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SIDE ACTION AUTOMATIC LIGHTER

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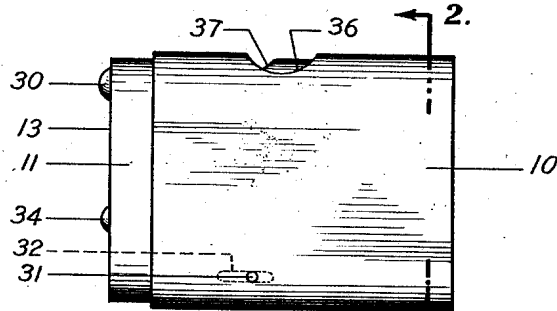


Fig. 1.

Fig. 3.

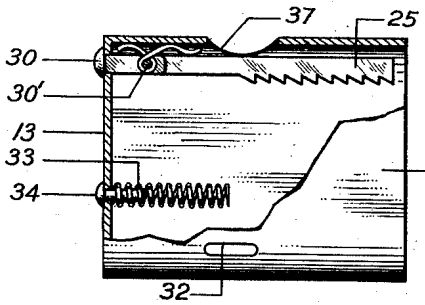


Fig. 5.

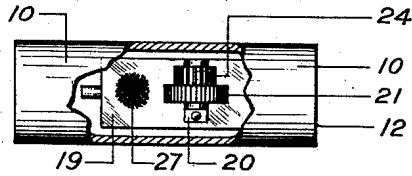
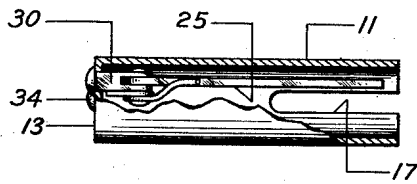
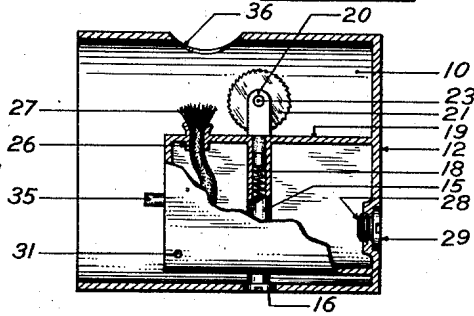
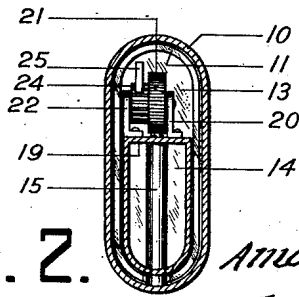


Fig. 4.

Fig. 6.

Fig. 2.



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# UNITED STATES PATENT OFFICE

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## SIDE ACTION AUTOMATIC LIGHTER

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1 Claim. (Cl. 67-7.1)

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This invention refers to spark lighters, and belongs to the kind that is operated by the friction of a fluted cylinder against a stone of rare metal, and particularly it refers to a useful, novel and very practical lighter of this character, automatic in its functioning and side action, by means of which, on exerting pressure on its side ends, the rubbing of the stone and the combustion of the wick are secured, the lighter being closed and extinguished automatically when pressure is discontinued.

Synthetically, the side action automatic lighter of my invention consists of two sections, which are telescopically joined, one of them being slightly smaller than the other, so that the latter can serve as a casing for the former; one of the said sections provides a lengthwise rack moving the small gear working the fluted cylinder, in such a way that when one of the two pieces slides horizontally within the other, the operation of the lighter is produced in the stated form.

Openings with a predetermined position allow the passage of the flame through the upper portion of both casings, and an antagonistic spring returns both pieces constituting the lighter to their original position, closing or stopping the opening for the flame.

The advantages offered by the new lighter of my invention are self-evident, the most remarkable of them being its absolutely automatic functioning by means of pressure exerted with a hand only; the extreme simplicity of its mechanism, which employs a lower number of pieces than any other known lighter, and, as a consequence thereof, its low cost and highly efficient operation.

These and other features, advantages and differences from other known devices, will become clearly apparent from the following description, and also from the drawings accompanying same and which illustrate the invention, the same reference numerals being used to indicate the same parts in the six figures shown.

In said drawings:

Fig. 1 is an elevation of a spark lighter, made in accordance with my invention, the opening for the passage of the flame being only half opened.

Fig. 2 is a plan of the same lighter, in accordance with the vertical cross section indicated by line 2-2 of Fig. 1.

Fig. 3 is an elevation, shown partly in a vertical lengthwise cross section, of the piece of this lighter that remains in the interior.

Fig. 4 is a top view projection, also partly in horizontal cross-section of the same piece illustrated in Fig. 3.

Fig. 5 is a vertical lengthwise elevation of the piece of this lighter that remains outside, and which serves as a casing enveloping the casing illustrated by Fig. 3; and

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Fig. 6 is a plan view projection, also partly broken away, of the same piece shown by Fig. 5.

Before making a detailed description of this lighter, as shown in the drawings, I wish it thoroughly understood that the said drawings only illustrate by way of example the preferred manner of putting my invention into practice; but that the said invention is not restricted by the characteristic details illustrated and described. Recourse can be made, therefore, to variations and changes of parts and secondary pieces, disposition of same, etc., without deviating from the principles and scope of the invention, the only limitation consisting in the clauses referring to the claim.

As shown in attached drawings, the present lighter consists, substantially and in essence, of two main bodies: the outside one, or casing 10, and the inside one, 11, which is telescopically adjusted within the former. In other words, the body 11 goes into the similar body 10 sufficiently loose so that it may have a reciprocating motion or displacement within it. Both the outside body 10, and the inside one, 11, are casings having straight sides and arcuate backs, for which reason their cross section has more or less the shape of an O vertically oblong; they are also both open on one side and closed on the opposite side, as seen at 12 and 13, respectively.

On the inside of casing 10, container 14 for the fuel rests on its bottom, or against wall 12, it being attached to the said wall 12, but not on its bottom or on its side faces, so as to allow the free passage of inside casing 11.

The deposit or container 14 for the fuel contains inside and centrally located the small tube 15, which is closed at its lower end by means of a screw 16 (Fig. 5), the head of which projects into the bottom of casing 10 through a bore therein, which renders possible the removal of the said screw; and so that the said screw 16 will not be in the way of the free movement of inside casing 11 within the outside one 10, the former is provided with a groove 17 cut on its bottom, as clearly seen in Fig. 4 of attached drawings. Within the said small tube 15 is found pressure spring 18 which exerts pressure against the stone producing the spark.

On surface 19 of the container for fuel 14, and on a convenient support 20, fluted cylinder 21 revolves, rubbing against the stone which produces the spark, for which purpose the said fluted cylinder will be disposed exactly over the upper end of the small tube 15 enclosing the spring and the said stone.

Adjacent support bracket 20, there is a similar bracket 22, on which journals the other end of shaft 23 with which cylinder 21 revolves; and on the same shaft, and firmly fixed to cylinder 21, is found the pinion or small gear 24 (Figs. 2 and 6

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of attached drawings), which, in conjunction with rack 25, revolves fluted cylinder 21 which rubs against the stone for the production of the spark.

Adjacent cylinder 21 producing the spark, and rather in front of it, the same surface 19 of container 14 furnishes nozzle 26 (Fig. 5) for wick 27, the body of which is enclosed in the said container 14 so as to be constantly impregnated with the fuel. The fuel is loaded through the small opening or inlet 28, which is closed by means of screw 29 (Fig. 5 of the drawings).

Within the inside casing 11, and near its upper end, there is, conveniently disposed and attached by means of pin 30 which pivotally supports a rack 25, which by means of gear 24 moves cylinder 21 for the production of the spark, which occurs when casing 11 is introduced into the outside casing 10, in view of the perfectly predetermined position of the said rack 25 with regard to pinion 24. A spring 30', between the pin 30 and rack 25 is arranged to permit a movement of the rack 25 in its return movement to permit a more or less free movement of the rack 25 relative to the gear 24 to avoid operation of the gear 24.

So as to limit the motion of the casing 11 within the outside casing 10, the latter is provided with small side screws 31, which project into the horizontal groove 32, which is conveniently disposed in the inside casing 11. Antagonistic spring 33, which is away from bolt 34 at one of its ends and from bolt 35 at the opposite end, always tends to keep the casing 11 at the end of its run, as permitted by groove 32 and screw 31.

On curved back of the casings 10 and 11, and just over wick 27 on the outside casing 10, there are bores or openings 36 and 37 that allow the passage of the flame when they are in exact registry; that is to say, when casing 11 has reached the end of its motion towards the inside of the exterior casing and, consequently, when rack 25 has rotated pinion 24 and this, on its turn, cylinder 21, which will have produced the spark causing the ignition of the wick 27, and the flame will thus be enabled to go out through the openings 36 and 37 which register. When the pressure exerted on the sides of both bodies or casings is discontinued, the spring will cause the inverse movement, which will automatically close openings 36 and 37, and extinguish the flame for lack of air. In this way, in order to light the wick pressure will be inversely exerted on the ends of bodies 10 and 11, and, in order to put it out, the said pressure will be discontinued.

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

A lighter, including a hollow casing, open at one end and closed at the opposite end, a fuel container, extending from the closed end of the casing and terminating short of the opposite end, a wick mounted in a fuel container with its upper end projecting above such container and in line with an opening in the upper wall of the hollow casing, a tube in the fuel container, pyrophoric material movable in the tube, a disc carried by the fuel container to cooperate with the pyrophoric material to produce a spark and ignite the fuel at the wick, a hollow sleeve telescopically movable in the open end of the hollow casing, a spring carried by the sleeve and compressed in the inward telescopic movement of the sleeve in the casing to return the hollow sleeve to normal position upon release of the pressure thereon, a side screw carried by the fuel container, the sleeve being formed with a groove to cooperate with said screw when the sleeve is operatively introduced into the hollow casing, a flame outlet opening formed in the sleeve with the opening in the hollow casing when the sleeve is at its limit of inward telescopic movement, a rack carried by the sleeve, a spring to cooperate with the rack to hold the rack in operative position in the operative movement of the sleeve and a gear carried by the disc to be engaged and operated by the rack for rotating the disc for sparking purposes on the inward telescopic operative movement of the sleeve, the spring serving to permit a limited play of the rack on the outward or inoperative movement of the sleeve to avoid operating contact of the gear and rack.

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#### REFERENCES CITED

The following references are of record in the file of this patent:

#### UNITED STATES PATENTS

Number	Name	Date
1,675,861	Neviere	July 3, 1928
1,927,572	Novack	Sept. 19, 1933

#### FOREIGN PATENTS

Number	Country	Date
16,166	Great Britain	July 12, 1911
152,648	Great Britain	May 26, 1921
612,256	France	July 26, 1926