

PATENT SPECIFICATION

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DRAWINGS ATTACHED

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F4F 9B3B 9DX 9EY
- (72) Inventor WILLIAM RETZLER



(54) IMPROVEMENTS RELATING TO CIGARETTE LIGHTERS

- (71) We, TETRA MOLECTRIC LIMITED, formerly Sapphire Molectric Limited, a British Company, of 2 Raymond Buildings, Gray's Inn, London, W.C.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- 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 of automatic cigarette lighters, that is the thumb or finger piece movement of which is sufficient to ignite a flame at the lighter burner, 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 usually entails arranging the actuating member at an inner corner of the lighter so that when it is depressed and moves downwards, and possibly backwards, that is away from the burner, as well, it telescopes 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 or casing 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 functioning 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 which is substantially rectangular in elevation and is formed in two parts by an actuating member and a main body which are resiliently held in a rest position in which the visible external surfaces of the actuating member part and of the main body part meet at a common plane which extends at an inclination to the edges of the rectangular elevation of the casing and across which the walls of the actuating member part and main body part substantially abut one another to provide substantially complete concealment and protection for an igniting mechanism within the casing, the actuating member being arranged to be displaced relatively to the main body with a translational movement substantially parallel to the inclined plane and such displacement causing operation of the lighter.
- This arrangement is applicable irrespective of the type of flame-igniting mechanism which the actuating member operates. Since the actuating member moves substantially parallel to the inclined plane, which may be flat or very slightly curved, no overlap of parts occurs to cause scratching of visible surfaces of the lighter, no clearances are necessary, and owing to the avoidance of telescoping the space within the actuating member and the main body of the lighter can be usefully utilised to the full.
- Since the casing is substantially rectangular in elevation and the aforementioned plane extends at an inclination across the casing, the actuating member is wedge shaped. This maintains symmetry of shape of the lighter and one of the wedge surfaces provides a reaction surface for the thumb 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 inclined plane will usually extend across a corner of the casing so that the actuating member is triangular in elevation.
- The construction according to the invention 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 inclined plane in the rest position.
- Indeed if all the visible external surfaces of the actuating member part are flush with

[Price 25p]

Price 33p

corresponding external surfaces of the main body part across the inclined 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:—

Figure 1 is a perspective view of a first lighter before operation;

Figure 2 is a perspective view of a first lighter in operation;

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

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

Figure 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 parts 9 and 10. The casing part 9 forms the main body of the lighter and accommodates a petrol or gaseous fuel reservoir which is inserted through the bottom of the part 9 after removal of a flush bottom closure. The part 10 forms an actuating member and is wedged-shaped and takes the place of the conventional thumb piece actuating member and, in the rest position of the actuating member part 10, the lowermost edge surfaces of the part 10 are held in abutment with opposed surfaces of the part 9 across an inclined plane 11. In the second example this plane is slightly curved. In the first two examples the part 10 is thinner in transverse cross section than the part 9 so that a step 12 is formed on the top of the part 9 on each side of the actuating member part 10. However in the third, fourth and fifth examples the two parts are of the same width so that the outer surfaces of the two parts are completely flush with one another in the rest position giving the casing a symmetrical prismatic shape.

To operate the lighters the actuating member part 10 is depressed against spring action and is guided by the internal mechanism so that it moves with a translational motion causing the abutting opposed surfaces of the parts 9 and 10 to slide relatively to one another along the plane 11. At no time does the actuating member part 10 intersect the plane 11 across which the two parts oppose one another in the rest position so that no waste space has to be provided within the parts 9 and 10 to accommodate this movement.

In the second, third and fifth examples a flame 13 appears through an aperture 14 in the upper wall of the casing part 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 part acts as a burner cover. Because of the inclination of the plane 11 to the horizontal upper surface of the lighter, when the actuating member part 10 is depressed it also moves outwards translationally and carries the burner cover 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 being resumed when the actuating member is returned to its original position, preferably by the action of a return spring, and the flame is extinguished by this return.

The fifth example shown in Figures 9 and 10 exemplifies the manner in which the actuating member part 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 horizontal cross-section, which is rectangular rather than elongate with curved ends.

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 9 of the lighter and terminates at a flint wheel 22. The actuating member part 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 a bracket 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 position shown in Figure 9 in which the tongue 24 closes the aperture 14 from below and a return edge surface 32 of the part 10 is urged to abut a complementary edge surface 33 of the part 9. To operate the lighter the actuating member is depressed and is constrained by the 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 Figure 10 position. As the shoulder 25 rides over the flint wheel 22 it frictionally rotates the wheel and causes a stream of 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.

WHAT WE CLAIM IS:—

- 5 1. An automatic cigarette lighter having an outer casing which is substantially rectangular in elevation and is formed in two parts by an actuating member and a main body which are resiliently held in a rest position in which the visible external surfaces of the actuating member part and of the main body part meet at a common plane which extends at an inclination to the edges of the rectangular elevation of the casing and across which the walls of the actuating member part and main body part substantially abut one another to provide substantially complete concealment and protection for an igniting mechanism within the casing,
- 15 20 the actuating member being arranged to be displaced relatively to the main body with a translational movement substantially parallel to the inclined plane and such displacement causing operation of the lighter.

2. A lighter according to claim 1, in which the least one visible elevational external surface of the actuating member part is flush with a corresponding surface of the main body part across the inclined plane in the rest position.

3. A lighter according to claim 2, in which all the visible external surfaces of the actuating member part terminating at the inclined plane are flush with the corresponding external surfaces of the main body part across the inclined plane in the rest position.

4. A lighter according to claim 1, substantially as described with reference to Figures 1 and 2, or to Figures 3 and 4, or to Figures 5 and 6, or to Figures 7 and 8, or to Figures 9 and 10, of the accompanying drawings.

For the Applicants:
GILL, JENNINGS & EVERY,
Chartered Patent Agents,
51/52 Chancery Lane,
London, WC2A 1HN.

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WHAT WE CLAIM IS:—

- 5 1. An automatic cigarette lighter having an outer casing which is substantially rectangular in elevation and is formed in two parts by an actuating member and a main body which are resiliently held in a rest position in which the visible external surfaces of the actuating member part and of the main body part meet at a common plane which extends at an inclination to the edges of the rectangular elevation of the casing and across which the walls of the actuating member part and main body part substantially abut one another to provide substantially complete concealment and protection for an igniting mechanism within the casing.
- 10 2. A lighter according to claim 1, in which the least one visible elevational external surface of the actuating member part is flush with a corresponding surface of the main body part across the inclined plane in the rest position.
- 15 3. A lighter according to claim 2, in which all the visible external surfaces of the actuating member part terminating at the inclined plane are flush with the corresponding external surfaces of the main body part across the inclined plane in the rest position.
- 20 4. A lighter according to claim 1, substantially as described with reference to Figures 1 and 2, or to Figures 3 and 4, or to Figures 5 and 6, or to Figures 7 and 8, or to Figures 9 and 10, of the accompanying drawings.

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