May 23, 1939. H. NEGBAUR 2,159,769

LIGHTER

Filed Oct. 1, 1936

Fig. 1.

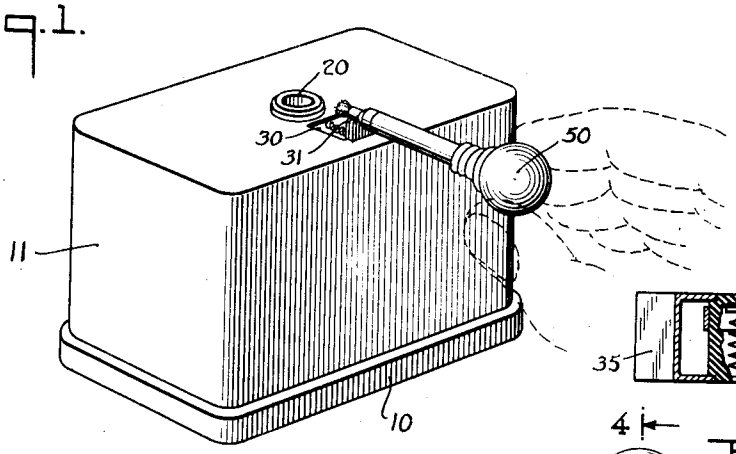


Fig. 7.

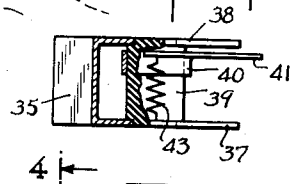


Fig. 2.

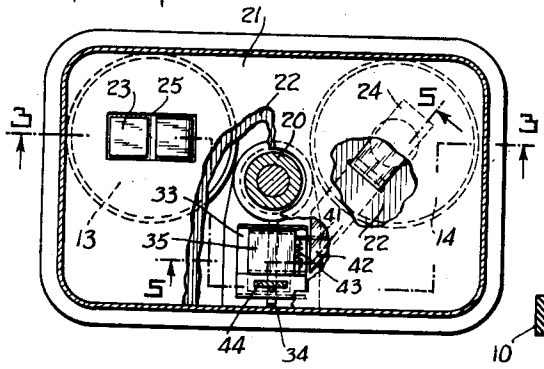


Fig. 3.

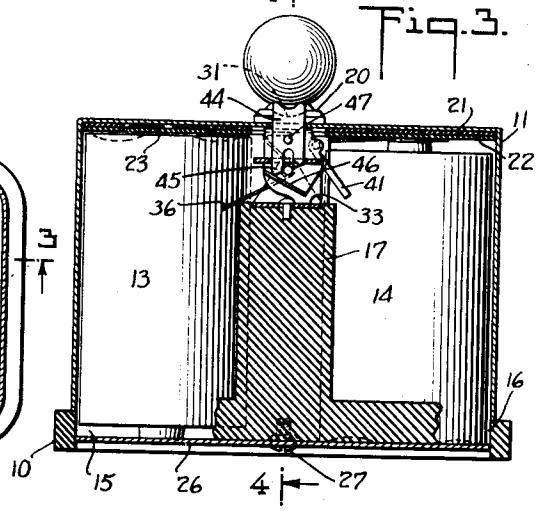


Fig. 4.

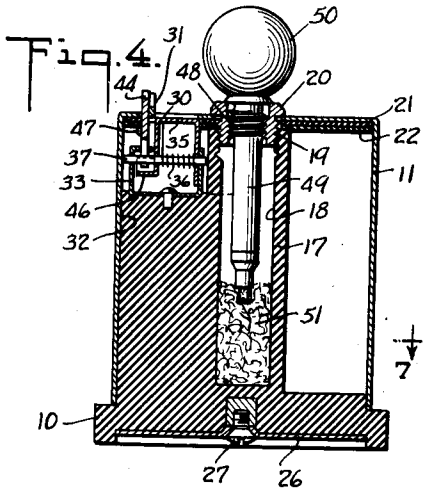
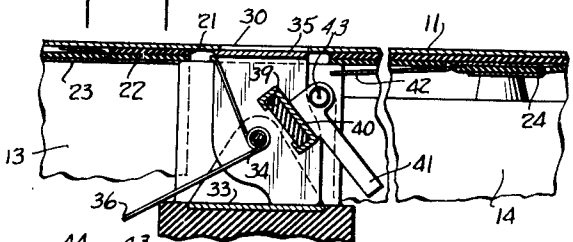


Fig. 5.



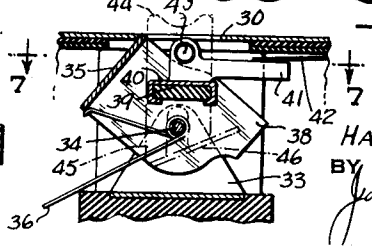


Fig. 6.

INVENTOR
HARRY NEGBAUR
BY John M. Cole,
ATTORNEY

Patented May 23, 1939 2,159,769

UNITED STATES PATENT OFFICE

2,159,769

LIGHTER

Harry Negbaur, New York, N. Y., assignor to H. Negbaur & Co., Inc., New York, N. Y., a corporation of New York

Application October 1, 1936, Serial No. 103,512

12 Claims. (Cl. 219—32)

The present invention relates to lighters, and is more particularly directed toward lighters adapted to employ a battery of dry cells with suitable ignition apparatus for igniting a torch, or the like.

The present invention contemplates a structure for the above purposes, wherein the ignition devices are normally carried within an enclosed casing and associated with mechanism operable by an externally accessible device to open an aperture in the casing and simultaneously provide the necessary electrical connections, whereby the battery energy may be supplied to the ignition device. In addition, the ignition apparatus may be shifted into a position to function.

According to the preferred embodiment, the ignition device is in the form of a resistance wire or coil exposed to the air and normally in open circuit relation with the battery. This wire or coil is adapted to be heated to incandescence when connected in circuit with the battery and it is placed adjacent an opening in the casing or housing for the lighter, this opening being closed by a shutter. The mechanism for effecting circuit closing also acts to shift the shutter, so that a torch may be brought close to the hot wire whereby the fumes may be ignited.

The present invention also contemplates an improved structure for receiving and supporting the dry cell batteries, for providing the circuit connection and a receptacle for the fluid to wet the torch.

Other and further objects of the invention will appear as the description proceeds.

The accompanying drawing shows, for purposes of illustrating the present invention, one of the many embodiments in which the invention 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 perspective view showing the lighter with the parts in position to ignite the torch;

Figure 2 is a horizontal sectional view through the lighter adjacent the top of the outer casing, the parts being in open circuit relation;

Figure 3 is a vertical sectional view on the broken line 3—3 of Figure 2;

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

Figure 5 is a fragmentary sectional view at an enlarged scale taken on the broken line 5—5 of Figure 2, the shutter being shown in closed position and the circuit closer in open circuit position;

Figure 6 is a fragmentary view similar to Figure 5, the parts being shown in a position for igniting the torch; and

Figure 7 is a fragmentary sectional view on the line 7—7 of Figure 6, parts being in elevation, and parts omitted.

A base 10 made preferably of molded insulating material, and a sheet metal cover or casing forming member 11 fit together and receive two dry cells indicated at 13 and 14.

The bottom of the insulating base has two apertures, indicated at 15 and 16, to receive the dry cells, and between these two apertures it has been upwardly-extending stepped pillar 17. The pillar 17 is provided with an upwardly-opening receptacle 18 for fuel and this is threaded, as indicated at 19, to receive a locking ring 20, which fastens the cover 11 in place about the batteries.

This locking ring also secures, adjacent the under surface of the top of the cover, two sheets of insulating material 21 and 22. The lower sheet 22 carries two spring contact forming members 23 and 24. The member 23 is adapted to contact the upper end of the dry cell 13, and it extends through an opening 25 in the upper insulating sheet 21 so as to engage with the cover member 11, thereby grounding the battery to the cover-member. The conducting strip 24 engages the upper end of battery 14, and is insulated from the cover or casing member 11 by the upper insulating sheet 21.

The dry cells are held in place and electrically connected by a bottom plate 26, held in place by a screw 27. The top face of the cover-member 11 is provided with an opening 30, and a portion of the material removed for forming this opening is bent upwardly, as indicated at 31, to form a stop-member.

The stepped portion 32 of the central pillar 17 carries a frame-member 33, which supports a shaft 34 a short distance below the opening 30 in the top wall of the cover. The shaft 34 carries a shutter-member 35, which is normally held in position to close the opening 30, as indicated in Figure 5. A spring 36 holds the shutter in this position. The shutter-supporting element includes side members 37 and 38, see Figure 7, and an insulating element 39 is mounted between these side members. This insulating element is embraced by a sheet metal member 40 having a contact-forming extension 41, engageable with the end 42 of the contact strip 24. A heater-coil of high resistance non-oxidizing wire is indicated at 43. This coil is connected between the conducting

member 40 and the side member 37 of the shutter-support.

The shutter is shifted from the closed to the open position and the switch-element from the open circuit to closed circuit position by means of an externally accessible device, here shown in the form of a plunger 44. This plunger extends down through an opening in the top of the cover-member, and has a lower end, indicated at 45, adapted to bear on a cam-element 46 formed with the shutter-support. It grounds the frame and shutter to the casing. The plunger 44 is held in place by a bump 47.

The locking ring 20 is internally threaded, as indicated at 48, to receive a shank 49 of a torch-member 50. This torch-member is adapted to engage a wetted filler, indicated at 51, so as to be moistened with inflammable fluid. This construction affords a ready seal for the fluid preventing its evaporation and loss.

To use the lighter it is merely necessary to remove the torch, place it in the position indicated in Figure 1 and press downwardly on the plunger 44. This will rock the shutter away from the opening in the cover and will bring the heater-coil adjacent the opening and close the circuit, so that the coil becomes very hot, thereby igniting the fumes about the tip of the torch. The stop 31 keeps the torch a safe distance from the heater coil. Upon removal of the torch for use, the spring 36 automatically closes the shutter and opens the circuit, so that there is no possibility of unnecessarily wasting the battery energy.

It will be noted that the provision of a normally closed shutter affords the maximum protection for the batteries and for the heater-coil. There is a minimum possibility of mechanically injuring the coil.

It is obvious that the invention may be embodied in many forms and constructions within the scope of the claims and I wish it to be understood that the particular form shown is but one of the many forms. Various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. A battery operated lighter having an apertured casing, an enclosed, normally open circuit heater-coil disposed therein adjacent the aperture, a shutter for normally closing the aperture, enclosed shutter-operating means, an externally accessible device independent of the shutter and disposed closely adjacent the aperture and adapted for engagement with and operation by a torch to shift the shutter-actuating means to place the shutter in open position and bring the heater-coil into circuit, and a spring to restore the shutter to closed position upon release of said device.

2. A battery operated lighter having an apertured casing, and enclosed, normally open circuit heater-coil disposed therein adjacent the aperture, an enclosed shutter for normally closing the aperture, an oscillatory support for the coil and shutter, an externally accessible device for actuating the oscillatory support to shift the shutter to open position and bring the heater-coil into circuit, and a spring to restore the shutter to closed position upon release of said device.

3. A battery operated lighter having an apertured casing having an aperture in the top wall thereof, an enclosed, normally open circuit heater-coil disposed therein below the aperture, a shutter for normally closing the aperture and covering the heater-coil, and a plunger closely adjacent the aperture and adapted for engagement with and operation by a torch to shift the shutter to open position and bring the heater-coil into circuit.

4. In a lighter, an apertured casing, an enclosed shutter normally closing the aperture, enclosed shutter-operating means, an externally accessible device disposed closely adjacent the aperture and adapted for engagement with and operation by a torch to shift the shutter-operating means to place the shutter in open position, a battery carried in the casing, a heater-coil enclosed in the casing and in normally open circuit relation with the battery, and a switch for closing the coil circuit when the said device operates to shift the shutter to open position, the coil being adjacent the aperture for igniting a torch or the like.

5. In a lighter, an apertured casing, a shutter normally closing the aperture, a shaft on which the shutter is mounted, externally accessible means for actuating the shutter to open position, a battery carried in the casing, a heater-coil in normally open circuit relation with the battery and movable with the shutter, and a switch for closing the coil circuit when the shutter-actuating means operates to shift the shutter to open position, the coil being moved adjacent the aperture for igniting a torch or the like.

6. In a lighter, an apertured casing, an enclosed shutter normally closing the aperture, a plunger adjacent the aperture adapted to be depressed by a torch and having connections with the shutter to actuate it to open position, a battery carried in the casing, a heater-coil in normally open circuit relation with the battery, and a switch for closing the coil circuit when the plunger operates to shift the shutter to open position, the coil being adjacent the aperture for igniting the torch.

7. In a lighter, an apertured casing, a shaft inside the casing and adjacent the aperture, a shutter, a shutter-support carried by the shaft, a spring biasing the shutter to position to close the aperture, externally accessible means for rocking the shutter-support, a heater-coil carried by the shutter-support and having one terminal grounded to the shaft and an insulated terminal, a fixed contact, a conductor carried by the shutter-support and engageable with the fixed contact when the shutter is opened, and a current supply connected to the shaft and fixed contact.

8. A lighter such as claimed in claim 7, wherein the shaft rocking means includes a plunger adjacent the aperture.

9. A lighter comprising an insulating base apertured to receive dry cells, dry cells inserted in the base, a bottom member securing the dry cells in place and electrically onnecting their adjacent terminals, a casing about the cells, a liner for the casing having terminals co-operative with the other terminals of the cells, the top of the casing and liner having aligned apertures, a heater-coil below said aligned apertures and normally in open circuit with the cells, shutter means for closing the aligned apertures, and an externally accessible shutter opening device adapted for engagement by a torch to open the shutter and close the circuit to the heater-coil.

10. A lighter comprising an insulating base having two apertures, a cover-member having a top wall and side walls, which engage the base, the base having an upwardly-extending post terminating adjacent the top wall of the cover, the post being provided with a fuel retaining and torch receiving well opening upwardly, a locking

ring threaded into the well and holding the cover in place on the base, dry cells inserted through the apertures in the base, a bottom conducting plate for securing the cells in place and connecting them electrically, an ignition device carried by the base within the cover-member and adjacent an aperture therein, and means for placing the ignition device in circuit with the dry cells.

11. A lighter comprising an insulating base having two apertures, a cover-member having a top wall and side walls, which engage the base, the base having an upwardly-extending stepped post terminating adjacent the top wall of the cover, the post being provided with a fuel retaining and torch receiving well opening upwardly, a locking ring threaded into the well and holding the cover in place on the base, dry cells inserted through the apertures in the base, a bottom conducting plate for securing the cells in place and connecting them electrically, an ignition device and switch carried on the step of the base within the cover-member and adjacent an aperture therein, and means for closing the switch to place the ignition device in circuit with the dry cells.

12. A lighter comprising an insulating base having two apertures, a cover-member having a top wall and side walls, which engage the base, the base having an upwardly-extending post terminating adjacent the top wall of the cover, the post being provided with a fuel retaining and torch receiving well opening upwardly, a locking ring threaded into the well and holding the cover in place on the base, contact-carrying insulating plates clamped between the cover-member and the post, dry cells inserted through the apertures in the base and bearing on the contacts carried by the plates, a bottom conducting plate for securing the cells in place and connecting them electrically, an ignition device carried by the base within the cover-member and adjacent an aperture therein, and means for placing the ignition device in circuit with the contacts carried by the insulating plates.

HARRY NEGBAUR.