

PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements relating to Lighters using Vaporisable Fluids

I, ALEXANDER VAN TZIAN, 40, Chesterfield House, Chesterfield Gardens, London, W.1, of Iranian nationality, do hereby declare the nature of this invention to be as follows:—

This invention relates to lighters utilising vaporisable fluids, and it has for its object to provide for an improved construction in which a reserve supply of the vaporisable fluid is stored, while the mechanical parts of the apparatus are simple in construction and reliable in operation.

The lighter according to this invention consists of two principal parts, namely an outer shell with the "flint" and steel mechanism, and an inner shell which slides into the outer one, the inner shell containing the two compartments each with its filling aperture and wick tube. The outer shell preferably has a door or cover which will close it at the bottom when the inner shell has been introduced, the door or cover closing with a snap action and having a thumb nail slot or the like by which it can be released and opened when required.

The inner shell has a division plate down the middle separating it into two compartments, or it may be made in two separate units, soldered, brazed or otherwise secured together. Each compartment has a wick tube projecting at the top, preferably of the type in which the tube end is cut to a bevel and has a slot in it through which a prong can be inserted to lift the wick when required. The wick tubes are in diagonally opposite corners of the top of the inner shell so that when the shell is pulled out and turned through 180° the wick tube of the spare compartment will come into the same position as that occupied previously by the other wick tube. Thimbles of metal or other material may be provided to slip on or screw over the tops of the wick tubes and to enclose the wicks, the thimble being removed from the wick tube exposed to the lighter mechanism. Each compartment of the inner shell contains the usual absorbent material such as cotton wool, and has a screw plug in its base. One of the screw plugs may have a compartment in it to receive a spare "flint", and this

compartment may have a removable cap, while the other screw plug may have a prong or pin on it for use in lifting the wick when required.

Turning now to the "flint" and steel mechanism, this is enclosed in a compartment extending along the top of the outer shell. At one side of this compartment is a chamber containing a spring for pressing forward the "flint", the rear end of the compartment being closed by a hinged door with a snap fastener, and a projection which enters the centre of the spring for pressing it forwards. The "flint" is pressed against the surface of an abrasive wheel generally of steel with sharp teeth, and a larger wheel with a milled edge is provided for engaging by the thumb or finger of the user when the steel wheel has to be turned for lighting the vapour in the wick. The wick tube may be flattened on one side, generally to a D-shape, so that the milled wheel can come close up to the wick, the milled wheel being below the end of the wick tube while the "flint" and steel wheel are of course approximately on a level with the wick itself. A perforated shield plate may be provided partly surrounding the wick and extending a little way above it to act as a wind shield.

As seen in plan view the spare compartment of the inner shell is beneath the spring, the "flint" and the steel wheel, and the wick tube of this compartment projects up towards the rear end of the spring where a recess is provided to accommodate it. The other compartment containing the wick tube that is in use lies alongside the first one with its wick tube adjacent the point where the "flint" contacts with the steel wheel. A hinged cap or cover plate is preferably provided to close over the wick tube and the steel wheel when not in use, the hinged cover being lifted prior to using the lighter.

It will be realised that the lighter is simple in construction, having a minimum of mechanical parts to be manipulated, and it has a great advantage in that it provides a complete reserve supply of liquid fuel in a form in which it can be brought into use immediately whenever required without

any refilling operation. The inner shells of these lighters can be made as a standard article supplied ready filled with fuel and with the caps over the wicks, and the user can hand over to the dealer a spent inner shell, taking a filled one in return. Of course, if it is preferred to keep the inner shell permanently, its compartments can be filled again by unscrewing the plugs at the base and pouring in petrol or other easily vaporisable and combustible liquid.

Although the construction has been described in some detail it will be evident that it can be modified in some respects without departing from the invention. For example a screw abutment can be used for the spring, enabling the pressure on the

"flint" to be adjusted from time to time as it wears, but this is not found to be essential and the hinged door is preferred because it cannot become lost or displaced. The steel wheel, instead of being operated by a milled head can be turned automatically by a toothed rack and pinion mechanism on lifting the hinged cover which normally protects the operating parts, but the simpler mechanism adapted to be operated by the thumb is preferred.

Dated this 3rd day of September, 1942.

For the Applicant:

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COMPLETE SPECIFICATION

Improvements relating to Lighters using Vaporisable Fluids

I, ALEXANDER VANETZIAN, 40, Chesterfield House, Chesterfield Gardens, London, W.1, of Iranian nationality, 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 lighters utilising vaporisable fluids hereinafter referred to as "spirit," and it has for its object to provide for an improved construction in which a reserve supply of the spirit is stored in a second compartment with a separate wick tube, while the mechanical parts of the apparatus are simple in construction and reliable in operation.

The spirit lighter according to this invention consists of two principal parts, namely an outer shell with the "flint" and steel striker mechanism, and an inner shell which slides into the outer one, the inner shell containing the two compartments each with its filling aperture and wick tube. The outer shell preferably has a sliding door or cover which will close it at the bottom when the inner shell has been introduced, the door or cover closing with a snap action and having a thumb nail slot or the like by which it can be opened when required.

The inner shell has a division plate down the middle separating it into two compartments, or it may be made in two separate units, soldered, brazed or otherwise secured together. Each compartment has a wick tube projecting at the top, preferably of the type in which the tube end is cut to a bevel and has a slot in it through which a prong can be inserted to lift the wick when required. The wick tubes are in diagonally opposite corners of the top of

the inner shell so that when the shell is pulled out and turned through 180° the wick tube of the spare compartment will come into the same position as that occupied previously by the other wick tube. Thimbles of metal or other material may be provided to slip on or screw over the tops of the wick tubes and to enclose the wicks, the thimble being removed from the wick tube exposed to the lighter mechanism.

The "flint" and steel striker mechanism is enclosed in a compartment extending along the top of the outer shell, and access is given to the striker mechanism and wick tube by a hinged cover which is raised for this purpose and closes with a snap action to protect the striker mechanism and to enclose the wick. The "flint" is mounted in a bore in a block of metal secured in the top of the outer shell and is pressed against the steel wheel by a spring to which access is preferably given for changing the "flints" by a separate hinged door with a spring catch.

The invention is illustrated in the accompanying drawings, in which:—

Figure 1 shows the spirit lighter in section on the line I—I of Figure 2;

Figure 2 is a plan view of the spirit lighter;

Figure 3 is a partial section on the line III—III of Figure 2;

Figure 4 is a front view;

Figure 5 is a detail view of the striker mechanism in section on the line V of Figure 1; and

Figure 6 is a detail view showing the hinged door at the back open.

The outer shell 7 is normally closed at the bottom by a sliding cover 8 working in wedge-shaped grooves in the base of the

shell 7, and provided with a thumb nail notch at 9 to facilitate opening. The inner shell in the example shown consists of two separate fluid-tight containers or compartments 10 and 11 united by soldering or otherwise where they come together, each having a wick tube 12 at the top and an aperture at the base closed by a screw plug 13. In the example shown, one screw plug 10 13 has a prong 14 fixed in it for use in manipulating the end of the wick 38 by engagement in a slot at 16 in the wick tube 12, while the other screw plug has a tubular container 17 screwed into it and 15 serving as a holder for spare "flints". The two wick tubes 12 are in diametrically opposite positions as seen in plan in Figure 2 so that when the inner shell is removed and replaced in reversed position it brings 20 the wick tube 12 of the second compartment 11 into position for use. The wick tube of the compartment not in use is closed by a screwed thimble 18 to prevent evaporation of the spirit in this compartment. The base of the inner shell has 25 notches in it as shown at 19 for engagement by a spring catch 20 fixed in a recess in the slide 8 to hold it against unintentional displacement.

30 The top of the inner shell is acted upon by a plate spring 21 which is secured to a partition plate 22 in the outer shell so as to cause the inner shell to protrude ready to be taken out when the slide 8 is withdrawn. The plate 22 has two apertures in 35 it at diametrically opposite positions for the wick tubes 12 to project through. The plate 22 carries a block of metal 23 secured to it by screws 24 or otherwise and formed 40 with a recess at the back where the spare wick tube 12 and its thimble 18 lie. The block 23 has a bore through it for accommodating the "flint" 25, and a spring 26 which has a button 44 on its end and serves 45 to hold the "flint" in its operating position against the steel striker wheel 27. This wheel has sharp teeth as is usual in such lighters. The spring 26 is supported at the rear by a hinged cover or door 28 carried 50 on a hinge pin 29 and provided with a lug 30, Figure 3, which is normally engaged by a spring catch 31. This catch can be depressed when required by a button 32 rivetted to the spring and projecting freely 55 through a hole in the top plate 33 of the lighter. A projecting stem or prong 34 is provided on the inside of the door 28 to engage in the end of spring 26. This prong 34 centers the spring and prevents its 60 escape when the door is opened as shown in Figure 6, because the spring bends over in engagement with the prong 34. The spring 26 is readily detached from the prong 34 and removed when necessary for 65 gaining access to the "flint" 25, and is

re-engaged with the prong 34 before the door 28 is closed again.

The striker wheel 27 is fixed on a bush 35 which rotates freely on a screw pin 36 whose lower screwed end engages in the 70 plate 22, and whose head lies in a counter-sink in the block 23. The bush 35 also carries a thumb wheel 37 which is fitted upon an enlarged portion of the bush 35. The thumb wheel 37 has a milled edge and 75 serves in the usual manner to turn the steel striker wheel 27 and to strike sparks from the "flint" 25 for igniting the spirit vapour issuing from the end of the wick 38 of the exposed wick tube 12. The side of 80 the wick tube may be flattened as shown in Figure 5 where the thumb wheel 37 works so that the wheel can come closer to the wick tube, and the flint 25 and steel wheel 27 are then nearer to the wick 38 for light- 85 ing purposes. It will be noticed that the end wall of the passage in the block 23 in which the "flint" 25 engages embraces the striker 27 closely as seen in Figure 5, except for the gap through which the 90 sparks emerge to ignite the vapour. This prevents undesirable spearing of the "flint" as it wears away.

The wick tube 12 which is in use and the striker mechanism are normally 95 enclosed by a hinged cover 39. This cover has an angular lug 40 supported by a hinge pin at 41 and acted upon by a blade spring 42 which bears against the flat faces of the lug 41 tending to hold it closed or 100 in the open position when turned through 90°, as indicated, in dotted lines in Figure 3. The face of the lug 41 is sloped back slightly so that the blade spring 42 gives a positive closing pressure to the cover 39. 105

When the spirit lighter is to be used the cover 39 is raised until it springs open to the position shown in dotted lines in Figure 3, and then the thumb wheel 37 is pressed to turn the striker wheel 27, striking 110 sparks from the "flint" 25 whereby the spirit is ignited at the end of the wick 38. When the flame is to be extinguished the cover 39 is pushed over until it snaps 115 into the closed position under the action of the spring 42.

Both compartments 10 and 11 of the inner shell are filled with an absorbent such as cotton wool 43 to hold the spirit in the usual manner and to feed it to the 120 wicks 38. The compartment not in use has its wick protected by its thimble 18. As soon as the spirit from one compartment is exhausted it is only necessary to slip out the slide 8 when the spring 21 causes the 125 inner shell to project, whereupon the inner shell is removed, the screw thimble 18 is changed over from one wick tube to the other, and the inner shell is re-inserted in the reversed position, in order to bring the 130

second compartment into position for use. The slide 8 is then pushed back until its spring catch 20 engages with the notch 19 below the compartment then in use. The 5 compartments 10 and 11 can be refilled with spirit whenever required by unscrewing the plugs 13, or the whole inner shell may be removed and replaced by a new one with filled compartments if the retailer prefers to stock inner shells ready 10 filled and to exchange them for the benefit of his customers for the empty shells. These latter can then be refilled at leisure for other customers to use, provided that 15 both wick tubes are covered by their thimbles 18, so that they will hold their charges without loss.

The arrangement of the spring 26, the hinged door 28 and the prong 34 engaging 20 in the end of the spring forms the subject of a separate patent application No. 2304/1943 and is not claimed *per se* in this present specification.

It will be realised that the spirit lighter 25 is simple in construction, having a minimum of mechanical parts to be manipulated, and it has a great advantage in that it provides a complete reserve supply of spirit in a form such that it can be 30 brought into use immediately whenever required without any refilling operation.

Although the construction has been described in some detail it will be evident that it can be modified in some respects 35 without departing from the invention. For example, the steel wheel 27, instead of being operated by a milled head 37 may be arranged to be turned automatically in the known manner by a toothed rack and 40 pinion mechanism on lifting the hinged cover 39 which normally protects the operating parts, but the simpler mechanism adapted to be operated by the thumb wheel is preferred.

Having now particularly described and 45 ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A spirit lighter having an outer shell 50 carrying the striker mechanism, and an inner shell which slides within the outer shell and is held in place by a cover plate, the inner shell having two separate compartments each with its own wick tube at 55 the top so disposed that the spare compartment can be brought into use when required by reversing the inner shell in position in the outer shell.

2. A spirit lighter according to claim 1 60 having the outer shell closed at the bottom by a sliding cover which can be drawn out to permit of the removal and reversal of the inner shell or to give access to the filling apertures in the inner shell for re- 65 plenishing purposes.

3. A spirit lighter according to claim 1 wherein each compartment of the inner shell has a screw plug to close its filling 70 aperture, one plug having a prong suitable for use in adjusting the wick and the other having a receptacle for spare "flints".

4. A spirit lighter according to claim 1 wherein the compartment not in use has a wick tube protected by a thimble which is 75 accommodated in a recess in a block holding the "flint" and its spring.

5. A spirit lighter as claimed in claim 1, constructed and adapted to be used substantially as described with reference to 80 the accompanying drawings.

Dated this 30th day of June, 1943.

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

