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## PATENT SPECIFICATION

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### COMPLETE SPECIFICATION

#### Improvements in or relating to Cigar and like Lighters

I, WALTER VOSS, a German Citizen, of 4, Van Montfoortlaan, The Hague, Holland (Assignee of HANDELSHAUS VOSS, G.M.B.H., a Corporation organised under the Laws of Germany, of Neukölln, Berlin, Germany), 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 cigar and like lighters of the kind in which the wick is fed with liquid fuel, said wick being provided on the fuel container, or carried by a removable torch or other carrier.

In connection with a pyrophoric-torch lighter, having a filling of liquid fuel and in which the torch is inserted, when not in use, in a chamber that is shut off from the fuel container, and from which chamber the torch is withdrawn for use and moistened with liquid fuel sprinkled from the container, it is already known to provide the fuel container with a dropping or sprinkling cap which enables the contents of the container to be dispensed by drops, not only for moistening the torch, but also for other purposes, such as removing stains or—when an alcoholic perfume is employed as the fuel—refreshing the user. The manipulation of such a lighter is not sufficiently simple, inasmuch as, for moistening the torch, it is necessary to sprinkle the latter, after its withdrawal from the chamber, with liquid fuel from the container. Moreover, this always necessitates shaking and tilting the lighter, as a whole, and in addition, this method of moistening the torch is always attended with considerable waste of fuel. Consequently, this lighter does not yet constitute a satisfactory embodiment of the idea of making a lighter suitable for ignition purposes and also for perfuming, refreshing and cleansing, with one and the same filling of fuel.

In pyrophoric torch lighters having a filling of liquid fuel and adapted to be used both for lighting and for perfuming and purifying purposes, it has moreover been proposed to mount the wick on a dropping cap on the fuel container and to allow it to project from this cap into the

interior of the container. With this arrangement it is necessary, every time that it is desired to use the wick for lighting purposes, to screw the whole dropping cap off the fuel container. Moreover the wick is moistened with fuel by immersion in the liquid filling in the container, and therefore no exact dosing of the quantity of fuel used each time for moistening the wick is possible, so that the fuel consumption is not economical. It is also easily possible for the filling of fuel to be contaminated by particles of soot from the wick projecting into the container, whereby the liquid fuel is rendered unsuitable for perfuming and purifying purposes. Finally, the connection of the wick to the dropping cap prejudices the simplicity of the design of this cap.

The present invention aims at obviating the foregoing drawbacks.

To this end, the invention provides a lighter comprising a liquid fuel container and a dropping or atomising cap thereon, in which a communication exists between the usual wick and a dropping or atomising cap, and the container of the liquid fuel, or is adapted to be established, between the wick and the liquid fuel container and in which said container is provided with means for enabling pressure to be exerted on the liquid fuel so as to effect the delivery of said liquid fuel to the wick.

The wick can be provided on the fuel container or it may be combined with a torch or other carrier adapted to be removed from the fuel container. In the latter case the delivery of liquid fuel to the wick which is effected with the aid of the means enabling pressure to be exerted on the liquid fuel, may take place also through the channel of the dropping or atomising cap.

The means for delivering the liquid fuel by pressure action may consist of a flexible wall provided on the container for the liquid fuel and which is adapted to force the liquid to the wick or to an independent dropping cap or to both the wick and the dropping cap. The dropping cap may also be employed for supplying the liquid by pressure action to the wick, and for this

purpose it must, according to the present invention, be located in such a position in relation to the wick—which is also in communication with the interior of the container—that, on being opened, it enables the liquid not only to be dispensed in the form of spray or drops, but also to be supplied to the wick under atmospheric pressure.

The employment of the flexible wall of the container for delivering the liquid enables liquid to be delivered for moistening the wick, by simple thumb pressure on the container. When the wick is seated on the fuel container, the communication with the interior of the container can be established, for example, by means of a small tube serving to supply the wick with the liquid. If the lighter is equipped with a wick torch, which reposes in a chamber adjoining the container when not in use, there is no need to withdraw the torch from said chamber for the purpose of being moistened, for communication may be established between the wick of the torch and the fuel container by means of a narrow passage between the chamber and the container, through which passage the liquid can be delivered to the torch through the agency of the flexible wall. The shaking and tilting of the liquid container, hitherto needed when using the dropping cap for dispensing liquid for perfumery or refreshing purposes, is also superfluous in these cases, because the flexible wall enabling the cubic capacity to be suddenly diminished, allows the liquid to be sprayed through the opened dropping cap, without any further aid. If the dropping cap is to be used for delivering the liquid to the wick under atmospheric pressure, all that is needed is to open said cap and allow the atmospheric pressure above the bore of the dropping cap to act on the surface of the liquid in the container and thereby force the liquid towards the wick.

Another advantage of the present invention consists in that the construction of the dual appliance is simple, inasmuch as plungers—such as have already been proposed for the delivery of liquid fuel in pyrophoric lighters—in particular, are dispensed with. Moreover, the delivery of the liquid, and especially to the position occupied by the wick, is effected in a highly economical, uniform and regular manner.

In order more clearly to understand the invention, reference is made to the accompanying drawings, which illustrate diagrammatically and by way of examples, several typical embodiments thereof, and in which:—

Figs. 1—5 show diagrammatic cross

sections; whilst

Fig. 5a is an elevation of a detail of Fig. 5.

According to Fig. 1, the tube 2 dips into the container 1, its lower end extending nearly to the bottom of the container, whilst the upper end projects through the top of the container with a perfectly airtight fit. The projecting extremity of the tube 2 is surrounded by the wick material 3, located in the sleeve 4 mounted on the container 1. The friction wheel 6 and flint 7 are mounted on the container 1 and near the sleeve 4. The container 1 is filled with a fuel liquid, such as Eau de Cologne, which is also suitable as perfume. The charging orifice is closed by the screw 5. To one side of the wick 3, and independently thereof, the top of the container 1 is provided with a dropping or spraying cap 25, which is of the usual pattern and communicates with the interior of the container by means of the bore 25<sup>1</sup>, adapted to be opened and closed at will—by turning the cover 25<sup>11</sup>, provided with a hole—and merging into a small tube 2<sup>1</sup>.

The side walls 8 of the container 1 are flexible, being of diaphragm design and curving outwards, so that, by the pressure of the fingers they can be forced out of the position shown by the continuous lines into that indicated by the broken lines, and then spring back automatically into the original position. On the sides 8 being pressed inwards, the resulting reduction of the cubic capacity of the container 1, subjects the contained liquid to a pressure which delivers a small quantity of the liquid, by way of the small tube 2, to the wick 3, thereby moistening the latter with fuel. This operation can be repeated, as often as desired, by pressing the walls 8 inward accordingly, so that the flame ignited by means of the friction wheel can be kept alight for a considerable time—long enough, for example, to light a pipe—with an economical consumption of the fuel. On the other hand, after the dropping cap 25 has been opened, the liquid can be sprayed for perfumery or refreshing purposes, through the bore 25<sup>1</sup>, by squeezing the walls 8 with the fingers. The tube 2 leading to the wick may be provided at its upper end with one or more holes, so that any of the liquid that may have risen in said tube, for example through the container being warmed by the heat of the wick flame, can flow back into the container. In this case, the container must be inverted for the delivery of the liquid to the wick by means of the walls 8.

Fig. 2 shows the employment of the dropping cap for delivering the liquid in the case of a pyrophoric-torch lighter, the

fuel container being unprovided with any flexible wall. In this case, the container 1 is provided on the side carrying the dropping cap 25 (and also the flint—not shown), with the chamber 22, which houses the torch 21 when not in use, and which communicates with the container 1, by means of a narrow passage 24, at its lower end, where a plug of absorbent material, for moistening the torch, is located. In order to deliver fuel to the absorbent 26 and the wick of the torch, when, owing to the consumption of the fuel in the container 1, the air pressure above the fuel has fallen too low for the fuel to flow, all that is necessary is to open the cap 25, by turning the cover 25<sup>11</sup>, whereupon the pressure of the outside air, acting through the bore 25<sup>1</sup> in the dropping cap, allows the liquid to flow to the wick of the torch at once.

As shown in Fig. 3, the lighter according to Fig. 2 may also be provided with a flexible wall 8, so that, apart from opening the dropping cap 25, the liquid can be delivered to the torch wick, through the hole 24, by pressing the wall 8. In other respects the construction of the lighter in Fig. 3 is identical with that in Fig. 2. When the liquid contents (such as Eau de Cologne) of the lighter according to Fig. 3 are intended to serve as a perfume or refresher, the cover 25<sup>11</sup> of the dropping cap 25 is turned into the open position, the liquid being then sprayed through the bore 25<sup>1</sup> of the cap 25, which can be effected by the aid of the flexible wall 8. The lighter according to Fig. 2 can be used for these same purposes in like manner.

Fig. 4 shows how the dropping cap 25 can also be mounted on the lower side of the fuel container 1, when not intended for the delivery of liquid to the wick. In this case a block 27 of heat-insulating material is attached—with an intermediate asbestos washer 29—to the head end of the container 1, by means of screws, and into said block are inserted the sleeve 30 carrying the absorbent wick 31, and the sleeve 37<sup>1</sup> carrying the friction wheel 34, together with the flint 35 and the pressure spring 37. The block 27 prevents any undesired transmission of heat to the container 1—provided with the dropping cap 25—and to the hand pressing the flexible walls 8 of the container, even during protracted use of the lighter. The wick tube 33 and the cap 38 surrounding the sleeve 37<sup>1</sup> may also consist of heat-insulating material, such as hard rubber. The cap may be integral with the washer 29 or it may be screwed as a separate piece into said washer. A covering cap, screwed on to the sleeve 30, can be provided for the

wick, in known manner, on the lighter shewn in Fig. 4, and also on that shewn in Fig. 1.

In order to avoid any undesirable soaking of the wick with the liquid in the container when the appliance is used solely for spraying or atomising, means may be provided for closing the communication between the container and the wick during the time the lighter is not used for the purpose of ignition. Said means may consist of a valve, located in the container and adapted to open and shut off communication between the wick and the interior of the container, and to be actuated from outside the latter. In details, the arrangement may be such—as shown for example in Fig. 5—that the wick 48—either alone or together with the friction wheel 49 and flint 50—is mounted on a carrier 51, adapted to be detached from the fuel container 52, which latter is provided with a fuel delivery outlet, which lies in front of the wick 48, when the wick carrier 51 and container 52 are assembled, and is closed by a valve 53 adapted to be opened from the outside of the container 52. In Fig. 5, the wick carrier 51 is in the form of a hollow, sheet-metal member adapted to be inserted in the overlapping bottom rim of the container 52 and housing the pressure spring 56 (for the flint 50), which is guided in a small tube 54 and is externally adjustable by means of the screw 55, said member also containing a plunger 58 adapted to be displaced along the axis of the wick by means of a knob 57. On the plunger 58 being pushed inwards, overcoming the action of the counter spring 59, it presses on the (for example) conical valve 53, which opens, compressing its closing spring 60. The valve 53 and spring 60 are guided in a sleeve 61, the interior of which communicates with the bottom part of the cavity of the container 52 by means of a small tube 62. The dropping- or spraying-cap 64 is mounted on the upper wall of the container 52.

When the valve 53 is kept open by pressure on the knob 57, and pressure is applied, at the same time, to the flexible wall 63 of the container, liquid fuel is delivered, through the tube 62 and the interior of the sleeve 61, to the wick 48 which is in direct connection with the valve orifice. When the pressure on the knob 57 is relieved, the plunger 58 can be driven outward again by the spring 59, and the valve 53 reclosed by the spring 60. To light the wick, the carrier 51 is then drawn out of the lower end of the container 52 (as shown in Fig. 5a), the flint 50 being brought into action by means of the friction wheel 49. In this

- manner, the lighted and burning wick 48 can be used independently of the container 52, thus entirely precluding and deleterious transmission of heat from the wick flame to the fuel container and its liquid contents. After the flame has been used, the wick carrier 51 is again inserted into the lower end of the container, the flame being thereby automatically extinguished, is this has not already occurred.
- The lighter of Fig. 5 can also be designed so that the ignition of the fuel-laden wick is effected automatically in withdrawing the wick carrier. With this object, a small auxiliary wheel may, for example, be mounted on the same holder as the friction wheel, so as to gear with the latter. In the act of drawing-out the wick carrier, said auxiliary wheel runs on a roughened track on the bottom of the container and transmits its rotary movement to the friction wheel. The valve closing the fuel container may also be arranged to open through the agency of the flexible wall of the container, said wall being connected with the valve by means of a lever or other suitable transmission device, in such a manner that the inward displacement of said wall opens the valve.
- Instead of pyrophoric ignition, the lighter of the present invention may be provided with electric ignition, for example by providing a dry battery, for feeding an incandescent wire arranged at the wick, said battery being located in the interior of the wick carrier 51 (in the lighter of Figs. 5 and 5a), or in a chamber adjoining the container 1 (in the embodiments of Figs. 1—4). Instead of electric ignition means, any other non-pyrophoric ignition means may replace the flint and friction wheel or the torch, in the arrangements of Figs. 1—5. In other respects, also, the lighter of the present invention may differ in point of detail from the examples shown in the drawings. Thus, for example, when pyrophoric ignition is employed, any mechanical means can be employed for actuating, jointly or singly, the friction member and the flint, in order to obtain that relative movement for generating the igniting sparks.
- Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—
- 1). A cigar or the like lighter comprising a liquid fuel container and a dropping or atomising cap thereon, in which a communication exists between the usual wick and the dropping or atomising cap, and the liquid fuel container, or is adapted to be established between the wick and the liquid fuel container and in which said liquid fuel container is provided with means for enabling pressure to be exerted on the liquid fuel so as to effect the delivery of said liquid fuel to the wick.
  - 2). Lighter as claimed in claim 1, in which the container has a flexible wall which can be employed for delivering liquid fuel to the wick.
  - 3). Lighter as claimed in claim 1, in which the container has a flexible elastic wall which can be used for delivering liquid fuel to the dropping or atomising cap independently of the wick.
  - 4). Lighter as claimed in claim 1, in which the container is provided with a resilient wall which can serve for delivering liquid fuel to both the wick and the dropping or atomising cap.
  - 5). Lighter as claimed in claim 1, in which the dropping cap can be employed for delivering the liquid fuel to the wick by pressure action, by being located on the container in such a position in relation to the wick which is also in communication with the interior of the container, that, on the dropping cap being opened, the pressure of the atmosphere forces the liquid fuel present in the container towards the wick.
  - 6). Lighter as claimed in claim 1, in which means are provided for interrupting and restoring the communication between the wick and the interior of the container.
  - 7). Lighter as claimed in claim 6, in which for the purpose of establishing and interrupting the communication between the wick and the interior of the container, said container is provided with a valve adapted to be opened and closed from outside the container.
  - 8). Lighter as claimed in claim 4, in which both the wick and the independent dropping cap communicate with the interior of the liquid fuel container, by means, in each case, of a small tube through which the liquid fuel is delivered to the wick, or to the dropping cap, by means of the flexible wall of the container.
  - 9). Lighter as claimed in any of claims 2 to 5, in which a chamber for the reception of a torch carrying the wick, is provided beside the liquid fuel container, said chamber communicating with the interior of the container through a narrow passage by way of which the liquid fuel is delivered to the wick of the torch by means of the flexible wall of the container, or by the atmospheric pressure brought into action by way of the opened dropping cap.
  - 10). Lighter as claimed in claim 1, in which the wick and the ignition means allotted thereto are arranged on a block of heat-insulating material, which is

mounted on the liquid fuel container, the latter also carrying the dropping cap which is independent of the wick.

11). Lighter as claimed in claim 7, in which the wick is located, either alone or together with the corresponding ignition means, on a carrier adapted to be detached from the liquid fuel container, and in which said container is provided with an outlet for the liquid fuel, which outlet comes into position in front of the wick when the wick carrier and liquid fuel container are assembled, and is closed by a valve adapted to be opened from the outside of said container, or of the wick carrier.

12). Lighter as claimed in claim 11, in which a plunger, adapted to be displaced from the outside, against the action of a

spring, and serving to open the valve, is guided in the wick carrier.

13). Lighter as claimed in claim 12, in which a small tube leads from the deepest point in the interior of the fuel container to a sleeve in which the valve is adapted to be displaced against the action of the spring.

14). Cigar or like lighters comprising a liquid fuel container having a dropping or atomising cap, constructed, arranged and adapted to operate substantially as described with reference to the accompanying drawings.

Dated this 16th day of November, 1935.

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

