

Oct. 24, 1950

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2,526,860

LIGHTER

Filed Dec. 3, 1948

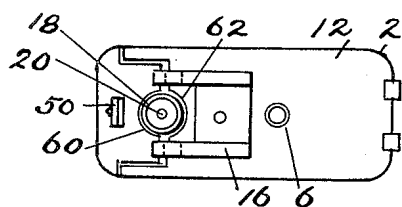
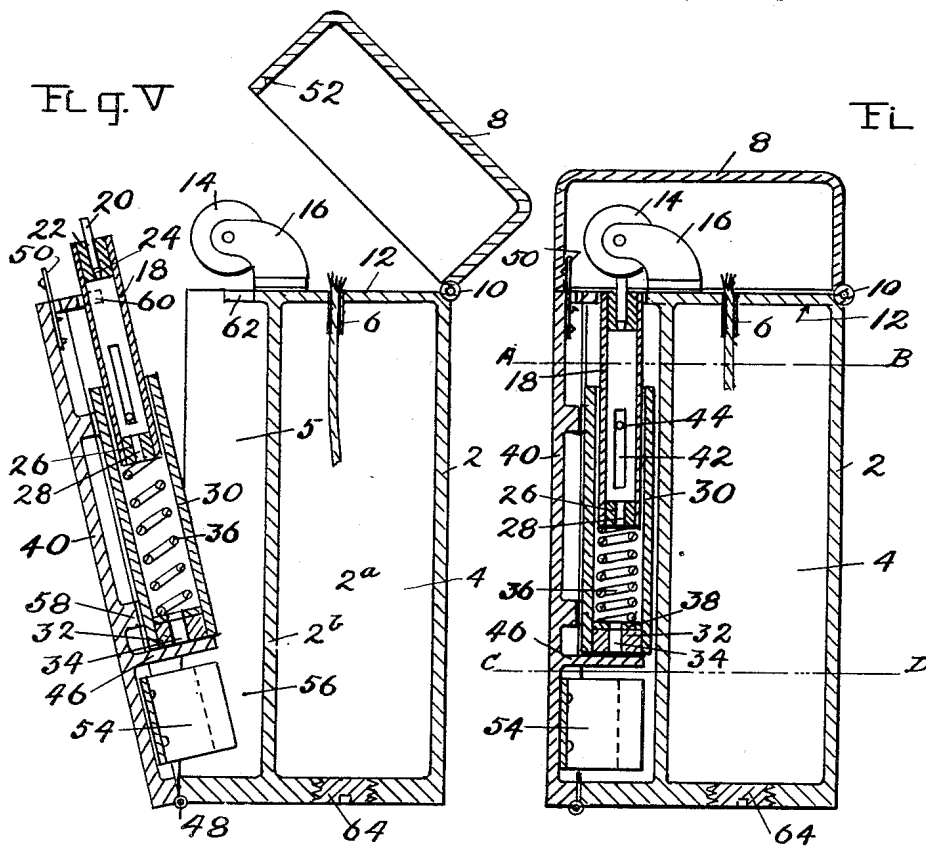
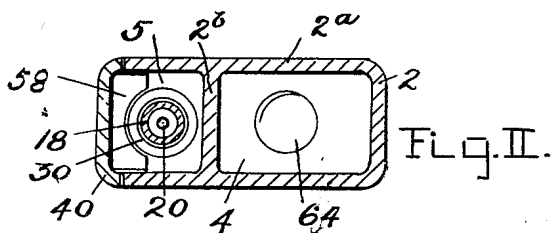
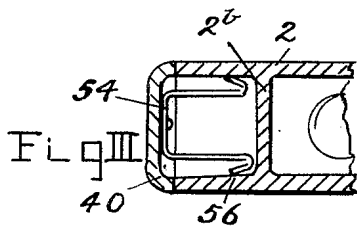


Fig. IV

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2,526,860

LIGHTER

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Application December 3, 1948, Serial No. 63,249

6 Claims. (Cl. 67-7.1)

1

My invention relates to lighters for cigars and cigarettes; and more particularly to those in which an abrasive wheel rubs upon a flint to strike a spark to ignite vapor rising from a wick saturated with a light hydrocarbon, commonly known as lighter fluid. In many of these lighters it is difficult and troublesome to remove an old flint when renewal is needed. The object of my invention is to provide a lighter in which the flint can be readily reached; in which the flint can be easily removed, when necessary, from its holder and a new flint inserted; and in which the whole flint assembly can be quickly removed for inspection, cleaning, or for flint renewal.

In order that the invention may be readily understood, reference is had to the accompanying drawing, forming part of this specification, and in which:

Fig. I is a longitudinal central section through the lighter, with the top closed.

Fig. II is a transverse section on line A—B of Fig. I.

Fig. III is a fragmentary transverse section on line C—D of Fig. I.

Fig. IV is a plan of the body of the lighter, with the cover removed; and

Fig. V is a longitudinal central section through the lighter with the top open and the flint assembly swung out from under the abrasive wheel.

Referring to the drawing in detail, the numeral 2 indicates the body of the lighter, having side walls 2a and a transverse wall 2b forming a cell 4 for the wick, cotton and fluid; 6 the tube through which the wick is passed into the space under the cover 8, which is hinged to the body at 10.

On the deck 12 of the body 2 is set the abrading wheel 14, mounted in the bracket 16. In Fig. IV, the bracket 16 is shown, but the abrading wheel is removed to allow the top of the flint assembly to be seen. The flint assembly includes a tube 18, at the upper end of which the flint 20 is mounted in a flock or holder 22 having a bore 24. The lower end of this bore is slightly contracted to prevent the flint from passing through. In the lower end of the tube 18 is set a plug 26 having a longitudinal perforation 28 to allow an instrument, such as a stiff wire, to be passed up through perforation 28, tube 18 and bore 24 in flint holder 22 to eject any remnant of flint which cannot be removed by other means.

2

Tube 18 slides easily, but snugly, in a cylinder 30, at the lower end of which is a plug 32 perforated at 34 for the passage of an instrument to reach any part which may become too tight in the cylinder 30.

In cylinder 30, and interposed between the bottom of the tube 18 and a washer 38 resting on plug 32, is a coiled spring 36. Washers of various thickness may be employed to change the compression of the spring 36. The function of this spring is to keep the flint 20 pressed against the edge of the abrasive wheel 14.

The flint assembly, consisting of the flint 20, tube 18 and cylinder 30 with spring 36 is removably supported upon a shelf 46 projecting from a panel 40 hinged to the body of the lighter at 48, and constituting a door. This door is held in closed position (Fig. I) by means of a flat spring 50 which engages the inside of the cover 8 at 52. When the cover 8 is raised, the door 40 is restrained from swinging away from the body 2 of the lighter by a spring 54, secured on the inside of door 40, and shaped to frictionally engage the inside walls 2a of the body 2 at 56 (Fig. I, III and V). It will be seen that the flint assembly is normally housed within a recess 5 formed by that portion of the side walls 2a which projects beyond the transverse wall 2b.

On the inside of the door 40, I provide projecting shelves 58, having edges shaped to form a seat for cylinder 30. At the upper end of door 40, I provide a shelf 60 shaped to form a backrest and guide for the tube 18. The forward edge of deck 12 is similarly shaped, as at 62, for the same purpose.

To move the flint from under the wheel, I rotate the wheel, as seen in Figs. I and V, clockwise. This will throw the flint outward to the left, away from the wheel, and with it, the flint assembly and door 40, which swings about pivot 48, as seen in Fig. V. To ignite the wick, the abrading wheel 14 is rotated in the opposite direction, and in this case, the flint holder is held steady, with the flint extending substantially radially of the wheel, by engaging the seat 62 in the edge of the deck 12. Upon rotating the wheel 14 clockwise to throw the flint from under the wheel, the spring 36 tends to eject the tube 18 from cylinder 30, and the movement of the tube 18 is limited by a slot-and-pin joint between

3

tube 18 and cylinder 30, as shown in Figs. I and V; wherein 42 is the slot cut in the side of tube 18, and 44 is the pin fixed, preferably by means of a screw thread, into the wall of cylinder 30. To take the tube 18 out from the cylinder 30 it is only necessary to remove the pin 44 from the wall of the cylinder. Although the tube 18 cannot be taken out of cylinder 30 until the pin 44 is removed from the cylinder, the wire instrument can be passed through the plug perforations 34, 28 and 24 to reach and expel a worn flint.

To return door 40, with flint assembly, to the closed position shown in Fig. I, it is only necessary to press tube 18, with the tip of the finger, down into cylinder 30, and then push the flint again under the abrasive wheel 14, until it extends substantially radially thereof.

At the bottom of cell 4, I provide a threaded plug 64, upon the removal of which, the cotton and fluid can be inserted into the cell.

In some lighters, it is usual to provide a spring device for throwing the cover up upon pressing a button or a resilient part of the body of the lighter. Such a device is common, and may be employed if desired, but is not shown as it does not form a part of my invention.

What I have termed the flint, which cooperates with the abrading wheel 14 to strike a spark, may be of any suitable pyrophoric material; and it is to be understood that by abrasive or abrading wheel, I mean a wheel, or instrument, of such material, and shape, as will cooperate with the flint and strike a spark to ignite combustible vapor. Such a wheel is usually made of hardened steel.

Instead of being hinged, as shown in Figs. I and II, the door 40 may be detachable from the body. The object of making the door hinged or detachable is that a convenient hold may be had on it when its upper end is moved from its closed position to bring the flint away from under and clear of the abrasive wheel 14.

In describing my lighter, I have referred to the body and the door. Actually, there are two parts into which the casing of the lighter is divided longitudinally. These two parts are the fluid and wick-holding part, on which also the abrading wheel is mounted; and the part upon which the flint assembly is mounted. For the sake of brevity and clarity in the description of the lighter, I have termed the first part the body, and the second part the door.

If it is desired, plug 26 may be omitted, making the spring 36 longer to extend up into the tube 18 and engage the underside of the flint holder 22. The cylinder plug 32 may also be omitted, letting the spring stand directly on the shelf 46; but in this case, when the wheel 14 is turned clockwise, as shown in Figs. I and V, the spring 36 might be dropped and lost while bringing the flint from under the wheel 14. I, therefore, prefer to use plug 32 in cylinder 30 as a base for the spring 36.

Some advantages for my lighter are that when it is not in use, it is entirely closed, with no openings for the entry of dust or for the entry of air to evaporate fluid; it has no projections to catch in the pocket; to gain access to the flint, it is only necessary to turn the abrasive wheel in a direction opposite to that in which it is turned to cooperate with the flint to make a spark, and thus the flint may be removed and replaced with great ease.

I claim:

1. A lighter comprising an elongated casing

4

containing a fuel chamber, an abrasive wheel mounted on the end of said chamber but offset laterally therefrom, a movable support pivoted at one end to said casing, and a flint mounted on said support and disposed adjacent the other end thereof, said support being movable in one direction into a position in which it engages the walls of said chamber, and when in this position said flint extending radially of said wheel, resilient means carried by said support for urging said flint against said wheel, and means operated by rotation of said wheel for moving said support in the opposite direction to shift said flint away from said wheel.

2. A lighter comprising a fuel chamber having a top wall, an abrasive wheel mounted on said wall but projecting laterally to one side of said chamber, a wick tube extending through said wall, a support at the side of said chamber adjacent said wheel and movable into and out of engagement with said chamber, a flint carried by said support and, when said support is in engagement with said chamber, extending radially of said wheel, and resilient means carried by said support for urging said flint into contact with said wheel, whereby, when said wheel is rotated in one direction, the flint is held stationary by engagement with said chamber, and said wheel throws sparks from said flint toward said wick tube, and when rotated in the opposite direction, said wheel moves said support so as to throw said flint out of contact with itself.

3. A lighter comprising an elongated casing having a transverse wall dividing it longitudinally into a fuel containing chamber and a flint containing chamber, disposed side by side, an abrasive wheel mounted on the top wall of said first chamber and having a transversely extending axis disposed laterally thereof over said second chamber, a flint, and a spring within said second chamber urging said flint upwardly against said wheel, said flint and spring extending lengthwise of the casing and being carried by a panel movable outwardly away from said fuel chamber and constituting a wall of said flint containing chamber.

4. A lighter comprising a casing divided lengthwise into two relatively movable parts, a flint mounted on and slidable lengthwise of one part, an abrading wheel mounted on the end of the other part adjacent the flint on the first part, resilient means associated with the flint and constructed to press the flint against the periphery of the wheel, the said flint being so positioned with respect to the wheel that when the wheel is rotated in one direction it will tend to hold the flint carrying part stationary against the wheel carrying part and will strike a spark from said flint, while when the wheel is rotated in the opposite direction it will thrust the flint away from itself and separate the two parts of the lighter.

5. In a lighter, a flint assembly comprising a holding block, a tube having an open end in which said block is set, said block having a bore and a flint mounted in said bore and projecting axially therefrom, the opposite end of said tube having an opening in alignment with said bore whereby a sharp instrument may be inserted through said tube and block to dislodge any remaining fragment of flint from said bore.

6. In a lighter, the combination with an abrasive wheel rotatable about a fixed axis, of a wick

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5

tube disposed at one side of said axis, and a flint holder pivotally mounted at the opposite side of said axis so as to move laterally toward and from the same, and means for arresting the pivotal movement of said holder toward said axis in a position in which the flint carried thereby engages said wheel, whereby, when said wheel is turned in one direction it throws sparks from said flint toward said wick tube, and when turned in the opposite direction, it swings said holder laterally away from such axis so as to move the flint out of contact with said wheel.

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6

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