July 23, 1946. B. COOPER ET AL 2,404,435

CIGARETTE LIGHTER

Filed Nov. 28, 1945 2 Sheets-Sheet 1

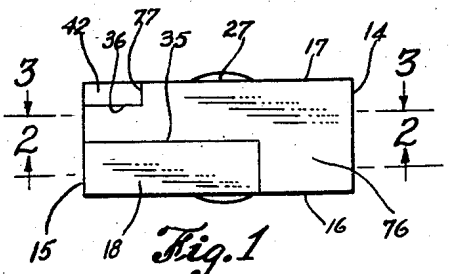

Fig. 1

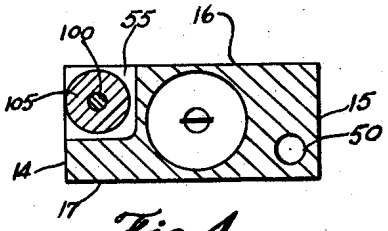

Fig. 4

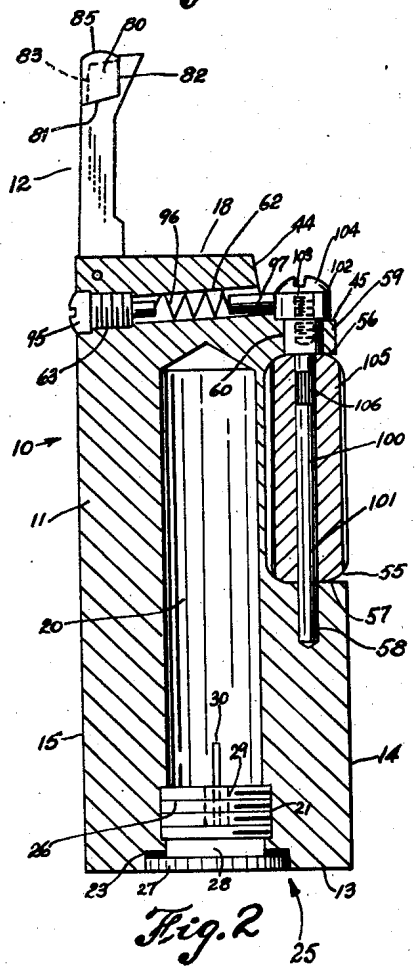

Fig. 2

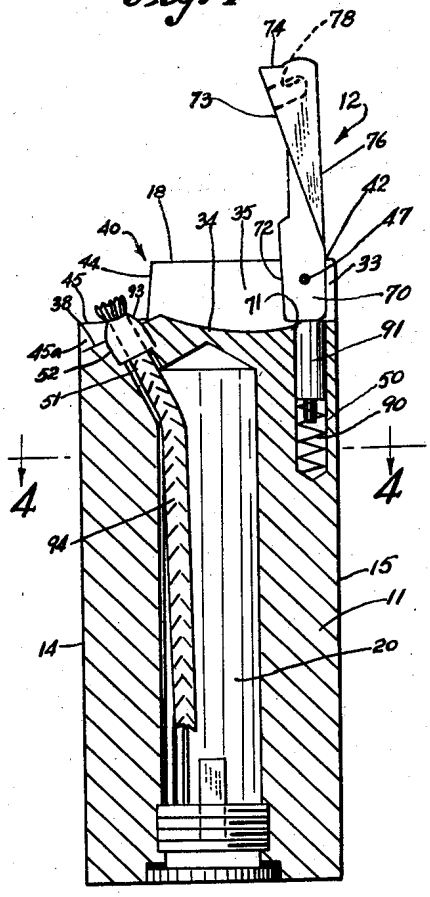

Fig. 3

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CIGARETTE LIGHTER

Filed Nov. 28, 1945 2 Sheets-Sheet 2

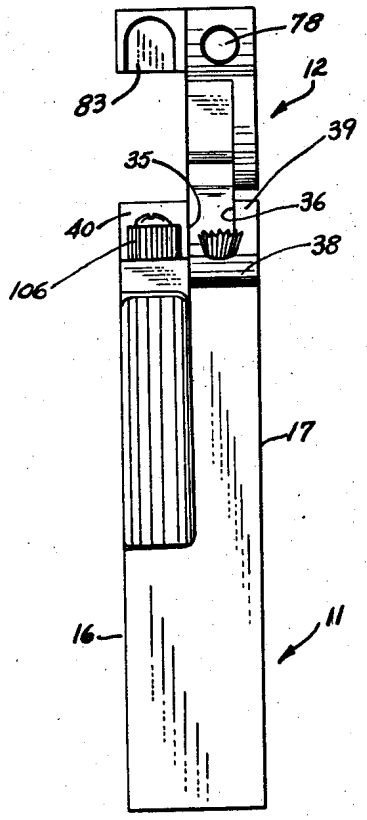

Fig. 5

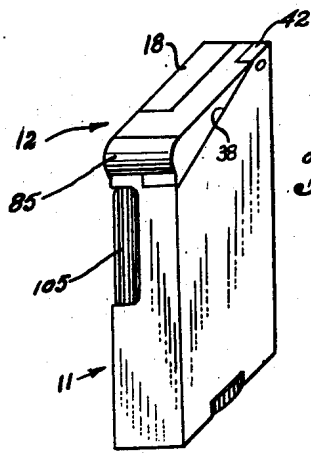

Fig. 6

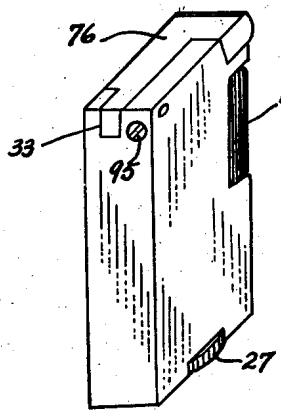

Fig. 7

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UNITED STATES PATENT OFFICE

2,404,435

CIGARETTE LIGHTER

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6 Claims. (Cl. 67—7.1)

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This invention relates to cigarette lighters.

An object of this invention is to provide a cigarette lighter comprising a body and a cover hinged thereto, said body being formed with a surface inclined downwardly and forwardly toward the front surface of the body, and said cover being provided with a complementary inclined surface, the body being formed with a fuel chamber and with a wick passage communicating therewith, perpendicular to said inclined surface on the body, whereby to provide for an upwardly and forwardly shooting flame located where it is easily accessible for lighting cigarettes, cigars or pipes, and furthermore providing ample air space all around the wick so as to prevent dead pockets which are likely to extinguish the flame when moving the lighter around after the flame is lit.

Still another object of this invention is to provide in a cigarette lighter of the character described, a cover provided with a bulge or bump projecting forwardly of the front surface of the body, which may be easily engaged by the thumb to facilitate opening the cover.

Still another object of this invention is to provide a cigarette lighter of the character described, comprising a body provided with an opening to receive a spring pressed piece of flint, and a screw plug to close said opening, said body being furthermore formed with a fuel chamber and provided with a plug to close said chamber, said plug being formed on its inner surface with a central drilled opening, and provided with a strip of steel forced into the opening and projecting therefrom to serve as a screw driver for unscrewing the screw plug for the flint opening.

Yet a further object of this invention is to provide a cigarette lighter of the character described, comprising a body and a cover hinged thereto, said cover having a top surface, flush with part of the top surface of the body, and said cover interfitting with the body to provide smooth top and side surfaces, and said cover being furthermore formed with an opening to receive the wick on the body, and with an opening to receive the flint.

Still a further object of this invention is to provide a compact, light and durable cigarette lighter of the character described, which shall be relatively inexpensive to manufacture, which shall be graceful in appearance, easy to manipulate, sure and positive in operation, and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

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The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawings, in which are shown various possible illustrative embodiments of this invention,

Fig. 1 is a top plan view of a cigarette lighter embodying the invention, with the cover closed;

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1, but with said section passing through the axis of the fuel chamber;

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1, but with the section passing through the axis of the fuel chamber;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 3;

Fig. 5 is a front elevational view of the cigarette lighter with the cover open;

Fig. 6 is a front perspective view of the cigarette lighter; and

Fig. 7 is a rear perspective view thereof.

Referring now in detail to the drawings, 10 designates a cigarette lighter embodying the invention. The same comprises a body 11 and a cover 12. The body 11 may be made of metal such as aluminum or other suitable material. Said body 11 is generally prismatic in shape and is formed with a bottom surface 13, a front surface 14, a rear surface 15, side surfaces 16 and 17, and a top surface 18. Said body is formed with an axial fuel chamber 20.

Chamber 20 comprises a drilled opening extending upwardly from the bottom surface 13. At the lower end of the fuel chamber 20 is an internally screw threaded portion 21 terminating above the bottom surface 13. At the lower end of the screw threaded opening 21 is a counterbored opening 23 having a diameter larger than the width of the bottom surface 13. The fuel chamber 20 terminates below the upper end of the body. The lower end of the fuel chamber 20 is closed by a plug 25.

Said plug 25 comprises an externally screw threaded portion 26 engaging the screw threads 21. At the lower end of the plug or closure member 25 is an enlarged knurled head 27 received within the counterbored opening 23. The shank of the plug may be undercut as at 28 adjacent the knurled head 27. The diameter of the knurled head is greater than the width of the body so that portions of said head project beyond the side surfaces 16 and 17 whereby to facilitate ro-

tation of the plug. The plug is formed for the purpose hereinafter appearing at its inner end with an axial blind drilled opening 29. Forced into the opening 29 is a diametrically disposed axial strip 30 of spring steel. The edges of the strip 30 are embedded in the metal as the strip is forced into the drilled opening. The strip 30 has a width somewhat greater than the diameter of the opening 29, so that the edges thereof will form grooves as said strip is forced into the opening. Said strip projects up above the plug and serves as a screw driver for the purpose hereinafter appearing.

The body 11 is formed with a vertical slot 33 which extends from the rear surface 15 forwardly. The slot 33 extends up to the top surface 18 of the body. Said slot is somewhat closer to the side surface 17 than it is to the side surface 16. The slot 33 has a bottom surface 34. It also forms parallel side vertical surfaces 35 and 36. Said body 11 is furthermore formed at the top with an upwardly and rearwardly inclined surface 38 which extends from the front surface 14 to the top surface 18. On one side of slot 33 is a wall 39 and on the opposite side of said slot is a wall 40. The inclined surface 38 constitutes a portion of the top edge of said wall 39. At the upper end of wall 39 is a top surface 42 at the level of surface 18. Surface 38 extends up to surface 42. Surface 38 furthermore extends sidewise to wall 40.

It will be noted that surface 18 extends from the rear surface 15 forwardly but terminates short of the front surface 18. Extending downwardly from the front end of said surface 18 is a surface 44 somewhat inclined forwardly. Extending forwardly from the lower end of surface 44 is a horizontal surface 45. Surface 45 extends to surface 16 on one side and also to the front surface 14. Extending from surface 45 is an inner horizontal surface 45a which is substantially in the plane of surface 35.

The walls 39, 40 are formed with aligned transverse openings carrying a transverse pivot pin 47. The pin 47 traverses the slot 33 for the purpose hereinafter appearing.

Said body 11 is furthermore formed with a vertical drilled opening 50 extending downwardly from the lower surface 34 of the slot 33. Opening 50 is centered with respect to the slot and is disposed close to the rear surface 15 of the body.

Said body is furthermore formed with an upwardly and forwardly inclined drilled opening 51 communicating with the fuel chamber 20 and extending to the inclined surface 38, perpendicularly thereto. Said inclined opening 51 is disposed forwardly of slot 33. Its upper end is counterbored, as at 52, for the purpose hereinafter appearing.

The body is furthermore formed with a vertical corner notch 55 located at the junction of the surfaces 14, 16. The upper end of the notch is disposed somewhat below surface 45 and forms an undersurface 56. The lower end 57 of the notch is substantially at the middle of the body. The body is formed with a vertical drilled opening 58 which extends downwardly from surface 57. The wall 59 formed between surfaces 56 and 45 is formed with a vertical opening 60 aligned with opening 58, but of larger diameter. The notch 55 is located at the junction of surfaces 14 and 16.

Said body is furthermore formed with a substantially horizontal through opening 62 extending to the rear surface 15. The forward end of opening 16 extends to the surface 44, as shown in Fig. 2 of the drawings. The rear end of opening 62 is screw threaded as at 63. The axis of opening 62 is substantially in the plane of the axis of openings 58, 60.

The cover 12 comprises a tongue portion 70 received within slot 33 and is formed with a through opening through which the pivot pin 47 extends whereby to pivotally connect the cover to the body. Tongue 70 has an end surface 71 which is flush with surface 15 of the body when the cover is closed. Said surface 71 is disposed above the opening 50 when the cover is open. Tongue 70 has an undersurface 72 substantially perpendicular to surface 71. Surface 72 is adapted to overlie opening 50 when the cover is closed. Said cover 12 furthermore comprises an inclined surface 73 adapted to contact surface 38 of the body when the cover is closed. Surface 73 extends to the front end or surface 74 of the cover. It also extends to the top surface 76 of the cover, forming an edge 77, parallel to surface 71 and spaced forwardly therefrom. Surface 73 is formed with a socket or blind opening 78 adapted to overlie and register with the counterbored opening 52, for the purpose hereinafter appearing. The surface 76 is complementary with the surfaces 42 and 18 making therewith the rectangular top of the cigarette lighter. Surface 76 is in the plane of surfaces 42, 18 when the cover is closed. Extending to one side of tongue 70 is a cover portion 80 having a rear surface 81 complementary to surface 44 and adapted to contact the latter. Portion 80 is also formed with a lower surface 82 complementary to surface 45 of the body and adapted to contact the latter. Said portion 80 is formed with a notch or recess 83 extending to surfaces 82 and 81 and adapted to overlie opening 60 and communicate with the forward end of opening 62, for the purpose hereinafter appearing.

It will now be understood that the cover 12 when closed completes the upper end of the block-like body to form substantially a prism. Said cover, however, is formed at the forward end thereof with a forwardly extending bump or projection 85 which may be engaged by the thumb to facilitate lifting of the cover.

Means is provided to releasably retain the cover in open or closed position. To this end there is disposed within the bottom of opening 15, a coil compression spring 90. Mounted within said opening, and on spring 90, is a pin 91. The upper end of pin 91 is adapted to contact surface 71 when the cover is open and surface 72 when the cover is closed. The spring pressed pin 91 therefore tends to maintain the cover in either open or closed position.

Mounted within the counterbored opening 52 is a sleeve 93. Extending through the sleeve 93 and through opening 51, is a wick 94 which extends into the fuel chamber 20. The upper end of the wick projects from sleeve 43. When the wick is lit, the flame projects upwardly and forwardly. When the cover is closed, the wick, as well as the upper end of the sleeve which projects above surface 38, is received in the socket 78 of the cover. It will be noted that the inclined surface 38 extends all the way back so as to provide sufficient air all around the wick. Thus, when the lighter is moved, there is no likelihood of any dead space or vacuum being created within the vicinity of the flame. Such construction therefore insures against the flame being extin-

guished when the lighter is moved back and forth.

Screwed to the screw threaded portion 63 of opening 62 is a screw plug 95. Within the opening 62 is a coil compression spring 96. At the forward end of the opening is a piece 97 of flint. The spring 96 pushes the flint 97 forwardly for the purpose hereinafter appearing.

Mounted within openings 58, 60 is a pin or shaft 100. The pin 100 has a shank portion 101, the lower end of which is received in opening 58. At the upper end of shank portion 101, is an enlarged portion 102 received in opening 60. The enlarged portion 102 is formed at its upper end with an internally screw threaded blind opening 103. Screwed into the opening is a screw 104. Received within notch 55 and on shank portion 100 is a knurled finger wheel 105. The shank 100 is knurled, as at 106, to grip the inner surface of the opening in the knurled roller or sleeve 105 so that said knurled wheel will rotate with the pin. On the upper end of portion 102 of pin 100 is a flint wheel 106. The flint wheel has a central opening through which the shank of the screw 104 extends. The head of the screw contacts the top of the flint wheel. The upper end of the head 102 of pin 100 may be formed with notches and the underside of the flint wheel may be formed with serrations engaging the notches so that the screw will rigidly fix the flint wheel to the pin. The flint piece 97 is pressed against the flint wheel.

It will now be understood that when a thumb engages the thumb wheel or roller 105 and the latter is rotated, the wheel will be rotated therewith to cause sparks to impinge against the upper end of the wick to cause a flame.

The screw driver blade 30 may be used to unscrew the screw 95 when it is desired to insert a new piece of flint into the cigarette lighter.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. A cigarette lighter comprising a body having front, side, rear and top surfaces, said body being formed at its upper end with a slot extending to its upper surface, said body being furthermore formed with an upwardly and rearwardly inclined surface adjacent said slot and extending from the front surface to the top surface of the body, a pivot pin on the body traversing said slot, a cover having a top surface complementary to the top surface of the body and comprising a tongue disposed within said slot and formed with an opening receiving said pivot pin, said body and cover together forming substantially a quadrangle prism, said cover having an inclined undersurface complementary to and adapted to contact the inclined surface on said body, said body being formed with a fuel chamber and also being formed with a wick passage communicating with the fuel chamber and said passage being perpendicular to the inclined surface of said body, said cover being formed in the inclined surface thereof with a socket registering with said wick passage, said body being formed at its upper surface and adjacent the front surface thereof with a notch located at one side of the inclined surface of the body, a flint wheel rotatably mounted in said notch, said cover having a portion received within said notch, said portion of said cover being formed with a recess to receive said flint wheel.

2. A cigarette lighter comprising a one piece body having a front surface, side surfaces, a rear surface, and a top surface, said body having at its upper end an upwardly and rearwardly inclined surface extending from the front surface to the top surface, said inclined surface extending to one side surface of said body, said body being furthermore formed at its front surface with a notch disposed to one side of said inclined surface, a cover hinged to said body, said cover having an inclined surface contacting the inclined surface of the body, said cover furthermore having a portion received within said notch, said body being formed with a longitudinal fuel chamber, and with a wick opening communicating with the fuel chamber and extending to said inclined surface of said body substantially at right angles thereto, a wick within said wick opening projecting upwardly and forwardly of the body, said cover being formed with a socket to receive the exposed end of the wick, a flint wheel rotatably mounted on said body and located within said notch and adjacent said wick, and said portion of said cover having a recess to receive said wheel.

3. A cigarette lighter comprising a one piece body having a front surface, side surfaces, a rear surface, and a top surface, said body having at its upper end an upwardly and rearwardly inclined surface extending from the front surface to the top surface, said inclined surface extending to one side surface of said body, said body being furthermore formed at its front surface with a notch disposed to one side of said inclined surface, a cover hinged to said body, said cover having an inclined surface contacting the inclined surface of the body, said cover furthermore having a portion received within said notch, said body being formed with a longitudinal fuel chamber, and with a wick opening communicating with the fuel chamber and extending to said inclined surface of said body substantially at right angles thereto, a wick within said wick opening projecting upwardly and forwardly of the body, said cover being formed with a socket to receive the exposed end of the wick, a flint wheel rotatably mounted on said body and located within said notch and adjacent said wick, and said portion of said cover having a recess to receive said wheel, said cover being formed with a projection at its front end extending forwardly of said front surface of said body, and adapted to be engaged by a thumb to facilitate lifting the cover, said projection extending across the full width of the cover and also extending substantially from the underside of said portion of said cover to the top surface of said cover.

4. A cigarette lighter comprising a one piece body having a front surface, side surfaces, a rear surface, and a top surface, said body having at its upper end, an upwardly and rearwardly inclined surface extending from the front surface to the top surface, said inclined surface extending to one side surface of said body, said body being formed with a fuel chamber and with a wick opening extending from said fuel chamber to said inclined surface of said body, said wick opening being substantially perpendicular to said inclined

surface of said body, a forwardly and upwardly inclined wick in said wick opening, said body being formed with a slot adjacent said inclined surface, said body being furthermore formed at its front end with a notch disposed at one side of said inclined surface, a pivot pin traversing said slot, a cover having a tongue received in said slot and formed with an opening receiving the pivot pin, said cover having an inclined surface contacting the inclined surface of the body, and a portion received within said notch, said body being formed with a vertical notch at the junction of the front surface with one of said side surfaces, and spaced from the first notch and aligned therewith, a thumb wheel rotatably mounted in said vertical notch, a flint wheel fixed to rotate with said thumb wheel, and received within the first-mentioned notch of said body, said portion of said cover being formed with a recess to receive the flint wheel.

5. A cigarette lighter comprising a one piece body having a front surface, side surfaces, a rear surface, and a top surface, said body having at its upper end an upwardly and rearwardly inclined surface extending from the front surface to the top surface, said inclined surface extending to one side surface of said body, said body being formed with a longitudinal fuel chamber and with a wick opening extending from said fuel chamber to said inclined surface of said body, said wick opening being substantially perpendicular to said inclined surface, said body being furthermore formed at its front end with a notch disposed to one side of said inclined surface, a one piece cover pivoted to the upper end of the body and forming therewith a substantially quadrangle prism, said cover having an inclined undersurface contacting the inclined surface of said body, said cover furthermore having a portion received within said notch, said body being formed with a vertical notch at the junction of the front surface with one of the side surfaces

and spaced from the first notch and aligned therewith, a thumb wheel rotatably mounted in said vertical notch, a flint wheel fixed to rotate with said thumb wheel and received within the first-mentioned notch of said body, and said portion of said cover being formed with a recess to receive said flint wheel.

6. A cigarette lighter comprising a one piece body having a front surface, side surfaces, a rear surface, and a top surface, said body having at its upper end an upwardly and rearwardly inclined surface extending from the front surface to the top surface, said inclined surface extending to one side surface of said body, said body being formed with a longitudinal fuel chamber and with a wick opening extending from said fuel chamber to said inclined surface of said body, said wick opening being substantially perpendicular to said inclined surface, said body being furthermore formed at its front end with a notch disposed to one side of said inclined surface, a one piece cover pivoted to the upper end of the body and forming therewith a substantially quadrangle prism, said cover having an inclined undersurface contacting the inclined surface of said body, said cover furthermore having a portion received within said notch, said body being formed with a vertical notch at the junction of the front surface with one of the side surfaces and spaced from the first notch and aligned therewith, a thumb wheel rotatably mounted in said vertical notch, a flint wheel fixed to rotate with said thumb wheel and received within the first-mentioned notch of said body, and said portion of said cover being formed with a recess to receive said flint wheel, said cover being formed at its front end with a bump projecting forwardly of said front surface of said body, said bump extending across the full width of the cover and being adapted to be engaged by a thumb to facilitate lifting the cover.

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