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L. BOLLE

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LIGHTER

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Fig. 1

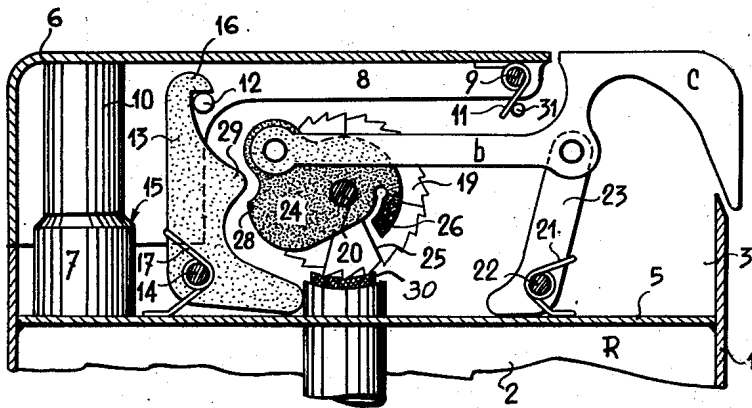
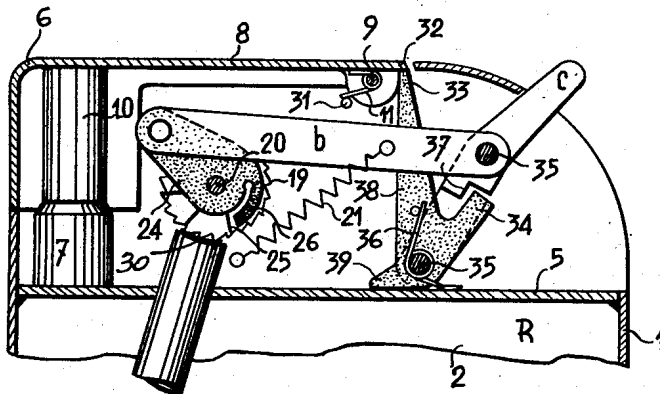


Fig. 2



INVENTOR

Léon Bolle.

BY

Emory L. Groff

ATTORNEY

UNITED STATES PATENT OFFICE

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LIGHTER

Léon Bolle, Geneva, Switzerland, assignor of one-half to La Nationale S. A., Geneva, Switzerland
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1

Numerous lighters are in existence which, above the reservoir and opposite the burner, are provided with an actuating member capable of moving between two extreme positions and to which it suffices to impart rapid movement for the purpose, at the same time, of raising of the cover and producing the rotation of the friction wheel which effects ignition. A return spring returns the said actuating member always into the same starting position whilst closing the cover but without driving the friction wheel during this return movement, this by reason of a ratchet device interposed between the actuating member and the friction wheel. As, however, in these lighters the cover is only closed by the action of a spring, which generally is relatively weak, it is difficult to obtain a sufficiently fluidtight closure around the burner.

For obtaining a more satisfactory fluidtightness, whilst retaining the same simplicity in actuation of these lighters, it is preferable to use a spring actuated cover which a locking device retains in its closed position in such a manner as to enable a sufficiently strong resilient element for obtaining the desired fluidtightness to be interposed between the bottom of the said cover and the extinguisher. However, in order to still obtain the functioning of the lighter by means of a single action applied to the actuating member, it is still necessary to provide a device for releasing the cover which is actuated by the movement of the said actuating member, and to make provision that this member remains accessible and operable even when the cover is open, so as to enable the user, should the lighter fail to operate, to impart a fresh rotation to the friction for effecting the lighting of the lighter.

The present invention has for its subject a lighter of the type above referred to which eliminates the disadvantages above referred to by the fact that it is provided with a spring acting on the oscillating arm carrying the cover, a retaining device tending to hold the cover in the closed position against the action of the said spring, a mechanism for actuating the friction wheel comprising a one-way drive coupling which connects the actuating member to the friction wheel, and a release device actuated by the said actuating member and producing the release of the oscillating arm.

Two forms of construction of a lighter according to the invention are shown by way of example in the accompanying diagrammatic drawing, wherein:

Fig. 1 is a partial view in section of a first form of construction.

Fig. 2 is a partial view in section of a second form of construction.

In the form of construction according to Fig. 1, the lighter is provided with a body 1 enclosing a receptacle R and of which the two large

2

lateral faces 2 are extended by two walls 3 which pass beyond the receptacle R. The wall 5 closing the receptacle R on the upper side of the body is traversed by a passage connecting the receptacle R to the burner 7. An arm 8 oscillating on a pivot 9, carried by the wall 3, carries a cover 6 provided with an extinguisher 10 which fits over the burner 7. This arm is subjected to the action of a spring 11 tending to cause it to oscillate on its pivot in such a manner as to cause it to move away from the burner. A retaining device provided with a pin 12 secured to the arm 8 and a latch lever 13 oscillating on a pivot 14 carried by the side walls 3 tends to hold the oscillating arm 8, against the action of its spring, in a position in which the extinguisher 10 is applied against a seat 15 of the burner 7. The lever 13 is provided with a beak 16 held, by a spring 17 in contact with the pin 12, whilst a friction wheel 19 turning freely on a pivot 20 carried by the walls 3, is connected mechanically to an actuating or control member c subjected to the action of a spring 21. The actuating member is secured to a link b hinged at one end to a lever 23 oscillating on a pivot 22 carried by the walls 3 and at the other end on a rotary actuating member 24 of the friction wheel. The actuating member turns freely on a pivot 20 and forms one of the parts of a one-way coupling of which the second part is formed by driving teeth 25 provided on one of the front faces of the friction wheel.

The actuating member 24 is provided with a resilient driving finger or pawl 26 adapted to co-operate with the teeth 25.

Finally, the lighter is provided with a device for unlocking or releasing the oscillating arm 8, formed by a finger 28 carried by the actuating member 24 and co-operating with a part 29 of the lever 13, in order to produce oscillation of the latter against the action of its spring, and the disengagement of the two parts of the locking device formed by the pin 12 and the nose 16.

The operation of the lighter above described is as follows:

The cover of the lighter is held in the closed position (position shown in full lines in Fig. 1) by the nose 16 engaging with the pin 12. For this position the extinguisher 10 is held applied against the seat 15 of the burner 7, in order to produce a fluidtight closure. For producing simultaneously the opening of the lighter and the lighting of this, it suffices to apply a thrust on the actuating member c by imparting a rapid movement to the latter. The link b and the rotary actuating member 24 are caused to partake of this movement thus producing:

1. The rotation of the driving member and the actuation of the lever 13, against the action of its spring, by the finger 28 co-operating with

3

the projection 29. The oscillation of this lever 13 produces in turn the disengagement of the two parts 12 and 16 of the locking device and the release of the cover which opens with the action of its spring;

2. Approximately at the instant at which the finger 28 comes into contact with the part 29 and before the two parts of the locking device are disengaged from one another the driving finger 26 comes into engagement with a tooth 25 of the front face of the friction wheel, and sets the latter in rotation. The friction of the friction wheel on the pyrophoric member 30 pressed against the friction wheel by a pressure device, causes a spark to be produced which is projected in the direction of the burner and ignites the gas escaping therefrom.

When the user releases the actuating member *c*, this returns under the action of its return spring 21 into the position shown in Fig. 1 and moves with it the link and the actuating member. However, the finger 26 rides over the teeth 25 so that the friction wheel is not driven. Further, the cover remains in the open position defined by the stop 31 and leaves the actuating member *c* fully accessible for a fresh actuation should the lighting of the lighter not have been produced.

One of the advantages of the lighter described is due to the fact that the finger 26 comes into engagement with the teeth 25 before the two parts of the locking device 12, 16 are disengaged from one another. Consequently, the friction of the friction wheel on the pyrophoric flint opposes quite naturally a resistance to the actuation of the member *c* and thus accidental opening of the cover. It is known in fact that it is absolutely necessary to provide for an idle movement of the finger 26, in order to ensure that the friction wheel is effectively actuated during the actuation of the actuating member. It thus follows that the beginning of the actuating stroke of the actuating member takes place freely, only the couple produced by its return spring opposing this movement or dead stroke.

It will be understood that if the unlocking of the cover were effected during this dead stroke, the opening of the lighter could be produced easily by the thrusts to which the actuating member may be subjected when the lighter is placed in a pocket.

In the form of construction shown in Fig. 2, the device for locking the cover in the closed position is formed by a heel 32 secured to the cover and under which engages under the action of a spring 36, the end 33 of one of the arms of a lever 38 oscillating on a pivot 35 secured to the body of the lighter. The actuating member *c* is formed by a lever oscillating on a pivot 35 secured to the body of the lighter and which is provided with a lateral projection 37 adapted to co-operate with a second arm 34 of the lever 38. The lever 38 is also provided with a heel 39 defining the locking position of the lever 38 when the cover is in its closed position.

The operation of this second form of construction is similar to that of the lighter according to Fig. 1. In fact when imparting a rapid movement to the actuating member *c* from its position shown in Fig. 2, the user produces actuation of the lever 38 and the unlocking of the cover on the one hand and on the other hand the rotation of the friction

4

wheel. Here again, the opening position of the cover defined by a stop 31 leaves the actuating member *c* entirely accessible for a fresh operation in the case of "failure" of the lighter.

In this second form of construction of the lighter the driving finger 26 also comes into engagement with the teeth 25 before the disengagement of the two parts of the locking device 32, 33 has taken place. Thus, the resistance offered by the friction wheel to its actuation in rotation opposes, quite naturally, accidental opening of the cover.

Two forms of construction of the lighter, subject of the invention, have been described above by way of example and with reference to the accompanying diagrammatic drawing, but it will be understood that all the elements and devices described may be replaced directly by their equivalents.

I claim:

In a lighter having a body enclosing a receptacle comprising two large lateral faces extended by two walls passing beyond said receptacle, a wall on the upper side of said body, said wall closing said receptacle, a burner mounted on said latter wall, and passage means for connecting said receptacle to said burner, said passage means traversing said latter wall, the combination comprising a pivot member mounted on one wall passing beyond said receptacle, an arm supported by said pivot member, a cover supported by said arm, an extinguisher means depending from said cover for fitting over the burner, a spring means for causing the arm to oscillate about the pivot member, said spring means operatively connected to the arm and to the pivot member, a retaining pin mounted on said arm away from said pivot means and nearer said extinguisher means, a second pivot member mounted on said wall passing beyond the receptacle beneath the retaining pin, a latch lever mounted on said second pivot member and engaging said retaining pin, a spring means operatively connected to said latch lever and said second pivot member for holding said latch lever in contact with said retaining pin, a third pivot member mounted on said wall passing beyond the receptacle between and beneath said first two pivot members, a friction wheel freely mounted on said third pivot member, a pyrophoric member mounted on said wall closing said receptacle, said pyrophoric member pressing against said friction wheel, an actuating means provided with a resilient pawl for engaging said friction wheel, said actuating means being mounted on said third pivot member, a fourth pivot member mounted on said wall passing beyond the receptacle, a lever mounted on said fourth pivot member, and a control member having a link member operatively connected to said actuating member and said lever.

LÉON BOLLE.

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