PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in or connected with Vapour Burners

We, TILLEY BROTHERS LIMITED, a British Company, of Brent Works, Brent Street, Hendon, London, N.W.4, and FREDERICK CHARLES TILLEY, British Subject, of the Company's address, do hereby declare the nature of this invention to be as follows:—

This invention relates to vapour burners of the type in which the vapouriser is provided with a jet which is kept cleaned or closed by a cleaning wire or needle advanced by suitable means operated by a knob or button, and is retracted by a spring. Previously a vapour tight joint has been obtained at the jet by forming the hole in the jet nipple as a taper, and constructing the wire or needle with a taper end, the taper end of the wire being projected into the taper hole in the jet nipple. The trouble with the system was that due to the angle of the taper being very small, the wires occasionally stuck in the nipple, and it was found necessary to provide a strong spring with the attendant disadvantages, to ensure that the wire always withdrew from the nipple when required to return to the open position, and the object of this invention is to overcome this disadvantage.

According to this invention, the operating or free end of the wire or needle is formed parallel or of the same diameter throughout its length and leads by a tapered or curved portion to a portion with a larger diameter, whereby in operation the parallel end works in the hole in the jet which may be parallel, and when forced forwards the tapered or curved portion abuts on the jet hole on the inside to form a vapour tight joint.

As one example, the nipple of the vapourising tube is formed of a disc or end plate shaped with an annular portion around its edge at an angle to the normal plane of the disc, and the centre portion is bulged forwards to form a domed shaped projection on the outer side and a tapered recess on the inside, the jet hole being formed in the centre.

The wire or needle is formed of a length of comparatively large diameter rod, which is reduced in diameter at a distance from the free end, and the remaining portion again reduced in diameter to form the cleaning wire, the said end being of the same diameter and leading to the next larger diameter portion by a radius which forms the valve.

Dated this 9th day of September, 1938.

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COMPLETE SPECIFICATION

Improvements in or connected with Vapour Burners

We, TILLEY BROTHERS LIMITED, a British Company, of Brent Works, Brent Street, Hendon, London, N.W.4, and FREDERICK CHARLES TILLEY, British Subject, of the Company's address, 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:—

This invention relates to vapour burners of the type in which the vapouriser is provided with a jet which is kept cleaned or closed by a cleaning wire or needle advanced by suitable means operated by a knob or button, and is retracted by a spring. Previously a vapour tight joint has been obtained at the jet by forming the hole in the jet nipple as a taper, and constructing the wire or needle with a taper end, the taper end of the wire being projected into the taper hole in the jet nipple. The trouble with the system was that due to the angle of the taper being very small, the wire occasionally stuck in the nipple, and it was found necessary to provide a strong spring with the attendant disadvantages to ensure that the wire always withdrew from the nipple when required to return to the open position, and the object of this invention is to overcome this disadvantage.

[*Price* 1/-]

According to this invention, the nipple is formed with a parallel jet hole and the operating or free end of the wire or needle is formed parallel or of the same diameter throughout its length, and leads by a curved portion or radius to a portion with a larger diameter, whereby in operation the parallel end works in the parallel jet hole, and when forced forwards the curved portion or radius abuts directly on the inside edge of the parallel jet hole to make a line contact to form a vapour tight joint.

The invention will be clearly understood from the following description aided by the accompanying drawings in which one example of carrying the invention into effect is illustrated, and in which:—

Figure 1 is a side sectional view of one type of vapouriser, operating means and needle.

Figure 2 is a sectional view on an enlarged scale of the nipple end of the vapourising tube and operating end of the wire with the wire retracted and the nipple open, and,

Figure 3 is a sectional view of part of the nipple and wire on a still larger scale showing the wire in the advanced position and the nipple closed.

The vapouriser shown on the drawings consists of a vapourising tube 1 screwed onto a member 2 mounted on a body 2*a* or casing, and is provided with a cleaning wire 3 or needle normally urged away from the nipple end of the vapourising tube 1 by a helical spring 4 located between the partially closed end of the member 2 and a ferrule 5 in which the wire 3 is secured. The end of the ferrule 5 rests against the end of a plunger 6 having a cut-away portion 6*a* in which rides an eccentric cam 7 on the end of an operating spindle 8 rotatably mounted in leak-proof bearings in the body 2*a*, the spindle 8 being provided with a button 9 by which it can be partially rotated for the eccentric cam 7 to move the wire 3 against the action of the spring 4 and allow the wire to be returned by the spring 3.

As one example of carrying the invention into effect, the nipple of the vapourising tube 1 is formed of a disc 10 or end plate shaped with an annular portion 10*a* around its edge at an angle to the normal plane of the disc 10, and the centre portion is bulged forwards to form a dome-shaped projection 10*b* on the outer side and a tapered recess 10*c* on the inside, the jet hole 11 being formed in the centre and parallel throughout its length.

The disc 10 may be secured in the tube 1 against a ring bulge 1*a* by spinning over the end 1*b* of the tube 1.

The wire 3 or needle is formed of a length of comparatively large diameter rod, which is reduced in diameter at a distance from the free end, as at 3*a*, and the remaining portion 3*b* again reduced in diameter to form the cleaning needle, the said end 3*b* being of the same diameter along its length, and leading to the next larger diameter 3*a* by a radius 3*c* which forms the valve.

Normally the plunger 6, eccentric cam 7 and wire 3 are in the position shown in Figures 1 and 2 with the end 3*b* clear of the jet hole 11. On partially rotating the spindle 8, the eccentric cam 7 through the cut-away portion 6*a* slides the plunger 6 and wire 3 for the end 3*b* to enter the jet hole 11 and clean same, and when the spindle 8 has been rotated for a half revolution for the eccentric cam 7 to move the plunger 6 and wire 3 a full stroke, the radius portion 3*c* comes directly against the inside edge of the jet hole 11 and completely closes same by a line contact as shown in Figure 3. On partially rotating the spindle 8 and with it the plunger 6 back to their original positions, the wire 3 is also returned to its original or open position under action of the spring 4.

We are aware that in British Patent No. 21764 of 1901 in which the needle is operated by a worm or rack and pinion it has been proposed to employ a plug inserted in the upper end of the vapourizing tube, the plug being formed with a parallel hole or bore tapering to a small hole forming the discharge orifice or jet hole, the needle being provided with a thin parallel end leading by a tapered portion to the main part of the needle, whereby the parallel end of the needle is adapted to enter the discharge orifice and the tapered portion of the needle to close onto the inner end of the hole or bore at a short distance from the discharge orifice.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed we declare that what we claim is:—

1. In vapour burners of the type in which the vapouriser is provided with a jet which is kept clean and closed by a cleaning wire or needle advanced by suitable means and retracted by a spring, forming the nipple with a parallel jet hole, and forming the operating or free end of the wire or needle parallel or of the same diameter throughout its length and leading same by a curved portion or radius to a portion with a larger diameter, whereby in operation, the parallel end works in the parallel jet hole, and when forced forwards the curved portion or radius abuts directly on the inside edge of the parallel jet hole to make a line

contact to form a vapour tight joint, substantially as set forth.

2. In a vapour burner as claimed in Claim 1, forming the nipple of a disc or end plate shaped with an annular portion around its edge at an angle to the normal plane of the disc, with the centre portion bulged forwards to form a dome-shaped projection on the outer side and a tapered recess on the inside with the jet hole in the centre.

3. In a vapour burner of the type described a cleaning wire or needle and nipple constructed substantially as described with reference to the accompanying drawings.

Dated this 8th day of September, 1939.

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Fig. 1.

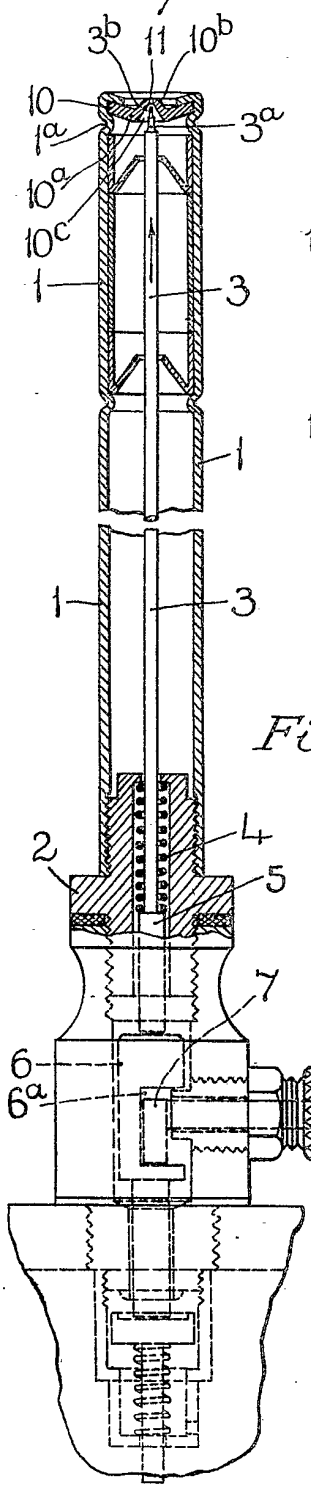


Fig. 2.

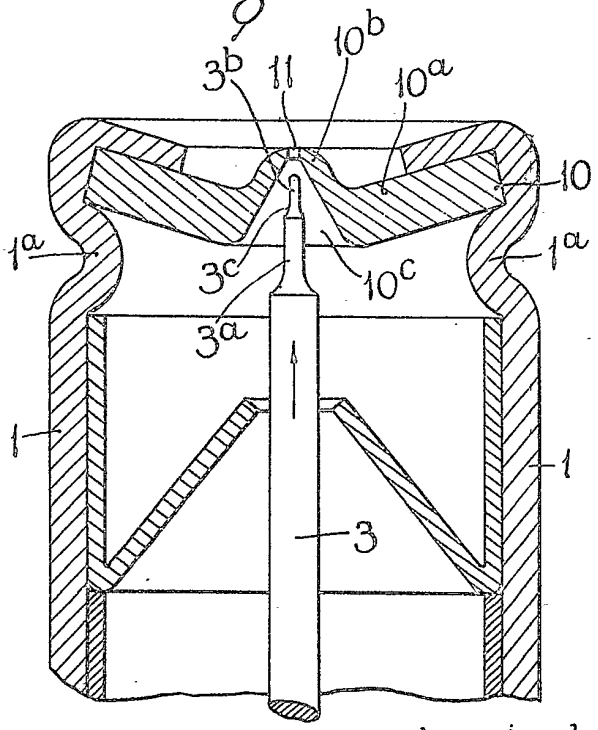
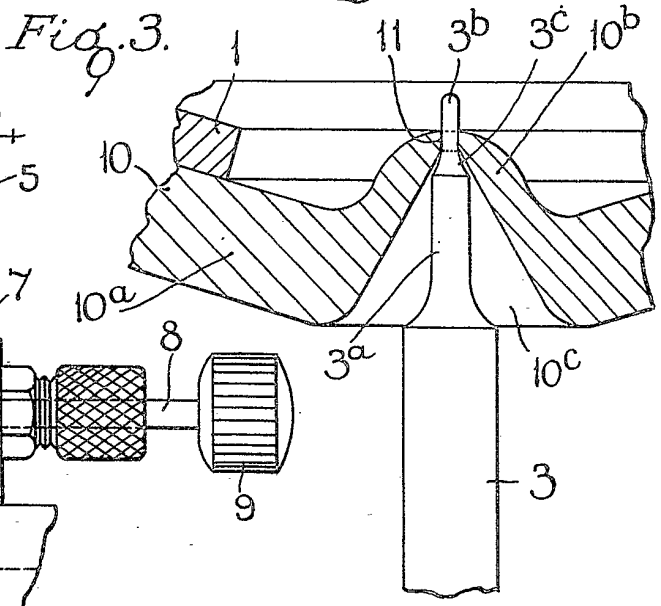


Fig. 3.



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