

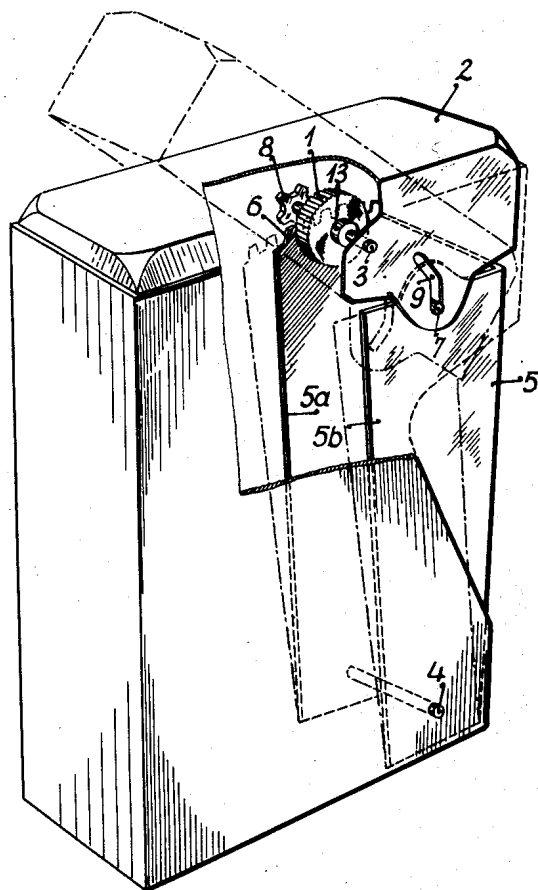
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FRICTION WHEEL LIGHTER

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FRICION WHEEL LIGHTER

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This invention relates to friction wheel lighters. Lighters of this kind are known, the friction wheel and the cover of which are rigidly connected by a common axle and actuated by a common actuating mechanism, e. g. a tiltable side wall of the housing of the lighter. This embodiment has, however, the drawback, because of the restriction of the angle of revolution of the cover to about 90°, that the angle of revolution of the friction wheel is undesirably small.

On the other hand, it is also known by means of a tiltable wall of the housing of the lighter to rotate the friction wheel about its axle as well as the cover tiltable about the axle of a hinge parallel to the axle of the friction wheel. In this case, in fact the angles of rotation of both parts, independent of each other, may be different, the use of a cover hinge being, however, a drawback as compared to the first mentioned embodiment, particularly because said hinge must either be soldered to the housing as a separate part, or be made by rolling up the material of the housing.

According to a further known embodiment of a lighter the friction wheel and the cover are rotatable about a common axle, the cover and the friction wheel, however, being actuated by a common actuating mechanism by means of a gearing absolutely equal for both the cover and the friction wheel, so that the angles of rotation of the friction wheel and of the cover are again absolutely equal and thus limited in an undesirable way.

The object of the present invention is to avoid the drawbacks mentioned. According to the invention the cover and the friction wheel are arranged upon a common axle and are connected with a common actuating mechanism in such a way that the turning speeds of said cover and friction wheel are differing. In this manner there may be attained a relatively great turning speed for the friction wheel in an especially simple way, so that the ignition safety is considerably increased.

It is already known per se to support the cover and the friction wheel of lighters, independent of each other, upon a common axle; however, a common driving means is lacking so that the effect according to the invention is not attainable.

An embodiment of a lighter according to the invention consists e. g. in that a tiltable side wall of the housing of the lighter which constitutes the driving mechanism is provided with a toothed arc for the actuation of the friction wheel by means of a toothed wheel secured to the axle of the friction wheel, and with a pivot engaging as

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a sliding block a guide slit of the cover tiltable about the axle of the friction wheel.

A lighter according to the invention is shown, by way of example, in the drawing, in which the single figure is a diagrammatic view on an enlarged scale of parts of the lighter showing the combination of the friction wheel, the cover, and the common actuating mechanism, the cover being illustrated in closed position by fully drawn lines and by dotted lines in half open position with the inwardly pressed side wall of the housing.

Like reference characters denote like parts in the two figures of the drawing.

As shown in the single figure the friction wheel 1 and the cover 2 are arranged for rotation on the common axle 3, the wheel 1 being connected to the axle 3 rigidly or by means of a coupling 13, the cover 2, however, being arranged loosely rotatable on the axle 3. For simultaneously actuating the friction wheel 1 and the cover 2 there serves the side wall 5 of the housing, said wall being inwardly tiltable about the axle 4 by the pressure of the fingers. The side parts 5a and 5b of the side wall 5 of the housing of the lighter are provided with actuating means for the friction wheel and cover, respectively, at different angular speeds. The side part 5a is provided at its upper edge with a toothed arc 6, which is meshing with a small toothed wheel 8 secured to the axle 3, the other part 5b being provided with a pivot 7, which is guided like a sliding block in an angular slit 9 of the cover 2.

Thus the manner of operation of the actuating means is as follows: If the side wall 5 of the housing is pressed inwardly, the small toothed wheel 8 and therewith the friction wheel 1 are, on the one hand, turned around by the toothed arc 6 for the purpose of producing sparks, the cover 1 being, on the other hand, tilted into the open position about the rotating axle 3 by the pressure of the pivot 7 against the lateral edge of the angular slit 9.

By the choice of a suitable gearing between the toothed arc 6 and the small toothed wheel 8, as well as by a suitable shaping of the guide slit 9 it is perfectly possible to give to the small toothed wheel and thus to the friction wheel e. g. half of a full revolution, while the cover is simultaneously effecting a tilting movement of e. g. 90° only into the vertical position. In consequence of the greater angle of rotation of the friction wheel, a greater part of the grooved circumferential area of the friction wheel is utilized with an increased circumferential speed, and thus

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likewise a greater safety as to the production of sparks is attained.

While the invention has been shown in the particular embodiment described it is not limited thereto, as modifications thereof may be made without departing from the scope of the appended claims.

I claim:

1. In a lighter the combination comprising a housing having an opening throughout the top thereof, an axle journaled in the top of the housing, a cover having opposed side walls and journaled by the side walls on the axle, one of the cover side walls including engageable means, a pinion fixed to the axle, a wheel having friction serrations on its whole periphery and mounted on the axle by means of a coupling, a member constituting an end wall of the housing and fulcrumed on the housing and including opposite second side walls, the upper end of one of the second side walls being provided with means engaging the engageable means on the cover, the upper end of the other of the second side walls being toothed for meshing with the pinion and on tilting the end wall member inwardly of the housing rotating the friction wheel through an angle greater than the angle through which the cover is moving by the means engaging the engageable means whereby the friction wheel is made to produce sparks during the whole period of tilting the end wall member inwardly of the housing.

2. In a lighter the combination comprising a housing having an opening throughout the top thereof, an axle journaled in the top of the housing, a cover having opposed side walls and journaled thereby on the axle, one of the cover side walls including engageable means eccentric to the axle, a pinion fixed to the axle, a wheel having friction serrations throughout its periphery and mounted on the axle by means of a coupling, a member constituting an end wall of the housing and fulcrumed on the housing and including opposite second side walls, the upper end of one of the second side walls being provided with means slidably engaging the engageable means

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on the cover for swinging the cover upwardly, the upper end of the other of the second side walls being toothed for meshing with the pinion and on tilting the member inwardly of the housing rotating the friction wheel through an angle greater than the angle through which the cover is moving by the slidable means engaging the engageable means whereby the friction wheel is made to produce sparks during the whole period of tilting the end wall member inwardly of the housing.

3. In a lighter the combination comprising a housing having an opening throughout the top thereof, an axle journaled in the top of the housing, a cover having opposed side walls and journaled by the side walls on the axle, one of the cover side walls including engageable means, a member constituting an end wall of the housing and fulcrumed on the housing and including opposed second side walls, the upper end of one of the second side walls being provided with means engaging the engageable means and on tilting the end member inwardly of the housing swinging the cover through a predetermined angle, a pinion on the axle, a wheel having friction serrations on its whole periphery and mounted on the axle by means of a coupling, and a gear segment on the upper end of the other second side wall and meshing with the pinion, the gear ratio between the gear segment and pinion on tilting the end wall member inwardly of the housing causing the pinion and friction wheel to rotate through an angle larger than the predetermined angle through which the cover is swung.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,801,473	Williams	Apr. 21, 1931
1,889,849	Aronson	Dec. 6, 1932

FOREIGN PATENTS

Number	Country	Date
152,009	Austria	Dec. 27, 1937
253,101	Germany	Oct. 31, 1912