the said upper enlargement to the lower one and made with a conical mouth at its lower end, an adjustable conical nozzle in the lower enlargement for the issue of oil, an inlet for steam or compressed air into the lower enlargement, an inlet for heated air into the upper enlargement, and holes through the burner-tube to admit air from the upper enlargement.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALEXR. NEILSON.
J. TAYLOR.

Witnesses:
EDMUND HUNT,
JAMES EAGLESON.