

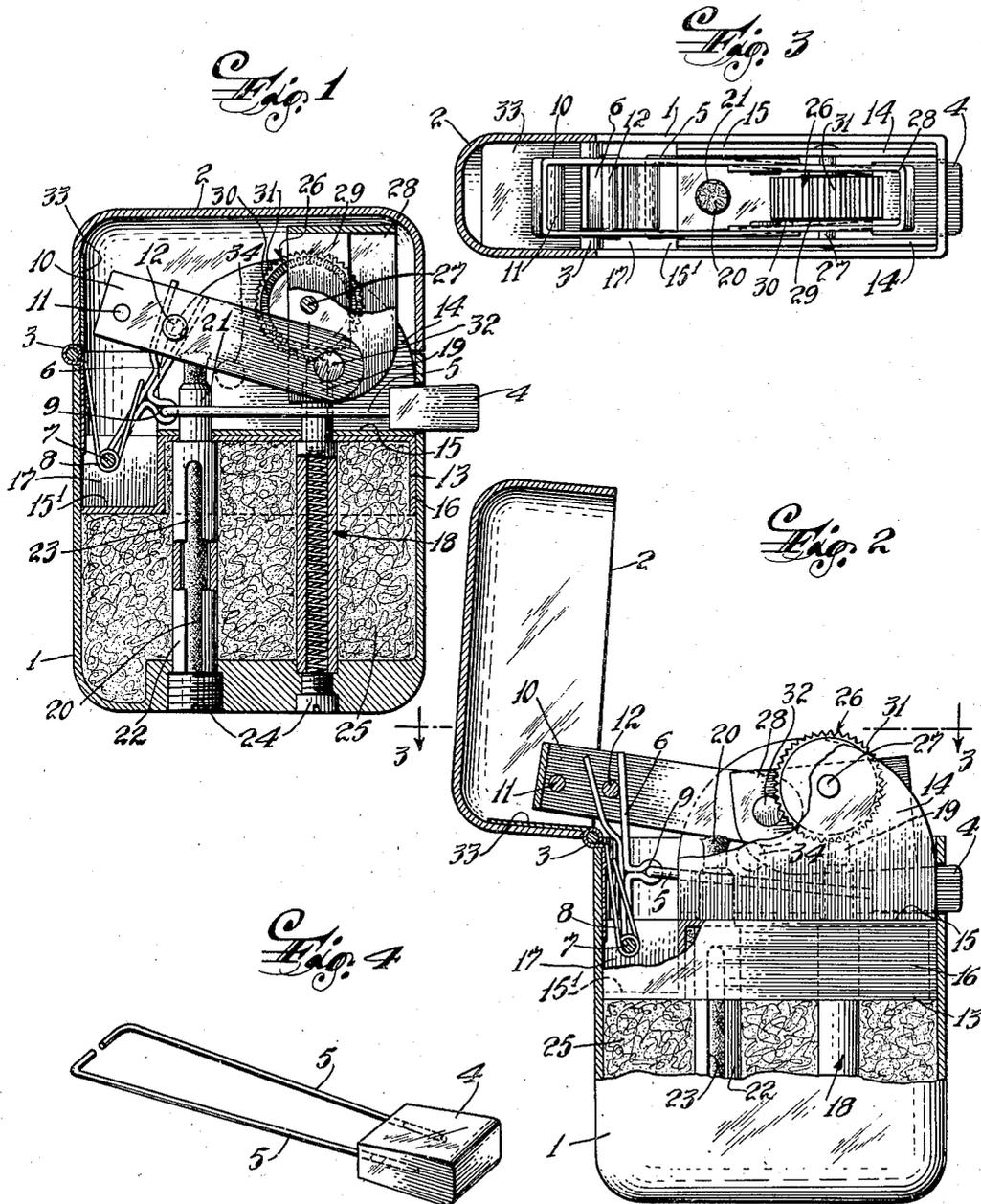
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A. CAMPOS

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POCKET LIGHTER

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INVENTOR.  
*Adolph Campos*  
BY  
*Chester Mueller*  
ATTORNEY

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## POCKET LIGHTER

Adolph Campos, Newark, N. J., assignor to  
Chester Mueller, Newark, N. J.

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1 Claim. (Cl. 67—7.1)

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This invention relates to a pocket lighter, and more particularly to the type in which movement of a finger piece on the exterior opens the lighter and operates to create a spark to ignite the wick.

One object of my invention is to provide a lighter in which a single movement of a finger piece uncovers the lighter and ignites the wick.

Another object of my invention is to provide a wick guide that facilitates the insertion of a new wick, prevents its kinking when in place and, withal, gives free access by the fuel to the wick.

A further object is to provide a lighter which is inexpensive in construction, but rugged and reliable in operation.

Other objects will appear in the description which follows.

My invention is illustrated in the accompanying drawing, in which:

Figure 1 is a side elevational sectional view of my lighter with parts in section and parts broken away, when in normal or closed position.

Figure 2 is a side elevational view with parts in section and parts broken away, of the same lighter shown in Figure 1, when in open position.

Figure 3 is a transverse sectional view, taken along line 3—3 of Figure 2.

Figure 4 is an isometric of the finger piece and attached shafts, which actuate the opening of the cover and the ignition of the wick.

Referring to the drawing in which the same numbers identify the same or similar parts throughout the several views, the construction is as follows:

Case 1 encloses and supports the bulk of the lighter parts and has attached to it cover 2, by means of hinge 3. When cover 2 is closed, the lighter has no parts visible on its exterior, except hinge 3, finger piece 4 and closure members 24.

Finger piece 4 projects outwardly through an opening in case 1 and inwardly has shafts 5 fixed thereto. Both of these shafts are turned in at their outer ends, as best shown in Figure 4, to permit them to be journaled in eye 9, which is formed in one surface of forked lever 6.

Forked lever 6 pivots on pin 7, and is held in the position shown in Figure 1 by engagement with closing spring 8, which is also mounted on pin 7. Pin 7 is, at each end, secured to frame 16 of housing 13. Movement of forked lever 6 rearward towards hinge 3 is resisted by closing spring 8, and the energy stored up in this spring serves to restore forked lever 6 to its position as shown in Figure 1, when pressure is released from finger piece 4. Attached to cover 2, by being rotatably mounted on cover pin 11, is link 10 which is an

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elongated U shaped piece secured at its open ends by means of two pivot pins 32 to the open ends of U shaped clutch holder 28.

Link pin 12, secured at its ends to the legs of U shaped link 10, is engaged with forked lever 6 by being positioned within the forked end.

Snugly fitted within case 1 and supporting all internal lighter parts is housing 13, which partitions off most of case 1 as a fuel receptacle. Housing 13 consists of rectangular frame 16, enclosing platform 15 and step 15', and two semi-circular parallel plates 14 extending upward from platform 15 well above the top edge of case 1. Plates 14 support the moving, spark producing, parts that lie within cover 2 when the lighter is closed. Step 15' provides space 17 within frame 16 to accommodate pin 7 and the lower portion of forked lever 6.

Housing 13 seals off that part of case 1 comprising the fuel reservoir, by reason of the close fit of its side and end walls with the walls of case 1. Extending through platform 15 is pyrophoric feeding mechanism 18 and wick guide tube 22. The pyrophoric feeding mechanism 18 extends downward to the bottom of case 1, being closed at its outer end by closure member 24. At its upper extremity is pyrophoric element 19. Wick 20 is held in wick holder 21, which is contained in frictional engagement within wick guide tube 22. Longitudinal slots 23 are cut in wick guide tube 22 in opposite sides of the tube and permit the contained wick 20 to freely contact fuel absorbent material 25.

Abradant wheel 26 is supported by, and rotatable on, shaft 27, which is fixed at its outer ends to parallel plates 14 of housing 13. U shaped clutch holder 28 is also mounted and rotatable on shaft 27, being at its open ends movably secured with pivot pins 32 to link 10.

Within clutch holder 28 is clutch 29, rotatably mounted on shaft 27 and nested within clutch holder 28, so that it moves with it and serves as a one way clutch. Clutch 29 is normally in engagement with an interspace of ratchet 30, which projects from the side of abradant wheel 26 on its periphery. Serrations 31, on the surface of abradant wheel 26, are provided for contact with pyrophoric element 19.

The operation of the pocket lighter is as follows. The operator may hold the lighter in one hand and by pressing finger piece 4, movement through shafts 5 is transmitted through forked lever 6, compressing closing spring 8. In turn, this movement is communicated to link 10, causing cover 2 to open against the resistance of hinge spring 33.

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At the same time, link 10 causes clutch holder 28 to rotate through part of a circle, carrying with it clutch 29 and wheel 26. Rotation of wheel 26 brings the serrations 31 of its surface in frictional contact with pyrophoric element 19, causing sparks to be directed against fuel saturated wick 20, thereupon lighting it. To provide an air intake, hole 34 is provided in case 1 as shown in dotted outline in Figure 1 in proximity to wick 20.

Release of finger piece 4 permits the stored up energy of closing spring 8 and hinge spring 33 to restore all of the parts to their normal or closed position, as shown in Figure 1.

To insert a new wick requires the opening of closure 24 and the sliding of a new wick into place after removal of the old one. The same closure at the base of the wick guide 22 permits the introduction of liquid fuel, which is absorbed and stored within case 1 by fuel absorbent material 25.

It is apparent that many modifications of my invention may be made, and the foregoing description is intended to be illustrative only and in no way limiting upon the scope of my invention.

What I claim is:

In a pocket lighter, a combination of an open ended case, a cover hinged thereon along one edge, an operating mechanism supporting housing adapted to fit within the case and partitioned off a fuel receptacle in the lower portion thereof, a guide tube extending through the fuel receptacle one end of which is opposite a closable opening through the exterior wall of the case the other end supported by and opening out through the said housing, a wick carried in said guide tube, a pair of parallel plates extending upward of the housing, an abradant surfaced wheel rotatably mounted adjacent to the wick on a shaft journaled in such parallel plates, a ratchet on one side of said wheel along its periphery, a pyrophoric element in operative engagement with said

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wheel, a finger piece slidably mounted near its outer end in an opening in the case nearly opposite the hinged edge of the cover and having an attached pair of rods extending within the case, a lever arm with a forked end and pivotally mounted at its other end within said housing and provided with journals to receive the finger piece rod extensions, a spring interposed between said lever arm and case pressing the finger piece outward and resistant to inward pressure, a link member pivotally connected at one end to the cover and having a pin crosswise of its length adapted to rest within the forked end of the lever arm, a clutch carrying member rotatably mounted coaxially and in embracing relationship with the abradant surfaced wheel and pivotally connected with said link member, and a clutch piece contained by said carrying member with a detent normally engaged in an interspace of the ratchet on the side of said wheel.

ADOLPH CAMPOS.

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