

Nov. 3, 1970

W. RETZLER
CIGARETTE LIGHTERS

3,537,806

Filed July 1, 1968

3 Sheets-Sheet 1

Fig. 1.

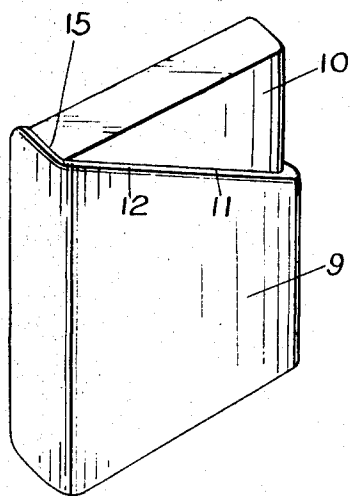


Fig. 2.

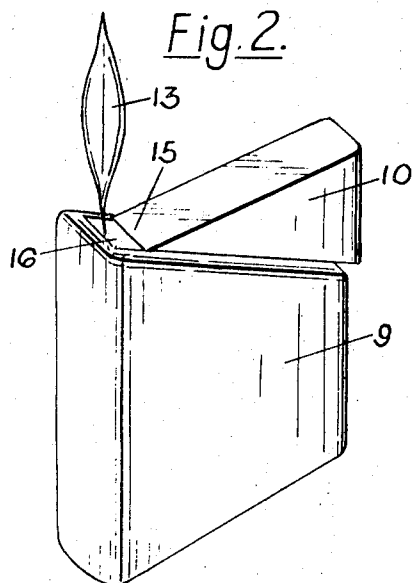


Fig. 3.

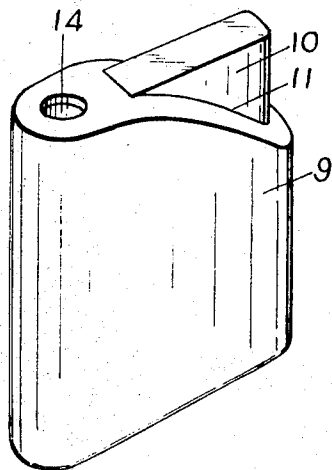
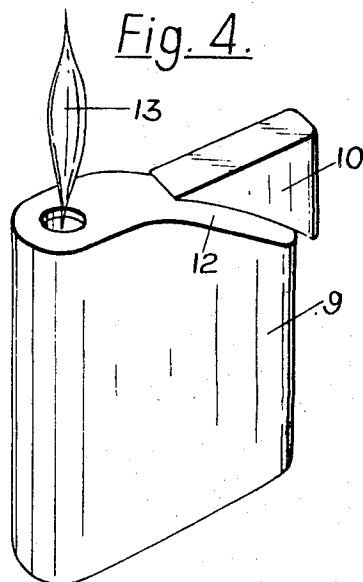


Fig. 4.



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3 Sheets-Sheet 2

Fig. 5.

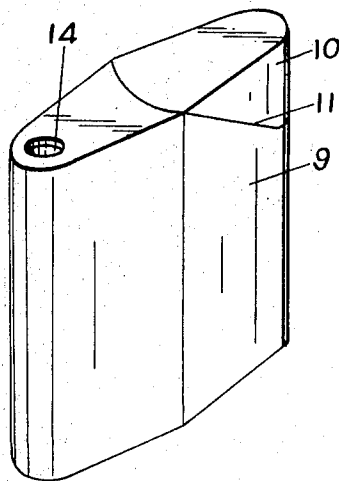


Fig. 6.

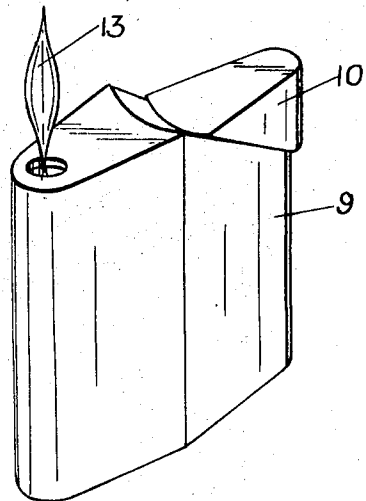


Fig. 7.

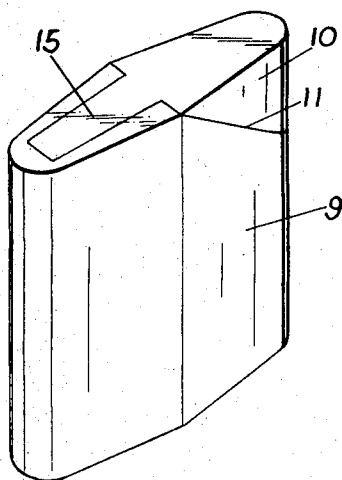
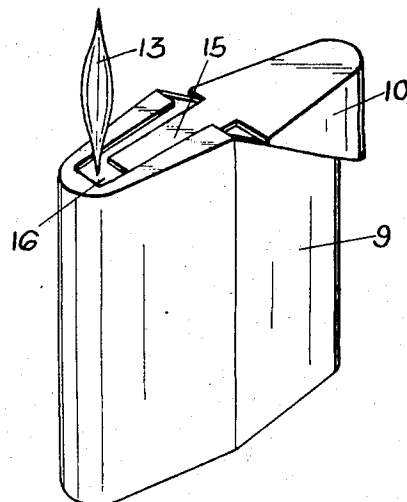


Fig. 8.



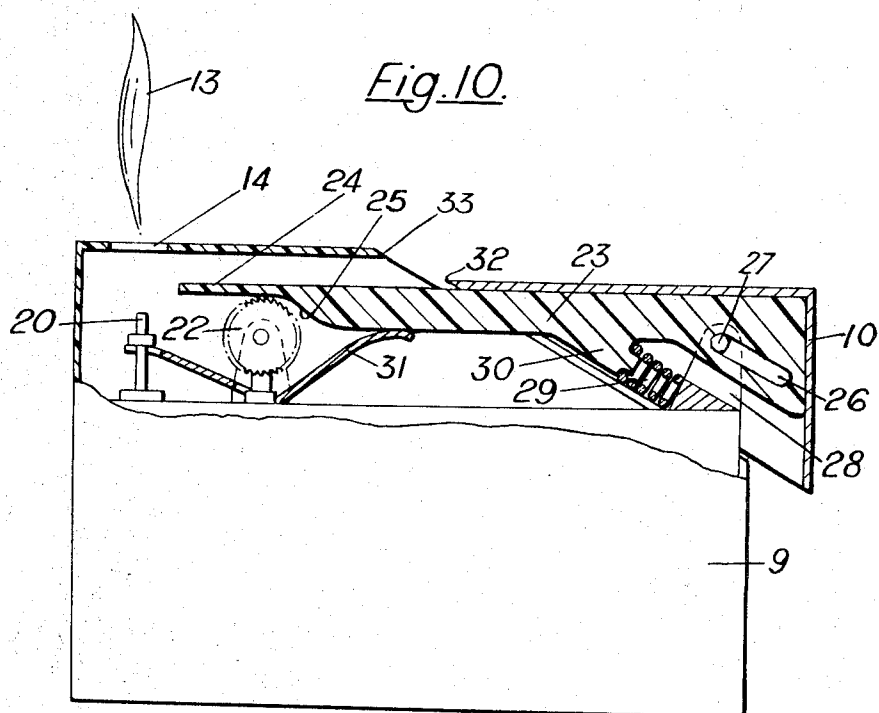
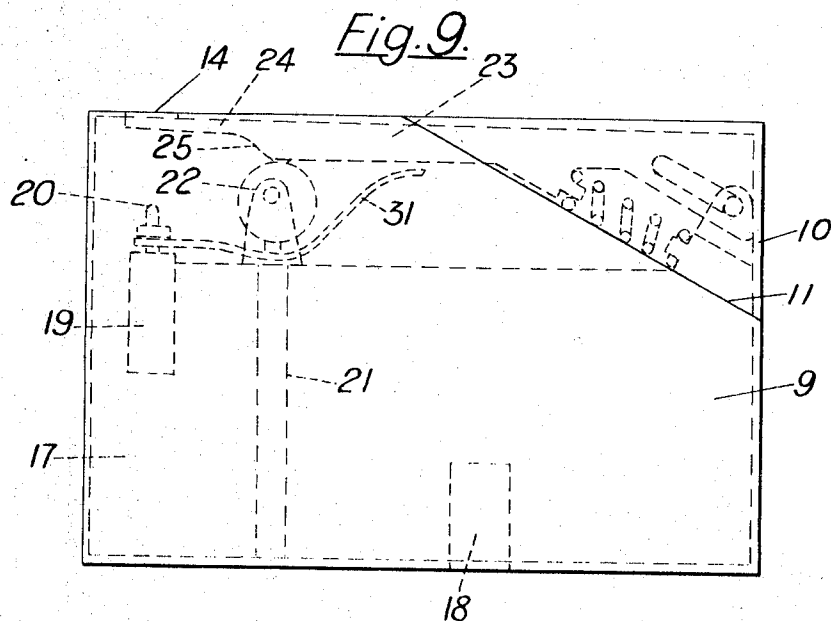
Nov. 3, 1970

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3 Sheets-Sheet 3



1

3,537,806

CIGARETTE LIGHTERS

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Filed July 1, 1968, Ser. No. 741,407

Claims priority, application Great Britain, July 14, 1967,

32,610/67

Int. Cl. F23q 2/08

U.S. Cl. 431—130

6 Claims

ABSTRACT OF THE DISCLOSURE

The invention concerns an automatic cigarette lighter having an outer casing formed by parts of an actuating member and a main body. In the rest position the actuating member is resiliently held in a position in which visible external surfaces of the actuating member part and of the main body part terminate at a common imaginary plane. The lighter is operated by displacing the actuating member relatively to the main body with a translational movement substantially parallel to the imaginary plane.

With the aim both of protecting the working parts of the igniting mechanism, and in providing an aesthetically satisfactory design, attempts have been made to construct the actuating member, that is the thumb or finger-piece of automatic cigarette lighters, so that it has a continuity of shape with the outer casing shell of the main body of the lighter. It has previously been accepted that this entails arranging the actuating member so that when it is depressed and moves downwards, and possibly backwards away from the burner as well, it moves either into, or closely over the outside of, the top of the shell. This necessitates considerable clearances to provide easy actuation and to avoid scratch marks on parts of the outer surface of the actuating member of shell which are exposed prior to operation of the lighter. Not only are these clearances unsightly, but from the practical consideration they allow dirt and other matter to enter, and thereby impair the function of, the lighter. In addition space has to be provided within the actuating member or the main body to accommodate the telescopic action of the two parts upon operation of the lighter and this otherwise wasteful space forces a larger size on the lighter than would otherwise be necessary.

In accordance with the present invention an automatic cigarette lighter has an outer casing formed by parts of an actuating member and of the main body which, prior to operation of the lighter, are resiliently held in a position which the visible external surfaces of the actuating member part and of the main body part terminate at a common imaginary plane, the actuating member being arranged to be displaced relatively to the main body with a translational movement substantially parallel to the imaginary plane and such displacement causing operation of the lighter.

This arrangement is applicable irrespective of the kind of igniting mechanism which the actuating mechanism operates. Since the actuating member moves substantially parallel to the imaginary plane, which may be flat or curved, no overlap of parts occurs to cause scratching of normally visible surfaces of the lighter, no clearances are necessary, and the space within the actuating member and the main body of the lighter can be usefully utilised to the full.

When the casing is substantially rectangular in elevation, the imaginary plane preferably extends at an inclination across the casing so that the actuating member will be wedge shaped. This maintains symmetry of shape of the lighter and provides a reaction surface for the thumb

2

or finger when the lighter is operated. Since the actuating member will usually be considerably smaller than the main body part of the lighter, the imaginary plane will usually extend across a corner of the casing so that the actuating member is triangular in elevation.

The actuating member and main body parts of the casing may have surfaces which are opposed to one another across the imaginary plane in the rest position and the actuating member and main body parts are preferably biased towards one another so that the opposed surfaces tend to abut one another across the imaginary plane in the rest position. This is perfectly acceptable since the actuating member moves relatively to the main body substantially parallel to the imaginary plane and the opposed surfaces will not then foul one another. If the opposed surfaces are return surfaces of the visible external surfaces of the actuating member and main body parts, it enables at least one visible external surface of the actuating member part to be flush with the corresponding external surfaces of the main body part across the imaginary plane in the rest position.

Indeed if all the visible external surfaces of the actuating member part terminating at the imaginary plane are flush with corresponding external surfaces of the main body part across the imaginary plane in the rest position, a solution is immediately provided to a long felt personal desideratum of the inventor, that is a cigarette lighter having a classical prismatic or other shape with a substantially completely smooth outer surface without any steps of the kind which are necessarily present when the actuating member moves into or closely over the outside of the top of the shell.

Some examples of lighters constructed in accordance with the invention are illustrated in the accompanying drawings in which:

FIG. 1 is a perspective view of a first lighter before operation;

FIG. 2 is a perspective view of a first lighter in operation;

FIGS. 3 and 4, FIGS. 5 and 6, and FIGS. 7 and 8 are views similar to FIGS. 1 and 2 but of second, third and fourth lighters respectively;

FIG. 9 is a diagrammatic side elevation of a fifth lighter before operation; and

FIG. 10, is a central vertical section of the fifth lighter in operation.

All the lighters have an outer casing which is substantially rectangular in elevation and is provided by two pieces 9 and 10. The casing piece 9 surrounds the main body of the lighter and accommodates the petrol or gaseous fuel reservoir which will be inserted through the bottom of the piece 9 after removal of a flush bottom closure. The piece 10 is wedged-shaped and takes the place of the conventional thumb piece actuating member and prior to operation of the lighter the return edge surfaces of the piece 10 are held in abutment with opposed surfaces of the piece 9 across an imaginary inclined plane 11. In a second example this plane is slightly curved. In the first two examples the piece 10 is thinner than piece 9 so that a step 12 is formed on the top of the piece 9 on each side of the actuating member piece 10. However in the third, fourth and fifth examples the corresponding parts of the two pieces are of the same width so that the outer surfaces of the two pieces are completely flush with one another prior to operation giving the casing a symmetrical prismatic shape.

To operate the lighters the actuating members piece 10 is depressed against spring action and is guided by the lighter action so that it moves with a translational motion causing the abutting opposed surfaces of the parts 9 and 10 to appear to slide relatively to one another along the

3

plane 11. At no time does any part of the actuating member piece 10 intersect the part of the imaginary plane 11 across which the two pieces oppose one another in the rest position so that no waste space has to be provided within the pieces 9 and 10 to accommodate this movement. In the second, third and fifth examples the flame 13 appears through an aperture 14 in the upper wall of the casing piece 9. In the first and fourth examples the upper wall of the combined casing is completely closed and flush prior to operation and an end 15 of the actuating member piece acts as a burner cover. Because of the inclination of the plane 11, when the actuating member piece 10 is depressed it also moves outwards translationally and carries the burner cover part 15 with it to reveal an aperture 16 through which the flame 13 burns.

In each case the lighter action is automatic, that is the operation of the actuating member causes ignition of the fuel at the burner. The inoperative rest position is resumed when the actuating member is returned to its original position, preferably by the action of the return spring, and the flame is extinguished.

The fifth example shown in FIGS. 9 and 10 exemplifies the manner in which the actuating member piece 10 may be guided so that it moves with a translational movement substantially parallel to the plane 11. This fifth example is substantially the same as the third example, except for the overall shape of the prismatic casing in cross section.

The fifth lighter is a gas burning lighter and has a gaseous fuel reservoir 17 with an inlet valve 18 and a burner valve 19 leading to a burner 20. A flint tube 21 extends through the main body and terminates at a flint wheel 22. The actuating member piece 10 has fixed within it a moulded plastics member 23 provided at its forward end with a tongue 24 and a curved cam shoulder 25. At its rear end the member 23 has a slot 26 which receives a pin 27 carried by an action carrying part 28. A helically coiled compression spring 29 is interposed between the part 28 and a shoulder 30 on the member 23. A simple bell crank lever 31 is interposed between the member 23 and the burner 20.

In the rest position the spring 29 urges the actuating member to the FIG. 9 position in which the tongue 24 closes the aperture 14 from below and return edge surfaces 32 of the piece 10 are urged to abut the complementary edge surfaces 33 of the piece 9. To operate the lighter the actuating member is depressed and is constrained by the cam action of the pin 27 and slot 26 and by the cam action of the shoulder 25 riding over the flint wheel 22 to move with a translational motion substantially parallel to the plane 11 to the FIG. 10 position. As the shoulder 25 rides over the flint wheel 22 it frictionally rotates the wheel and causes a stream sparks to ignite the fuel issuing from the burner 20 which has been opened by the downward movement of the member 23 rocking the bell crank lever 31.

I claim:

1. In a cigarette lighter having a body, operating means within said body for projecting a flame above said body, and an actuating member connected to actuate said operating means when pressure is exerted thereon in a direction opposite to the one in which said flame is projected, the improvement according to which said body and actuating member combine to form a casing having at least one corner and two substantially parallel external surfaces and which completely encloses said operating means, said actuating member comprises two registering

4

parallel surface members, each of which forms a corner of one of said casing surfaces when said casing is closed and contacts a portion of said body forming the remainder of that surface along a line positioned at an acute angle to the direction in which said flame is projected, and said lighter comprises means connecting said actuating member to said body for movement in a direction substantially parallel to said line of contact during actuation of said operating means.

2. A lighter as claimed in claim 1 in which said two parallel external surfaces of said casing are substantially rectangular and the registering parallel surface members of said actuating member are substantially triangular.

3. A lighter as claimed in claim 1 comprising means biasing said actuating member and body together into a position completely enclosing said operating means.

4. A lighter as claimed in claim 1 in which each surface member of said actuating member which forms a corner of a casing surface is flush with the remainder of said casing.

5. A lighter as claimed in claim 1 in which each surface member of said actuating member which forms a corner of a casing surface is stepped inwardly from the remainder of said casing surface.

6. In a cigarette lighter having a body, operating means within said body for projecting a flame from said body, and an actuating member connected to actuate said operating means when pressure is exerted thereon, the improvement according to which:

said body and actuating member combine to form a casing having at least one corner, two substantially parallel external surfaces, and a third external surface extending between said parallel external surfaces, which casing completely encloses said operating means,

said actuating member comprises two registering parallel surface members, each of which forms a corner of one of said parallel casing surfaces when said casing is closed, and a third surface member extending between said registering parallel surface members and forming at least part of said third casing surface, with each of said parallel surface members bounding a portion of said body defining the remainder of the casing surface of which it forms a corner along a line positioned at an acute angle to said third casing surface,

said operating means is positioned to project said flame adjacent to an end of said third surface member, and said lighter comprises means connecting said actuating member to said body for movement in a direction substantially parallel to said line during actuation of said operating means when pressure is exerted against said third surface member.

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U. S. Cl. X.R.

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