Feb. 14, 1950 C. H. H. RODANET 2,497,137

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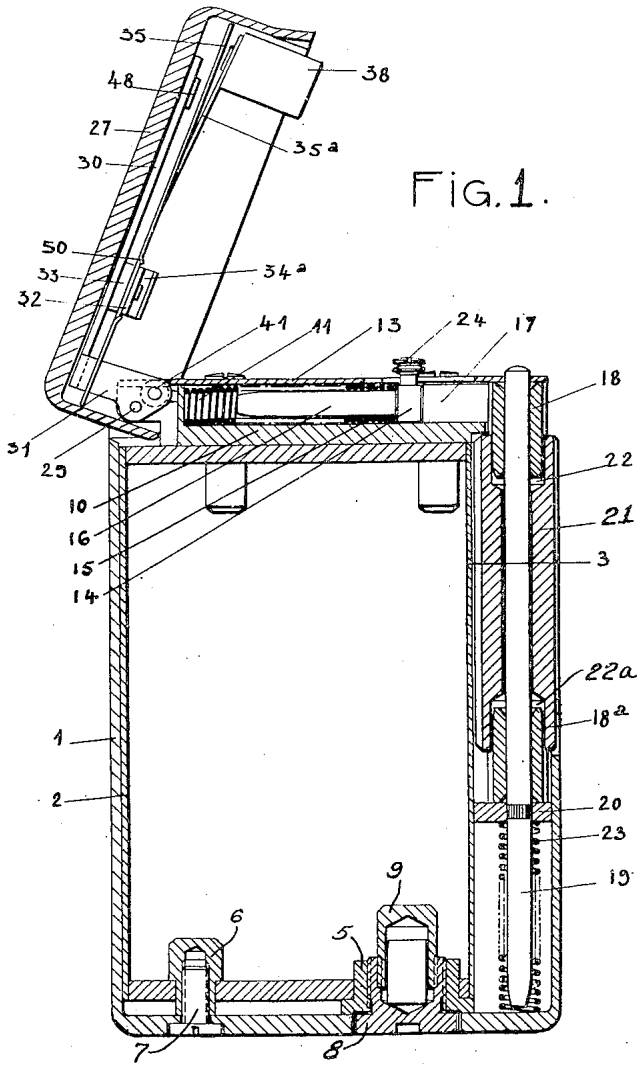
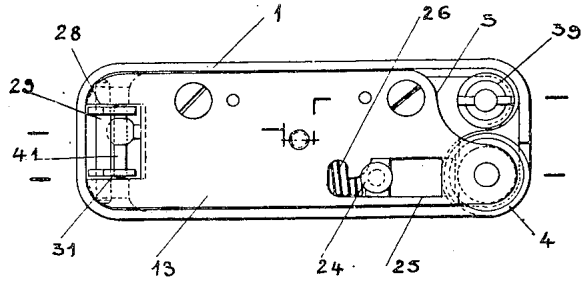


Fig. 1.

Fig. 2.



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Fig. 7.

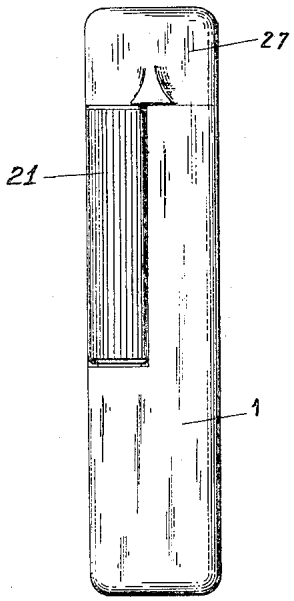


Fig. 6

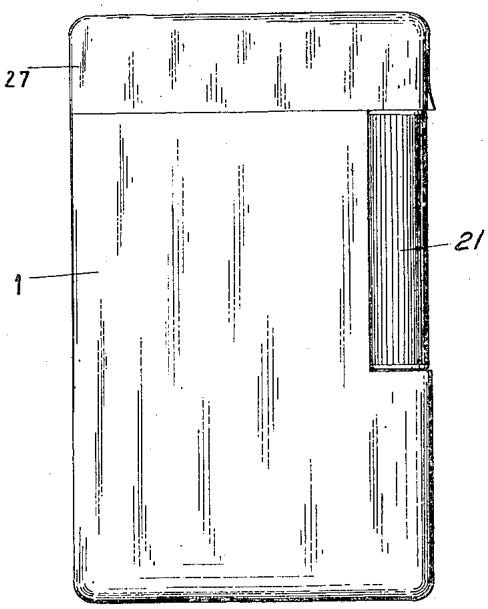


Fig. 5.

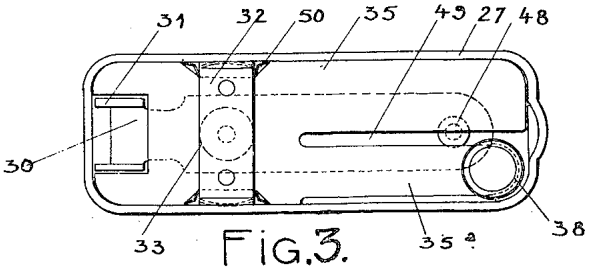


Fig. 4.

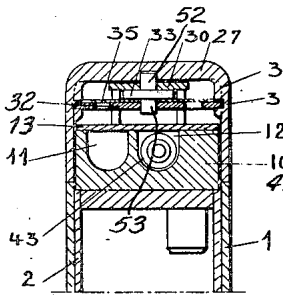
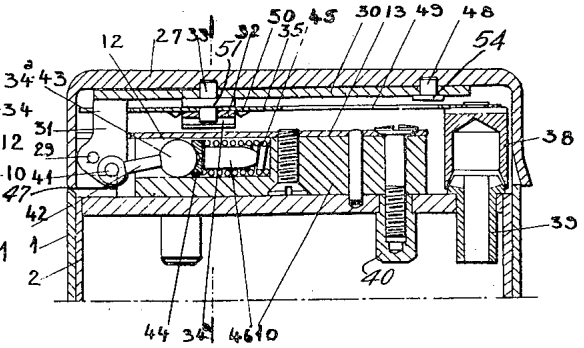


Fig. 3.



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Patented Feb. 14, 1950 2,497,137

UNITED STATES PATENT OFFICE

2,497,137

LIGHTER

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Application February 1, 1947, Serial No. 725,782
In France February 4, 1946

4 Claims. (Cl. 67—7.1)

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The present invention relates to pocket lighters for smokers; it comprises various improvements to such devices with a view to, in particular, making them simpler and cheaper in construction, facilitating disassembly thereof and making them more convenient and reliable in use.

One of said improvements concerns the mounting of the cap, the hinge for which it is difficult to provide with the desired strength, especially when the casing of the lighter is made of aluminum or a light-weight alloy. The main object of the present invention is to provide a lighter of the character described wherein the cover is not directly hinged to the casing, but is resiliently articulated with the container of the lighter through the medium of a resilient strip fitted in the cap and pivoted upon a rigid block secured to the container.

Another object of the invention is to provide a lighter of the character described wherein the rigid block contains a spring adapted to urge the fling in a horizontal direction and provided with a latch through which it is possible to free the flint from the action of said spring for the purpose of replacing the flint.

A further object of the invention is to provide, in a lighter of the character described, a thumb wheel rigid with a pair of flint wheels symmetrically disposed at both ends thereof, so that by reversing the assembly formed by the thumb wheel and the flint wheels on their common spindle, it is possible to replace the flint wheel in use.

The ensuing description made with reference to the appended drawings given by way of illustration and not of limitation will clearly show how the invention may be performed.

In the drawings:

Fig. 1 is a general longitudinal section of the lighter, made on line I—I of Fig. 2, the cover being opened.

Fig. 2 is a plan view corresponding to Fig. 1, the cover being supposed to be removed.

Fig. 3 is a section through the cover and the cover-plate, made on line III—III of Fig. 2.

Fig. 4 is a section on line IV—IV of Fig. 3.

Fig. 5 shows the cover in plan view as seen from below.

Figs. 6 and 7 illustrate the lighter in outer elevation and side view respectively.

The casing 1 of the lighter, which is made of aluminum and is of parallelepipedic shape, contains a liquid container 2 of similar shape but the lateral side wall of which is formed with a concave indentation 3 to accommodate a fluted thumb-wheel 21 which is disposed in a manner

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known per se along one of the vertical edges of said casing 1 suitably recessed to that end. In the bottom of the container 2 there is soldered a plug-bushing 5 and a pair of tapped plugs 6 engaged by screws 7 to rigidly connect the container 2 with the casing 1. Within the bushing 5 the usual filling plug 8 is threadedly engaged and provided conventionally with a container 9 designed to accommodate a spare flint.

On the upper face of the container 2 there is secured a rigid block 10 of moulded aluminum provided with two horizontal channels 11 and 12 formed by casting and sealed by a thin metal plate 13 forming a bridge and secured to said block 10 by screws. Within the channel 11 a small plunger 14 is slidable and is subjected to the action of a coil spring 15 housed in said channel 11 and which, surrounds the shank 16 of the plunger. Said plunger constantly urges the flint 17 in the channel 11 against the flint wheel 18 which is mounted in the following way:

A vertical spindle 19 extends at its upper end through a hole formed in said bridge 13 and is maintained between the casing 1 and the side-wall 3 of the container 2 by a shaped plate 20 (Fig. 1) engaging a serrated portion of the spindle 19. On said spindle is freely rotatable, between the bridge 13 and the plate 20, an assembly formed by a thumb wheel 21 and two flint wheels 18 and 18a, the ends of which adjacent to said thumb wheel are of slightly reduced diameter for forcibly engaging recesses 22 and 22a formed in said thumb wheel 21 whereby said flint wheels are rigid therewith and symmetrically disposed at each end thereof. A coil spring 23 surrounding the spindle 19, between the bottom wall of the casing 1 and the shaped plate 20, constantly urges the flat upper face of the flint wheel 18 against the bridge 13 to prevent the flint 17 from being engaged on a fraction only of its sectional area. The assembly formed by the thumb-wheel and the flint-wheels so arranged is reversible to allow of replacing the flint wheel 18 in use by the flint wheel 18a acting as a spare flint wheel.

Upon the plunger 14 there is threadedly attached a knob 24 projecting upwardly through an aperture 25 of the bridge 13. Said aperture is formed so as to include a notch 26 in which the knob 24 may be engaged after having been pushed back while compressing the spring 15. Said notch serves as a latching stop for the knob to free the flint from the action of the spring 15 and allow the flint to be easily ejected and replaced.

The cap 27 is not hinged directly to the casing.

The block 10 has a vertical channel 28 through which extends a pivotal pin 29 about which a resilient strip 30 made of spring steel is pivotable through two integral laterally extending lugs 31, which pass through an aperture in the bridge 13. Said spring plate 30 is retained in engagement against the top of the cover 27 by a transversely extending locking plate member 32, fitted within said cap as indicated hereinafter. The connection between actuating resilient strip 30 and locking plate 32 is effected by means of a shouldered centering pin 33 integral with a central washer 51. The upper shank 52 of said pin is centered into a recess hole formed in the top of the cap 27 and its lower shank 53 into a hole formed in said locking plate 32, while the central washer 51 is interposed between said plate and said strip. Further, the actuating resilient strip 30 is maintained in correct angular position by means of a second shouldered pin 48 integral with a terminal washer 54 bearing under said strip and the shank of which is forced into a recess hole formed in the top of the cap 27.

The locking plate 32 made of spring steel engages a pair of grooves 34 formed in bosses 34*a* of the lateral walls of the cap. Between said plate and the washer 51 of pin 33 there is inserted another plate of spring steel 35 which is prevented from being rotated because it engages the interior of the cap throughout its periphery with the exception of a tongue 35*a* separated from the rest of the plate by a slot 49 and with the exception of the part recessed for the passage of the lugs 31; in order to conform to the bosses 34*a*, said plate is provided with two lateral notches each having two corners 50 bent downwards and blocking the locking plate 32 in position.

To the free end of the tongue 35*a* there is riveted a snuffer 38 which thus is resiliently applied against the wick-holder 39.

The wick-holder 39 is soldered to the plate forming the upper wall of the container 2, and so are the sockets 40 for the pins of the block 10. The upper and lower walls of the container 2 are soldered to the side-wall thereof.

The lugs 31 of the actuating strip 30, aside from the pivotal pin 29, further carry a second spindle 41 which serves to pivot a link 42 terminating in a ball 43. The ball cooperates with a socket formed as a portion of a sphere in a plunger 44 slidable in the channel 12. A coil spring 45 located in said channel around the shank 46 of the link plunger 44 constantly tends to retain the cap in the position occupied by the link plunger, either opened or closed, and during closure it insures that said closure is effected thoroughly, preventing it from remaining in any intermediate position. To allow for the resilient pivotal movements of the cap, the edge 47 of the casing 1 is bevelled as well as the corresponding edge of said cap.

What I claim as my invention and desire to secure by Letters Patent is:

1. A lighter comprising, in combination, a casing made of a material having a relatively thin cross-section, a liquid container in said casing rigid therewith, a wick extending through said container, a flint wheel adjacent said wick, a flint bearing on said flint wheel, means for rotating said flint wheel, means for applying said flint against said flint wheel, a block having a substantially greater thickness than the casing fixedly mounted on said container, a cap made of a material having a thickness of the same order as the casing, a resilient strip located in said cap for actuating the same, a resilient transverse locking plate resiliently fitted in the lateral walls of said cap for maintaining said strip against the top of the cap, means for centering simultaneously said strip and said locking plate with respect to said cap, means for maintaining said strip correctly angularly positioned with respect to said cap, means for pivoting said resilient strip to said block so that said cap is not directly hinged to said casing whereby the strength of the so formed hinge is independent from the lightness of said casing and cap, and means for simultaneously retaining said cap in the position occupied by said latter, either opened or closed, and for ensuring simultaneously that the closure is effected thoroughly.

2. A lighter comprising, in combination, a casing made of a material having a relatively thin cross-section, a liquid container in said casing rigid therewith, a wick extending through said container, a flint wheel adjacent said wick, a flint bearing on said flint wheel, means for rotating said flint wheel, means for applying said flint against said flint wheel, a block having a substantially greater thickness than the casing fixedly mounted on said container and formed with a vertical channel, a cap made of a material having a thickness of the same order as the casing, a resilient strip located in said cap for actuating the same, said strip being formed with a pair of downwardly directed lugs positioned within said vertical channel and contacting the lateral walls of said channel, a resilient transverse locking plate resiliently fitted in the lateral walls of said cap for maintaining said strip against the top of the cap, means for centering simultaneously said strip and said locking plate with respect to said cap, means for maintaining said strip correctly angularly positioned with respect to said cap, a pivoting pin for connecting said lugs with said lateral walls so that said cap is not directly hinged to said casing whereby the strength of the so formed hinge is independent from the lightness of said casing and cap, and means for simultaneously retaining said cap in the position occupied by said latter, either opened or closed, and for ensuring simultaneously that the closure is effected thoroughly.

3. A lighter comprising, in combination, a casing, a liquid container in said casing rigid therewith, a wick extending through said container, a flint wheel adjacent said wick, means for rotating said flint wheel, a block fixedly mounted on said container and formed with a horizontal channel opening upwardly and adjacent said flint wheel, in said channel a flint bearing on said flint wheel, a spring for applying said flint against said flint wheel, and a plunger interposed between said flint and said spring, a plate forming a bridge over said block for sealing said channel and formed above said channel with an aperture which includes a notch, a knob attached to said plunger for cooperating with said notch when said plunger is retracted, whereby said flint is freed from the action of said spring in order to be replaced.

4. A lighter comprising, in combination, a casing formed with a vertical slot opening upwardly and extending on a part of the height thereof, a liquid container in said casing rigid therewith and formed on its total height with a concave recess facing said slot, a wick extending through said container, a block fixedly mounted on said

container and formed with a horizontal channel opening upwardly and on the lateral wall of said block facing said wick, in said channel a spring biassed flint adapted to be pushed towards said lateral wall, a spindle located within the housing formed by said container recess and said casing, a bridge-forming plate serving to journal said spindle, a small plate mounted between said casing and said container in said housing for forming the opposite journal for said spindle, a thumb wheel, two flint wheels rigid with said thumb wheel and symmetrically disposed at each end thereof, the assembly formed by said thumb wheel and said flint wheels being freely rotatably and removably mounted on said spindle, whereby said assembly is reversible to allow of replacing the flint wheel in use, and a spring for constantly applying the flat upper end of the flint wheel situated above the thumb wheel against said bridge forming plate.

CHARLES HILAIRE HENRI RODANET.

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