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F. A. WHITTAKER

2,071,601

LIGHTER

Original Filed Oct. 5, 1935

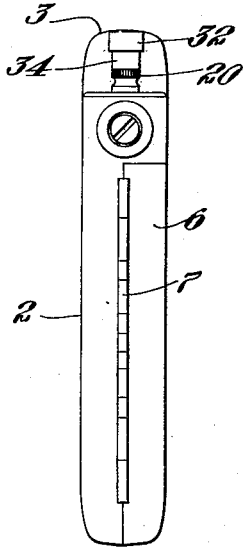


Fig. 2

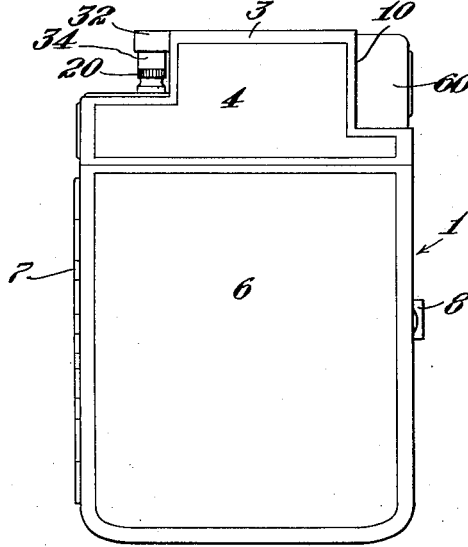


Fig. 1

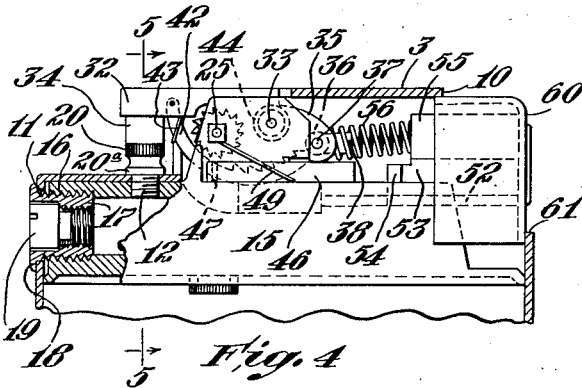


Fig. 4

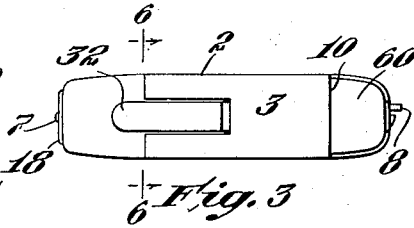


Fig. 3

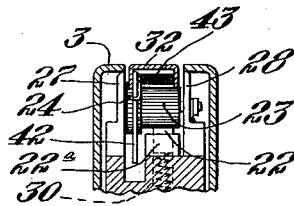


Fig. 6

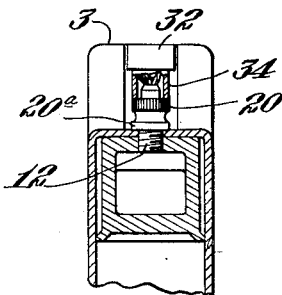


Fig. 5

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UNITED STATES PATENT OFFICE

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LIGHTER

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Original application October 5, 1935, Serial No. 43,720. Divided and this application August 6, 1936; Serial No. 94,551

3 Claims. (Cl. 206—41.4)

This invention relates to a combination cigarette case and lighter and is a division of co-pending application Serial No. 43,720, filed October 5, 1935.

5 In combination cigarette cases and lighters the lighter mechanism or "movement", including the fuel reservoir, is usually located in or above the upper part of the cigarette compartment, and in such constructions there is danger of leakage of the fuel into the cigarette compartment, particularly when filling. Moreover, as the actuation of the lighter mechanism requires either a downward or inward movement of the thumb or finger piece, which necessarily exerts a force tending to dislodge the movement from its position within the case, it is necessary that means be provided securely to hold the movement within the casing and to this end small screws or other fastening elements have been used, or the movement has been soldered to the interior walls of the case. The use of screws or like fastening elements detracts from the appearance of the case and soldering the movement to the case not only detracts from its ornamental interior, but also increases the cost of manufacture, requiring considerable time and skill.

The principal objects of the present invention are to overcome the aforementioned objectionable features and to provide a combination case and lighter which is of simple design and of pleasing appearance and which has a fuel receptacle which is so designed that it may be filled without danger of the fuel leaking into the interior of the case; and to provide a combination case and lighter which is so designed that it does not require the use of any fastening elements for securing the movement within the case, other than those forming an integral part of the ensemble.

Further objects will be apparent from a consideration of the following description and the accompanying drawing, wherein:

Fig. 1 is a front elevation of a combination cigarette case and lighter constructed in accordance with the present invention;

Fig. 2 is a side elevation, viewed from the left of Fig. 1;

Fig. 3 is a top plan view of the case shown in Fig. 1;

Fig. 4 is an elevation, with parts broken away and shown in section, of the actuating mechanism and associated parts;

Fig. 5 is a section on the line 5—5 of Fig. 4; and Fig. 6 is a section on the line 6—6 of Fig. 3.

The embodiment chosen for the purpose of illustration comprises a casing 1 having a continu-

ous back wall 2 which extends across the top, as shown at 3 (Figs. 1 to 3), and down the front side to provide the front wall 4 of the upper compartment which encloses the lighter mechanism or "movement." Below the upper compartment or housing is a lower or main compartment designed to hold cigarettes or the like, this latter compartment being provided with a lid or cover 6 which is hinged to the casing at 7 and held latched by a spring catch 8 of conventional construction. The upper right-hand corner of the casing is cut off, as shown at 10, to provide a corner aperture or opening and the side and top walls adjacent to the left-hand corner are provided with circular openings 11 and 12, respectively, as shown in Fig. 4.

The lighter proper comprises an elongate fuel receptacle 15 (Fig. 4) having at one end a screw-threaded opening 16 which registers with the opening 11 in the side wall of the casing when assembled therewith. An interiorly and exteriorly screw-threaded sleeve or bushing 17 extends through the opening 11 into the opening 16 and constitutes a mouth through which the reservoir may be filled. The sleeve 17 tightly fits within the opening 11 and its outer end is provided with a peripheral flange 18 which closely fits against the outer surface of the marginal portion surrounding the opening 11 and not only provides a seal for preventing fuel from leaking into the interior of a case, but also a fastening element which securely holds the reservoir in position within the upper part of the case. A screw cap 19, adapted to fit the bore of the sleeve 17, provides a removable closure for the fuel receptacle.

Mounted on the top of the receptacle is a burner 20 which projects through the opening 12 in the top wall of the casing into a threaded aperture in the fuel receptacle. The burner is provided with an annular flange 20^a which engages the margin about the opening 12 and thus provides a further fastening element for securing the reservoir in place within the case. The burner 20 is provided with the usual wick 21 which extends into the interior of a fuel receptacle. A pyrophoric member 22 (Fig. 6) is held in a tube 22^a which is integral with the reservoir and which extends upwardly with its outer end adjacent to the burner 20, and a serrated friction wheel 23 and a ratchet wheel 24 (Fig. 6) are pinned or otherwise secured to a shaft 25 journaled in a pair of spaced uprights 27 and 28 integrally joined to the top of the fuel receptacle. A spring 30 (Fig. 6) disposed in a tube 22^a yield-

ingly urges the pyrophoric member 22 into engagement with the friction wheel 23.

An arm 32 (Fig. 4) is pivotally mounted between its ends to a shaft 33 supported by the uprights 27 and 28 and the outer end of the arm supports a snuffer 34, here shown as a cup which fits over the burner 20. The opposite or inner end of the arm 32 is provided with a depending portion, here shown as a bifurcate member 35 adapted to swing downwardly toward the receptacle. A collar 36 is journaled on a wrist pin 37 (Fig. 4) secured to the wings of the bifurcate member 35 and integral with and projecting radially from the collar 36 is a pin 38 which has a pressed fit within the end of a coil compression spring 56.

A curved rack or ratchet bar 42 is pivotally connected to the arm 32 adjacent to its outer end and extends downwardly between the pyrophoric member 22 and adjacent upright 27 and beyond the ratchet wheel 24. The ratchet 42 is yieldingly held in a position to engage the ratchet wheel 24 by a light spring member 43 (Fig. 4) and the ratchet is so designed that when the arm is in snuffing position and the ratchet retracted, as shown in Fig. 4, its teeth are spaced from those of the ratchet wheel a distance sufficient to prevent engagement of the ratchet and wheel until the arm 32 has swung upwardly through an angle preferably of the order of 30°. With this construction and arrangement both the arm 32 and ratchet 42 are permitted a "free" or unrestrained start which not only aids in overcoming the frictional locking action exerted on the friction wheel by the action of the spring 30 on the pyrophoric member, but also insures a quicker action than would otherwise be possible, that is, a "snap action". During the initial outward movement of the arm 32 the ratchet teeth are clear of the ratchet wheel and after the arm has swung through an angle of the order of 30° the ratchet teeth then engage those of the ratchet wheel to effect rotation of the friction wheel in response to further upward movement of the arm, thus causing a shower of sparks to be emitted from the pyrophoric member toward the wick 21 after the snuffer has been raised a distance sufficient to clear the burner wick.

A coil spring 44 circumposed about the shaft 33 effects the return movement of the arm from its elevated or extended position and normally holds it in snuffing position. Between the upright 28 and adjacent wheel of the case, one end of a catch 46 is pivotally mounted at 47 to the top of the receptacle and its free end is provided with an inwardly extending nose which is normally retained in locking position between the top of the receptacle and the depending end 35 of the arm 32 by a small spring 49 secured to the shaft 25. The catch 46, when in locking or retracted position, prevents the arm 32 from swinging upwardly and hence provides a positive lock which prevents the actuation of the pyrophoric and friction members. The outer end of the catch is provided with a cam surface by means of which the catch may be swung to released position in the manner hereinafter described. When the catch is swung from locking position to released position its nose is then free of the depending portion 35 and hence the arm 32 may then be swung upwardly to operate the pyrophoric and friction members.

The top of the fuel receptacle at the end opposite the burner 20 is provided with a longitudinally extending recess which defines a slideway

51 which receives a slide 52. The slide 52 is provided with an upstanding wing 53 and a cam or latch release 54 is formed on the inner end of the wing and is positioned so as to engage the cam surface on the nose 48 when the slide is pushed inwardly to retracted position.

A tubular holder 55 is secured to the top of the wing 53 and these parts are so positioned that the horizontal axis of the tubular holder 55 is in substantially vertical alignment with the axis of the pin 38 on the collar 36, and is disposed in a horizontal plane above that passing through the axis of the pin 38. The opposite end of the compression spring 56 is disposed in the tubular holder 55, this spring being heavy enough, when compressed, to overcome the frictional resistance offered by the pyrophoric and friction members and to swing the arm 32 upwardly against the action of the spring 44.

An actuating member or slidable finger piece 60 is rigidly secured to the outer end of the slide 52 and wing 53 and this finger piece is preferably in the form of a hollow shell which conforms to the shape of the cut-off corner of a casing so as to fill out this corner and provide, in effect, a corner piece whose outer surfaces have the appearance of substantial continuity with the surface of the case. The finger piece is so designed that its lower end is disposed below the upper edge 61 of the casing which provides a stop that limits the outward or reverse movement of the finger piece. The spring 56 normally holds the finger piece against the stop 61 and, as previously noted, the spring 44 normally holds the arm 32 in snuffing position so that all movable parts are normally held in the position shown in Fig. 4.

In assembling the mechanism with the case, the sleeve 17 and burner 20 are removed from the receptacle and with the finger piece 60 partially depressed the mechanism is then inserted into the upper compartment. The sleeve 17 may then be screwed into the opening 16 and the burner 20 in the opening 12 so that its annular shoulder engages the top surface of the case. The sleeve 17, supplemented by the burner 20 thus holds the entire mechanism within the casing without the aid of the usual fastening elements or the like.

To fill the reservoir the cap 19 may be unscrewed and the proper amount of fuel then run in. As the flange 18 tightly fits about the marginal portion surrounding the opening 14 in the casing, there is no danger of fuel leaking into the interior of either compartment and for the same reason there is no danger of fuel seeping into the main compartment in event the cap 19 has not been screwed up tightly after filling the reservoir.

While there is shown and described one desirable embodiment of the invention, it is to be understood that this disclosure is for the purpose of illustration only and that various changes in shape, proportion and arrangement of parts, as well as the substitution of equivalent elements for those herein shown and described, may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed:

1. In a combination lighter and case, a casing having upper and lower compartments, the side wall of the upper compartment having an opening therein, a fuel reservoir disposed within the upper compartment, said reservoir having a threaded opening registering with the opening in said wall, a burner and lighter mechanism mount-

ed on the top of said reservoir, and an interiorly and exteriorly screw-threaded sleeve projecting through the opening in said wall with its inner end in threaded engagement with the threaded opening in said reservoir and its outer end snugly fitting within said opening in said side wall, said outer end having a peripheral flange clamped against the outer surface of the marginal portion surrounding the opening in said wall and providing a seal for preventing fuel from leaking into the interior of said casing, said sleeve and flange also providing a fastening element securing said reservoir and lighter mechanism to said casing.

2. In a combination case and lighter, a casing having two compartments, a fuel reservoir for the lighter disposed in one of the compartments, said fuel reservoir having an opening to admit fuel and a second opening for a wick, the compartment housing the casing having openings registering with those in said fuel receptacle, a sleeve member secured within the first opening and projecting outwardly through the corresponding opening in said compartment, the outer end of said sleeve having a peripheral flange closely fitting against the marginal portion surrounding the opening and providing a seal for preventing fuel from leaking into the interior of said casing, said sleeve securing said reservoir in position in said compartment, and a burner secured within the

second opening in said reservoir and projecting outwardly through the opening in said compartment registering therewith, said burner having a flange surrounding the latter opening and cooperating with said peripheral flange to secure said reservoir in position.

3. In a combination case and lighter, a casing having side and top walls defining upper and lower compartments, a fuel reservoir having top, side and end walls disposed in the upper compartment, said fuel reservoir having an opening in its top wall and a second opening in its side wall, said casing having openings in its top and side walls registering with said openings in the fuel receptacle, a sleeve secured within the opening in the side wall of said receptacle, said sleeve having at its outer end a peripheral flange which engages the marginal portion surrounding the opening and provides a seal for preventing fuel from leaking into the interior of the casing, and a burner secured within the opening in the top of said reservoir and projecting outwardly to the corresponding opening in said casing, said burner having a flange surrounding the latter opening and cooperating with said peripheral flange to secure said reservoir in position.

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