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R. NYDEN

2,192,364

POCKET LIGHTER

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Fig. 1.

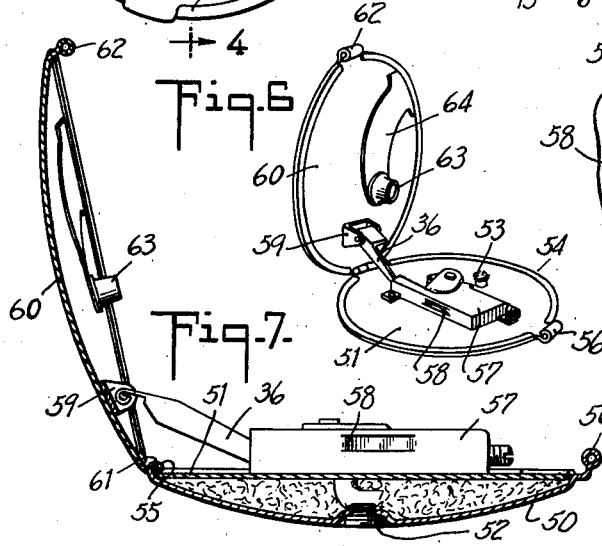
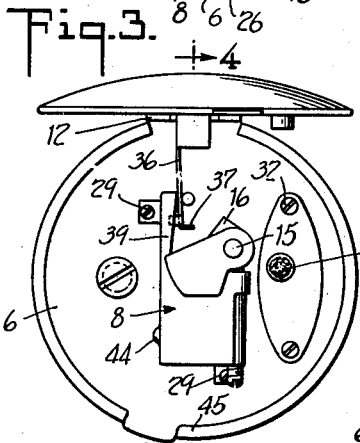
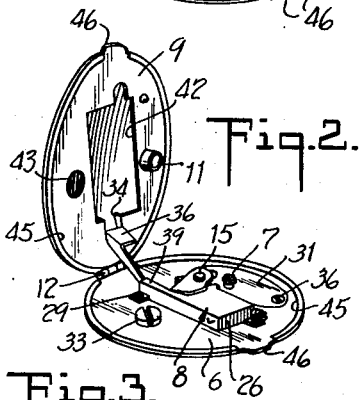
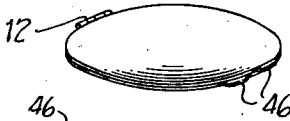


Fig. 5.

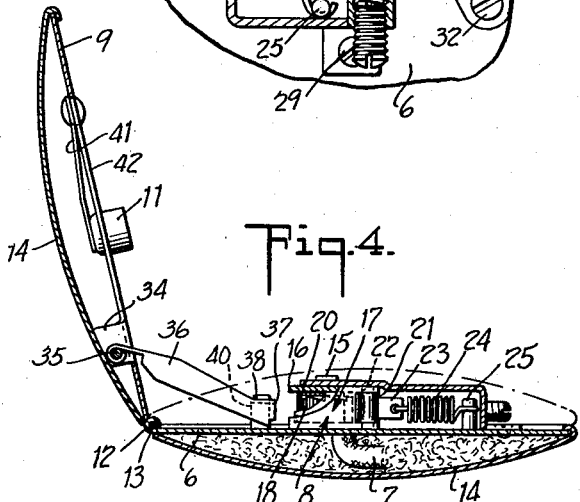
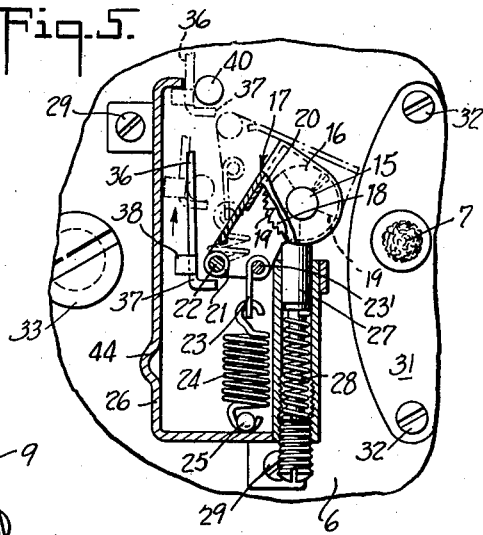


Fig. 4.

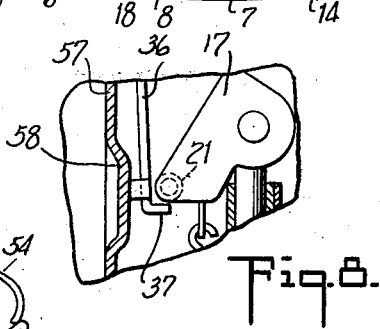


Fig. 8.

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POCKET LIGHTER

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16 Claims. (Cl. 67—7.1)

The present invention relates to pocket lighters, and is more particularly directed toward lighters adapted to be made small and compact.

The present invention contemplates lighters made of two similarly appearing halves, one half containing the fuel and carrying the wick and spark producing mechanism, the other half acting as a cover and carrying a link adapted to operate the spark producing mechanism.

The accompanying drawing shows, for purposes of illustrating the present invention, two embodiments in which it may take form, it being understood that the drawing is illustrative of the invention rather than limiting the same.

In the drawing:

Figure 1 is a view of one embodiment of the lighter as seen when closed;

Figure 2 is a perspective view of the embodiment of Figure 1 as seen when opened;

Figure 3 is a plan view of the sparking device and operating means therefor;

Figure 4 is a sectional view on the line 4—4 of Figure 3;

Figure 5 is a partial view in section showing the sparking device and the manner in which same operates;

Figure 6 is a perspective view of a modified form of construction;

Figure 7 is a sectional view similar to Figure 4 of the form shown in Figure 6; and

Figure 8 is a fragmentary section similar to Figure 5.

Referring to Figures 1-5 of the drawing, the lighter comprises in general a plate 6 on which the wick 7 and sparking device 8 are supported, and a second plate 9 carrying the actuating link 36 for operating the sparking device and the snuffer 11. The plates are formed with interlocking hinge knuckles 12 through which a hinge pin 13 may be passed to permit the plates to be hinged to overlie one another in closed position. Carried by and secured to each plate is a dished out or spherical hollow member 14 which members form the outer casing and give the device the appearance of a round compact as shown in Figure 1.

In detail the plate 6 carries a pivot pin 15 on which are pivotally mounted the ears 16 of a channel shaped arm 17. Carried between ears 16 is a flint wheel 18 having ratchet teeth 19 on the top surface thereof and a pawl 20 movable with arm 17 and cooperating with ratchet teeth 19 to rotate flint wheel 18 step by step. The arm is further provided with a roller 21 rotatably mounted on a pin 22, and also a spring clip 23

pivoted on a pin 23' and to which one end of spring 24 is secured, the other end of spring 24 being attached to stud 25. This spring normally tends to move arm 17 counterclockwise to rapidly rotate flint wheel 18 in that direction. There is further provided a housing 26 which carries a flint 27 and a spring 28 normally pressing the flint into engagement with flint wheel 18 whereby when the wheel is rotated the flint will produce a spark. The housing is secured by screws 29 to plate 6 and serves to cover the flint wheel, the arm and spring 24, and to provide guide means for an actuating link or arm for ratchet arm 17. Plate 6 is further provided with a wick 7 carried by a cap 31, the cap being removably secured by screws 32 to plate 6. A suitable filling plug 33 is also carried by plate 6.

The second plate 9 is provided with a pair of spaced upstanding supporting ears 34 which carry a horizontal pin 35 to which one end of actuating link or arm 36 is attached. This arm is laterally resilient and has a hooked end 37 adapted to snap in below and engage roller 21 of ratchet arm 17. It is positioned by a guide plate 38 which projects under a guide lip 39 on housing 26. A stop lug 40 limits the movement of arm 36. Plate 6 also carries a snuffer 11 mounted on a flexible arm 41 to assure close contact with the face of plate 6. Plate 9 is also provided with an opening 42 for housing 26 and an opening 43 for filling plug 33, and each plate may be provided with a finger engaging lip 46 to permit the plate to be readily moved when in overlying position.

The operation of the mechanism described will be readily understood by reference to Figure 5. When plate 9 overlies plate 6 the hooked end 37 of arm 36 is below roller 21 of ratchet arm 17. As the plates are swung to open position, the arm 36, maintained in position by plate 38, will cause ratchet arm 17 to be swung and will tension the spring 24. Considerable force applied to the two plates and the hinge is necessary to overcome this spring tension. The spring tends to return the cover to the closed position. Before the link or arm 36 reaches the end of its movement it will have released ratchet arm 17 and the tension of spring 24 will no longer be present to resist movement. The end of arm 36 will be brought against stop lug 40 to check movement and avoid excessive strain on the hinge. On release of the ratchet arm 17, the same is moved rapidly by spring 24 in a direction to rotate the flint wheel to ignite the wick. As the plates are moved to closed or overlying position, arm 36

will be guided to reengage roller 21 and snuffer 11 will cover wick 7 and extinguish the flame. The housing 26 has a detent 44 thereon adapted to be positioned behind plate 9 when in over-lying position and prevent the opening of same.

The lighter mechanism described may be readily attached to any housing. In the embodiment shown there are provided two dished out hollow members 14 which are of spherical segments, symmetrical in size and shape, and provided with flanged over portions 45 to rigidly secure the plates in place. When so secured plate 6 serves as a closure for a liquid container and plate 9 as a carrier for the actuating arm and snuffer 11. It is obvious that the outside casing member 14 may have any desired shape and that plate 6 will serve as a closure therefor. Plate 9 can likewise be secured to any type of casing member to form the cover therefor or may be shaped as a cover member. In all cases the moving of the carrier plate or cover to open position will move the actuating arm to operate the sparking device and ignite the wick and to closed position will position the snuffer to extinguish the flame.

In the construction shown in Figures 6, 7 and 8 the device is made up generally like that shown in Figures 1 to 5. As here shown the container half of the device has an outer dished stamping 50 and a cover stamping 51. The outer stamping 50 is provided with a filler opening closed by a screw 52. The cover 51 has an upwardly drawn tubular element for the wick 53. The two stampings are secured by rolling together the stampings, as indicated at 54. Here the hinged part 55 and the finger grips 56 are integral with the lower stamping 50. The housing 57 is similar to the housing 26 and carries a ratchet arm 17, flint wheel and flint, the same as before. It is provided with a cam element 58 adapted to act on the lower end of the link 36 and hold the bent end 37 of the link against the roller 21.

The link 36 is pivoted to an anchorage 59 secured inside the cover member 60. This cover member is generally like the upper cover member 14 above described, but in view of the fact that no inner plate similar to the plate 9 is employed the stamping 60 has the hinged elements 61 and finger grips 62. The finger grips 56 and 62 have a snap engagement with the other casing half when closed. The snuffer 63 is here shown as being mounted on a spring 64 carried by the cover member 60.

The arrangement shown in Figures 6 to 8 can be made somewhat more rugged than the device of Figures 1 to 5 with parts of less expensive construction, also there is less likelihood of accidentally lighting the fuel due to overflowing the fuel around the fuel opening on the upper surface of the plate, as shown in Figures 1 to 5.

It is apparent that, within the scope of the invention, modifications and different arrangements may be made other than that herein disclosed, and the present disclosure is illustrative merely, the invention comprehending all variations thereof.

What is claimed is:

1. A pocket lighter comprising two similar halves, each of the general shape of a spherical segment and interconnected by a hinge, one half having an inside cover plate which in cooperation with the outer wall of said half provides a fuel chamber, a wick extending through the plate, a flint wheel adjacent the wick, a flint bearing on the flint wheel, an arm operated ratchet for turning the flint wheel in one direction, a spring for operating the arm in said direction, a housing

for the flint wheel, arm and spring, the housing having an opening toward the hinge, a link pivotally connected with the other half and extending through the opening so as to be moved back and forth under the housing as the halves are moved about the hinge relative to one another, the inner end of the link engaging the arm when the halves are in closed position and acting on said arm to swing it and tension the spring as the halves are swung apart, the link after a predetermined movement becoming disengaged from the arm so that the arm is actuated by the spring to rotate the flint wheel.

2. A pocket lighter such as claimed in claim 1, wherein the said other half has an apertured plate adapted to receive the housing when the halves are in closed position and to which the link is pivoted.

3. A pocket lighter such as claimed in claim 1, wherein the interconnecting hinge comprises hinge elements formed out of the material of the said inside cover plate and out of a second similar plate in said other half.

4. A pocket lighter such as claimed in claim 1, wherein the interconnecting hinge comprises hinge elements formed out of the material of the said inside cover plate and out of a second similar plate in said other half, and wherein each of said plates projects outwardly to provide gripping members to facilitate opening the lighter.

5. A pocket lighter such as claimed in claim 1, wherein the link is interlocked with the supporting elements for the spark producing mechanism to limit the extent to which the two halves may be swung in opening the lighter after disengagement of the link from the arm whereby excessive strain on the hinge is avoided.

6. A pocket lighter such as claimed in claim 1, wherein the housing has a cam acting on the free end of the link to force it against the arm.

7. A lighter mechanism comprising a pair of plates of the same size and shape, hinge means connecting said plates to overlie one another, a wick carried by one plate, a flint and flint wheel carried by the same plate adjacent the wick, a flint wheel operating arm, a restoring spring for the arm, and a link having one end pivotally mounted on the second plate and slidably mounted on the first and having a one way operating connection with the arm to tension the spring, and means for guiding said arm carried by the first plate whereby when the plates are swung open said arm will be kept interengaged with the arm.

8. A lighter comprising a two part casing, one part being a cover and the other a container, each part including a dished out member of symmetrical size and shape, hinge means connecting said members, a closure plate for the container member, a wick projecting through said plate, a flint wheel pivotally mounted adjacent the wick, said wheel having ratchet teeth thereon, a flint located adjacent the wheel, a ratchet arm for the wheel, spring means for biasing the ratchet arm in one direction, means for overcoming said spring bias including a ratchet arm operating link having one end pivotally secured to the cover and the other end adapted to engage the ratchet arm when said members are closed and to release it when said members are fully opened.

9. A lighter comprising a two part casing, one part being a container and the other a cover, each part including a dished out member of symmetrical size and shape, hinge means connecting said members, a closure plate for the container member secured to the periphery thereof, a wick

projecting through said plate, a flint wheel pivotally mounted adjacent said wick, said wheel having ratchet teeth thereon, a ratchet arm for said wheel, a flint cooperating with said wheel, spring means for biasing said ratchet arm in a direction to cause said flint to spark, a carrier plate for the cover member secured to the periphery thereof, a ratchet arm actuating link having one end pivotally mounted on said plate and the other end engaging said ratchet to actuate the same when the casing is fully opened.

10. A lighter comprising a two part casing, one part being a cover and the other a container, each part including a dished out member of symmetrical size and shape, hinge means connecting said members, a closure plate for the container member, a wick projecting through said plate, a flint wheel pivotally mounted adjacent the wick, said wheel having ratchet teeth thereon, a ratchet arm for said wheel, spring means for biasing the ratchet arm in one direction, a housing secured to the plate for positioning said wheel, ratchet and spring, a flint carried by said housing adjacent said wheel, and cooperating therewith, a link having one end pivotally secured to the cover and the other end movable in said housing and adapted to engage the ratchet arm whereby when said members are moved to open position the link will move the ratchet arm against the bias of the spring.

11. The combination claimed in claim 9, having a roller carried by the ratchet arm, and a hooked end on the link adapted to engage said roller to move the ratchet arm in one position and to ride over same and release the ratchet arm in another.

12. In a lighter, a flint wheel, an oscillatory operating arm having a ratcheting connection with the flint wheel, an arm restoring spring tensioned when the arm is moved free of the wheel and acting to turn the arm and wheel in one direction, a longitudinally reciprocable arm operating member having an end to engage the arm and swing it against the tension of the spring, and a guide for the reciprocable member acting

to disengage said end from the arm and release the arm after the spring has been tensioned.

13. A lighter mechanism comprising two hinged parts; one acting as a cover for the other when closed, said other part having a fuel container, a wick, a flint wheel, a flint, an oscillatory arm having a ratchet connection with the flint wheel, and an arm restoring spring, the other part having a link engageable with the arm during the opening movement of the two parts to swing the arm and tension the spring, the spring opposing said opening movement and tending to return the parts toward closed position on release of opening effort, the link at substantially the completion of the opening movement becoming disconnected from the arm so that the spring returns it to normal position and operates the flint wheel.

14. A lighter mechanism such as claimed in claim 13, having a stop engageable with the end of the link after the link is released to limit the extent to which the two hinged parts may be opened whereby excessive strain on the hinge is avoided.

15. In a lighter, a lighter body providing a fuel container and carrying a wick, a flint wheel, a flint, an oscillatory arm having a ratchet connection with the flint wheel, an arm restoring spring, a cover hinged to the lighter body, a link having one end pivotally connected to the cover and extending across the hinge, a guide carried by the body and along which the other end of the link slides, the arrangement being such that as the cover is closed the end of the link slides past the end of the arm and as the cover is opened the link first engages and moves the arm about its pivot to tension the spring and then releases the arm so that the spring actuates the arm and through the ratchet connection actuates the flint wheel.

16. A lighter such as claimed in claim 15, wherein the link is interconnected with the guide to limit the extent to which the cover may be swung after it has released said arm in opening the lighter.

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