

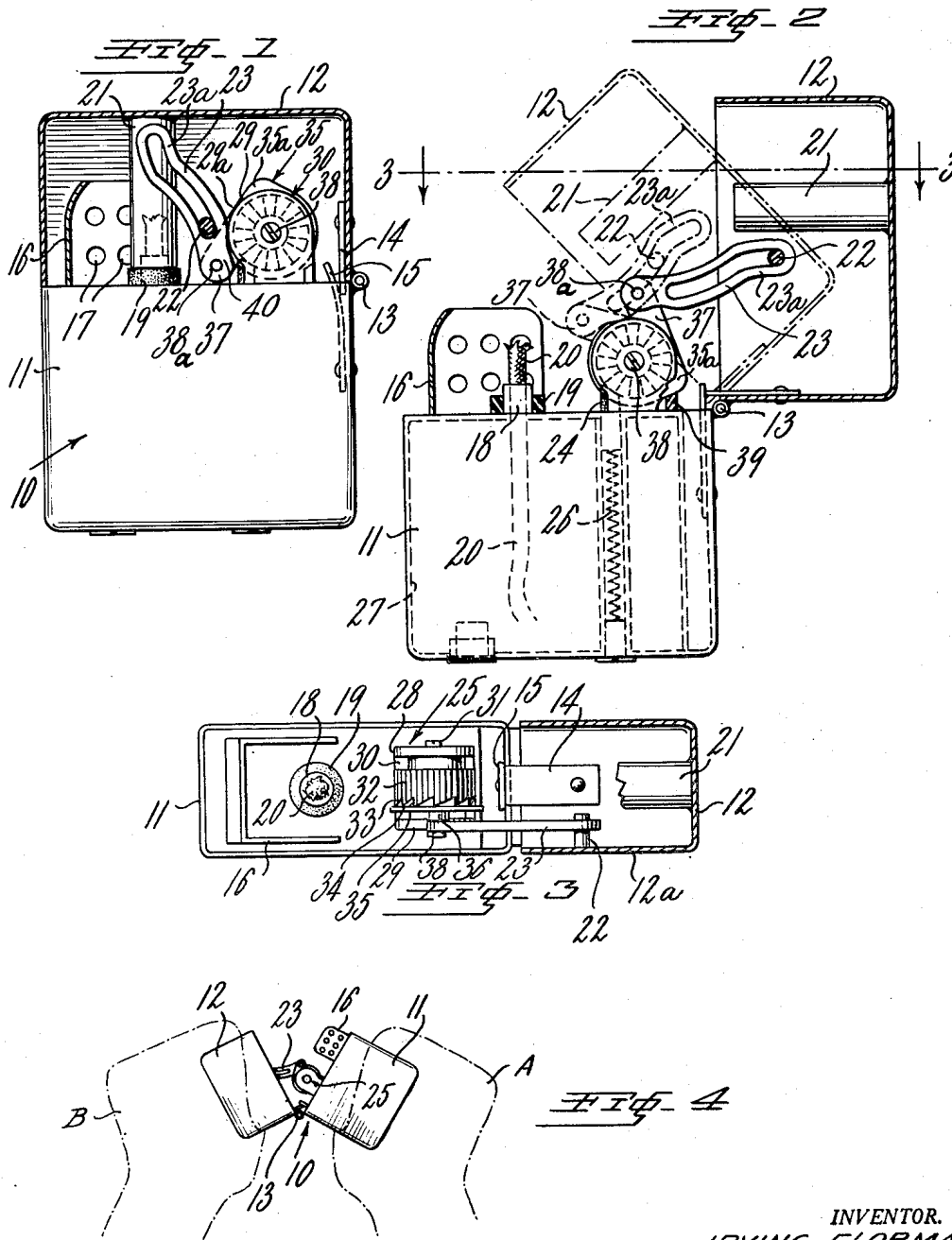
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PYROPHORIC LIGHTER FOR HANDICAPPED PERSONS

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## PYROPHORIC LIGHTER FOR HANDICAPPED PERSONS

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The present invention relates to portable pyrophoric lighter structures, which are operated by means of a flint and wick.

It is one of the objects of the present invention to provide means facilitating operation and the use of a lighter by handicapped people and, in particular, by persons having hands with one or more missing or amputated fingers.

It is a further object of the present invention to provide means ensuring easy operation of the lighter by handicapped persons and without endangering or burning the hands of such persons even if the same form stumps.

Yet a further object of the present invention is to provide means conducive to a simple actuating mechanism devoid of any springs for operating the flint wheel while the cover and base housing of the lighter are moved relatively to each other substantially with little effort and force.

These and other objects will become apparent from the following detailed description, reference being had to the accompanying drawing in which,

Fig. 1 is a side elevational view of a lighter shown in closed position, partly in section, made in accordance with the invention;

Fig. 2 is a view similar to that of Fig. 1 with the cover of the lighter in open position and in half-open position as indicated in dotted lines.

Fig. 3 is a top plan view of the lighter of Fig. 1 partly in section taken along lines 3-3 of Fig. 2.

Fig. 4 shows schematically the operation of the lighter by means of the stumps of the hands of a handicapped person.

Referring now more particularly to the drawing, there is shown in Fig. 1 a lighter 10 of the portable and pyrophoric type. The lighter consists of a base housing 11 and a cover 12 swingable with respect to the base housing 11 about pivot 13. The movement of cover 12 with respect to base housing 11 is controlled by a known spring lever attachment 14, 15, whereby the lighter is kept in open or closed condition, selectively. On top of the base housing 11 there are arranged U-shaped wind protector 16 having perforations 17 and a wick holder 18 surrounded by a gasket 19 and containing the wick 20, as it is well known in the art. Within the cover 12 there is arranged a snuffle sleeve 21 which co-acts with the rubber gasket 19 in order to prevent loss of fuel when the lighter is not in use. Further affixed on the side wall face 12a of cover 12, there is a fixed pivot 22 adapted to hingedly carry a slotted lever 23 for a purpose later to be described.

Lever 23 is sufficiently spaced from side wall 12a

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so that when the cover 12 is closed on base housing 11 this lever will be received within the confines of U-shaped wind protector 16. Pivot pin 22 will then be located between the end of U-shaped wind protector 16 and a ratchet and flint wheel mechanism 25 hereinafter to be described.

On top of base housing 11, which contains wick 20 and flint 24 supported by a spring 26 and the fuel tank 27, there is disposed a yoke-shaped holder 30 about to be described in greater detail.

Holder 30 consists of a base plate fixed to the top surface of base housing 11 and two lugs 28 and 29 between which there are mounted on trunnions 31 and 33, pawl element 35 and flint wheel 32 having the lateral ratchet teeth 38 which are engageable with a tooth 34 of said pawl element. Between pawl element 35 and lever 23 there is arranged on trunnion 38 a washer 36 to afford pivotal connection of lever 23 relative to pawl element 35.

Pawl element 35 has an outwardly extending eccentric lug 37 which is connected with lever 23, as more clearly seen in Figs. 1 and 2. Pawl element 35 has further a stop 35a which, in its extreme position of rotation, as seen in full lines in Fig. 2, abuts against a rest 39 fixed to the top surface of base housing 11.

The operation of this lighter will now be readily understood. The person having stumps or hands with completely missing fingers holds the base housing 11 in stump A, while the cover 12 is held in stump B, as indicated in dotted lines in Fig. 4.

When the two lighter parts 11 and 12 are then moved away from each other by means of the stumps about hinge 13, it will be observed that the lighter structure with the ratchet and flint wheel mechanism 25 on the one hand, and the pivoted lever 23 with its offset slotted portion 23a engaged by pin 22 on the other hand, permits at first a short lost motion so that base housing 11 may be readily wedged away from cover 11, thus providing for the handicapped person a leverage for further and easy movement of the cover 12 relative to base housing 11. During this movement, as is well understood, curved lever end 40 will ride along a preshaped contour of the head 29a of lug 29 to thereby orient and guide said lever 23 about trunnion 38.

When the cover 12 has reached a position as shown in dotted lines in Fig. 2, fixed pivot pin 22 has reached almost the slotted offset portion 23a of lever 23. When cover 12 is then further moved relative to base 11, pivot pin 22 enters the slot of the offset portion 23a of lever portion 23a

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whereby a snapping or "kicking" action is achieved during which the opposite end 40 of lever 23 and lug 37 of pawl element 35 are so moved with respect to each other that pawl element 35 imparts a sudden rotation to the flint wheel for sparking purposes whereby the flint wheel 32 will coast with flint 24 to bring about sparking in upward direction toward wick 20 as may be easily realized from Fig. 2.

It is to be noted that the coordination of movement of the eccentric 37 of pawl element 35, of the movement of the slotted lever 23 with its offset slotted portion 23a and of the compound movements of pivot 38a which links lever 23 to eccentric 37 and of pivot 22 which performs a dual pivoting action due to its longitudinal movement along slotted lever 23 (movement from one end of the slot to the other end thereof and in opposed relation to the movement of the lever) and due to an oscillating motion relative thereto, is so chosen that the cover describes only a rather limited outward path from the end of its lost motion (approximately indicated by dotted line position) to the fully open position of the cover, at which the pawl element 35 comes to a stop at 33. Consequently, when pivot pin 22 engages the end of slotted lever part 23a pawl element 35 abuts with its projection 35a against stop 33 and effective sparking operation only takes place during the aforesaid limited final outward path or movement of cover 12, which readily affords operation of the lighter by handicapped persons as well as by other persons.

It is to be understood that the hollow top cover and the base housing herein referred to are so dimensioned and shaped that they may be held or wedged for movement by the stumps of the hands of a person in order to more easily operate the lighter.

Although one specific embodiment of the invention has been described and shown in the drawing, it should be noted that the invention may be realized in modified form and adaptations of the arrangements herein disclosed may be made, as may readily occur to persons skilled in the art without constituting a departure from the spirit and scope of the invention as defined in the objects and in the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. In a pyrophoric pocket lighter having a cover swingable upon manually exerting pressure thereon away from a base housing which carries a rotatable flint wheel, a pawl element operatively rotatable with said flint wheel and provided with an eccentric portion, lever means having a slotted portion and pivotally connected with said eccentric portion of said pawl element, a stop for said pawl element and connected to the latter, and a pivot pin on said cover, said pivot pin being movable in said slotted portion and providing a lost motion between said cover and said pawl element upon an ini-

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tial swinging movement of said cover relative to said housing, said pivot pin being engageable with said slotted portion while pressure is continued for a final swinging movement of said cover in open position thereof defined by said stop of said pawl element, to thereby impart to said flint wheel intensified rotational speed for sparking purposes.

2. In a lighter according to claim 1, wherein said lever means and said eccentric pawl portion are connected by a pivot element, said pivot element being substantially aligned with the vertical plane passing through the axis of said flint wheel, when said stop of said pawl element defines said final cover swinging movement in said open position.

3. In a lighter according to claim 1, wherein said cover is provided with a snuffer sleeve, said base housing being provided with a wind screen for a wick, said snuffer sleeve being embraced by said wind screen in closed position of said cover on said base housing.

4. In a lighter according to claim 3, wherein said lever means, said pivot element, and said pivot pin are positioned intermediate said snuffer sleeve and said flint wheel in said closed position.

5. A manually operated pyrophoric pocket lighter, preferably for use by handicapped persons, comprising a base housing, a hollow top cover therefor and hingedly connected to said base housing, a support fixed on said housing, a flint wheel rotatably mounted on said support, a pawl element on said support and operatively connectable with said flint wheel and positioned adjacent the latter for rotation therewith, lever means having one end pivotally and eccentrically connected to said pawl element and provided with a slotted portion, a pivot pin on said cover engaging said slotted portion, said pivot pin being first movable along said slotted portion of said lever means to provide a lost motion between said cover and said pawl element and upon manually exerting further pressure on said cover for moving same away from said base housing, said pawl element rotates said flint wheel while said pivot pin is engaged in said slotted portion of said lever means thereby enabling increased rotation of the flint wheel for sparking purposes, and stop means for limiting the movement of said cover away from said base housing.

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