(No Model.)

J. LYLE.

OIL BURNER.

No. 453,357. Patented June 2, 1891.

FIG. 3.

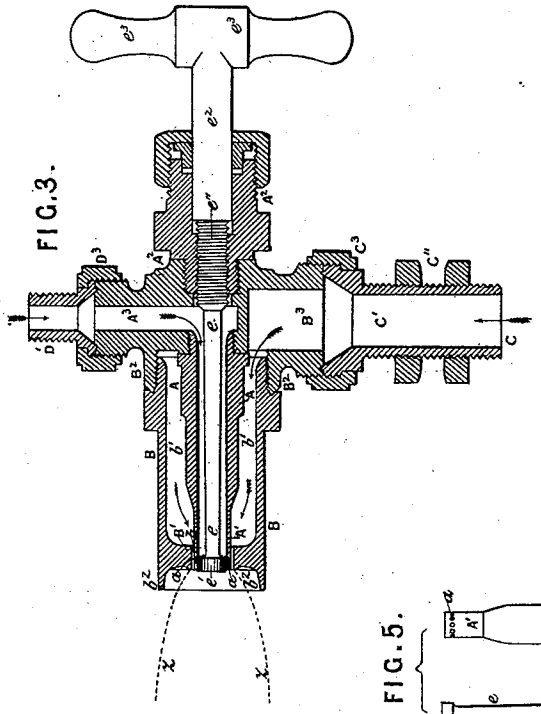


FIG. 4.

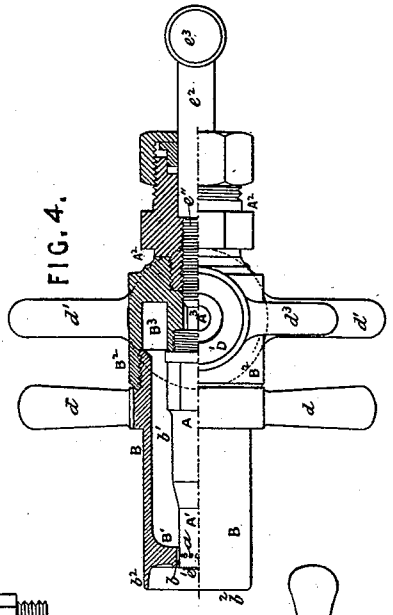


FIG. 5.

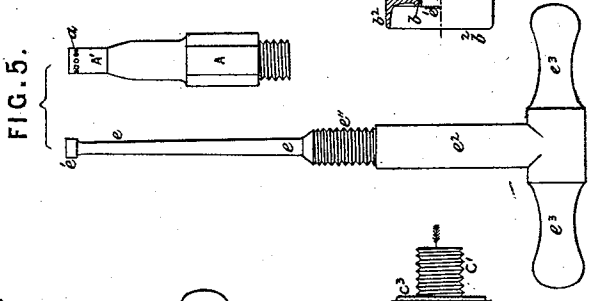


FIG. 1.

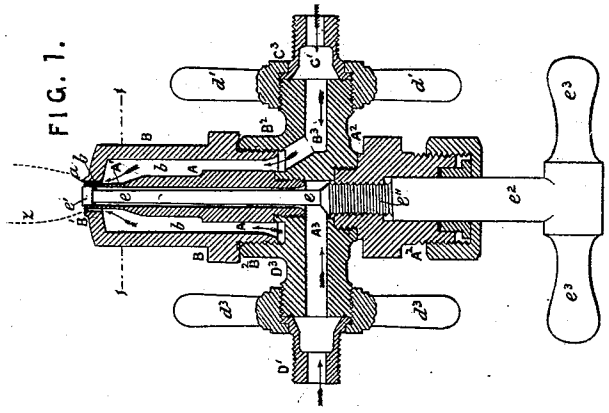
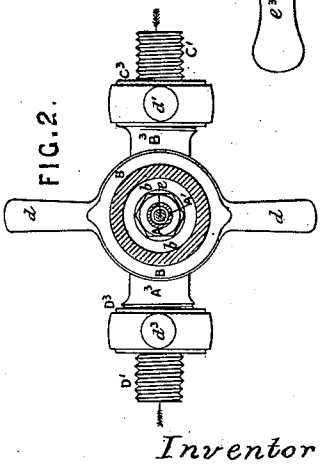


FIG. 2.



Witnesses:
E. J. Griswold
S. C. Connor

Inventor
James Lyle
By his Attorneys
Howson and Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES LYLE, OF PAISLEY, SCOTLAND.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 453,357, dated June 2, 1891.

Application filed March 19, 1889. Serial No. 303,896. (No model.) Patented in England January 14, 1887, No. 610.

To all whom it may concern:

Be it known that I, JAMES LYLE, a subject of the Queen of Great Britain and Ireland, and a resident of Paisley, Renfrewshire, Scotland, have invented certain Improved Appliances for Burning Oils, (for which a patent has been obtained in Great Britain, No. 610, dated January 14, 1887,) of which the following is a specification.

This invention consists of improvements in the construction of burners or jet-nozzles for the burning of mineral or other oils for lighting and heating purposes, and in which either compressed air or a steam-jet is made to unite and burn with the oil-jet in or at the point of these improved-nozzle burners, so as to cause perfect combustion.

In the accompanying drawings, Figures 1 and 2 show a sectional elevation and a sectional plan, the plan being taken on the line 1 1 of Fig. 1, respectively, of my burner and its fittings for lighting purposes. Figs. 3 and 4 show a vertical section and half-sectional plan, respectively, at right angles to each other, of a horizontal arrangement of burner and its fittings, as more particularly suited and designed for heating purposes and blowing the flame into furnaces. Fig. 5 shows a detached side elevation of the annular oil and air burner and internal regulating and cleaning spindle.

The burner shown in Figs. 1 and 2 consists of the hollow cylindrical oil-tube A A′, concentrically within an outer air or steam chamber and nozzle B B′, both preferably with screwed neck and stop-joint collars at their lower ends for being secured into their correspondingly-screwed sockets. The central tube is screwed into the inner end of its lateral oil-supply branch A^3, while the outer tube B B′ is screwed into the socket B^2 of its valved air-supply branch B^3, so as to lead the supply of compressed air or steam (whichever is used) up the annular space b' between the central tube A A′ and the outer tube B.

The upper part of the inner tube A′ is made with a ring of holes a to emit a thin circular stream of oil out into a narrow annular space b, formed all round the outer circumference of the inner perforated nozzle A′ and the inner circumference of the contracted upper end B′ of the outer air-tube B. By this a hollow spray jet of oil and air or oil and superheated steam (when that is used instead of the air) is produced, to be ignited and burned beyond the burner A′ B′, as indicated by the dotted flame-line z.

The annular oil-nozzle A A′ is left open at the upper end, and has a regulating and cleaning spindle e, with a piston e' at one end and a handle e^3 at the other, this spindle being screwed at e'' in a stuffing-box socket A^2. The piston e' at the upper end, which fills the burner A A′, occupies a position above the ring of oil-holes a in the burner-nozzle, so that when this spindle $e\ e'$ is screwed up or down it regulates the openings in the holes for the emission of the oil, and it also cleans out the oil-nozzle A A′, its body part e being small enough in diameter to allow the oil to pass up to the burner from the socket and branch A^3.

The coupling branches D′ and C′ are connected to the oil-supply A^3 and the air-supply B^3, respectively, of the burner by the screw-coupling parts D^3 and C^3, which latter are either made polygonal or are provided with cross-arms d' d^3, respectively, for tightening up these parts.

Referring to Figs. 3 and 4, this shows a simple arrangement of the burner A A′ and B B′ as mounted horizontally in the sockets A^2 B^2 of its oil and air branches A^3 B^3, which latter B^3 carries the whole on the coupling-branch C′, with jointing-nuts at C″, of the air or steam pipe. (Not shown in these figures.) In this construction there is a short projecting annular rim at b^2, forming a continuation of the stem B beyond the burner B′ for protecting the annular flame-jet z, formed at the nozzle b. Otherwise this is substantially the same as shown in Figs. 1 and 2, and it is lettered to correspond.

I claim as my invention—

In burners or annular jet-nozzles for the burning of mineral or other oils with com-

pressed air or steam for heating and lighting purposes, the combination, with the outer tube, of a removable cylindrical tube A A′, having a ring of small holes, and a stem with expanded point for cleaning the inner surface of the said tube A A′ and regulating the annular jet of oil through the ring of apertures *a*, substantially as herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES LYLE.

Witnesses:
JOHN SIME,
R. C. THOMSON,
Both of 96 Buchanan Street, Glasgow, Scotland.