

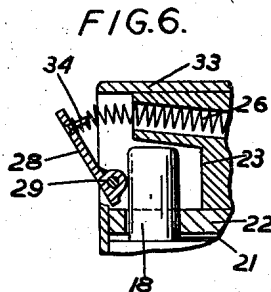
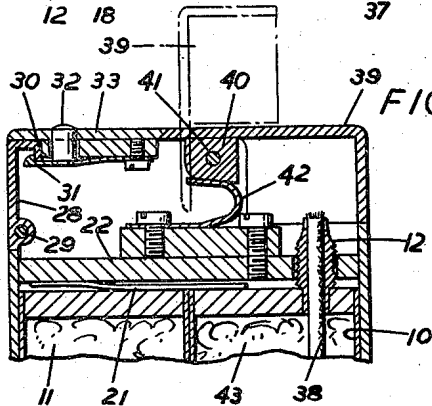
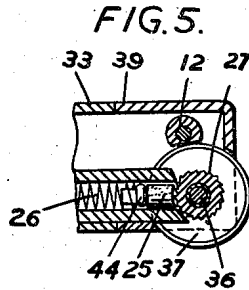
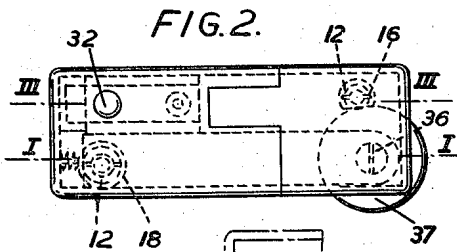
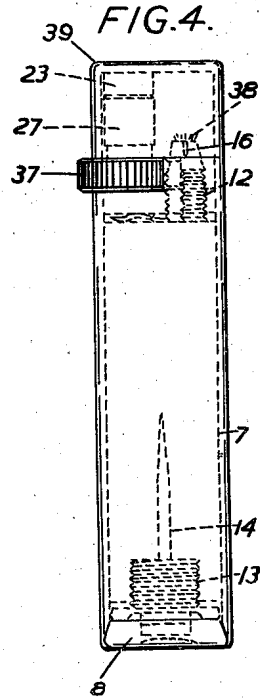
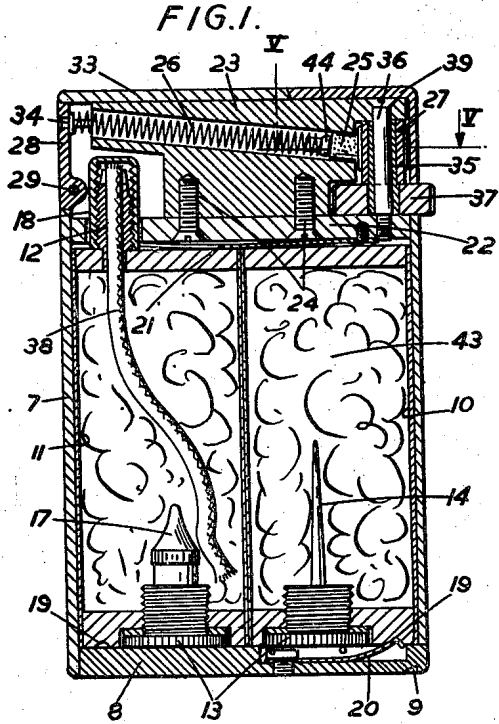
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LIGHTERS USING VAPORISABLE FLUIDS

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LIGHTER USING VAPORISABLE FLUIDS

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6 Claims. (Cl. 67-7.1)

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This invention relates to lighters utilising vaporisable fluids, hereinafter referred to as "spirit," and a "flint" and steel wheel-striker mechanism for igniting the spirit vapour at the top of a wick. It is one object of this invention to provide an improved lighter of this type in which a reserve supply of spirit is stored ready for immediate use whenever required. A further object is to provide improved means for holding the "flint" in its operative position, under spring action, and giving ready access thereto without risk of losing the spring. These and other objects will be apparent from the following description of a preferred construction of the lighter.

In the drawings:

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—V of Figure 1; and

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

The outer shell 1 is normally closed at the bottom by a sliding cover 8 working in wedge-shaped grooves in the base of the shell 1, 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 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 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 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 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.

The top of the inner shell is acted upon by a plate spring 21 which is secured to a partition

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plate 22 in the outer shell and is under tension when the inner shell is in place, 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 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 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 to hold the "flint" in its operating position against the steel-striker wheel 27. This wheel 27 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 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 riveted to the spring and projecting freely 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 the spring 26. This prong 34 centers the spring and prevents its 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 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 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 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 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 lighting 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 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

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mechanism are normally enclosed by a hinged cover 39. This cover has an angular lug 40 supported by a hinge pin at 41 acted upon by a blade spring 42 which bears against the flat faces of the lug 41 tending to hold it closed or 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.

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 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 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 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 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 reinserted in the reversed position, in order to bring the 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 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 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 both wick tubes are covered by their thimbles 18, so that they will hold their charges without loss.

It will be realised that the spirit lighter is simple in construction, having a minimum of mechanical parts to be manipulated, and one of its advantages is that it provides a complete reserve supply of spirit in a form such that it can be 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 many respects without departing from the invention.

I claim:

1. A spirit lighter comprising a reservoir for spirit having a wick tube thereon, a flint and striker mechanism, including a striker wheel and a body portion having a guide passage for a flint therein, a generally transversely disposed helical spring serving for pressing a flint in said guide passage against the striker wheel, a door at one side of the mechanism below the top of the lighter hinged about a transverse axis with a projection adapted to engage in one end of said helical spring, means for securing the hinged door in the closed position said mechanism having means housing and confining said spring throughout the major portion of its length, and for releasing the same when required, while the end of said helical spring remains in engagement with said projection.

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2. A spirit lighter comprising an outer shell with a flint and striker mechanism, including a striker wheel and means for guiding and supporting a flint in contact therewith, an inner container adapted to hold spirit and a wick tube projecting therefrom, said inner container being adapted to slide within the said outer shell, a sliding door at the entrance of said outer shell adapted to secure said inner container within said outer shell in a position with its wick tube adjacent said flint and striker mechanism, and spring means engaging the container and compressed within said outer shell when said inner container is in position therein and when said sliding door is closed thereby to eject the container when the door is opened.

3. A spirit lighter comprising an outer shell with a flint and striker mechanism therein including a block, a striker wheel mounted by the block having means for guiding and supporting a flint in contact therewith, one end of said block being cut away, a part at the base of said block opposite the cut-away portion provided with an opening closer to one side of the shell than the other side, a closure pivoted to the shell adjacent said cut-away portion, said block having an opening therethrough, an expansive coil spring in said opening, the opening accommodating the spring throughout the major portion of its length, said spring functioning at opposite ends to press a flint against the striker wheel and to urge opening of the closure, means to secure the closure against opening, and an inner container within said shell having a wick tube accommodated in said opening and cut-away portion.

4. A spirit lighter comprising an outer shell with a flint and striker mechanism therein including a block, a striker wheel mounted by the block having means for guiding and supporting a flint in contact therewith, one end of said block being cut away, a part at the base of said block opposite the cut-away portion provided with an opening closer to one side of the shell than the other side, a closure pivoted to the shell adjacent said cut-away portion, said block having an opening therethrough, an expansive coil spring in said opening, the opening accommodating the spring throughout the major portion of its length, said spring functioning at opposite ends to press a flint against the striker wheel and to urge opening of the closure, means to secure the closure against the opening, and an inner container reversibly disposed in said shell, said container having separate spirit compartments, each container having a wick tube rising therefrom, the reversibility of the inner container enabling either wick tube to be disposed in said opening and cut-away portion and opposite one side of said mechanism.

5. A spirit lighter comprising a reservoir for spirit having a wick tube thereon, a flint and striker mechanism, including a striker wheel and a body portion having a guide passage for a flint therein, a generally transversely disposed helical spring serving to press a flint in said guide passage against the striker wheel, a door hinged at one side of the mechanism relatively close to one end of said spring, the axis of said hinge being transverse, a projection on said door engaged in one end of said spring, whereby as the door is opened the adjacent spring end will be deflected sharply to one side until the lateral pressure of the spring on the projection checks the opening of the door and holds the parts in engagement with the door partly opened.

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6. A spirit lighter comprising an outer container having a partition wall disposed transversely thereof intermediate its ends, said wall having an opening through it, flint and striker mechanism including a striker wheel and means for guiding and supporting a flint in contact therewith, said mechanism being mounted on one side of said partition wall and maintained in operative assembly by said mounting for cooperation with a wick extending through the opening, and an inner container arranged on the other side of the partition wall and comprising two compartments each adapted to hold spirit and each having a wick tube adapted to project through the opening in the partition wall, said inner container being removable from the outer container and reversible therein and the wick tubes being so arranged that one projects through the opening for cooperation with the striker mechanism in either position of the inner container.

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