

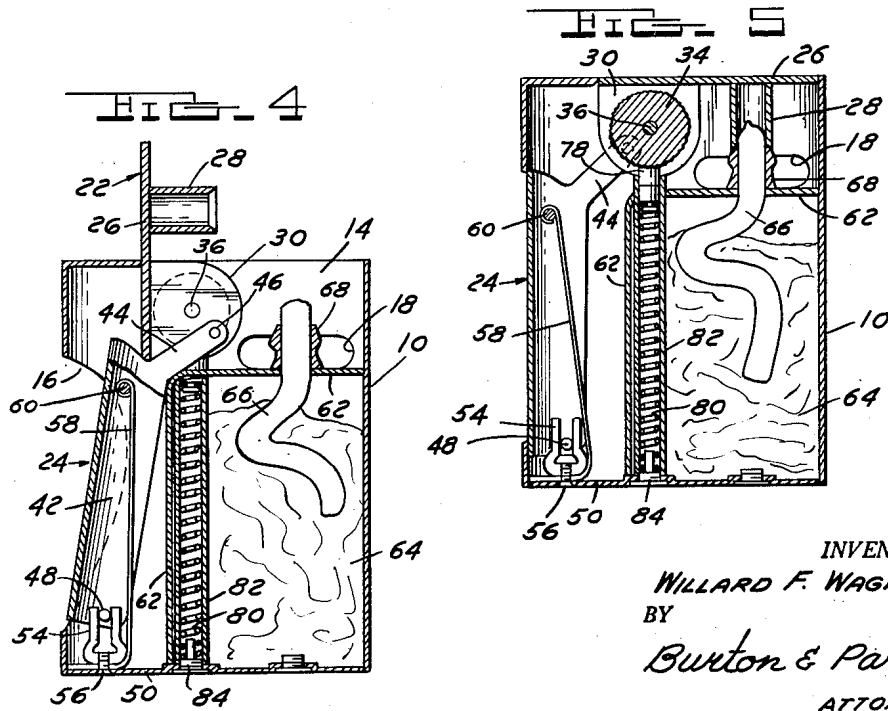
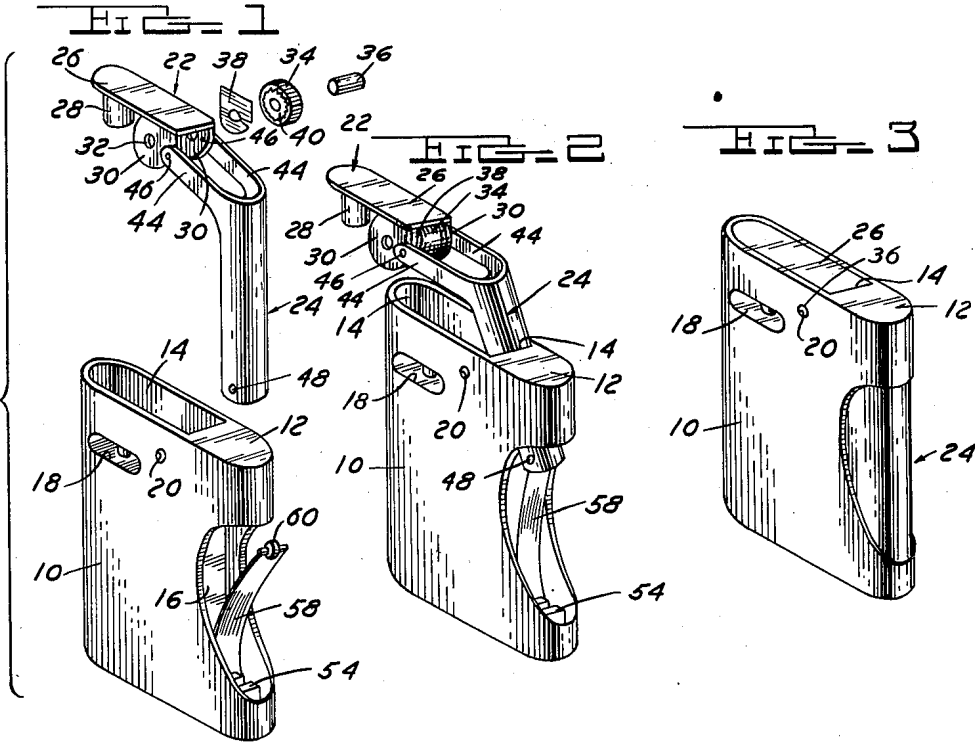
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LIGHTER

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LIGHTER

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This invention relates to lighters and particularly to an improved pocket lighter wherein a pressure lever forms one of the side walls of the lighter casing.

An important object of the invention is to provide an improved lighter constructed of few parts and arranged so that the parts may be quickly assembled and disassembled without difficulty. Another important object of the invention is to provide an improved lighter in which the moving parts are mounted in a connected train and are capable of being installed in the lighter casing and removed therefrom as a unit. A further important object of the invention is to provide a lighter including a depressible pressure lever forming a part of the casing wall which is mounted in a novel manner for combined pivotal and slidable movement relative to the casing.

In carrying out the invention, the casing of the lighter is provided with an opening in the upper end thereof and a second opening in a side wall portion thereof. An important feature of the invention is the manner in which the moving parts of the device are capable of being installed in the casing and removing therefrom as a unit and the employment of a single pin for retaining the moving parts within the casing. Another important feature of the invention is the construction of the pressure lever and particularly the provision of similarly shaped side arms rigidly and integrally connected to the upper end of the lever for swinging the friction wheel carrier between its opening and closing positions. A further important feature of the invention is a bearing support which not only provides a combined rocking and sliding movement to the lever but also serves as a fixed mounting for one end of a spring member which functions to return the parts to normal inoperative position.

Various other objects, advantages and meritorious features of the invention will become more fully apparent from the following specification, appended claims and accompanying drawings, wherein:

Fig. 1 is an exploded perspective view of the parts of the lighter;

Fig. 2 is a perspective view showing a partially assembled position of the parts;

Fig. 3 is a perspective view of the completed assembly of the parts showing the lighter in closed position;

Fig. 4 is a vertical longitudinal sectional view through the lighter showing the parts in lighter open position; and

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Fig. 5 is a vertical longitudinal sectional view through the lighter showing the parts in lighter closed position.

The embodiment of the invention illustrated in the drawing comprises a hollow body or casing 10 having the relatively flat horizontal elongated construction illustrated in the perspective views of Figs. 1, 2 and 3. The casing 10 is provided with a short top wall portion 12 extending from approximately a quarter of the length of the upper end of the casing, the balance of the upper end being opened and forming an aperture 14. The casing is also provided with a side opening aperture 16 located in the narrow side wall thereof opposite to the aperture 12. The aperture is arcuately recessed into the larger side wall portions of the casing in order to receive the fingers of the hand depressing the lever. The casing may be further provided with a narrow slot 18 in each of the larger side wall portions which open into the flame emitting area of the lighter. The larger side wall portions of the casing are further provided with small aligned holes 20-20 in which the ends of a transverse pin are received as hereinafter described.

The moving parts of the device comprise in general a friction wheel carrier generally indicated at 22 and a pressure lever generally indicated at 24. The friction wheel carrier is formed by a flat plate member 26 having its dimension so proportioned that it may lie wholly within the opening 12 of the casing in substantially flush relationship to the top wall portion 14 thereof, as shown in Fig. 3. Depending downwardly from one end of the plate 26 is a snuffer cap 28. Depending downwardly from the opposite end of the plate 26 are a pair of generally circularly shaped ears 30-30 which are arranged in parallel spaced apart relationship relative to one another and are provided with aligned holes 32. Carried between the ears 30-30 is an assembly of parts for producing sparks for igniting the wick. These parts are generally similar to spark producing mechanisms of conventional lighters and include a friction wheel 34, a pin 36 which extends through the friction wheel, and a plate member 38 shaped to engage a ratchet 40 on one side of the friction wheel and provide a one-way drive therefor. In mounted position, the elements of the spark producing mechanism are arranged side by side on the pin 36 and between two ears 30-30.

The pressure lever 24 is channel shaped in cross section and in mounted position has its convex surface disposed outwardly so that the side walls

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42—42 thereof project inwardly toward the interior of the casing. The upper end of the lever is provided with two similarly shaped parallel extending arms 44—44 which project inwardly of the lever and at an upward inclination as shown in Figs. 4 and 5. An important feature of the invention contributing to its economy of manufacture is the integral connection of the arms 44—44 to the lever 24. As shown, these arms form integral extensions of the side walls 42—42 of the lever and are capable of being formed in a simple stamping operation.

The extremities of the arms 44—44 of the pressure lever are pivotally connected to the friction wheel carrier to provide rotative movement thereof upon depression of the lever. This is accomplished by overlapping the extremities of the arms upon the ears 30—30 in the manner shown in Figs. 1 and 2 and pivotally connecting the arms to the ears by means of small pins 46—46 which are parallel to and spaced from the axis of the pin 36.

The lower end of the pressure lever 24 is mounted in the casing for a combined rocking and sliding movement. For this purpose the lower end portions of the side walls 42—42 of the pressure lever are crossed by a pin 48. Secured to the bottom 50 of the casing, as shown in Figs. 4 and 5, there is provided a bearing for receiving the pin 48 which is constructed to permit the lever to rock on the pin's axis and to shift vertically up and down relative to the casing. The bearing comprises a U-shaped member 54 having its closed end secured by means of a screw 53 or the like to the bottom 50 of the casing. In the assembled position of the parts the cross pin 48 is received between the vertical extending arms of the bearing and is capable of slidable movement up and down therein, as shown by a comparison of Figs. 4 and 5.

The depressible movement of the lever is opposed by resilient means in the form of a flexible metal blade 58. The blade extends in a substantially vertical direction and its upper end is shaped to carry a roller 60, as shown in Fig. 1. To reduce the number of parts and to expedite the assembled operation, the lower end of the blade 58 is bent outwardly and secured to the casing by interposition between the bearing 54 and the bottom 50 of the casing. The screw 56 which serves to secure the bearing in place extends through the lower end of the blade and in tightened condition causes the bearing to clamp the blade against the bottom 50, as is clearly evident in Figs. 4 and 5. The balance of the blade above its point of securement normally inclines outwardly to exert a yielding outward pressure against the base of the channel of the lever 24. The resilient pressure exerted by the spring blade is sufficient to move the lever to its substantially flush position shown in Fig. 5 and to rock the friction wheel carrier to closed position.

The device is completed by an assembly of parts generally similar to conventional parts of a lighter. A receptacle is preferably formed by a single strip of metal 62 bent intermediate its ends and arranged so that one end portion thereof extends vertically and the other end portion thereof extends horizontally in the casing as shown in Figs. 4 and 5. This single strip of metal cooperates with the adjacent side and end wall portions of the casing to form a closed chamber for containing absorbent material, such as cotton 64. A wick 66 is imbedded in the cotton

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and rises upwardly through an opening in the horizontal portion of the metal strip and into a wick guide 68 as in conventional lighter construction. In the closed position of the parts the snuffer cap abuts the wick guide as shown in Fig. 5.

The assembly also comprises a pyrophoric element 78 which is yieldingly urged against the under side of the friction wheel 34 by means of a coil spring 80. As in conventional constructions, the coil spring is mounted in an elongated tube 82 opening out through the bottom 50 of the casing and extending upwardly therefrom to a point immediately adjacent to the under side of the friction wheel. The lower end of the tube 82 is closed by a removable cap 84 which is secured to and serves as a seat for the spring 80.

What I claim is:

1. A pocket lighter comprising, in combination, a relatively flat casing having an opening through the upper end thereof and a second opening through one wall thereof, a cap for closing the upper end opening of the casing, a friction wheel carrier rigidly secured to the under side of the cap and depending downwardly therefrom in the closed position thereof, a lever of channel-shaped cross section in the interior of the casing positioned lengthwise across the side wall opening of the casing, the channel formation of the lever opening inwardly of the casing and having its longitudinal side wall sections slidably interfitting with the adjacent side wall portions of the casing to completely close the opening across which it extends, a pair of similarly shaped arms forming integral extensions of the side wall sections of the lever and projecting inwardly and upwardly from the upper end of the lever, the upper ends of the arms straddlingly overlapping upon the carrier and being pivotally connected thereto about a common transversely extending axis, a cross pin on the lower end of the lever bridging the space between the side wall sections of the channel formation thereof, an upwardly opening U-shaped bearing secured to the bottom of the casing adjacent the side wall opening thereof and receiving the cross pin to provide both a rocking and sliding movement of the lever relative to the casing, said cap, carrier and lever forming a permanently connected train of elements removable from and insertable into the casing as a unit through the upper end opening thereof, and a transverse shaft extending through the carrier in parallel offset relation to said pivotal axis and being detachably engaged in openings in opposite side walls of the casing, said shaft serving as a pivotal mounting for said carrier and as the sole means for retaining said train of elements in the casing and providing removal of the train as a unit upon detachment thereof.

2. A pocket lighter comprising, in combination, a relatively flat casing having an opening through the upper end thereof and an opening through one wall thereof, a cap for closing the upper end opening of the case, a friction wheel carrier rigidly secured to the under side of the cap and depending downwardly therefrom in the closed position thereof, a lever of channel-shaped cross section in the interior of the casing positioned lengthwise across the side wall opening of the casing, the channel formation of the lever opening inwardly of the casing and having its longitudinal side wall sections slidably interfitting with the adjacent side wall portions of the casing to completely close the opening across which

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it extends, a pair of similarly shaped arms forming integral extensions of the side wall sections of the lever and projecting inwardly and upwardly from the upper end of the lever, the upper ends of the arms straddlingly overlapping upon the carrier and being pivotally connected thereto about a common transversely extending axis, a cross pin on the lower end of the lever bridging the space between the side wall sections of its channel formation, an upwardly opening U-shaped bearing secured to the bottom of the casing adjacent to the side wall opening thereof and receiving the cross pin to provide both a rocking and sliding movement of the lever relative to the casing, and a spring blade having one end fixed by interposition between the bearing and the bottom of the casing, said blade extending upwardly from its fixed end between the side wall sections of the lever and having its upper end engaging the lever to exert a yielding pressure on the lever tending to rock the same outwardly relative to the casing.

3. A pocket lighter comprising, in combination, a relatively flat casing having an opening through the upper end thereof and a second opening through one side wall thereof, a cap for closing the upper end opening of the casing, a friction wheel carrier rigidly connected to the under side of the cap and depending downwardly therefrom in the closed position thereof, a lever of channel-shaped cross section in the interior of the casing positioned lengthwise across the side wall opening of the casing, the channel formation of the lever opening inwardly of the casing and having its longitudinal side wall sections slidably in-

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terfitting with the adjacent side wall portions of the casing to completely close the opening across which it extends, a pair of similarly shaped arms forming integral extensions of the side wall sections of the lever and projecting at an inward and upward inclination from the upper end of the lever, the upper ends of the arms straddlingly overlapping upon the carrier and being pivotally connected thereto about a common transversely extending axis, said cap, carrier and lever forming a permanently connected train of elements insertable into and extractable from the casing as a unit through the upper end thereof, and a transverse shaft extending through the carrier in parallel offset relation to said pivotal axis and being engaged in openings in the opposite side walls of the casing, said shaft serving as a pivotal mounting for the carrier and as the sole means for retaining said train of elements in the casing and being removable to permit extraction of the train as a unit from the casing.

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