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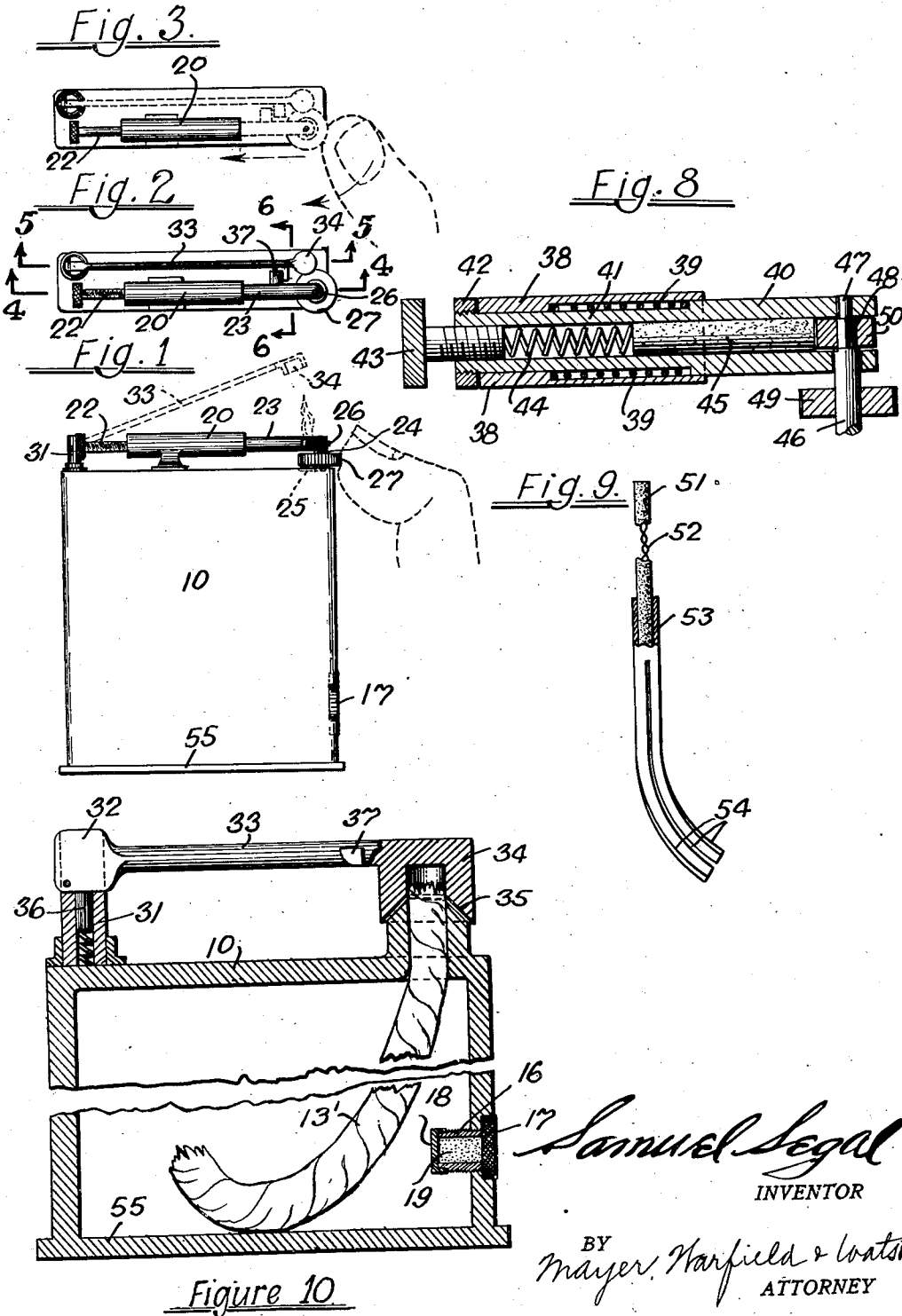
S. SEGAL

1,834,007

LIGHTER

Filed June 21, 1927

2 Sheets-Sheet 1



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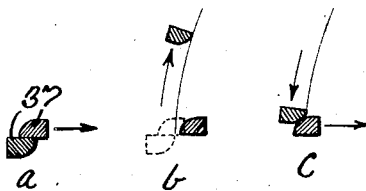
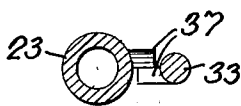
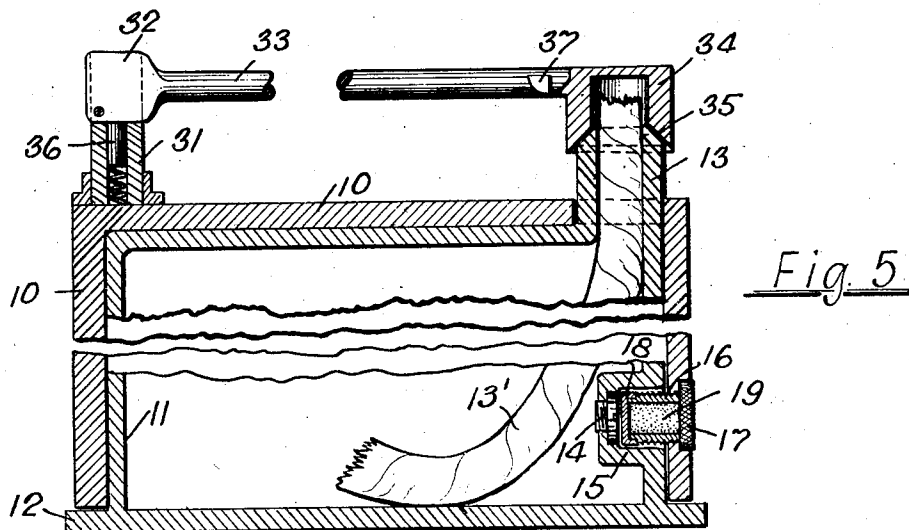
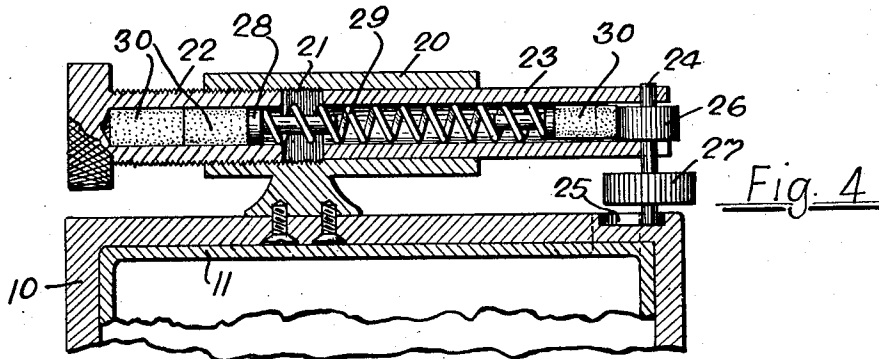
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UNITED STATES PATENT OFFICE

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LIGHTER

Application filed June 21, 1927. Serial No. 200,343.

This invention relates to a functionally and structurally improved lighter of that type commonly carried in the pocket and used as a smoking accessory.

It is an object of the invention to provide a device of this character the parts of which will be simple and few in number, individually rugged in construction and capable of being assembled at a comparatively nominal figure to furnish a lighter giving service over long periods of time with freedom from mechanical difficulty.

It is a further object of the invention to provide a device of this type which may be carried in the pocket with freedom from danger of accidental lighting, although when in actual use its operation will be semi-automatic.

A still further object is that of providing a device of this type which preferably will be so constructed that a user may replenish the fuel supply with a minimum of difficulty and virtually no soiling of the fingers.

Another object is that of constructing a lighter in which the wick may be readily renewed and will be of such a length that the periods of renewal will be extremely infrequent, aside from the fact that the wick will have to be fed only infrequently.

With these and further objects in mind, the invention accordingly comprises the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Figure 1 is a side elevation of one form of lighter embodying the improved construction of the present invention;

Figs. 2 and 3 are plan views thereof showing different operative positions of the parts;

Figs. 4, 5 and 6 are enlarged sectional views taken along the lines 4—4, 5—5 and 6—6 respectively of Fig. 2;

Fig. 7 shows schematically the normal,

opening and closing positions of the latched parts, at *a*, *b* and *c*, respectively;

Fig. 8 is a sectional view of a different form of spark-producing mechanism;

Fig. 9 shows a wick structure and mounting which may be embodied in the lighter; and

Fig. 10 is a view similar to Fig. 5, but showing a slightly different form of construction.

With reference to Figs. 1 to 7 inclusive, the numeral 10 indicates the shell or casing of the lighter, which may be of any desired material and suitably ornamented, this member mounting upon its upper edge the spark-producing mechanism and the wick-snuffing and -sealing elements, each hereinafter more fully described.

In this form of device it is preferred that the gasoline, alcohol or other fuel-containing reservoir be provided in the form of a readily-removable magazine or reservoir member. To this end, the casing 10 has an open base, and a magazine member comprising a receptacle 11 of a size to fit snugly within the interior of the casing 10 may be inserted from the lower end of the casing to fill the interior of the same; it being noted that the receptacle 11 may have outstanding flange-ports 12 at its base which lie adjacent and extend beyond the lower edges of the casing 10 in order that a neat finish may be presented, it being understood that the inward movement of the receptacle within the casing may be limited by engagement of the upper edge of the former with the inner surface of the upper edge of the latter. At this time it will be observed that this upper edge or surface of the casing is formed with an opening through which the wick nozzle or spout 13 of the receptacle 11 may extend to a point well above the upper casing edge and into the plane of the spark produced by the igniting apparatus. Through this opening and spout, a wick 13' is preferably extended. Thus a magazine member is provided which may be sold independently of the lighter proper and which, when empty, may be discarded; it being obvious that the cost of the magazine member is comparatively negligible and that it will be unnecessary for the user to soil his

fingers when refilling the magazine unless he desires to do so, in which event access to the interior of the magazine may be had by means of a removable closer member 14 provided for this purpose. This closure member is located in the base of a recess or pocket member 15 bulged inwardly from the side wall of the magazine body; and, with a view to locking the magazine within the casing of the lighter and against any possibility of accidental detachment therefrom, it will be observed that the latter may present a screw-threaded opening in line with the pocket member 15, which opening receives a screw-threaded stem 16 having a knurled outer head 17 for its convenient rotation. At this time it will also be observed that the stem is hollow and that access to its interior may be had by means of a removable cap 18 provided at the outer portion thereof. As a consequence, a receptacle is provided which may, if desired, conveniently receive and retain a flint or other suitable spark-producing plug 19, which may be retained in reserve. Obviously, this stem is retracted or wholly removed when the magazine member is inserted within the receptacle, and upon the former being extended within the latter, it is projected to the position shown so that no movement of the parts may occur.

Referring to the spark-producing mechanism illustrated to best advantage in Fig. 4, it will be observed that the upper edge or face of the casing 10 carries a tubular member 20, the bore of which extends parallel to the plane of such surface and above the same. The rear end of the bore thereof may be screw-threaded as at 21 and in the embodiment illustrated mounts a conveniently tubular and exteriorly screw-threaded set screw 22 and the forward end of the bore slidably mounts a tube 23 having a bore substantially equal to the bore of the set screw 22. The outer end of the tube 23 is slotted, and in the upper face thereof an opening is provided which serves as a bearing for the upper end of a transversely-extending shaft 24, the lower end of which has its movements confined by contact with the outer edge of a longitudinally-extending groove 25 in the upper face of the casing 10. This shaft mounts a spark-producing wheel 26 and a driving disk 27; it being obvious that if by means of the finger of the operator the latter is engaged and moved, the shaft 24 will be rotated to correspondingly move the wheel 26.

Bearing against the inner end of the set screw bore is a mounting member 28, which carries the inner end of a spring 29, the outer end of which bears against a plug 30 of the same type as the plug 19, and which plug likewise may be formed of flint or other suitable spark-producing material. At this time it will be observed that there may be interposed between the inner ends of the set screw

bore and the member 28 further spark-producing elements, the space thus provided serving as a magazine.

Mounted immediately to one side of the tube 20 and likewise upon the outer surface of the receptacle 10 is the wick-snuffer and -sealer above referred to; this mechanism preferably embracing a hollow standard 31 secured to the receptacle, and to the upper edge of which standard a block 32 is pivotally secured. This block is extended in the form of a rod 33 and terminates in a cap 34 which may have its lower edge beveled as at 35 to correspond to the adjacent surface of the wick spout or nozzle 13; it being understood that the rod 33 is of sufficient length that the cap will seat upon the upper edge of this element when the parts are in their normal position. Positioned within the bore of the standard 31 is a spring-pressed pin 36, the upper end of which bears against the block 32, and, as a consequence of the eccentric mounting of the latter it will be apparent that this element, together with the rod and cap secured thereto, tends to swing upwardly.

With a view to normally preventing such upward swinging, although releasably retaining the parts, it will be observed—reference being had particularly to Figs. 2, 3, 4, 6 and 7—that a pair of latch-members 37 are secured one to the rod 33 and the other to the tube 23, these latch-members engaging to normally retain the cap depressed. Following the action of this structure it will be apparent that the tube 23 has longitudinal movement relative to the fixed tube 20, and one of the latch-members being carried by the former tube, an inward pressure upon the driving disk 27, as diagrammatically indicated in Figs. 1 and 3, will cause the tube 23 to move inwardly. Thus, the latch parts will be shifted from the position shown in full lines in Fig. 7a, and in dotted lines in Fig. 7b, to points at which their edges clear, and, as a consequence, the latch parts 37 carried by the rod 33 is free to move with the latter upwardly, as has been shown in full lines in Fig. 7b; thus automatically uncovering the portion of the wick which extends beyond the spout or nozzle 13. If now, by means of the disk 27 the shaft 24 is rotated, a spark will be produced to ignite the exposed wick end. When it is desired to snuff the wick, and to prevent an evaporation of the fuel which moves by capillary attraction to the upper end of the wick it will be apparent that by simply swinging the rod 33 downwardly an operator will achieve this result, in that the parts will be brought again to the position shown in Fig. 5, the latch elements 37—37 exerting a camming action, as in Fig. 7, to force the tube 23 inwardly against the action of the spring 29; it being obvious that upon the latch parts reaching a plane at which their flat cooperating surfaces clear

each other, this spring will cause these latch parts to reassume the position shown in Fig. 7a, thus preventing further movement until the operator again engages the driving disk 27.

In certain instances it has been found desirable to modify the igniting or spark-producing mechanism of Fig. 4 in the manner shown in Fig. 8, in which a tube 38 corresponds to the tube 20 has its outer end counterbored to receive a spiral spring 39, and a tube 40 of a diameter such that it may slidably fit within the counterbored portion of the tube 38 is provided with a reduced end portion 41, the outer end of which extends beyond the inner end of the tube 38 and there mounts a nut 42, the outer surface of which may be knurled; it being noted that the spring 39 acts to press the tube 40 outwardly. The inner end of the tube 40 is also screw-threaded to receive a set-screw 43 against which the inner end of a spring 44 bears, this spring engaging in its outer end a plug 45 formed of flint or other spark-producing substance. Similarly to the tube 30, the tube 40 has its outer end slotted and has its side walls formed with aligned openings; it being noted, however, that the lower opening, in the present instance, is of materially larger diameter than the upper opening. A shaft 46 formed with a reduced upper end 47 and a squared intermediate portion 48 has its upper end bearing within the reduced transverse opening of the tube 40, its body having bearing in the lower or aligned larger opening formed in the side wall of the tube 40. At a point below this opening a shaft 46 mounts a driving wheel 49, so that, consequently, the shaft 46 may be turned; it being apparent that, similarly to the shaft 24, this shaft has bearing within a recess or groove 25 formed in the upper surface of the receptacle.

By means of this structure it will be apparent that regardless of the pressure exerted against the shaft 46, the resistance encountered incident to the intimacy of engagement between the spark-producing disk 50 mounted on the squared portion 48 of the shaft and the plug 45 of spark-producing material will not be increased, and, consequently, no increased resistance will be offered to such turning.

With reference to Fig. 9, it will be noted that the wick may comprise an asbestos body 51 molded around a central wire reinforcement 52. A wick of this nature, particularly when used in this connection, is to be desired incident to its long life; it being obvious that an operator may readily exert a pull on the upper end of the wick to expose fresh portions thereof and may remove the charred portions of the wick, as desired. This wick preferably is mounted within a tube 53 which has its lower end curved and its body slit as at

54 to permit the resultant sections to flare outwardly with respect to each other. By this expedient a new wick member may be readily inserted through the wick nozzle, in that although the interior of the mechanism may be filled with a mass of fibrous material, for example, cotton, this material will be kept sufficiently clear of the channel provided by the tube 53; it being obvious, however, that by virtue of the spaces extant between the segments of the tube the fuel may contact readily with the side walls of the wick to move upwardly therefrom to the exposed portion thereof. Furthermore, incident to the preferably angular disposition of the inner end of the tube 53, a wick length may be accommodated which will provide a reserve adequate for the needs of the lighter over a long period of time.

Finally, referring to Fig. 10, it will be apparent that the same structure described in connection with the preceding figures is followed, with the exception that in lieu of a removable magazine member, the casing 10 has a closed base 55 to provide a receptacle formed by the outer casing of the lighter.

Thus, by means of the present lighter an operator is provided with a compact semi-automatic device, in that, simply by exerting normal contact between the thumb or finger of the driving wheel of the shafts 24 or 46, the latch mechanism is operated to automatically expose the upper end of the wick, and a subsequent revolving of these shafts will cause a flame to be produced. Likewise, simply by swinging the wick-snuffing cap downwardly, the parts are automatically latched to be retained in their proper position.

Thus, among others, the objects of this invention have been accomplished, and since certain changes may be made in the above construction, and different embodiments of the invention could be made, without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A pocket lighter, including, in combination, a fuel receptacle provided with an opening, opening-covering means connected with said receptacle, means normally tending to shift said last-named means from opening-covering position, spark-producing means also connected with said receptacle and including a tube, a plug of sparking material

mounted therein, a spark-producing disk mounted for engagement with said plug, a finger contact wheel for rotating said disk, latch mechanism associated with said opening-covering member and a portion of said spark-producing means, and means for yieldably mounting such portion of the spark-producing means whereby upon said wheel being engaged and shifted said latch mechanism will be released and sparks will be thrown toward the fuel opening.

2. A lighter including a plug of spark-producing substance, a disk, means for driving the same, a spring for yieldingly pressing said plug against said disk, a wick, a cap for said wick, means tending to shift said cap away from said wick, means for movably mounting said disk and plug, means connected with the disk and plug elements and cooperating with said cap to normally prevent a shifting of the cap, and a spring independent of such first named spring and cooperating with said plug and disk to normally prevent a bodily movement of such elements.

3. A lighter including a casing formed with a wick opening, a cap for snuffing a flame emanating from the wick within said opening, a tube slidably mounted upon said casing, a plug of pyrophoric material within said tube, a sparking disk disposed adjacent the outer end of the tube, said tube and associated parts being shifted upon actuation of said disk being attempted and said cap moving away from snuffing position.

4. A lighter including a case, a tube, a spring within said tube, a plug of pyrophoric material also within said tube and engaged by said spring, a sparking disk engaged by said plug, means for slidably mounting said tube upon said case, a cap mounted by said case, a latch mechanism associated with said cap and said tube for normally maintaining the former in wick-snuffing position and means tending to move said cap from such position.

5. A lighter including a case, a tube, a spring within said tube, a plug of pyrophoric material also within said tube and engaged by said spring, a sparking disk engaged by said plug, means for slidably mounting said tube upon said case, a spring forming a part of said mounting means and normally urging said tube to assume one position, a cap mounted by said case, a latch mechanism associated with said cap and said tube for normally maintaining the former in wick-snuffing position and means tending to move said cap from such position.

6. A lighter including a case, a tube slidably mounted upon said case, a plug of pyrophoric material within said tube, a sparking disk carried by said tube and in engagement with said plug, a snuffer cap mounted by said case and arranged adjacent said disk, means for normally urging said snuffer cap

to raised position, a latch mechanism comprising a pair of cooperating elements, one connected with said tube, the other of said elements being connected to said cap to normally retain the same in snuffing position and said latch elements moving out of cooperating position when said tube is slid incident to the actuation of said sparking disk.

7. A lighter including a case, a tube slidably mounted upon said case, a plug of pyrophoric material within said tube, a sparking disk carried by said tube and in engagement with said plug, a snuffer cap mounted by said case and arranged adjacent said disk, means for normally urging said snuffer cap to raised position, a latch mechanism comprising a pair of cooperating elements, one connected with said tube, the other of said elements being connected to said cap to normally retain the same in snuffing position and said latch elements moving out of cooperating position when said tube is slid incident to the actuation of said sparking disk, a shaft associated with said tube and mounting said disk and a thumb wheel secured to said shaft.

8. A lighter including a case formed with a wick opening, a tube mounted for slidable movement upon said case, a plug of pyrophoric material movable with and disposed within said tube, a sparking disk and a shaft extending adjacent the end of said plug and mounting said disk, said shaft having bearing in said tube.

9. A lighter including a case formed with a wick opening, a tube mounted for slidable movement upon said case, a plug of pyrophoric material movable with and disposed within said tube, a sparking disk and a shaft extending adjacent the end of said plug and mounting said disk, said shaft extending beyond said tube and a thumb wheel secured to said shaft below such tube.

10. A lighter including a case formed with a wick opening, a tube mounted for slidable movement upon said case, a plug of pyrophoric material within said tube, a sparking disk and a shaft extending adjacent the end of said plug and mounting said disk, said case being formed with a recess and the lower end of said shaft riding within said recess.

11. A lighter including a case formed with a wick opening, a snuffer cap, a lever mounting said cap to have the latter normally cover said wick opening, a barrel extending above said case and substantially parallel thereto, a plug of pyrophoric material disposed within said barrel, means for shiftably mounting said barrel upon said case, means for normally maintaining said barrel in one position, a spark producing means connected to said barrel and cooperating with said plug, means normally urging said lever to a position at which said snuffer cap will uncover

said opening, and means associated with said barrel and cooperating with said lever and cap to prevent said movement whereby said cap normally covers said opening, and upon said spark-producing means being actuated, said barrel is shifted to release said retaining means and permit a movement of said cap from such position.

12. A lighter including a case formed with a wick opening, a barrel slidably mounted on said case, a spring for normally urging said barrel to one extreme position, spark-producing means including a rotatable member associated with said barrel and to be engaged by the finger of an operator to direct a spray of sparks from said plug and to shift said barrel against the action of said spring, a snuffer cap cooperating with said wick opening to normally cover the same, means urging said cap from such position, and a latch mechanism connected with said barrel and cap whereby upon said barrel being shifted, said cap will move from its normal position.

13. A lighter including a case formed with an opening, a cap mounted on said case and to snuff the flame emanating from a wick extending through said opening, a tube mounted on said case, a plug of pyrophoric material within said tube, a sparking disk having an irregular opening, said barrel being formed with an upper reduced opening and lower enlarged opening aligned with said first named opening, a shaft bearing in said last named opening and including a reduced end portion bearing in said first named opening, such shaft being irregular in cross-section between said points of bearing and mounting said sparking disk, and the lower end of said shaft extended toward said case.

14. A cigar lighter comprising, in combination, a fuel receptacle having a holder for a wick, a snuffer device for said wick mounted on said receptacle for movement in a vertical plane between open and closed positions, igniting apparatus for said wick including an operating finger wheel rotatable in a horizontal plane; and means interconnecting the finger wheel with said snuffer device and operative whereby operation of said finger wheel automatically effects the movement of said snuffer device from a closed to an open position.

15. A cigar lighter comprising, in combination, a fuel receptacle having a top wall provided with a holder for a wick, a snuffer device for said wick swingingly mounted on said receptacle top wall for movement in a vertical plane between open and closed positions, igniting apparatus for said wick also mounted on said top wall and including an operating finger wheel rotatable in a horizontal plane; and means interconnecting the finger wheel with said snuffer de-

vice and operative whereby operation of said finger wheel for igniting said wick automatically effects the movement of said snuffer device from a closed to an open position to condition the wick for ignition.

In testimony whereof I affix my signature.
SAMUEL SEGAL.

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