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A. KAUFMANN
PYROPHORIC LIGHTER
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2,065,374

Fig. 1

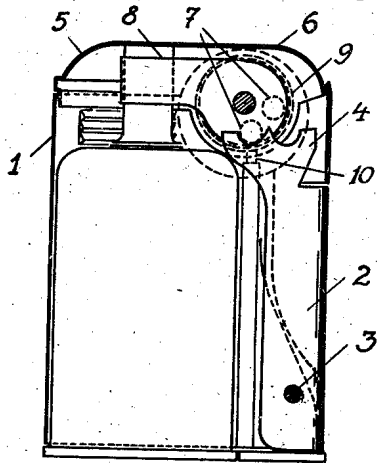


Fig. 3

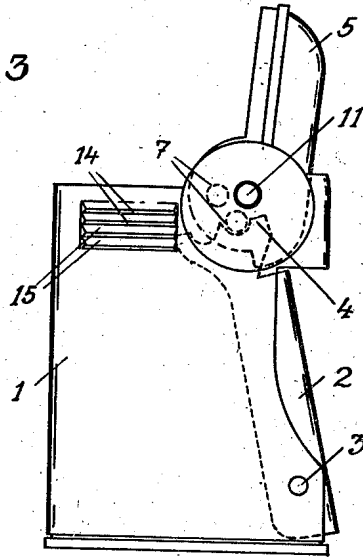


Fig. 2

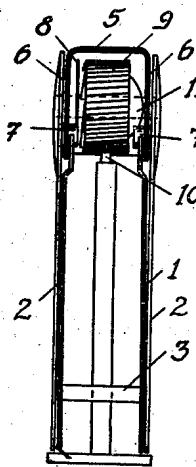


Fig. 4

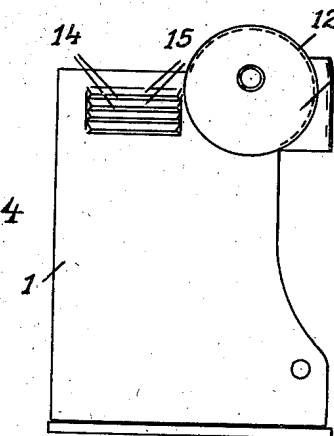


Fig. 5

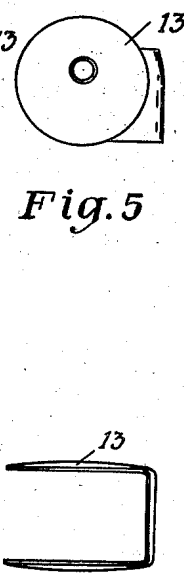


Fig. 6

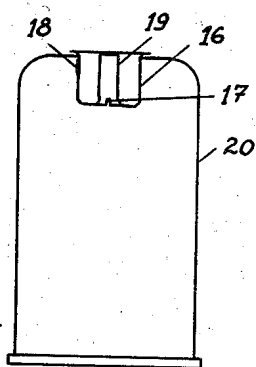


Fig. 7

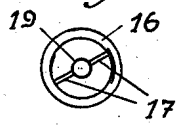
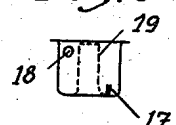


Fig. 8



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UNITED STATES PATENT OFFICE

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PYROPHORIC LIGHTER

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Application September 1, 1934, Serial No. 742,498
In Austria September 6, 1933

3 Claims. (Cl. 67—7.1)

This invention relates to pyrophoric lighters of the type wherein a pressure-operable lever pivoted to the casing actuates a turnable closing cap and spark-producing means.

In the known lighters of this type, a U-shaped actuating member secured to the pressure operated lever is provided, the two branches of the actuating member being formed as toothed racks, one of which meshes with friction wheel actuating means and the other with a pinion operating the closing cap.

According to the invention pins, teeth or like means are provided on the closing cap at both sides of the spark-producing means, and these means are engaged by means on the pressure-operable lever. Thus, the closing cap only is directly actuated by the pressure operated lever. The spark-producing means, which may be a friction wheel, is actuated in a known manner by the closing cap, to which it is operatively connected so that, at least, turning of the cap to open the lighter rotates the friction wheel. By this arrangement force is applied to both walls of the cap on the two sides of the friction wheel in an absolutely accurate and symmetrical manner for the purpose of opening the cap, and the construction is simplified.

According to another feature of the invention, the lighter casing is constructed of sheet metal bent to U-shape and held together by a clamp.

According to still another feature of the invention, a separate fuel filling arrangement is provided, comprising a filling funnel. This filling funnel is adapted to be inserted into the fuel container, for example, by being screwed thereinto, and surrounds a wick holder sleeve. The wick and the filling funnel are separated by the wick holder sleeve, so that when the fuel is introduced it does not come into contact with the wick.

It has already been proposed to provide filling funnels for lighters, but these are always separate from the wick holder arrangement. According to the invention, however, the filling funnel surrounds the wick holder means, whereby a separate filling opening with a screw plug or the like therefor may be dispensed with. The fuel is retained better and longer in the container owing to the absence of any through-draught, so that a single filling lasts much longer. Petrol vapours escaping through openings in the funnel flow around the wick of the lighter and assure reliability of ignition.

The attached drawing illustrates an embodiment of the invention by way of example.

Fig. 1 of the drawing is a sectional view of the lighter in a plane parallel to one broad side thereof, and

Fig. 2 is a section in a plane at right angles to that of Fig. 1, in both cases in the closed position of the lighter.

Fig. 3 is a side elevation of the lighter in open position.

Fig. 4 shows a side elevation and a plan of the casing with a bent-up bearing reinforcement.

Fig. 5 illustrates the bearing reinforcement alone in side elevation and plan.

Fig. 6 is a vertical sectional view of the removable fuel container with inserted filling funnel.

Fig. 7 illustrates the filling funnel alone in plan view, and

Fig. 8 shows the same in side elevation.

Pivoted to the casing 1 with the aid of pin 3 there is a pressure-operable lever 2 which has teeth 4 formed at its upper end, these teeth being adapted to mesh with projections 7 pressed out of the side walls 6 of the closing cap 5 on both sides so as to extend inwardly. The interengagement of the teeth 4 and the projections 7 causes the closing cap to be positively turned when the lever 2 is rocked. Connected to the closing cap 5 there is an actuating member 8 which turns the friction wheel 9 when the closing cap is turned to open the lighter, and thereby causes the flint 10 to emit sparks which ignite the wick.

For the reinforcement of the bearing for the friction wheel spindle 11, as well as for closing up the rear side of the lighter, i. e. for holding together the bearing discs 12, a clamping member 13 bent to U-shape, as shown in Fig. 5, is pushed over the discs 12. This member also acts as a stop for the lever 2, so that it always returns to the same inoperative position.

Air inlet openings 14 are disposed in the side walls of the casing 1 in the form of slots each of which has an upper boundary in the shape of a shield 15. It has been found that with the provision of such slots the flame burns higher in strong wind and is not extinguished as usual with other arrangements.

The fuel container comprises a receptacle 20 designed to be bodily inserted through an opening in the bottom of the casing 1. This receptacle is completely closed except for an opening in the upper wall and in this opening is inserted by threaded connection or fixed connection in a conventional manner, a funnel-like delivery member 16 to the interior of the receptacle 20. This member is formed with a central wick tube 19 which opens through the bottom of the member

16 and the otherwise closed bottom of the member 16 is formed with relatively small openings or slots 17 which permit passage of the fluid delivered to the funnel-like member 16 to the interior of the receptacle 20. The wall of the member 16 is formed with an air escape opening 18. When in place, the funnel-like member 16 depends within the receptacle 20 while the wick, which extends through the wick tube 19, projects above such receptacle in position to receive the flame of the spark in the operation of the lighter.

It is to be particularly noted that the receptacle 20 is completely closed against the introduction of fuel except through the funnel-like member 16 and that the latter provides a well surrounding the wick tube into which fuel may be poured and find its way through the slots or openings 17 into the interior of the receptacle 20 for the conventional saturation of the filling material therein. As stated, the receptacle 20 is introduced through an opening in the bottom of the casing 1, so that this receptacle 20 may, if desired, be removed from the casing 1 and filled by the introduction of liquid fuel into the member 16 after removal of the receptacle 20, and the receptacle then reinserted in the casing 1, or if desired the cap 5 may be turned back into open position, rendering the filling funnel 16 fully and conveniently accessible and the liquid fuel dropped or poured into the funnel-like member 16 for recharging the receptacle 20.

As arranged, the fuel receptacle is completely closed except the filling funnel at the upper end. There is no possibility of leakage of such fuel, which leakage is a source of objection to the conventional lighters which are usually filled through a plug-receiving opening in the bottom. Furthermore, in such conventional lighters excess fuel, that is fuel in excess of the saturation of the filling material, will, if the plug is not carefully closed, readily leak out, while with applicant there is no possibility of such leakage and the excess fuel will remain in the receptacle, generally at the lower end thereof, and serve as a means of maintaining the filling material saturated for a very much longer period than is possible with the usual lighter of this type.

I claim:—

1. In a pyrophoric lighter, a casing formed with an opening in its bottom substantially equal to the width of but less than the length of the bottom, a pyrophoric element, a normally closed cap, a friction disk to have sparking contact with said

element, and means for simultaneously opening the cap and rotating the sparking disk to produce a spark, a fuel container bodily movable into and out of the casing through the opening therein, the fuel container completely closing the opening in the bottom of the casing, said container being provided at its upper end with a wick receiving tube and a surrounding well for the introduction of fuel into the container, the walls of the container being otherwise completely closed.

2. A fuel container for pyrophoric lighters of the type comprising a casing formed in the bottom with an opening of less length than that of the bottom, including a container to be bodily introduced into the casing through and completely closing the opening in the bottom thereof, an element seated in the upper end of said container and comprising a central tube through which the wick is introduced and from which it projects for use, and a well surrounding the tube to serve for the introduction of fuel into the container, the wall of said well being formed with openings to establish communication between the well and container, the container being integrally closed except through the wick tube and well, whereby vapor escaping from the fuel within the container is compelled by the well to flow around the wick to facilitate ignition.

3. In a pyrophoric lighter, a casing open at the top and one side, a transverse shaft supported at the upper end of the casing, a cap mounted for swinging movement on said shaft, a lever pivotally mounted at the lower end of the casing and having a normal position to complete and close the open side wall of the casing, the upper end of the lever being disposed adjacent the side wall of the cap and formed with spaced recesses, projections on the cap wall designed to be successively engaged by such recesses in the lever as the latter is moved on its pivot inwardly of the casing, a wick, a fuel supply for the wick, and pyrophoric means operated in the movement of the cap to ignite the fuel at the wick, a reinforce to overlie and frictionally engage the ends of the shaft, said reinforce having an outer wall to complete the upper open portion of the side wall of the casing, said outer wall forming a limit for the outward movement of the lever.

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