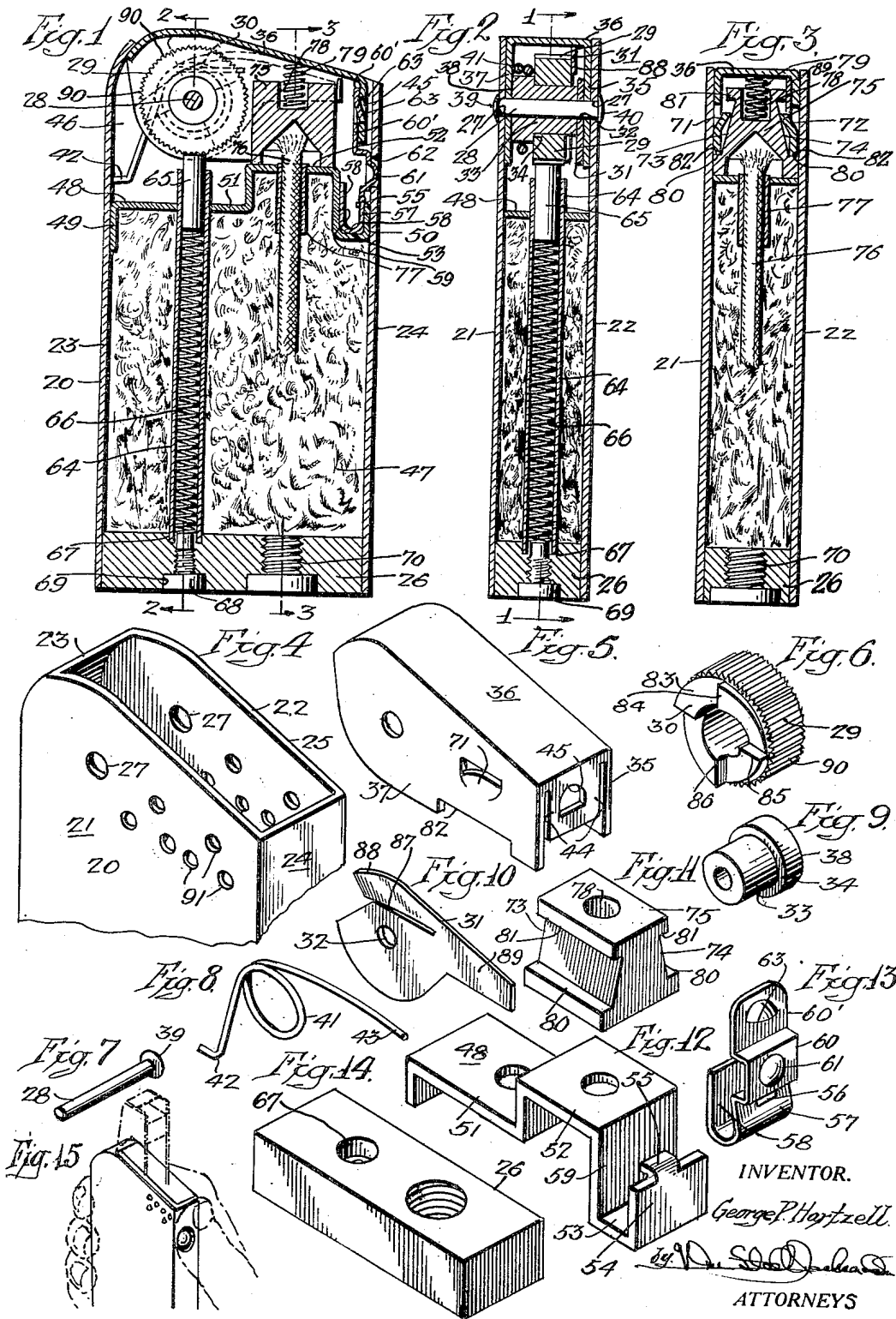


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G. P. HARTZELL
CIGARETTE LIGHTER

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CIGARETTE LIGHTER

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1 Claim. (Cl. 67-7.1)

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My invention relates to portable lighters for cigarettes, cigars and the like.

The main purpose of my invention is to control operation of a lighting device by thumb touch engagement with the latch mechanism.

A further purpose is to produce a portable lighter which is of economical manufacture and easy assembly.

A further purpose is to use a spring pressed latch in cooperation with my lighting mechanism.

A further purpose is to simplify the assembly and disassembly.

A further purpose is to provide an opening in a lighter casing into which a latch protrusion is placed in order that thumb touch contact can be made with the protrusion.

Further purposes will appear in the specification and in the claim.

Describing in illustration, but not in limitation and referring to the drawings:

Figure 1 is a vertical sectional view of my improved lighter taken on the line 1—1 of Figure 2.

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a fragmentary perspective view of the upper portion of the casing used in my device.

Figure 5 is a perspective view of the cover or movable lid in my invention.

Figure 6 is a perspective view of the spark throwing wheel carrying a ratchet mechanism.

Figure 7 is a detail perspective of the shaft used in the before mentioned figures, drawn to a slightly different scale.

Figure 8 is a perspective view of the tension spring used in my invention.

Figure 9 is a perspective view of the bushing used to mount the spark throwing ratchet wheel.

Figure 10 is a perspective view of a pawl which operates the ratchet wheel.

Figure 11 is a perspective view of the snuffer used in my invention.

Figure 12 is a perspective view of a dividing wall used to separate the striking and fluid compartments.

Figure 13 is a perspective view of the improved latch of my device.

Figure 14 is a perspective view of the base plate used in the casing.

Figure 15 is a fragmentary perspective view of my lighter showing a thumb in dot and dash lines against the opening through which the latch is operated and with the cover or lid shown in full

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lines in closed position and in dot and dash lines in open position.

I am familiar with the different push button release lighters which are on the market.

I believe I am the first to provide a lighter in which a spring pressed latch has a protrusion into an opening by which touch contact of a thumb will cause the lighter mechanism to operate.

My improved lighter can be made out of pressed metal parts or die castings which are easily formed, thereby reducing the cost of manufacture. However, I have found it desirable to machine certain parts making up the invention.

In Figure 1, I have shown the lighter in cross section. The casing 20 is tubular and has sides 21, 22 and ends 23, 24. The upper edges of my lighter casing are diagonally formed at 25.

The bottom of the casing 20 contains a base plate 26 (Figure 14). I have found it desirable to use a base plate of considerable strength in order to properly support the casing and provide desirable rigidity to the other structure involved in making up my lighter.

The upper portion of the casing has openings 27, through which a pin or shaft 28 (shown in detail in Figure 7) is inserted. The shaft 28 carries the spark throwing wheel 29 (Figure 6). On one side of the spark throwing wheel I provide a ratchet mechanism 30. The ratchet mechanism is operated by a pawl 31 (Figure 10) which is also pivoted on the shaft 28, passing through an opening 32 in the pawl structure.

Mounted on the shaft 28 and within the spark throwing wheel 29 is a bushing 33 (Figure 9). The bushing 33 carries a shoulder 34 which abuts the side of the spark throwing wheel 29 opposite from the ratchet. The opposite end of the bushing abuts the pawl 31. It will be noted that the abutment of the bushing 33 against the pawl 31 causes the pawl 31 to engage one side 35 of a cover 36 (Figure 5) and the other side 37 of the cover 36 engages the end 38 of the shoulder 34 of the bushing.

The shaft 28 is fastened at one side of the casing 20 and extends through the casing side of the cover 36 through the bushing 33, pawl 31, end 35 and through the side 22 of the casing where it is secured to the casing. The shaft is preferably riveted at its ends 39 and 40.

About the shoulder 34 of the bushing I place a coil spring 41 having one of its ends extended at 42 to make contact with the interior of the casing 20. The other end of the coil spring (Figure 8) is extended at 43 to make engagement with

the interior of the cover 36. The front of the cover 36 has a downward extension 44 apertured at 45.

My cigarette lighter is divided into two compartments, 46 for the lighting equipment and 47 for the lighting fluid supply. These compartments are formed by a partition 48 (Figure 12) which is made of pressed metal and soldered into place at 49 on one side and 50 on the other to engage the walls 23 and 24 of the casing 20. The partition 48 is stepped at 51, 52 and 53. The step 53 is extended upwardly at 54 with its end 55 presenting a lug, which when assembled fits into an opening 56, in the lower part of the latch 57 (Figure 13), which holds the latch, and helps to secure in place the stepped portion of the partition 48.

The spring latch 57 having its lower U-bent end 58 fitting into the stepped portion 53, carries an upwardly directed rear portion 58 which abuts a vertical wall 59 of the partition 48 to hold the latch member securely in place in the partition 48. The upper end of the latch mechanism is stepped at 60 and carries a protrusion 61 which projects into an opening 62 in the casing. It will be noted that the protrusion 61 does not extend beyond the outside line of the casing wall and therefore when the protrusion is in place it will be necessary to have the flexible part of the user's thumb press into the casing and make the necessary touch engagement to operate the lighting mechanism. This will be described hereinafter.

The upper end 60' of the latch 60 is provided with an extension 63 preferably pressed or stamped from the latch material. The extension 63 projects outwardly and into the opening at 45 in the front end 44 of the cover 36. It will be clear that movement of the extension of the spring latch member by touch engagement of the protrusion 61 will move the extension from within the opening 45 to release the cover which is under spring tension, thereby allowing the cover to move upward quickly.

The engagement of the U-shaped end 58 in the partition and at 61 through the casing holds the latch in position and aids in positioning the partition.

The partition 48 on its step 51 supports a tube 64 to form a casing for carrying a sparking insert 65 at one end, with a spring 66 in the casing to press the sparking insert against the spark throwing wheel 29.

The bottom of the tube 64 is placed in a recess 67 in the base 26. The spring tension is adjusted by movement of a screw plug 68 inserted in an opening 69 in the base 26.

A plug 70 is also inserted into the base 26 to provide means for supplying the compartment with lighting fluid, wicking, and cotton or other fluid carrying material.

The lid or cover 36 has inwardly projecting tabs 71, 72 which make engagement with the tapered sides 73, 74 of the snuffing element 75 to hold the snuffing element in place within the cover 36 in order that the snuffing element, when the cover on the lighter is in closed position, will snuff out any flame that might be present in the wick 76, when the snuffing element makes contact with the step 52 of the partition 48.

It will be noted that the wick 76 is placed within a sleeve 77 with the sleeve almost flush with the step 52 but extending downwardly from the step 52 to within the chamber to support the

wick 76 where it extends into the liquid chamber 47 of the lighter.

The snuffer element 75 is recessed at 78, and in this recess is placed a coil spring 79 which provides spring pressure on the snuffer, the spring being set in the recess with its opposite end against the interior of the cover 36.

The snuffer element 75 is provided with outwardly extending ledges 80, 81. I provide notched portions 82 on the cover to fit about the ledges to position the snuffer when the cover is in closed position. The snuffer thus has slight freedom of movement when the cover closes. In assembly, the snuffer and snuffer spring can simply be forced into place, deflecting the tabs 71 and 72.

The ratchets 83 upon the spark throwing wheel 29 in the present showing are arranged in quadrants 83, 84, 85 and 86. The pawl 31 which is pivoted upon the shaft 28 is of spring material slitted at 87 to provide for formation of a pawl finger 88, which when the pawl element 31 is placed in position within the cover, will have the end 88 in engagement with either of the ratchet quadrants 83, 84, 85 or 86. The pawl element 31 is held and guided in place between the sides 35 and 37 of the cover and between one of the ledges 81 of the snuffing element 75. The forward extension 89 of the pawl element 31 is placed between the snuffing element and the interior top portion of the cover so that it is securely guided at all times.

When the cover is raised by release of the latch member 57 by pressing the protrusion 61, the cover will swing quickly to raise the cover. When this action takes place the end of the pawl 88 will engage against the sides of one of the ratchets to move the spark throwing wheel in a counter-clockwise position.

It will be noted that the pawl end 88 extends generally radial at its extremity.

The serrations or teeth 90 upon the spark throwing wheel impinge against the flint member 65 to throw the sparks in the direction of the wick 76 and thereby ignite the wick. It will be noted that every time the cover is opened the flint wheel or spark thrower will move a quarter of a turn in counterclockwise direction.

By the use of the pressed metal parts employed in my invention, I have found it possible to cut the cost of manufacture to a considerable extent without weakening the structure and without an inferior lighting device. The reason for this is that by the use of metal parts that can be easily assembled and held in position within the casing I have been able to construct a lighter which is efficient in performance and well meets the needs of service.

At the top of the casing, close to the wick, I provide openings 91, which will supply a sufficient quantity of air to have the lighter perform well.

It will be evident that many of the metal parts may be made of die castings without departing from the invention.

It will be evident that by the construction shown in Figure 15 the user can grasp the lighter with the fingers, as shown, and there will be no interference with the raising operation of the cover, even if the fingers were above the cover as long as the fingers were holding the rearward part of the casing.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying

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the structure shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claim.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

In a lighter, a casing, wick means positioned within the casing, a cover pivoted to the casing, a rectangular snuffer inside the cover having lateral guiding walls cooperating with the cover, 10 having stops limiting movement too far into the cover and having stops against movement too far out of the cover and having a spring socket on its upper end, projecting tabs on the sides of the cover and integral with the cover extending in- 15 wardly, in the inward position of the snuffer engaged by the stops limiting the inward movement, and in the outward position of the snuffer engaged by the stops limiting the outward movement and spiral spring means in the spring socket 20 urging the snuffer away from the top of the cover, the tabs being resilient so that the snuffer can be forced into the cover for assembly purposes after the tabs have been formed.

GEORGE P. HARTZELL. 25

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