PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in or relating to Pocket or like Lighters.

Communication from ART METAL WORKS, INC., incorporated under the laws of the State of New Jersey, United States of America, of 46—50, Center Street, Newark, New Jersey, United States of America.

I, ALFRED ERNEST WHITE, C.I.Mech. E., Fellow of the Chartered Institute of Patent Agents, a subject of the King of Great Britain, of the firm of White, Langner, Stevens, Parry & Rollinson, of 5—9, Quality Court, Chancery Lane, London, W.C. 2., formerly of Jessel Chambers, 88—90, Chancery Lane, London, W.C.2, Chartered Patent Agents, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to pocket or like lighters such as are in common use as cigar or cigarette lighters. More particularly the invention discloses a pocket or like lighter adapted to utilize a suitable fuel, as jelly-like or semi-solid fuel for supplying the wick element.

According to one aspect of the present invention a lighter comprises a fuel container having spark-producing means carried by and disposed on the exterior of the container, and a wick in the container extending through a wall thereof to the vicinity of the spark-producing means, and in which the container has a mass of semi-solid or jelly-like fuel having a consistency adapting it to be gradually absorbed by the wick and as inflammable material fed by capillary action along the wick to the exterior of the container where it is pyrophorically ignited by the spark-producing means.

According to another aspect of the invention a pocket or like lighter comprises a fuel container adapted to carry pyrophoric lighting mechanism at one end thereof, a closure member detachably related to the other open end of the container, and means for retaining the closure member in closing position, said means comprising a threaded member having a disc-like head coacting with said closure member on the exterior surface thereof.

Other features of the invention will become apparent in the detailed description given below.

The invention is best explained by reference to the accompanying drawing which shows a side view of the improved pocket or like lighter with a portion of the fuel container cut away in vertical section to disclose the internal construction.

Referring to the drawing the upper portion of the lighter may be of a well-known construction and is included merely for the sake of completeness. The operation of lighting and extinguishing the wick is briefly as follows. Depression of a plunger 1 carries with it racks 2 meshing with pinions 3 to rotate the latter in a clockwise direction. A snuffer element 4 being keyed on a journal with pinions 3 rotates upward about the axis 5 in unison with pinions. At the same time an abrading wheel 6 is rotated with the snuffer. The teeth of wheel 6 in scraping against a pyrophoric element 7 produce a shower of sparks directed toward the exposed portion of a wick 8. As the snuffer 4 rotates upward some of these sparks coming in contact with the wick ignite the same which burns thereafter by utilizing the fuel supplied from the container.

When it is desired to extinguish the flame, the pressure is removed from plunger 1 which is restored to the position shown, by the reaction of a compression spring 9^1 against the bottom of a tubular member 9. As the plunger is restored it carries the racks 2 upward which in turn rotate the pinions 3 in counter-clockwise directions. This rotates the snuffer 4 downwardly about the axis 5 until it comes to rest in the position shown, completely covering the wick and thus extinguishing the flame.

Coming now to the novel features of the invention the container 10 is constructed with a removable base 11. The base 11 is adapted to be inserted in the lower end of the container 10 in the manner shown in the drawing, the portions 12 of the walls of the base engaging the inner walls of the container with a sliding fit. At the beaded portion 14 the walls of the

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base are abruptly thickened to provide a shoulder abutting the lower edge of the container 10 to provide a stop against further insertion of the base portion. The portion 13 of the base wall external to the container may be given the same external dimensions as the container proper. In order to provide an increased bearing surface between the container and base, however, the walls of both may be given increased thickness as shown at 15 and 16 respectively. In order to provide a fluid joint at this bearing a washer or packing 17 surrounds the base between the bearing surfaces of elements 15 and 16. In order to give the container a symmetrical appearance a beaded portion 15' may be provided near the top of the casing to correspond to the portion 15.

The base 11 is constructed of material such that the walls may be given a certain amount of resiliency, particularly the portion 12 thereof which slides within the container. At opposite sides of the longer axis of the base, the walls may be slotted vertically from the upper edge down a short distance as shown at 18 and 19'. The wall of the base is thus divided to the depth of the slot into two portions which may be given a slight but permanent bias away from each other so that with the base removed from the container the transverse dimensions at the upper edge of the base are slightly greater than the corresponding internal dimensions between the front and back walls of the container. Thus upon inserting the base into the container it becomes necessary to squeeze the sides of the base slightly together, but once the base is inserted and the pressure removed the resiliency of the material causes the base walls toward the upper edge to expand snugly against the interior walls of the container thereby providing a tight fit which by friction holds the base in position.

Additional means comprising a bolt 19 screw-threaded into a nut 20 are provided for maintaining the base permanently in position relative to the container. The bolt 19 may be riveted with a fluid tight joint through the top 21 of the container. The nut 20 extends with a sliding fit through an aperture in the bottom 24 of the base 11. The nut 20 may be provided with a flattened head 26 external to the base. The edge of the head 26 is preferably knurled so that the nut may be easily screwed onto the bolt manually. In addition the external surface of the head 26 is slotted transversely whereby the nut may be tightened up by means of a screw driver or the like. The external surface of the bottom 24 contains a circular indentation 27 into which the head 26 fits. Between the head 26 and the bottom 24 there is inserted a washer 25 of packing material for providing a fluid tight joint with the nut 20 screwed up tightly on the bolt.

At its upper edge the nut 20 may be surrounded by a sleeve member 22 which rests against a shoulder 28 on the nut, and is held in place by placing the nut at its upper edge against a curved portion of the sleeve as shown at 29. The sleeve 22 serves to prevent the nut when unscrewed from the bolt from falling through the hole in the base and thus possibly becoming lost. An internal flare 23 at the upper edge of the nut facilitates the location of the end of the bolt in the nut.

The pyrophoric element 7 fits into the end of a tube 30 extending through a sealed joint in the top 21 and down almost to the bottom of the base 11. The element 7 is maintained tightly against the abrading wheel 6 in the usual manner by means of a coiled spring 31 extending within the tube as shown. The end of the spring is affixed to a nut 32 as shown, the nut being screw-threaded into the lower end of the tube 30 and being provided with a knurled head 33 for tightening up the same. When the nut 32 is unscrewed and withdrawn, the spring will also be withdrawn from the tube allowing the loosely fitting element 7 to fall through. The tube 30 extends below the lower edge of the container 10 so that with the base removed, the nut 32 may be manually screwed into place.

The upper portion of the container 10 is filled with an absorbent material 34 such as cotton adapted to absorb the fuel for lighting the wick 8, the lower end of which is embedded in the material 34 as indicated on the drawing. The lower portion of the container may, if desired, be left free of cotton. With this arrangement the lighter is adapted to utilize a suitable fuel, as a semi-solid or jelly-like fuel to be burned by the wick.

A semi-solid fuel best adapted to use in the lighter would be one having a viscosity not much greater than that of ordinary petroleum jelly.

In order to supply the container with fuel the base 11 is first removed in the manner explained above, after which the container 10 is inverted. If a liquid fuel is utilized, it is poured into the open end of the container until the absorbent material 34 is well saturated, after which the base 11 is replaced and the nut 20 tightened on bolt 19, the lighter being then ready for use. A semi-solid or jelly-like fuel is placed in the inverted container 10 by means of any instrument. The fuel is packed tightly against the absorbent

material 34. Any desired amount of such fuel may of course be used at each charge, to the extent of completely filling the container. When the charge of fuel has been placed within the container as described the base 11 is replaced and nut 20 tightened, the lighter being then ready for use.

It will be noted that the lower end of tube 30 with the nut thereon lies wholly within the base. This avoids the necessity of providing a separate opening in the base 24 similar to that through which the nut 20 extends. This feature also minimizes the possibility of leakage from the container, and renders the removal of the base much handier than would be the case if the tube 30 extended through the bottom 24.

Since the absorbent material fills only a portion of the receptacle, a substantial space adjacent the filling opening is left free of absorbent material whereby considerable quantities of the jelly-like semi-solidified fuel may be quickly lodged in the receptacle in a position contacting with the absorbent material whereby such semi-solidified fuel may be slowly absorbed and fed into the wick as needed. With this arrangement sufficient semi-solidified fuel may be very quickly charged into a pocket lighter receptacle of the usual size to last for a period as long as several months, if desired, with ordinary use of the lighter. This invention not only provides for the admission of a greater quantity of fuel to the receptacle than is safely possible with the use of liquid fuel, but in addition the semi-solidified fuel is practically free from evaporation losses. This arrangement, therefore, not only affords great convenience as to the filling operation, but also renders it unnecessary to fill the lighter except at long intervals of time. The sphere of usefulness of lighters of this type is thereby greatly extended, and the inconveniences and possible dangers of the use of liquid fuel may be avoided.

While we have described the invention in detail and with respect to a certain embodiment thereof, we do not desire to be limited to such details or form, since many changes and modifications may be made and the invention may be embodied in other forms without departing from the spirit and scope of the invention in its broader aspects. Hence we desire to cover all modifications and forms coming within the language or scope of any one or more of the appended claims.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed (as communicated to me by my foreign correspondents), I declare that what I claim is:—

1. A pyrophoric lighter comprising a fuel container having spark-producing means carried by and disposed on the exterior of the container, and a wick in the container extending through a wall thereof to the vicinity of the spark-producing means, and in which the container has a mass of semi-solid or jelly-like fuel having a consistency adapting it to be gradually absorbed by the wick and as inflammable material fed by capillary action along the wick to the exterior of the container where it is pyrophorically ignited by the spark-producing means.

2. A pocket or like lighter comprising a receptacle containing a body of absorptive material which is adapted to gradually absorb a mass of jelly-like fuel lodged in contact therewith and supply the same by capillary action to a wick extending to a pyrophoric lighting means.

3. A pocket or like lighter comprising a fuel container adapted to carry pyrophoric lighting mechanism at one end thereof, a closure member detachably related to the other open end of the container, and means for retaining the closure member in closing position, said means comprising a threaded member having a disc-like head coacting with said closure member on the exterior surface thereof.

4. A pocket or like lighter according to claim 3 in which the closure member has a sleeve-like extension telescopically disposed with respect to the open end of the container.

5. A pocket or like lighter according to claim 3 or 4 in which an elongated member extends through the container from the top wall thereof and the threaded member is detachably associated with one end of said elongated member.

6. A pocket or like lighter comprising a fuel container with a relatively large aperture constituted by the open lower end of the container whereby fuel may be placed within the container in absorptive relation to a wick extending to pyrophoric igniting means carried by the outside of the container, and having a removable base partially inserted within the container, in which a shoulder on the base abuts a surface formed by a thickening of the lower edge of the container wall, said base being held in position by a tie member positioned within and fixed to the container, the lower end of said tie member being associated with a capped nut extending

loosely through the base and provided at its outer end with a flattened head for tightening the same to react against the base.

7. A pocket or like lighter according to claim 6, in which the removable base constitutes an extension to the container and has a resilient wall for insertion within the container whereof the upper edge is slotted longitudinally at opposite points and the edges flared slightly whereby with the base in position the wall of the base is expanded snugly against the container wall.

8. A pocket or like lighter according to claim 6, in which the capped nut extending loosely through the base is provided with an external sleeve to permanently associate it with the base and has for its inner end flared to facilitate location of the tie member therein.

9. A pocket or like lighter according to claim 6, in which the removable base is provided with a depression for the reception of the flattened head of the capped nut and a packing washer associated therewith.

10. A pocket or like lighter according to claim 2, in which the body of absorptive material only partially fills the receptacle so that the remaining space within said receptacle, amounting to at least in the neighborhood of one-half its capacity, is free of absorptive material whereby substantial masses of the jelly-like fuel may be introduced thereinto.

11. A pocket or like lighter substantially as hereinbefore described with reference to the accompanying drawing, for the purpose specified.

Dated the 27th day of February, 1929.

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Reference has been directed in pursuance of Section 7, Sub-section 4, of the Patents and Designs Acts, 1907, to 1928, to Specifications Nos. 275,877 and 123,602. This reference is inserted as the result of a Provisional Report under Rule 29 of the Patents Rules, 1920, as regards Claims 1 and 2.

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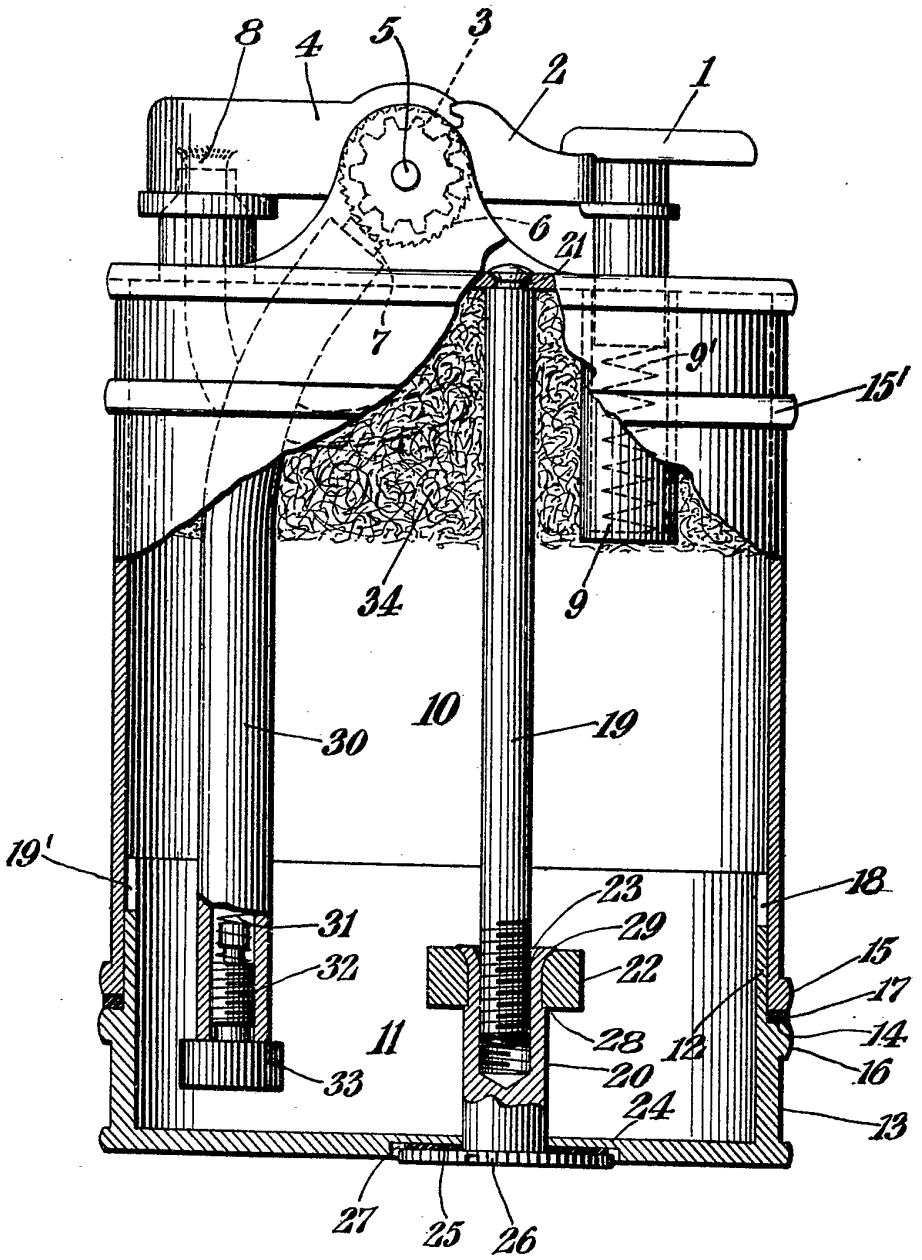

[This Drawing is a reproduction of the Original on a reduced scale.]

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