

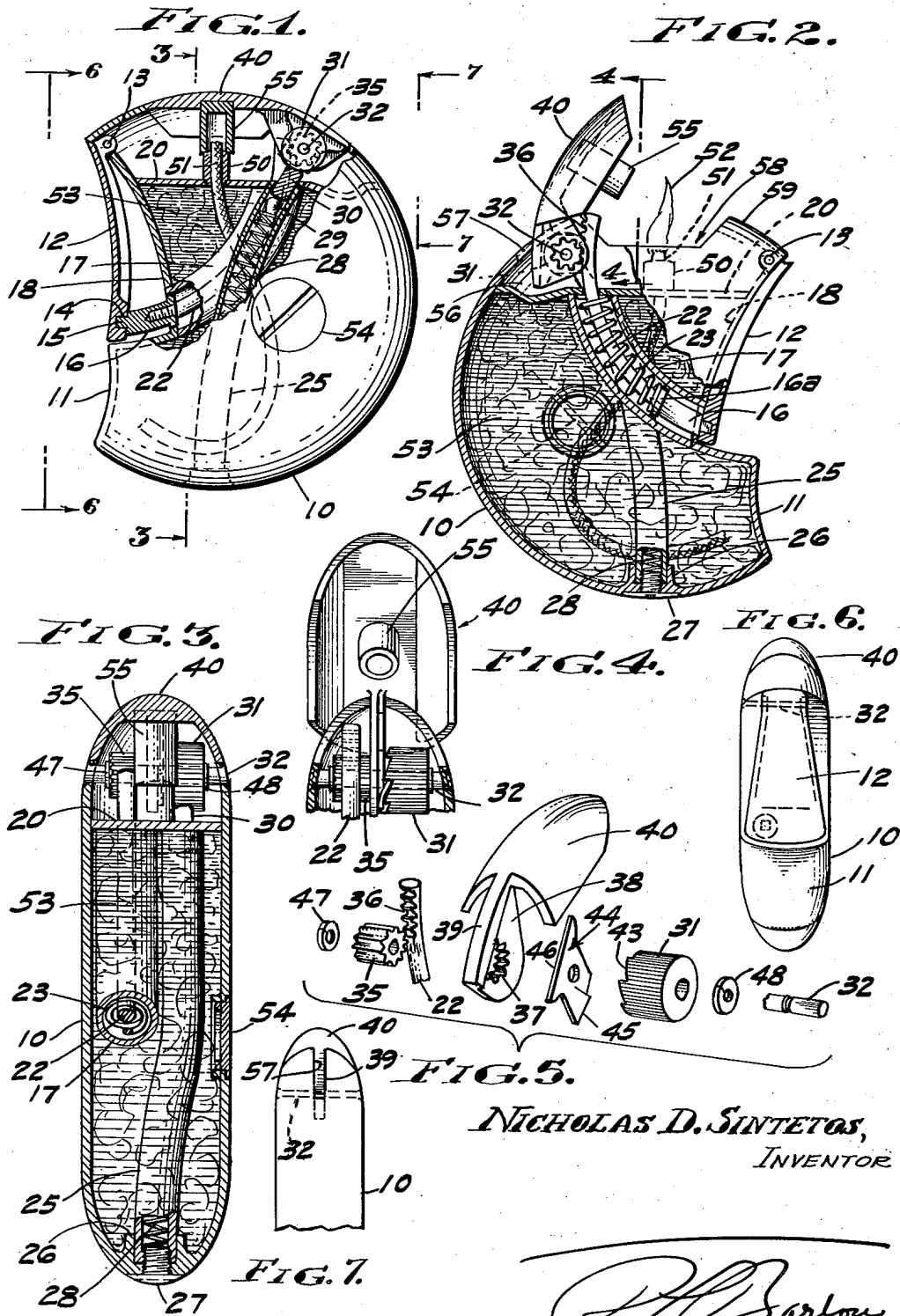
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POCKET LIGHTER

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POCKET LIGHTER

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This invention relates to a pocket lighter.

More specifically speaking the invention pertains to a lighting device that can be conveniently carried in the pocket, and which can be used to light a fire in various situations, but which is more particularly intended for smokers' use in lighting cigars and cigarettes.

Although the art to which the present invention pertains is already well developed, yet there remains room for improvement therein in certain important particulars. One defect in lighters as heretofore constructed has resided in the fact that some of them have operating parts projecting from an otherwise small and compact casing, which parts add unnecessarily to cost of manufacture and also render the lighter more bulky than it needs to be. Also there remains room for improvement of the means for manually actuating the member which acts upon the flint to produce the sparks used for ignition.

Accordingly it is an object of the present invention to provide a pocket lighter wherein the casing is contoured in such a manner as to make it unnecessary to provide it with any objectionable projecting parts.

Another object of the invention is to provide a pocket lighter so shaped that it is more conveniently manually grippable by the operator for the purpose of actuating the lighting element, and which, when gripped, enables the operator to actuate the lighter in a more positive and efficient manner.

Other objects pertain to a more durable and positive arrangement of manually operable means for producing the light and for constructing the device in such a manner that it may be manufactured at a very low cost, considering the long continued satisfactory use of which it is capable.

Other objects, advantages and features of invention will hereinafter appear.

Referring to the accompanying drawing, which illustrates a preferred embodiment of the invention,

Fig. 1 is a side elevation, with parts in section, of the device showing the parts thereof in their normal position.

Fig. 2 is a view wherein all except certain upper portions of the device are shown in vertical mid-section. In this view the device is shown in its operative position, the wick having been ignited thus providing a flame for use in cigarette or other ignition.

Fig. 3 is a vertical section on line 3-3 of Fig. 1.

Fig. 4 is a fragmentary section on line 4-4 of Fig. 2.

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Fig. 5 is an exploded assembly of the series of parts which are carried by the shaft whereon the spark producing wheel is mounted, said parts cooperating with each other in the operation of said wheel.

Fig. 6 is an elevation looking at the structure shown in Fig. 1 from the plane indicated from the line 6-6 on the latter view, the scale being somewhat reduced.

Fig. 7 is a fragmentary elevation looking at Fig. 1 from the plane indicated by line 7-7 on that view.

Referring in detail to the drawing, the movable parts of the device are shown contained in a casing 10 which may be contoured similarly to, and need not be larger than, a man's watch case. Said casing, however, although continuously circular through more than a semi-circumference, is recessed or depressed at one side in such a manner as to provide a slightly concave wall portion 11 and, as shown in Figs. 1 and 2, above said wall portion a manually depressible part or trigger 12.

At one end said trigger 12 is pivotally attached by a pin 13 and at its opposite, free end said trigger is somewhat thickened and provided internally with a square recess 14 into which is tightly fitted a boss 15 integral with one end of a cylindrical plunger 16, the opposite end of said plunger being diametrically enlarged at 16a and having a working fit within an arcuate guide sleeve 17 which is built into the casing as shown in Figs. 1 and 2. The lower end of said guide sleeve 17 fits firmly within a circular opening provided for it in the inner part of a casing wall section 18 which is more deeply recessed or depressed than the aforesaid wall portion 11, this additional depression being required to provide a working clearance for the swing of said trigger 12. Said guide sleeve 17 is somewhat arcuate and its upper end is abutted against and slidably secured in relation to a cross wall 20 in the upper part of the casing as viewed in Figs. 1 and 2.

The inner end of said plunger 16 is provided with a threaded socket into which is screwed the diametrically reduced end portion of an arcuate operating rod 22 around which is loosely coiled a compression spring 23 the upper end of said spring abutting said cross wall and the lower end thereof abutting the aforesaid diametrically enlarged part 16a of the plunger 16, so that said spring serves to restore said plunger and rod 22 to normal position after each manual depression of the trigger 12.

55 A slightly arcuate, tubular spring containing

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casing 25 extends nearly diametrically across the main casing, being as viewed in Fig. 2, seated at its lower end in a tubular boss 26, this end of said tubular casing being closed by a screw plug 27 which is put into place after a coiled compression spring 28 has been inserted into the tube 25. The upper end of this spring continuously presses against a follower plug 29 fitting loosely within the tube 25, said plug in turn pressing continuously against a cylindrical piece of flint 30 the upper end portion of which continuously projects from said tube 25. In this manner said flint is kept continuously in contact with a flint friction wheel 31. The upper end of said tube 25 fits within an opening provided for it in the cross wall 20.

Said friction wheel 31, together with the other members of the assembly shown in Fig. 5, is carried by a mounting shaft 32 which extends from side to side of the upper part of the casing 10 as viewed in the drawings, the end portions of said shaft being secured in circular openings provided for it in the walls of the casing.

An elongated gear wheel 35 is splined to said shaft 32 near one side of the casing, this gear wheel being positioned in contact with a series of rack forming gear teeth 36 formed on the convex side of that portion of the aforesaid arcuate operating rod 22 that projects beyond the cross wall 20. One end portion of said gear wheel 35 fits in an intermeshed fashion within a toothed aperture 37 which extends through a flange 38 carried by the shank 39 of an arcuate cap 40 so that oscillating the gear swings said cap from closed to open position and vice versa.

The aforesaid flint wheel 31 has a ratchet toothed end portion 43 with which cooperates a resilient ratchet plate 44 having a dog-forming flange 45 which at times turns said flint wheel, as will later be more fully explained. Said plate 44 abuts against the adjacent side of the cap flange 38 and is provided with a straight side 45 which underlies the cap shank 39, so that the oscillation of the cap as aforesaid also oscillates said plate. The assembly of parts shown in Fig. 5 is completed by suitable spacing washers 47 and 48 and does not need further description as its various parts may be secured in place upon the shaft 32 in any desired conventional manner.

A tubular boss 50 projects upwardly from the aforesaid casing cross wall 20 and a wick cord 51 has an end portion which is frictionally held within and projects outwardly beyond said boss so as to be in a position to supply oil for ignition by sparks directed against it from the flint wheel 31, thus producing the flame 52 shown in Fig. 2. Said wick is shown positioned to receive oil from an oil saturated fabric filling 53 contained within the casing 10. A filling opening is provided in one side of the casing normally closed by the screw cap 54 shown in Fig. 1.

Returning to the swingably mounted arcuate cap, said cap has built into it, and projecting from its concave side, a cup shaped snuffer 55 which, at each in-swing of the cap envelops and snuffs out the flame 52. Said arcuate cap has its already mentioned flange portion 38 located in a recess or alcove 56 formed in part by depressing a portion of the cross wall 20 as shown in the left hand portion of Fig. 2. Also the adjacent part of the casing wall is provided with a slot 57 which forms a clearance to accommodate the swinging movement of the arcuate shank 39 from which said flange extends. When the cap 40 is in its inswung position the outer side of

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said arcuate shank cooperates with the remainder of the cap to form a streamline continuation of the adjacent part of the casing, and also the cap, being arcuate transversely as well as longitudinally, rounds out the casing over a part thereof which is recessed as shown at 58 so as to form an auxiliary windbreak 59 which protects the flame 52 of the ignited wick at the side of the recess 58 opposite to the main windbreak afforded by the outswing of cap 40.

The cycle of operation is as follows. Assuming the parts to be in the normal position shown in Fig. 1, the operator will take hold of the casing 10 in a pistol grip fashion with his middle finger overlying the casing segment 11 and with his forefinger overlying the free end portion of the trigger 12 which is inswingable because it overlies a segmentally removed portion of the periphery of the casing. He will inswing the trigger thus sliding upward the arcuate rod 22 causing the toothed rack 36 of said rod to rotate the gear 35 which, in turn, swings outwardly to open position the snuffer-carrying cap 40. Owing to the abutting relation of the ratchet plate 44 to said cap and the interrelated flint wheel 42, the latter will be caused to strike off sparks from the flint 30 onto the wick thus producing the flame 52. When the operator releases the pressure of his forefinger against the trigger the spring 23 will return the arcuate rod 22 to normal position, together with the aforementioned parts operatively connected therewith, which restoration of parts includes inswinging of cap 40 causing the snuffer 55 carried thereby to extinguish the flame 52.

I claim:

1. In a lighter of the kind described, a casing having a periphery that is continuously circular through more than a semi-circumference, said casing having a spacious depression in one side portion of its periphery, the bottom of said depression being made up of two casing wall portions, one of said two wall portions extending into the casing a less distance than the other and being positioned to form a part of a hand hold for the operator, a trigger overlying the other of said two wall portions, a pivot connecting one end of said trigger to the peripheral portion of the casing in a position for said trigger to have its opposite end portion inswing by the forefinger of an operator whose middle finger is overlying that one of said two wall sections which extends inwardly the lesser distance, igniting means carried by said casing and operatively connected with said trigger so as to be actuated by the manual inswinging thereof as aforesaid, and a spring carried by said casing and positioned to restore said trigger to normal outswung position after each aforesaid manually inswinging thereof.

2. The subject matter of claim 1 and that depressed portion of the casing wall which is adjacent to said trigger progressively deepening toward the free end of the trigger so as to accommodate the inswinging of the trigger, when the trigger is in its outswung position its free end being substantially flush with the aforesaid less deeply depressed part of the casing wall.

3. The structure recited in claim 1 and a wick mounted in said casing and ignited by the actuating of said igniting means, a cap pivotally mounted on said casing and movable from and to a wick exposing position, and mechanism associated with said igniting means and operatively

connected to said cap to move said cap to a wick exposing position by inswinging said trigger.

4. The structure recited in claim 1 and a wick mounted in said casing and ignited by the actuating of said igniting means, a cap pivotally mounted on said casing and movable from and to a wick exposing position, mechanism associated with said igniting means and operatively connected to said cap to move said cap to a wick exposing position by inswinging said trigger, and a snuffer carried by said cap and positioned to snuff out the flame of the wick, said mechanism and igniting means in cooperation with said spring automatically restoring said cap to normal position upon manual release of said trigger.

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