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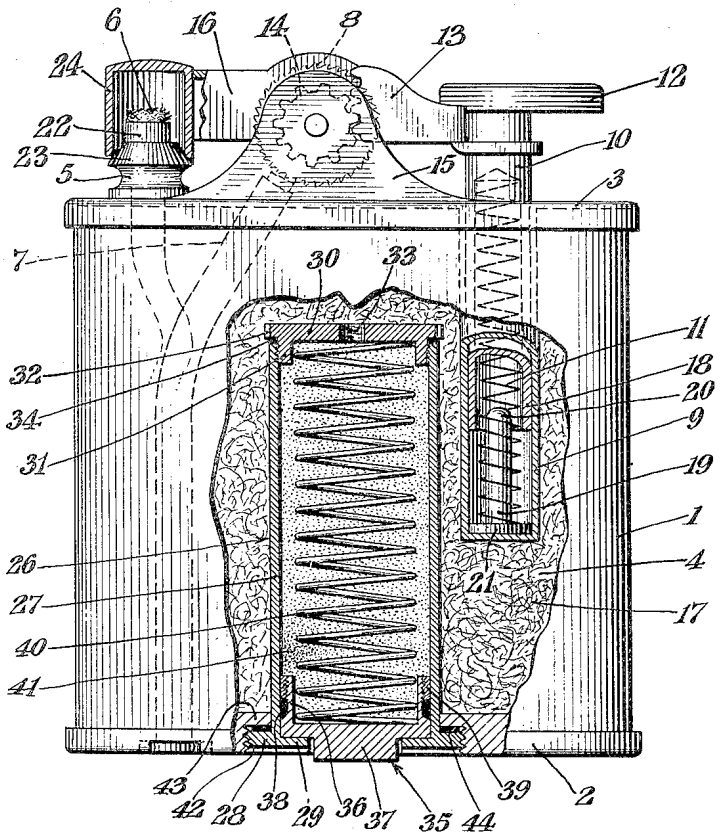
PORTABLE LIGHTER CONSTRUCTION

Filed Jan. 18, 1929



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PORTABLE LIGHTER CONSTRUCTION

Application filed January 18, 1929. Serial No. 333,292.

The invention relates in general to lighting devices, and more particularly to pocket lighters commonly used for lighting cigarettes and the like.

The objects of the invention include the provision of a relatively simple, dependable, highly efficient and convenient device of the type above indicated.

Various further and more specific objects, features and advantages will clearly appear from the detailed description given below taken in connection with the accompanying drawing which forms a part of this specification and illustrates merely by way of example one embodiment of the device of the invention.

The invention consists in such novel features, arrangements and combinations of parts as may be shown and described in connection with the apparatus herein disclosed by way of example only and as illustrative of a preferred embodiment.

In the drawing, the single figure is an elevation, with parts broken away, of a lighter according to the invention;

In the following description and in the claims, parts will be identified by specific names for convenience, but such names are intended to be as generic in their application to similar parts as the art will permit.

Referring now to the drawing, the lighter comprises in general a casing having side walls 1, a bottom wall 2 and a top wall 3 defining a fuel reservoir 4. Disposed within the reservoir is absorbent material 17 which may be saturated with a suitable semi-liquid or soft, plastic fuel.

Mounted on the top wall 3 is a wick holder 5 through which a wick 6 passes, this wick extending into the reservoir 4. A holder 7 passes through the top wall and has suitable sparking material mounted therein in operative relation to a sparking wheel 8.

Depending from the top wall 3 into the reservoir 4 is a sleeve seat 9 having a plunger 10 telescoping therein. The plunger 10 comprises a thumb piece 12 and a hollow shank 18. A centering member 19 having a shank 20 and head 21 is seated in the bottom of the sleeve seat and a helical spring 11 is disposed around the shank 20 and within the hollow shank 18 to normally urge the plunger upwardly. The centering of the spring 11 by the centering shank 20 aids in preventing wearing engagement of the hollow shank 18 against the spring 11, thereby increasing the life of the operating parts and making the operation thereof smoother. The centering shank also prevents the springs from buckling and becoming distorted or "jammed". The plunger 10 has a rack member 13 secured thereto having teeth engageable with a gear 14 rotatable with the sparking wheel 8.

The wick holder 5 comprises a tip 22 from which the wick 6 protrudes below which is a conical seat 23. The snuffer member 16 comprises a snuffer cap 24 having an annular wall, the edge of which closely fits and seats upon the conical area 23. A certain amount of wedging action is caused by the downward pressure of the snuffer cap on the annular seat, which makes a tight joint at this point without the use of gaskets or the like and thereby insures effective retention of fuel vapors at the wick, preventing evaporation therefrom whereby fuel is saved and the wick is kept in proper condition for immediate ignition. The construction permits the extinguishing of the flame by the snuffer without danger of burning any of the parts as may occur under some conditions if a rubber gasket is used to seal the wick. The restoring spring 11 insures the firm retention of the snuffer upon the conical scale.

A suitable support 15 is provided for rotatably supporting the sparking wheel 8, gear 14, and the snuffer member 16. It will be seen that downward pressure on the thumb piece 12 causes the sparking wheel to rotate and the snuffer member to rise, causing a shower of sparks to impinge on the wick igniting it, and that release of the thumb piece 12 causes the snuffer member 16 to rotate downwardly causing the snuffer cap 24 to seat on the conical seat 23.

For convenient charging and recharging of the reservoir with fuel the invention contemplates a cartridge or capsule 26 comprising a cylindrical wall 27 having an outer flange 28 and an inner flange 29 at its bottom.

The top of the wall 27 is internally threaded and a cap 30 having a tubular portion 31 is threaded into the cylindrical wall 27. The cap 30 has a knurled flange 32 and a small threaded opening 33, and a suitable gasket 34 may be interposed between the edge of the wall 27 and the projecting flange 32 of the cap.

A piston 35 comprising a body 36 fitting the cylindrical wall and a head 37 projecting through the inner flange 29 is provided. The body 36 has a tubular flange, the outer surface of which has a recess. A ring 38 of packing which may be either metallic or non-metallic is located in the recess and a collar 39 is threaded on the tubular flange to hold the sealing or packing ring in position. A helical spring 40 and a mass of semi-fluid, plastic fuel 41 are positioned between the cap 30 and the piston 35.

The bottom wall 2 of the lighter has a threaded opening 42 and an inner flange 43 providing a shoulder. The cartridge 26 is disposed within the reservoir, as shown, with its outer flange 28 threaded into the opening 42. A gasket 44 is positioned between the flanges 43 and 28 to insure a tight joint.

It is to be understood that the cartridge 26 comprising the cylindrical wall 27, piston 35, cap 30 and spring 40 together with the contained plastic fuel 41 may be sold separately for the purpose of conveniently recharging the reservoir with fuel. It will be understood that a suitable plug (not shown) will be threaded into the opening 33 to prevent loss of the fuel while the cartridges are awaiting purchase.

When the fuel is exhausted both from the cartridge and from the surrounding reservoir, the cartridge is removed bodily by unscrewing from the lighter casing, and a new one is inserted to the position shown after having first removed the plug (not shown) from the opening 33. To place fuel in the surrounding reservoir space, a tool, as for instance, a lead pencil may be used to push the piston 35 in to squeeze the semi-solid fuel 41 out through the opening 33. It will be understood that the piston will be pushed in to a sufficient extent to provide the amount of fuel required. When the pencil or other tool is withdrawn, the spring 40 returns the piston to the position shown. When the fuel is again exhausted from the reservoir, the process above described of extruding the fuel by pressure on the piston, is repeated. Whenever fuel is thus forced into the reservoir, some of the air therein is displaced and passes to the atmosphere through the wick 6 which, of course, is porous. To some extent, the path thus taken by the escaping air directs the fuel into proximity or contact with said wick.

Thus a construction is provided which does away, to a great extent, with the troublesome operation of filling the usual lighter with fuel. Furthermore, a reserve of fuel is always carried about in the cartridge so that, any time the lighter runs out of fuel, additional fuel can be forced out of the cartridge. When the fuel in the cartridge is consumed, it is a simple matter to refill with a new cartridge as above explained, or to refill the cartridge.

In my application Serial No. 196,255, filed June 3, 1927 now involved in interference proceedings, certain features of the lighter operating mechanism are described and claimed.

While the invention has been described with respect to a certain particular preferred example which gives satisfactory results, it will be understood by those skilled in the art after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention as claimed and it is intended therefore in the appended claims to cover all such changes and modifications.

What is claimed is:

1. In a lighter of the class described, a casing for fuel, a fuel cartridge, means detachably connecting said cartridge with said casing, said cartridge comprising a cylinder having a discharge outlet, a piston fitting in said cylinder, and plastic fuel between said piston and the discharge outlet, and lighting devices associated with said casing for igniting said fuel.

2. In a pocket lighter, a reservoir casing for holding fuel, a wick projecting through a wall of said casing, igniter devices for lighting said wick located on said casing, a wall of said casing having an opening, a cartridge comprising a cylindrical wall, said cartridge being disposed within said casing, means detachably connecting the bottom of said cylindrical wall to the casing wall at said opening, a piston in said cartridge fitting said cylindrical wall, a helical spring and semi-solid, plastic fuel between said piston and the bottom of said capsule, said cartridge having an outlet for the fuel, said piston being operable from the outside of the casing to extrude fuel through said outlet into the surrounding reservoir space.

3. In a pocket lighter, a reservoir casing for holding fuel, a wick projecting through a wall of said casing, igniter devices for lighting said wick located on said casing, a wall of said casing having a threaded opening ending in an internal shoulder, a cartridge comprising a cylindrical wall having outer and inner annular flanges at its bottom, said cartridge being disposed within said casing with said outer flange threaded in said threaded opening and against said shoulder, a piston in said cartridge fitting said cylindrical wall, a cap forming the top of said cartridge, said cap having an outlet hole, a

coil spring and semi-solid plastic fuel in said cartridge between said cap and piston.

4. In a pocket lighter, a reservoir casing for holding fuel and having a top wall and a bottom wall, a wick projecting through said top wall, igniter devices for lighting said wick located on said top wall, said bottom wall having a threaded opening ending in an internal shoulder, a cartridge comprising a cylindrical wall having outer and inner annular flanges at its bottom, said cartridge being disposed within said casing with said outer flange threaded in said threaded opening and against said shoulder, a piston in said cartridge, said piston comprising a body fitting said cylindrical wall and a head projecting out through said inner flange, a cap forming the top of said cartridge and threaded within said cylindrical wall, said cap having an outlet hole, a coil spring and semi-solid, plastic fuel in said cartridge between said cap and piston.

5. A casing containing a body of semi-solid fuel, said casing comprising a section adapted to be disposed within and to completely fill the internally threaded filling opening of a pyrophoric lighter casing, fuel being dischargeable from said first named casing into said second named casing by pressure applied upon a wall of said first named casing.

6. A casing containing a body of semi-solid fuel, said casing comprising an externally threaded section adapted to be passed longitudinally with respect to and interiorly of the filling opening of a pyrophoric lighter casing, a part of the wall structure of said first named casing being movable relatively to adjacent wall structure by pressure applied thereto exteriorly of said pyrophoric lighter casing whereby fuel may be forced into the lighter casing.

In testimony whereof I have signed my name to this specification.

LOUIS V. ARONSON.