

Oct. 3, 1950

W. L. PAINTER  
CIGAR LIGHTER

2,524,074

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2 Sheets-Sheet 1

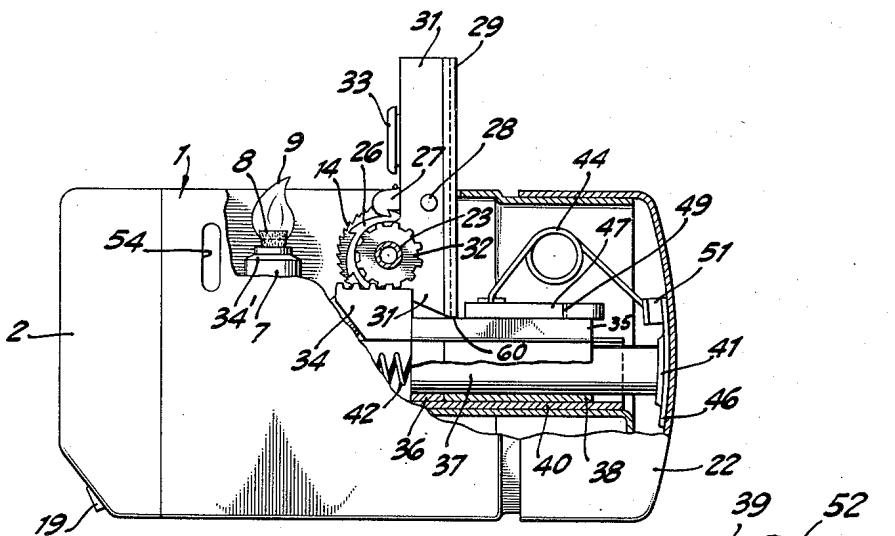


Fig. 2

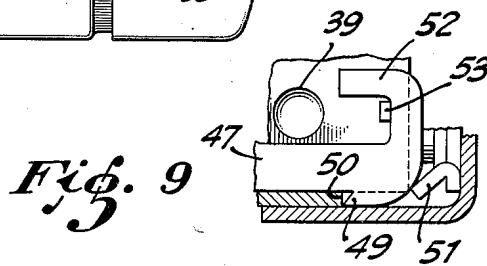


Fig. 9

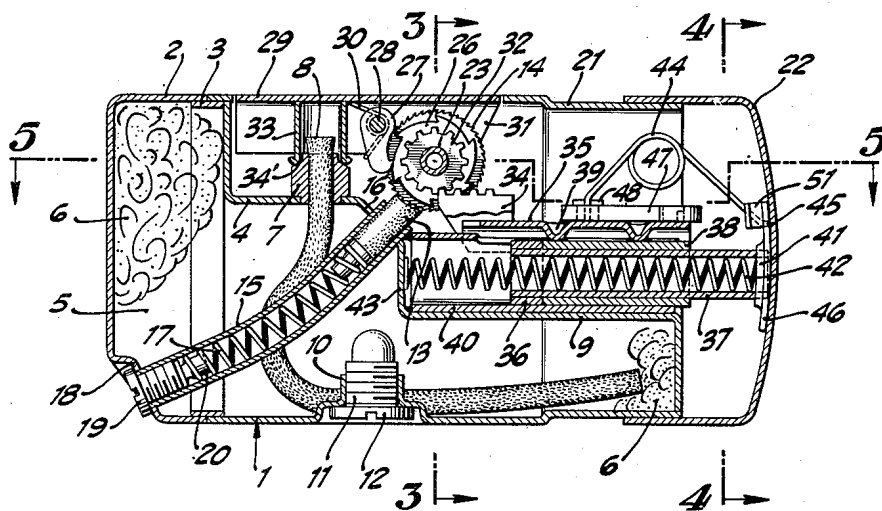


Fig. 4

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2 Sheets-Sheet 2

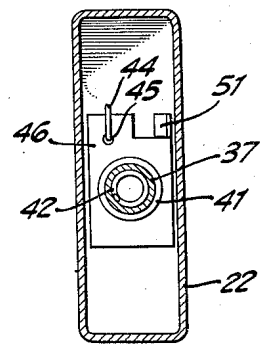
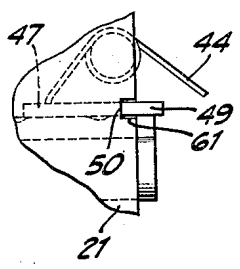
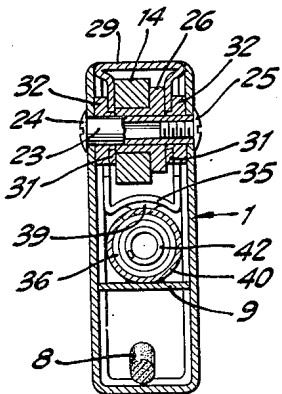
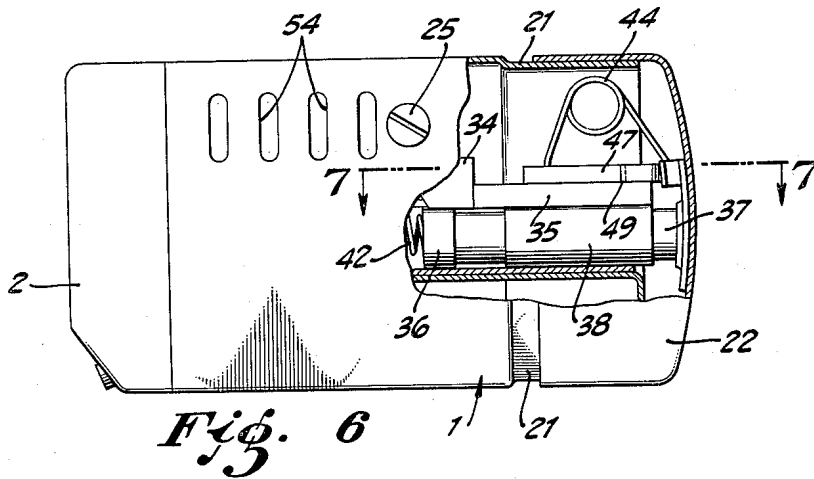


Fig. 3

Fig. 8

Fig. 4

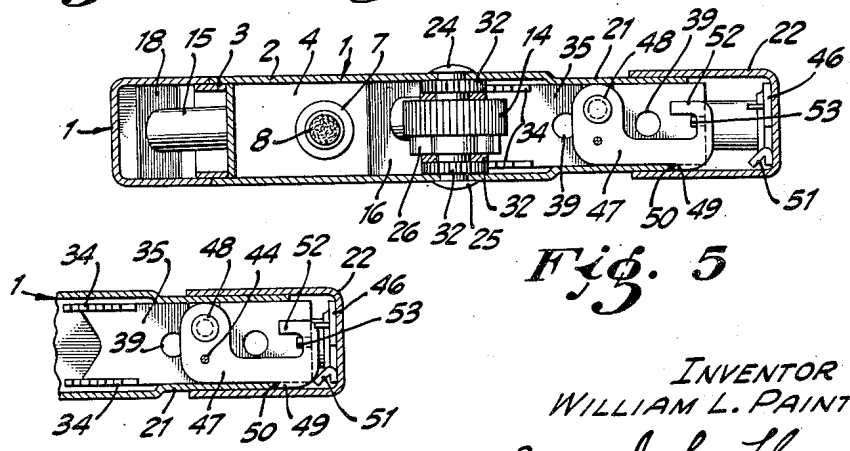


Fig. 7

Fig. 5

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# UNITED STATES PATENT OFFICE

2,524,074

## CIGAR LIGHTER

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Application May 6, 1947, Serial No. 746,257

4 Claims. (Cl. 67—7.1)

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This invention relates to a cigar lighter in which a spark is produced by a flint rubbed by a hard member for igniting a burner.

Devices of this kind are in common use, and are made compact so that they may be carried in the pocket. It is one of the objects of this invention to improve, in general, devices of this character.

It is another object of this invention to provide a device of this general character that automatically removes a snuffer from the burner, and that causes ignition by a simple motion of translation.

It is still another object of this invention to provide a lighter entirely housed in a casing that can assume simple, smooth lines, and which has telescoping parts, so arranged that a telescoping movement causes a lid to open and the burner to light. In this way, the device can readily be held in the palm of the hand and operated by a grasping movement.

It is still another object of this invention to make it possible to obtain a very rapid angular motion of the knurled steel wheel that operates on the flint, so as to facilitate generation of a spark. This is accomplished by first storing energy, as in a spring, and then suddenly releasing it; and all this occurs as a result of a continuous telescoping movement of the two-part casing.

This invention possesses many other advantages, and has other objects which may be made more easily apparent from a consideration of one embodiment of the invention. For this purpose there is shown a form in the drawings accompanying and forming part of the present specification. This form will now be described in detail, illustrating the general principles of the invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of this invention is best defined by the appended claims.

Referring to the drawings:

Fig. 1 is a longitudinal sectional view on an enlarged scale, of a cigar lighter incorporating the invention, the cigar lighter being in inactive position;

Fig. 2 is a view, partly in section, of the cigar lighter after the flame has been ignited and ready for use;

Figs. 3, 4, and 5 are sectional views, taken respectively along planes 3—3, 4—4, and 5—5 of Fig. 1;

Fig. 6 is a view similar to Fig. 2, illustrating the position of the parts when the igniter is about to be operated;

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Fig. 7 is a fragmentary sectional view, taken along plane 7—7 of Fig. 6;

Fig. 8 is a view illustrating details of a latch or restraint; and

Fig. 9 is an enlarged fragmentary view, similar to Figs. 7, of a latch mechanism utilized with the invention.

The cigar lighter is arranged to be entirely enclosed by the aid of a two-part casing. One part 1, as shown most clearly in Figs. 1 and 3, is made of thin metal to form a generally hollow body. The left-hand end of the body is formed by a supplemental member 2, which is permanently attached to the casing body 1 as by the aid of a band 3.

A wall 4 is securely attached to the inside of the casing to define a fuel chamber 5 of relatively large capacity. This fuel chamber may be filled with some absorbent material, such as cotton wadding 6 (Fig. 1). This wadding has been indicated only in the left-hand portion of the chamber 5, but it is understood that it is intended to fill the entire chamber.

The wall 4 has a horizontal portion which serves to support a burner body 7 (Figs. 1, 2, and 5). Through this burner body 7 extends a wick 8. Flame 9 (Fig. 2) can burn when a spark is supplied to a region neighboring the wick. This wick is shown in Fig. 1 as being of considerable length and extending toward the right, underneath another horizontal portion 9 of the wall 4.

The filling of the chamber 5 with appropriate volatile liquid fuel is effected through an opening in the bottom of the casing, and which is provided by the inwardly directed integral sleeve 10 (Fig. 1). This sleeve may be threaded to accommodate a closer plug 11 having a flat slotted head 12.

For igniting the burner formed by the wick 8 and the body 7, sparks are generated between a flint member 13 and a knurled wheel 14 (Figs. 1, 2, 3, and 5). The flint 13 is guided by an upwardly sloping tube 15 which passes through an opening in the sloping portion 16 of wall 4 and immediately adjacent the wick 8. Flint 13 is urged into contact with the wheel 14, as by the aid of a compression spring 17 housed in the tube 15. The tube 15 extends downwardly into an opening formed in the depressed portions 18 of the member 2; and it may be threaded to accommodate the flat head closure screw 19. This screw 19 has a spring guide and retainer extension 20 around which the lower end of the spring 17 is accommodated.

The casing member 1 has a tubular extension 21 over which telescopes a tubular cap 22. This

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cap 22 completes the enclosure for the lighter. Apertures 54 in the sides of part 1 serve to supply air to the base of burner 7.

In order to ignite the burner, the wheel 14 is given a limited, violent rotation to strike sparks from flint 13. This is accomplished in a manner now to be described.

The wheel 14 is mounted for free rotation on a stationary hollow pin 23 (Figs. 1 and 3). This pin extends transversely through the casing part 1, and is provided with a slotted head 24 at one end. At its other end it is threaded to accommodate a fastening screw 25. For mounting the wheel 14 on the pin 23, there is provided a flanged sleeve 26 to which wheel 14 is firmly attached. Flange 26 forms a ratchet wheel (Figs. 1, 2, and 5). This ratchet wheel is engaged by a pawl 27 (Figs. 1 and 2).

Pawl 27 is pivoted on a pin 28 that is carried by a cover member 29. A spring 30 urges the pawl 27 into engagement with the ratchet wheel 26.

The cover member 29 is formed with an upper smooth surface, as shown most clearly in Fig. 3, to close an opening formed in the upper wall of casing part 1. It has depending spaced flanges 31 which are spaced so that they can enter between the sides of casing 1. The cover is mounted for pivotal movement about the pin 23. For this purpose, the flanges 31 are apertured for the reception of the hubs of a pair of pinions 32. These pinions 32 are securely attached to the flanges 31, and are accommodated in the space formed between these flanges and the sides of casing part 1.

In operating the lighter, the cover 29 is rotated in a clockwise direction from the position of Fig. 1 to the position of Fig. 2.

This movement of the cover 29 serves to rotate the wheel 14 by the aid of the pawl 27. Conveniently, the cover 29 may carry a snuffer 33 that depends downwardly from the cover, and that engages the sloping shoulder 34' on the burner body 7.

After the lighter has been put into use, the cover member 29 may be rotated in a counter-clockwise direction from the position of Fig. 2 to the position of Fig. 1, thus extinguishing the flame 9. This closing movement causes the pawl 27 to ride over a tooth of ratchet wheel 26 and into engagement with a succeeding tooth. In this way, the knurled wheel 14 is not rotated during this closing operation.

The angular, clockwise movement of cover 29 is caused to take place at a very rapid rate, as by storing energy in a spring and then releasing the energy. This is accomplished by squeezing the two parts 1 and 22 of the casing together, as in the palm of the hand.

To accomplish this result, the pinions 32 are engaged by the racks 34 that are formed on opposite sides of a linearly movable support 35 that has an arcuate configuration to conform to a tubular slide 38. Support 35 is fastened to this slide; and, for this purpose, a pair of bosses 39 extend below the support 35, and are attached to the slide 38. This slide 38 is guided for axial movement in the stationary arcuate guide 40, attached, as by welding or soldering, to the upper surface of horizontal wall 9 (Fig. 3), as well as to the end wall 43 of the housing (Fig. 1). This guide is slotted near its inner end (Fig. 1) to permit the support 35 to be fastened to the top of slide 38.

Telescoping movement of the part 22 over the

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portion 21 is used to store energy in a hairpin spring 44 that serves, when it is released, to give a quick motion to the support 35 and racks 34. One end of the hairpin spring is anchored at 45 in the flange 46 of a boss 41 attached to the inner surface of casing half 22. Its other end is anchored to a latch member 47 that is pivotally mounted about the support 35, as by the aid of the pivot pin 48.

This latch member, as shown most clearly in Figs. 5, 7, 8, and 9, has a hook portion 49 which engages the inner edge 50 of a slot 61 in the casing extension 21.

Accordingly, as the part 22 is moved along the member 21, the hairpin spring 41 is wound up, the racks 34 being restrained by engagement of the latch hook 49 with the edge 50.

Upon sufficient inward movement of the casing half 22, the latch member 47 is rotated in a counter-clockwise direction to release the restraint against movement of the support 35. This is accomplished by the aid of a releasing or unlatching member 51 formed integrally with the flange 46. It has a sloping surface adapted to contact a curved surface of the latch 47. In the position of Figs. 6, 7, and 9, this releasing member 51 has just reached the latch 47. A slight further movement will release the latch and cause the racks to move violently toward the left, and to the position shown in Fig. 2. This operates the wheel 14 and opens the cover 29. Rotation of this cover is stopped at the upper surface 60 of slide 35.

The ratchet wheel 26 has teeth spaced angularly less than the angular movement of cover 31; for example, there being six teeth, the angular spacing is sixty degrees; whereas cover 31 moves through an angle of ninety degrees. Thus, when closing the cover 31 from the open position of Fig. 2, the pawl 27 will fall between a pair of teeth. Accordingly, when the cover is next opened, it will have acquired considerable speed before the pawl engages, and its kinetic energy is then useful to impart a rapid rotation to the wheel 26, the drag of flint 13 on wheel 14 being thus readily overcome even with a relatively light spring 44.

The latch 47 may be provided with a hook 52 (Figs. 5, 7, and 9), limiting angular movement of the latch member. For this purpose the support 35 is provided with a struck-up portion 53 around which the hook 52 extends.

A compression spring 42 (Fig. 1) is used to return the slide 38 to the position of Fig. 1 when the force on the casing 1—22 is released. This spring abuts the vertical walls 43 of casing half 1, and its other end abuts boss 41. A spring barrel 37 telescopically slides inside of slide 38, and is attached to the boss 41. Its inner end carries a stop collar 36 adapted to contact the left-hand end of slide 38.

Upon release of casing half 22 from the position of Fig. 2, the spring 42 expands; collar 36 urges slide 38 to the right; racks 34 likewise move to the right; and pinions 32 rotate in a counter-clockwise direction, closing cover 29. Pawl 27 rides over ratchet 26 and the lighter assumes generally the position of Fig. 1 except for the relative positions of pawl 27 with respect to the teeth on wheel 26. Since the hairpin spring 44 is anchored to the latch 47 at a point below pivot pin 48 (Fig. 7), this spring urges the latch in a clockwise direction, so that it is caused to engage the edge 50. The device is now ready for another cycle of operations.

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Since the lighter is held when used in the palm of the hand, it is easy to keep the flame shielded.

The inventor claims:

1. In a lighter having a wick, a flint, and a rotatable wheel in contact with the flint for generating sparks: a ratchet wheel for moving said flint contacting wheel; a cover member concentrically mounted with said ratchet wheel; a pawl carried by said cover member for moving said ratchet wheel; a pinion for rotating said cover member; a rack for the pinion; a spring urging the rack in a direction to operate the wheel; a disengageable restraint for the rack; and means for storing energy in the spring and for thereafter disengaging the restraint.

2. In a cigar lighter having a wick, a flint, and a rotatable wheel in contact with the flint for generating sparks: a two-part casing having telescoping portions, one part providing a fuel chamber; a tubular guide carried by said one part; a tubular member carried by the other part and slidable in the guide; a compression spring in the tubular member; a rack guided by said tubular member for operating the wheel; a hairpin spring urging the rack to operate the wheel, one end of said spring being anchored in the said other part; a latch restraining the rack; and means carried by the said other part for releasing the latch upon telescoping movement of said other part toward the other part.

3. In a lighter having a wick, a flint, and a rotatable wheel in contact with the flint for generating sparks: a two-part casing having telescoping portions, one portion providing a fuel chamber; an arcuate guide carried by said one portion; a slide axially movable in said guide; a barrel carried by the other portion movable within said slide, said barrel having a collar adapted to engage one end of said slide; a support carried by the slide, and movable therewith; a latch member pivotally mounted on said support for releasably securing said support from movement with respect to said one portion; a spring member having one end eccentrically mounted on said latch member and the other end mounted on said other portion; a cam member carried by said other portion for releasing said latch after a substantial relative movement of said portions toward each other; a rack carried by said support for moving said rotatable wheel; and means for resiliently urging said collar to engage said slide, moving said slide toward retracted posi-

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tion as well as for moving the portions away from each other.

4. In a lighter having a wick and a flint: a two-part casing having telescoping portions, one portion providing a fuel chamber; an arcuate guide carried by said one portion; a slide axially movable in said guide; a barrel carried by the other portion movable within said slide, said barrel having a collar adapted to engage one end of said slide; a support carried by said slide, and movable therewith; a latch member pivotally mounted on said support for releasably securing said support from movement with respect to said one portion; a compression spring member having one end eccentrically mounted on said latch member and the other end mounted on said other portion; a cam member carried by said other portion for releasing said latch after a substantial relative movement of said portions toward each other; a ratchet wheel rotatably mounted on said one portion; a serrated member rotatable with said ratchet wheel contacting said flint; a cover member rotatably mounted on said one portion; a pinion wheel concentrically mounted with said cover member and secured thereto; a pawl carried by said cover member for rotating said ratchet wheel; a rack carried by said support for rotating said pinion; and means for resiliently urging said collar to engage said slide, moving the said slide toward retracted position as well as for moving the portions away from each other.

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