

1

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AUTOMATIC CIGAR AND CIGARETTE LIGHTER

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8 Claims. (Cl. 67-7.1)

The present invention relates to an automatic cigar and cigarette lighter and particularly relates to a completely automatic cigar and cigarette lighter of the windproof type.

It is among the objects of the present invention to provide a completely automatic cigar and cigarette lighter in which, by relatively simple manipulative movement, it will be possible to open the lighter and ignite the same and, in which upon withdrawal of the finger or manual actuator, the lighter will automatically close and be snuffed.

Another object of the present invention is to provide a completely automatic cigar and cigarette lighter of the covered windproof type which may be operated by a single pressing movement of the thumb or fingers and which, when so operated, will assure, first, opening of the lighter, and then, ignition thereof, with the lighter being automatically snuffed upon release of pressure thereon.

A further object of the present invention is to provide a top or side squeeze type cigar and cigarette lighter which will be of the windproof type and yet substantially completely automatic in its operation, both in respect to ignition and subsequent snuffing.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects, it has been found satisfactory to provide a single or double casing lighter, an outside casing carrying a cover normally spring biased to open position. In the double casing embodiment, there will be an outside casing or enclosure having a side opening through which access may be had to an interior pressure member. The interior unit, which may be telescoped into the outer shell, has a casing for receiving absorbent material which is normally saturated with the fuel, but which may be replaced by a compressed gas cartridge, and it also has an adjustable flint arrangement together with a side squeeze presser lever. This lever is normally spring returned to the side of the inner cartridge element, so that it will be readily accessible and capable of being actuated through the recess in the side of the housing. The top of the inner cartridge may be provided with an automatic pivotally mounted swinging snuffer, gear drive driven by the manual actuator, and it may also be provided with a suitable ratchet wheel arrangement. Desirably, a swinging windproof shield is provided, which may be positioned on top of the inner cartridge and be moved from shielding to non-shielding position.

A particular feature of the present invention resides in the fact that the spring-opened cover for the outer casing is normally held closed by a tab or extension on the gear drive arrangement for the igniter and snuffer element. As a result, by one forward movement or compression

2

movement on the side lever or side squeeze element, it is possible successively to open the cover, lift the snuffer and rotate the flint so that the wick will be ignited.

On the other hand, the release of the side squeeze lever on the inner cartridge will permit movement of the snuffer element back to above the wick, where it will extinguish the flame, and the cover may then be snapped back into position where it will be held in place by the end of the rack arrangement.

Another feature of the present invention resides in the fact that the U-shaped perforated windshield may be swung in and out of position with the cover removed, depending upon whether the lighter is being used outdoors or for cigarettes or for pipes.

Another feature resides in the fact that the interior cartridge unit may be readily removed and repaired or the gas or liquid fuel may be replenished and the wick and flint adjusted or replaced.

Although the outer container structure is independent of the inner cartridge element, nevertheless, the rack arrangement will cooperate with the cover and if desired, a partial movement of the side squeeze lever inwardly will release the cover without actuating the snuffer or the flint ignition arrangement, and a subsequent movement may be used for this purpose.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings, wherein like reference characters denote corresponding parts throughout the several views:

Fig. 1 is a side elevational view of a completely automatic windproof side squeeze cigar and cigarette lighter according to the present invention, in closed position.

Fig. 2 is an end view upon the line 2-2 of Fig. 1, showing the lighter in closed position.

Fig. 3 is a transverse vertical sectional view upon the line 3-3 of Fig. 2 and on a large scale as compared to Figs. 1 and 2, showing the lighter in closed position.

Fig. 4 is a transverse vertical sectional view upon the line 4-4 of Fig. 3.

Fig. 5 is a transverse sectional view, similar to Fig. 3, with the lighter in open position and with the side squeeze lever in its extreme actuated position with the snuffer lifted and the wick ignited.

Fig. 6 is a fragmentary horizontal sectional view, taken upon the line 6-6 of Fig. 3.

Fig. 7 is a side elevational view upon a reduced scale as compared to Figs. 1 to 6 in which there is a single casing employed instead of a double telescoping casing.

Fig. 8 is an end elevational view taken from line 8-8 of Fig. 7.

Fig. 9 is a vertical sectional view of the alternative form of side squeeze lighter of Fig. 7 upon an enlarged scale as compared to Fig. 7.

Fig. 10 is a transverse vertical sectional view taken upon the line 10-10 of Fig. 9.

Fig. 11 is a side elevational view of the arrangement of Fig. 9 with the snuffer elevated and the cover opened and the actuating member pressed inwardly.

Referring to Figs. 1 to 6, there is provided an outer casing or shell A with a swinging closure B and a normally biased open spring hinge arrangement C.

The internal removable telescoping cartridge structure D has a fuel storage chamber E, which may consist of a replacement cartridge container, compressed gas or liquid fuel, impregnated felt, cotton or gauze. This chamber feeds a wick F at the side of the cartridge D and

accessible from the outside is the side squeeze vertical actuating lever G, which through a rack and pinion arrangement H, will operate a swinging snuffer J.

The snuffer is mounted upon the same shaft as the rotary sparking wheel K, provided with the ratchet L. The ratchet L and the sparking wheel K are normally made in one unit and the ratchet teeth may be upon the side of the sparking wheel K or peripherally positioned inside of the edge of the sparking wheel K. Interiorly of the inner cartridge D is the tubular element M which carries the flint N. The swinging pivotally mounted windshield P may be in the closed position, as indicated in Figs. 3 and 5, or it may be open to permit closer access to the flame at the wick F, depending upon the desire of the user.

A specific feature of the present invention resides in the outer swinging cover latch arrangement R, which is associated with the actuating pinion and rack arrangement H. This latch arrangement holds the cover in closed position, as shown in Figs. 1, 2, 3 and 4.

Referring specifically to the outer casing or enclosure A, this casing desirably has parallel side walls, an end wall 11, and an open opposite end wall 12. The end wall 12 has a recess 13 with the side openings 14, through which access is had to the side squeeze actuating lever G. The depth of the opening will be such that the lever G may participate through a full swing from the position as shown in Fig. 3 to the position as shown in Fig. 5.

The base of the outer cartridge A has an exterior peripheral bevel 15 and an elevated floor 16, which acts as a stop for the bottom wall 37 of the removable cartridge D. The cover B has the side walls 17, the top curved portion 18 and the front and back walls 19 and 20. The front wall 19 has an intumed stamped-out element 21, which serves to cooperate with and forms part of the latching arrangement B, and the rear wall 20 has the reinforcement plate 22 spot-welded thereto, which carries one end 23 of the coil spring 24 forming part of the hinging arrangement C. Interiorly of the housing A and forming part of the back wall 11 is the reinforcement plate 25, which may be welded or soldered in position against the exterior wall 11. Against the upper portion of this wall will react the end 26 of the spring 24. As indicated in Fig. 5, the cover will normally swing open under the influence of the spring 24 and will only be held in closed position by the latching arrangement R, actuated by the driving pinion and rack H.

The interior cartridge element D has the end wall 35, the side walls 36, the base wall 37 and the top wall 38. It also has an interior partition 39.

The base wall 37 has the top recesses 40 and 41 for receiving the removable screws 42 and 43. The screw 42 may be removed to enable the supply of fuel to the chamber E. The oblique interior partition 39 will extend between the side walls 36 and will completely close off the fuel compartment E. The screw plug 43 in the recess 41 will enable access to the tubular element M. The tubular element M carries the coil spring 44 which rests upon the plug 43. The upper end of the coil spring 44 carries the flint 45 which will be pressed upwardly in the tube M by the spring 44 to contact with the serrated periphery 46 of the igniting wheel K.

The tubular element M will extend entirely through the cartridge D from its mount upon the lower wall 37 and through the upper wall 38, and as it passes through the upper wall 38 it will be reinforced by the plate 47, which may be soldered or welded to the top plate 38. The plate 47 has two upstanding side ears 48, which extend up through the top wall 38 and serve to mount the shaft 49, which acts as the pivotal carrier for the snuffer J, the igniter wheel K and the pinion 50 of the rack and pinion arrangement H. The swinging windshield P is also mounted upon said shaft 49. With the exception of the windshield P, all of the elements previously mentioned, including the snuffer, are mounted between the ears 48.

The snuffer J has the side flanges 60, which ride inside of the side ears 48. There may be an initial lost motion which will delay movement of the igniting wheel K until the snuffer has been lifted slightly above the top of the wick F.

The forward end of the snuffer carries the cup 61 which is of fire-resistant material. This cup 61 is firmly held in position between the side walls 64 of the snuffer. The lower end of the cup 61 has the bevel shoulder portion 65 which will contact and be stopped against the shoulder 66 on the plug 67. The pawl 59 extends, as shown in Fig. 3, from its point of attachment at 58 on the top of the cup 61 to contact the ratchet L. The pawl will normally move in snuffer-closing direction 57 without moving the ratchet L and by snapping over the teeth of the ratchet L. However, when the snuffer J is lifted, the pawl 59 will engage the teeth L and drive the igniting wheel K.

The plug 67 has a central opening for the wick F and it may be peened or otherwise permanently mounted upon the top wall 38 of the inner cartridge D. The operating lever or side squeeze actuator G has the pressure face 75 with the side walls 76 so that it has a U cross-section. It is pivotally mounted on the shaft 77 at its lower end, which shaft has bearings 78 in the side walls 79. Around the shaft 77 is the coil spring 80, the legs 81 and 82 of which respectively contact the presser plate of the lever G and the interior partition wall 39. The legs 81 and 82, as well as the side flanges 76 of the lever G, straddle the tubular element M which carries the spring 44. The upper end 83 of the back wall 75 of the lever will project above the lower edge 84 of the wall 12, so as there will be no gap or opening in the position of Figs. 1 and 2.

The upper end of the lever has an extension at 85 from one side wall 76, which extends up through the slot 86. The top end of the extension 85 is enlarged above the plate 38 by the rack 87 which meshes with the pinion 50 of the rack and pinion combination R. This rack 87 will have a slight up and down movement, but its lower edge is so positioned that it will slide through the slot 86 in Fig. 6, and it will be stopped at the end of the slot at the end of the movement, as indicated in Fig. 5.

The swinging windshield P will normally be in the lowered position, as indicated in Figs. 3 and 5. It has the side walls 95 with a plurality of openings 96, and it has the extensions 97 which are pivotally mounted upon the shaft 49. The shield P will normally rest in the recess 98 inside of the lip 99 on the top wall 38 of the cartridge D.

The outside end of the rack has a nose 100 which will engage the member 21 and normally hold the cover B in closed or latched position, as indicated in Figs. 1, 2, 3 and 4.

In operation, when the lever G is moved inwardly against the spring 80, the nose 100 will first move off the pressed-in portion 21 and release the cover B, which will swing to the position of Fig. 5. Further movement will then drive the igniter wheel K and lift the snuffer J to cause a flame to initiate at the upper end of the wick F. This operation will terminate when the parts are in the position as shown in Fig. 5. When the hand is released and the lever G is permitted to spring back under the operation of the spring 80, the snuffer J will return while the ignition wheel K will stand still as a result of the ratchet arrangement L and the cup 61 will close on the top end of the wick F and extinguish the flame. The cover B then may be closed manually. The swinging windguard P may be moved into or out of position, depending upon whether a pipe or a cigarette or cigar is to be ignited.

Ready access is had to the interior for adjustment or replacing of the wick and flint as well as for filling, by removal of the inner cartridge D from the outer casing A. This may be done by partly pressing in on the lever G to sufficiently release the cover B, and then the entire

unit D may be removed. By opening the plugs 42 and 43, suitable interior adjustment or replacement may be performed. The swinging action of the rack 87 by cooperation with the slot 86 will always be free to cause complete operation of the snuffer and igniter wheel.

It is thus apparent that the present invention has provided a novel, completely automatic side squeeze optional windproof lighter construction, in which the side squeeze lever element successively releases the cover of the outer casing and then actuates the snuffer and igniting wheel.

The reverse operation of the snuffer and igniting wheel is accomplished merely by release of the lever G, which will be moved backwardly as the spring is released. The removal of the inside telescoping cartridge element D will enable more ready servicing of the lighter device and the optional swinging windguard P will be sufficiently flexible to permit a more widespread use for both outdoor and indoor purposes.

In the embodiment of Figs. 7 to 11, there is a single casing shown instead of the double casing as indicated in Figs. 1 to 6 and in addition a side ratchet instead of a top ratchet employed.

Referring to Figs. 7 to 11 correspondingly functioning parts to those indicated in Figs. 1 to 6 are indicated by the same numerals, which however are prime.

It will be noted in referring to Fig. 7 that the outside case A' also constitutes the inside casing and that the inside case D of Figs. 1 to 6 has been eliminated.

The manual actuator or side squeeze member G' is pivotally mounted at 78' directly upon the side walls 10' which are broken away as indicated at 125 to permit access and operation of the manual actuator G'.

In the embodiment shown in Figs. 7 to 11, the rounded end or nose 126 of the side squeeze member G' will be stopped directly against the interior partitioning wall 39' at the limit of its inside stroke.

The spring legs 82' and 81' will act to bias the side squeeze member G' in the direction of 127.

In the arrangement shown in the embodiment of Figs. 7 to 10, the ratchet instead of being placed on a separate wheel L is placed at L' on the side of the sparking or abrasion wheel K'.

In this case, the pawl 59' is a disc which is positioned on the side of the ratchet teeth L' and held inside of the U-shaped pivot structure 60' of the swinging snuffer element J'.

By this arrangement, it is possible to eliminate the screw 62 in the embodiments of Figs. 1 to 6, which is used to hold the pawl 59 in position.

In addition, it will be noted that the offset 85 of the rack H' is less than in the embodiment of Figs. 1 to 6.

This will give a more direct drive and enable the partial pinion 50' to be placed outside of the enclosure 60' of the snuffer element, as is best shown in Fig. 10.

In both embodiments, the ends 100 and 100' of the racks H and H' act as stops against the front walls 19 and 19' of the swinging covers B and B'.

If desired, the same structure may also be applied to a top squeeze lighter in which case, the swinging cover B would be omitted.

It will be noted that the invention of the present application is adaptable to single casing type lighters, as well as to a double casing type of lighter.

As many changes could be made in the above automatic cigar and cigarette lighter, and many widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

Having now particularly described and ascertained the nature of the invention, and in what manner the same is to be performed, what is claimed is:

1. A completely automatic optionally windproof manually actuated cigar, cigarette and pipe lighter of the type

having a casing with a normally spring biased open cover and an inner fuel compartment, an adjustable flint arrangement and a manually operated swinging actuator lever having a return spring mounted in the side of the casing, a swinging snuffer, an igniter wheel, a wick, and a rack and pinion combination actuated by said lever, said rack having a latch to release the cover and serving to operate the snuffer and also the igniter wheel to light the wick.

2. A completely automatic optionally windproof manually actuated cigar, cigarette and pipe lighter of the type having a casing with a normally spring biased open cover and an inner fuel compartment, an adjustable flint arrangement and a manually operated swinging actuator lever having a return spring mounted in the side of the casing, a swinging snuffer, an igniter wheel, a wick, and a rack and pinion combination actuated by said lever, said rack having a latch to release the cover and serving to operate the snuffer and also the igniter wheel to light the wick, and a swinging windguard pivotally mounted on the top of the casing.

3. A completely automatic optionally windproof manually actuated cigar, cigarette and pipe lighter of the type having a casing with a normally spring biased open cover and an inner fuel compartment, an adjustable flint arrangement and a manually operated swinging actuator lever having a return spring mounted in the side of the casing, a swinging snuffer, an igniter wheel, a wick, and a rack and pinion combination actuated by said lever, said rack having a latch to release the cover and serving to operate the snuffer and also the igniter wheel to light the wick, said rack being integral with said lever and the top of said casing having a slot in which the rack may swing backwardly and forwardly.

4. A completely automatic optionally windproof manually actuated cigar, cigarette and pipe lighter of the type having a casing with a normally spring biased open cover and an inner fuel compartment, an adjustable flint arrangement and a manually operated swinging actuator lever having a return spring mounted in the side of the casing, a swinging snuffer, an igniter wheel, a wick, and a rack and pinion combination actuated by said lever, said rack having a latch to release the cover and serving to operate the snuffer and also the igniter wheel to light the wick, said snuffer carrying a pawl arrangement to rotate the igniter wheel upon upward movement of the snuffer and to let the igniter wheel stand still upon downward movement of the snuffer.

5. A completely automatic optionally windproof manually actuated cigar, cigarette and pipe lighter of the type having a casing with a normally spring biased open cover and an inner fuel compartment, an adjustable flint arrangement and a manually operated swinging actuator lever having a return spring mounted in the side of the casing, a swinging snuffer, an igniter wheel, a wick, and a rack and pinion combination actuated by said lever, said rack having a latch to release the cover and serving to operate the snuffer and also the igniter wheel to light the wick, said outer casing being provided with a side opening through which said actuating lever may be operated and said actuating lever having a stop arrangement in respect to said cover.

6. A cigarette or cigar lighter having a flat casing with an open side, a wick extending into said casing and above the upper end of the casing to support a flame, a flint supported on the upper end of said casing and an abrading wheel pivotally supported on the upper end of said casing to spark said flint and ignite said wick, a side squeeze lever pivotally mounted at the bottom of the casing projecting through said open side, a spring-opened cover pivotally mounted on the top of the casing opposite the open side, a pivotally mounted snuffer on the top of the casing swinging oppositely from said cover and provided with a pinion drive connected to said snuffer to elevate said snuffer to permit ignition of said wick and to lower said snuffer to extinguish the wick and a rack carried by said lever to

7

operate said pinion, said rack having a lip at the end adjacent the lever to latch the cover in closed position.

7. A cigarette or cigar lighter having a flat casing with an open side, a wick extending into said casing and above the upper end of said casing to support a flame, a flint supported on the upper end of said casing, and an abrading wheel pivotally supported on the upper end of said casing to spark said flint and ignite said wick, a side squeeze lever pivotally mounted at the bottom of the casing projecting through said open side, a spring-opened cover pivotally mounted on the top of the casing opposite the open side, a pivotally mounted snuffer on the top of the casing swinging oppositely from said cover and provided with a pinion drive connected to said snuffer to elevate said snuffer to permit ignition of said wick and to lower said snuffer to extinguish the wick and a rack carried by said lever to operate said pinion, said rack being an integral part of and constituting an upward projection of said lever and also being provided with latch means to latch the cover closed.

8. A cigarette or cigar lighter having a flat casing with an open side, a wick extending into said casing and above the upper end of said casing to support a flame, a flint supported on the upper end of said casing, and an abrading

8

wheel pivotally supported on the upper end of said casing to spark said flint and ignite said wick, a side squeeze lever pivotally mounted at the bottom of the casing projecting through said open side, a spring-opened cover pivotally mounted on the top of the casing opposite the open side, a pivotally mounted snuffer on the top of the casing swinging oppositely from said cover and provided with a pinion drive connected to said snuffer to elevate said snuffer to permit ignition of said wick and to lower said snuffer to extinguish the wick and a rack carried by said lever to operate said pinion, said casing at said open side having a U-shaped strap serving as a stop to limit return movement of said lever.

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