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PYROPHORIC LIGHTER

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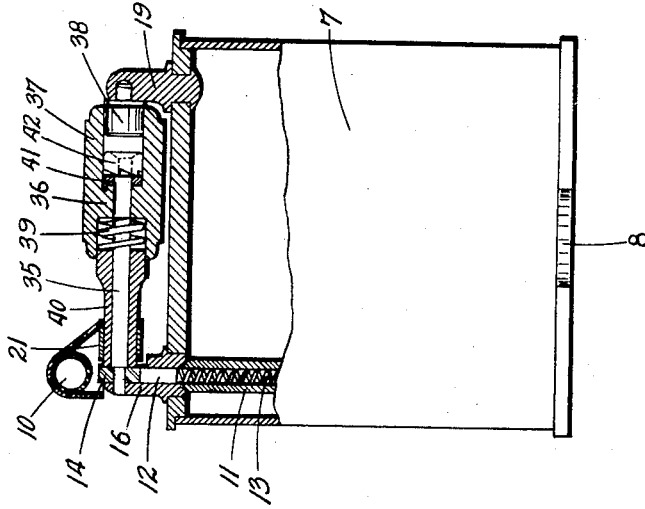


FIG. 2.

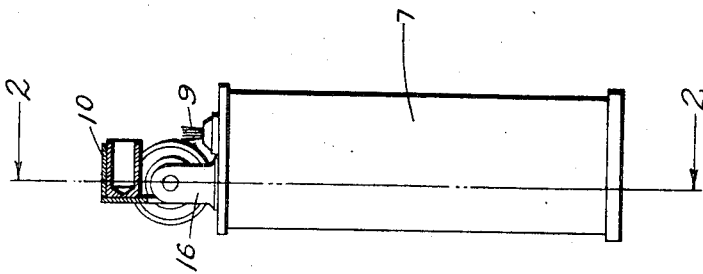


FIG. 1.

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UNITED STATES PATENT OFFICE

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PYROPHORIC LIGHTER

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1 Claim. (Cl. 67—7.1)

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This invention relates to lighters comprising a wick protected by a hinged cap and adapted to be lit by sparks produced by a sparking wheel which is carried upon a rotatably mounted shaft provided with an operating wheel.

In order that the invention may be clearly understood, it is illustrated in the accompanying drawing. In this drawing

Figure 1 is an end elevation partly in section of a lighter constructed in accordance with the invention, the wick-protecting cap being shown in section; and

Figure 2 is a side elevation of this lighter partly in section on the line 2—2 of Figure 1.

The lighter shown in the drawing comprises a casing 7, which contains an absorbent for the volatile fuel and is provided in its base with a filling opening closed by a screw plug 8. A wick 9 projects through an aperture in the top of the casing and is normally covered by a hinged cap 10 which minimises evaporation of fuel from the wick when the lighter is not in use. A tube 11 extending through the height of the casing accommodates a flint 12 and a helical spring 13 which urges the flint upwardly into engagement with a toothed sparking wheel 14. The sparking wheel is secured on a shaft 35 near one end thereof. This end of the shaft is of reduced diameter and is journalled in a bracket 16 which is secured in the top wall of the casing 7 and constitutes the upper end of the flint tube 11.

The sparking wheel shaft 35 passes freely through an annular portion 36 extending across the bore of the tubular operating wheel 37. The end of this bore is closed by a plug 38, which is a sliding fit in the bore and has a projecting portion of reduced diameter which is journalled in bracket 19. The other end of the bore in operating wheel 37 engages over one end of sleeve 40, which is rotatable upon shaft 35 and has the tubular member 21 of cap 10 secured to its other end. A helical compression spring 39 accommodated within the bore of operating wheel 37 bears against the annular portion 36 of that wheel and the end of sleeve 40. A ratchet wheel 42 is secured on the end of shaft 35 and spring 39 normally holds a member 41 secured to the annular portion 36 in engagement with the teeth of this ratchet wheel.

When the operating wheel 37 is rotated (in a direction counter-clockwise in Figure 1) spring 39 affords a frictional connection between wheel 37 and sleeve 40 and the cap 10 is rotated to open position. Simultaneously the engagement of member 41 with ratchet 42 affords a positive con-

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nection between wheel 37 and shaft 35 and the sparking wheel 14 is rotated to ignite the wick. If rotation of operating wheel 37 is continued after cap 10 is fully open, the frictional connection to sleeve 40 yields and shaft 35 alone is rotated. If operating wheel 37 is rotated in the reverse direction (clockwise in Figure 1) the teeth of ratchet member 42 disengage from member 41, operating wheel 37 sliding axially upon shaft 35 and plug 38, and permit rotation of wheel 37 while shaft 35 remains stationary. The frictional connection to sleeve 40 afforded by spring 39 results in rotation of the sleeve and thus the return of cap 10 to closed position.

What I claim is:

A lighter comprising a casing through one end of which projects a wick; a flint projecting from said casing adjacent said wick; a pair of brackets projecting from said casing; a tubular operating wheel having an annular portion extending across its bore intermediate the ends thereof and rotatably supported at one end in one of said brackets; a shaft axially aligned with said operating wheel and rotatably supported at one end in the other of said brackets, the other end of said shaft extending into the bore of said wheel and passing rotatably through said annular portion thereof; a ratchet wheel fast on said shaft and cooperating ratchet teeth upon said annular portion of said wheel; a flint wheel fast upon said shaft and engaging said flint; a sleeve rotatable upon said shaft and having one end extending rotatably into the bore of said operating wheel; a wick protecting cap fast to said sleeve; and a coil compression spring surrounding said shaft and arranged between said annular portion of said wheel and the adjacent end of said sleeve.

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