

PATENT SPECIFICATION

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COMPLETE SPECIFICATION.



Improvements in or relating to Pocket Lighters.

I, FRANK BERNHARD DEHN, M.Sc., Ph.D., A.I.C., of Kingsway House, 103, Kingsway, London, W.C. 2, England, a British Subject, Chartered Patent Agent, do hereby declare the nature of this invention (which has been communicated to me by Standard Devices Incorporated, a corporation organised under the laws of the State of Delaware, United States of America, of 267, Fifth Avenue, in the City, County and State of New York, United States of America) and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My invention relates to demountable gear units for pocket lighters, the purpose of my improvement being to enable certain gear members to be quickly and easily removed from the lighter or replaced therein.

More particularly stated, my invention comprehends a pocket lighter in which a small number of gear members are mounted in group formation upon a single shaft secured to an anchor plate, and therewith are removable and replaceable as a single unit, which has the general proximate form of a plug detachably fitted into the casing of the lighter.

Heretofore in this art there have been pocket lighters provided in which there is a hollow casing and a shaft extending through the casing, the shaft carrying a friction wheel, a gear wheel for actuating the same, and various other parts, usually associated in some way with the friction wheel.

In such constructions, it is desirable to take out at frequent intervals all or a part of the mechanism carried by the shaft. This is particularly the case where something goes wrong with some of the parts, as where they become clogged or in need of adjustment, or even to permit of inspection to see if they are in perfect order.

It has been found in practice that the removal and replacement of these parts is attended with some inconvenience, together with danger of dropping and losing one or more of them, and further, that a certain amount of skill is essen-

tial to this work; the net result being that many a person owning a pocket lighter has been unable to use the same to the best advantage, and has become discouraged from using the lighter.

What I seek to do by my present invention is to facilitate the removal and replacement of the shaft carrying, in group formation, the flint wheel and a gear member for rotating the friction wheel, thus forming a demountable unit.

Reference is made to the accompanying drawing forming a part of this specification, and in which like reference characters indicate like parts throughout all of the figures.

Figure 1 is a side elevation of a pocket lighter provided with my invention, the demountable gear unit being in its normal condition.

Figure 2 is a side elevation, but showing the pocket lighter as it appears with the demountable gear unit removed.

Figure 3 is a section on the line 3—3 of Figure 1, looking in the direction indicated by the arrows.

Figure 4 is an elevation partly in section through the demountable gear unit; and

Figure 5 is an elevation of the demountable gear unit, after its removal.

A casing is shown at 6 and is provided with an opening 7, for obtaining access to a wick lamp within the casing.

A snuffer is shown at 9 and a thumb slide at 10. Springs 11, 12 are used for tensioning the snuffer and the thumb slide.

The snuffer 9 is provided with a portion 13 having teeth 14, and formed into a rack. The slide 10 is similarly provided with a portion 15 provided with teeth 16 and formed into a rack.

The casing 6 is provided in one of its walls with a large opening 17, and in its opposite wall with a small opening 18. These two openings are in axial alignment with each other, and are each threaded internally.

An anchor disk 19 is threaded peripherally, and adapted to screw into the opening 17. To facilitate rotation of the anchor disk by hand its outer surface 20 is milled, as shown.

[Price 1/-]

Secured to the anchor disk, preferably by welding or soldering, is a shaft 21 provided with a portion 21a of reduced diameter and threaded to fit into the hole 18.

Fitted upon the shaft 21 and revoluble relatively thereto are a friction wheel 22, and a gear wheel 23 for actuating the friction wheel. A spiral spring 24 loosely encircles the shaft, and presses against the gear wheel 23. A nut 25 of annular form is fitted upon the threaded portion 21^a of the shaft and holds the spring 24 in position.

The friction wheel 22 is provided with clutch teeth 26, and the gear wheel 23 is provided with mating clutch teeth 27 so that a rocking motion of the gear wheel 23 confers upon the friction wheel a step-by-step turning movement, suitable for lighting the lamp. For this purpose the friction wheel co-acts with a flint 8^a, in the usual manner.

The demountable gear unit as a whole is shown in Figure 5, ready for use.

In order to mount the unit in position, it is inserted into the opening 17, so that the threaded portion 21^a of the shaft extends into the hole 18, and the anchor disk 19 closes the opening 17. By rotating the anchor disk by aid of the milled surface 20, the anchor disk is brought flush with the wall of the casing; and the threaded portion 21^a of the shaft is extended entirely through the hole 18.

With the gear unit thus in its normal position, it is completely out of the way, and presents no part protruding from the casing.

In fitting the gear unit into position the two racks 14 and 16 are preferably moved to their respective limits of travel, and when this is done the casual insertion of the gear unit will bring the teeth of the gear wheel 23 into proper mesh with the teeth of the racks. The snuffer 9 normally closes the opening 7, and is raised and the friction wheel simultaneously operated on depressing the thumb piece 10.

In order to remove the gear unit, the anchor disk 19 is simply turned by hand so as to unscrew it, and this same movement serves to unscrew the threaded portion 21^a. The unit can then be ejected by simply turning the casing into suitable position to allow the unit to drop out.

In practice, when for any reason it becomes desirable to remove the gear unit, it is simply unscrewed and dropped out, and afterward in due course placed back in position.

The demountable gear unit shown in Figure 5 may be sold individually as an

article of manufacture, or the pocket lighter as a whole may be provided with the gear unit.

I do not limit myself to the precise mechanism shown, as variations therein may be made without departing from my invention, the scope of which is commensurate with my claims.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. As an article of manufacture, a demountable gear unit for pocket-lighters comprising an anchor disk, a shaft secured fixedly thereto and extending axially therefrom, a friction wheel and a gear wheel revolubly mounted upon said shaft, and means carried by said shaft for retaining said friction wheel and gear wheel thereupon.

2. A demountable gear unit according to claim 1, including means for enabling said gear wheel to turn said friction wheel.

3. A demountable gear unit according to claim 2, characterized by said means comprising oppositely disposed clutch faces mating each other and provided on said friction wheel and gear and a spiral spring encircling said shaft for the purpose of pressing said gear wheel and said friction wheel together.

4. A demountable gear unit according to claim 3, including a retaining member carried by said shaft for retaining said friction wheel, said gear wheel and said spiral spring thereupon.

5. In a pocket lighter the combination with a casing provided with an opening, of an anchor disk detachably fitted into the opening, and carrying, in group formation with said anchor disk as a demountable unit, a friction wheel and a gear member for turning said friction wheel.

6. A pocket lighter according to claim 5, characterized by said opening being substantially circular and threaded internally and said anchor disk being threaded peripherally to fit into said opening.

7. A pocket lighter according to claim 6, wherein said casing has a hole smaller than said circular opening and in axial alignment therewith, said demountable unit comprising a shaft having an end portion extending into said hole.

Dated this 11th day of October, 1929.

For the Applicant,
FRANK B. DEHN & Co.,
Chartered Patent Agents,
Kingsway House,
103, Kingsway, London, W.C. 2.

[This Drawing is a reproduction of the Original on a reduced scale.]

