June 30, 1953 W. P. STRUMBOS 2,643,535

CIGARETTE LIGHTER

Filed Dec. 28, 1948

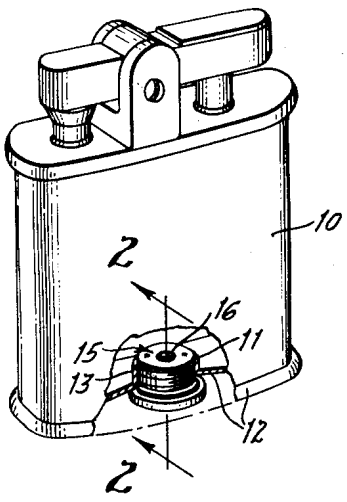

Fig. 1.

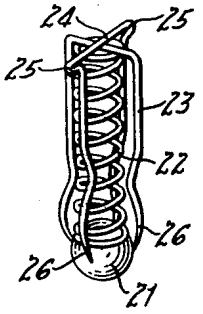

Fig. 4.

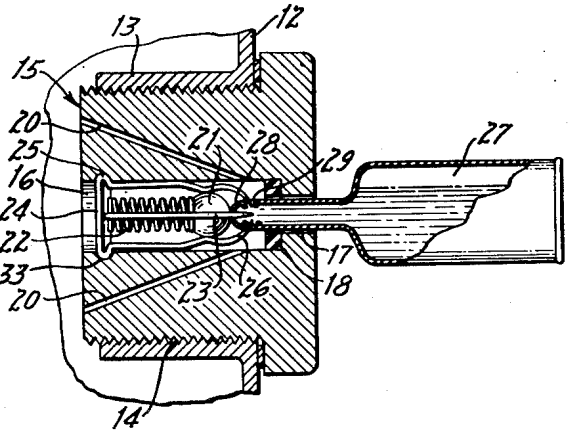

Fig. 5.

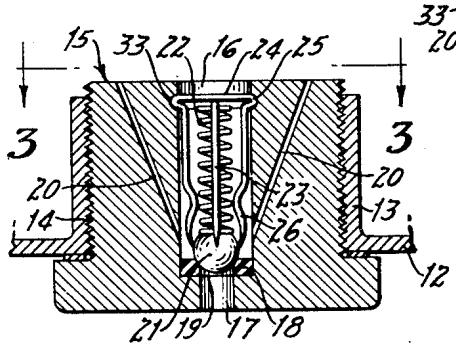

Fig. 2.

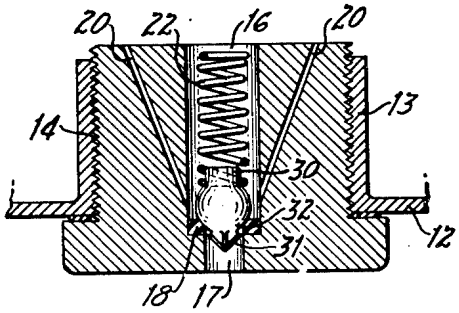

Fig. 6.

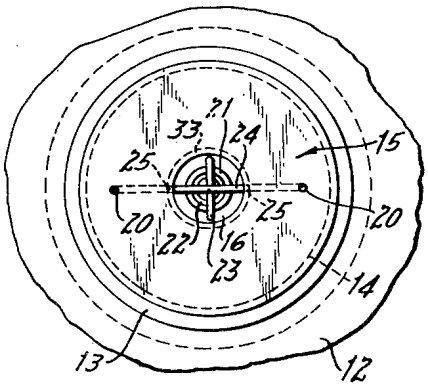

Fig. 3.

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CIGARETTE LIGHTER

William P. Strumbos, Detroit, Mich.

Application December 28, 1948, Serial No. 67,620

1 Claim. (Cl. 67—7.1)

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This invention relates to cigarette lighters of the type in which volatile fluid is used for the purpose of generating fumes for initial ignition and for the purpose of maintaining a flame for lighting cigarettes and pipes.

Specifically, my improvement pertains to an inlet port by means of which said volatile fluid may be delivered into the casing of the cigarette lighter. The port as improved by me is designed to be used in conjunction with small capsules enclosing a quantity of liquid fuel for use in the lighter. The port includes a combination of elements which normally keep said port closed, but which permit reception of a part of the capsule into the port and allow a part of said capsule to be pierced so that the liquid contents of the capsule may be delivered into the respective compartment in the casing of the cigarette lighter. I shall now describe my improvement with reference to the accompanying drawings in which:

Figure 1 shows a perspective view of a conventional cigarette lighter with a part of its casing broken off to disclose the location of the port above mentioned.

Figure 2 is an enlarged sectional view of a port of the casing with a closure therein as taken on line 2—2 of Figure 1.

Figure 3 is a top plan view of the port and the closure therein as taken on line 3—3 of Figure 2.

Figure 4 is an enlarged perspective view of a coiled spring, a ball, and piercing elements combined therewith, said elements being a part of the structure of the closure port shown in Figures 2 and 3.

Figure 5 is an enlarged sectional view of the port of the casing and the closure therein, also a partly sectional view of a capsule inserted into said closure and disclosing the manner of application of the capsule into said closure.

Figure 6 is an enlarged sectional view of a closure within the port of the casing with a modified means for piercing the capsule.

Similar numerals refer to similar parts throughout the views.

The casing 10 of a cigarette lighter shown in Figure 1 is provided with an inlet port 11 within its bottom 12, for admission of liquid fuel. It will be understood, however, that such a port with a closure therein may be located at any other suitable spot within the wall of said casing. The port is made in the shape of an inwardly turned nipple 13 threaded on the inside as shown at 14, for reception of a closure or plug, generally indicated by numeral 15. The plug is provided with an axial cylindrical aperture 16, opening into an axial bore 17 of a restricted diameter and leading outwardly as best shown in Figure 2. At the junction of the aperture 16 with said bore 17, I have provided a washer 18, having a central opening 19. Extending from the central aperture 16 at a point close to said washer 18 are air vents 20 disposed at an angle to said aperture 16 and opening into the interior of said casing 10. Bearing from inside against said washer 18, is a ball 21 designed to block passage from said bore 17 into said aperture 16, the ball being kept normally in place by a coiled spring 22. Bearing against the opposite end of the coiled spring and urging said spring against said ball are two U-shaped members 23. The closed ends 24 of said members cross each other at a right angle straddling the end of spring 22, while the free ends of said members 23 are shaped into sharp claws 26 bearing normally against the side of the ball 21 close to the inner surface of washer 18. It will be noted that the closed end 24 of each U-shaped member is disposed at right angle to its arms and that one of said U-shaped members includes at its closed end outwardly turned curls or shoulders 25. The curls are designed to fit into an inner groove 33 within aperture 16, serving as means of retaining the U-shaped members in place against the tension of spring 22.

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The manner of application of a capsule for delivery of liquid fuel into the casing 10 is shown in Figure 5, wherein the capsule is indicated by numeral 27. The thin neck of the capsule is inserted into passage 17, the end of said neck serving to push ball 21 rearwardly, whereupon the sharp claws 27 bearing against the wall of the neck of the capsule will pierce it as shown at 29. As the wall of the capsule is thin and pliable, manual pressure on said wall will serve to force the liquid from said capsule into said casing. Air displaced by the influx of the fuel into the casing 10 will be permitted to escape through vents 20 and through a space between the inner surface of passage 17 and the outer surface of the neck of the capsule.

Somewhat different means for piercing the capsule are shown in Figure 6. In this case, instead of using a ball 21 for the purpose of blocking passage from bore 17 into aperture 16, I am using a ball provided with a short cylindrical stub 30 axially fitting into the coils of spring 22. The diametrically opposite portion of the surface of the ball is provided with a spike 31, including a shank 32 of a reduced diameter. A

capsule could be applied against the ball in the same manner as that shown in Figure 5; but, in this case, the end of the capsule would be pierced by said spike 31. The head of the spike being wider than the shank, the aperture in the head of the capsule would be large enough to release fuel and to take in air from the casing, said air being forced out through vents 20.

It will be understood that some changes may be made in the construction of the elements shown by me and in their relative position with respect to each other, without departing from the inventive principle disclosed herein.

What I therefore wish to claim is as follows:

In combination with a cigarette lighter having a threaded aperture for admission of fuel, a cylindrical closure threaded on the outside to fit into said aperture, the closure being provided with an axial aperture therein, a bore of restricted diameter leading from said aperture outwardly, and a plurality of air passages leading from the portion of the axial aperture adjoining said bore of restricted diameter and terminating flush with the surface of said closure disposable within said cigarette lighter, a resilient washer having a central opening and seated at the junction of the aperture and the bore, a ball-shaped member bearing against said washer from inside to normally close the passage between the bore and the aperture, and a coiled spring within the aperture bearing against the ball to keep it in a normally-closed position, the ball being provided with a cylindrical stub to fit axially into the coils of the spring and having at the opposite end a piercing spear projecting into said bore.

WILLIAM P. STRUMBOS.

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