March 22, 1955 A. COENDERS 2,704,446

LIGHTER PROVIDED WITH A FLINT AND A FRICTION WHEEL

Filed Jan. 20, 1951

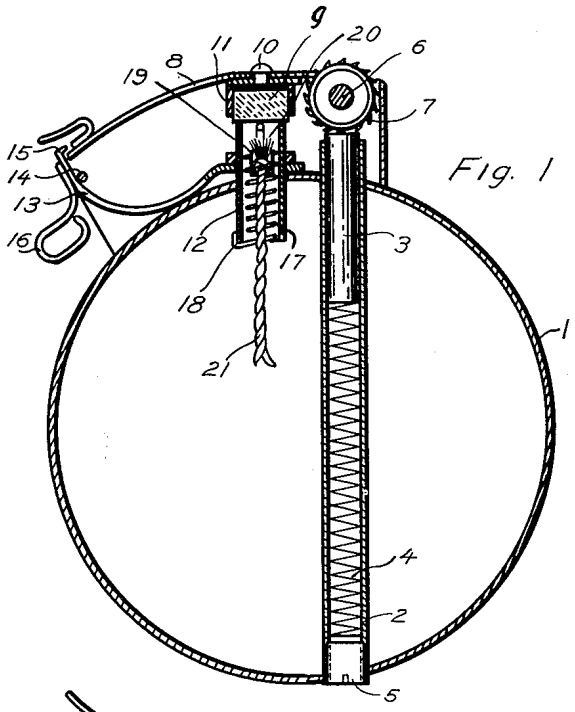

Fig. 1

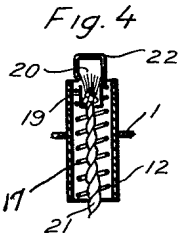

Fig. 4

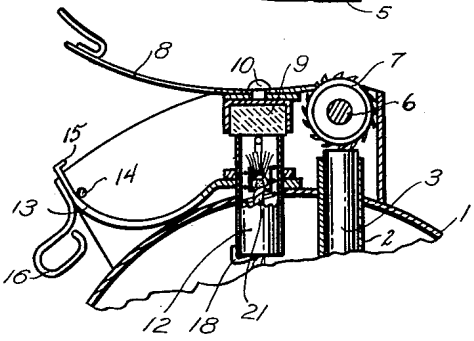

Fig. 2

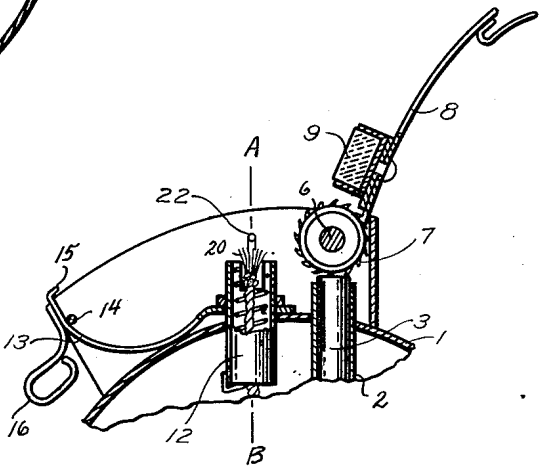

Fig. 3

INVENTOR

August Coenders

BY

Jerome W. Padden
Atty.

United States Patent Office

2,704,446

Patented Mar. 22, 1955

2,704,446

LIGHTER PROVIDED WITH A FLINT AND A FRICTION WHEEL

August Coenders, Dusseldorf-Kaiserswerth, Germany

Application January 20, 1951, Serial No. 206,942

7 Claims. (Cl. 67—7.1)

This invention relates to a lighter provided with a flint and a friction wheel and intended to be filled with liquid fuel. Hitherto the extinguishing of the flame and closing of the lighter was mostly effected by a cap which was turned over the end of the wick by means of a closing lever.

It is an object of the present invention to obtain a reliable seal so that the contents of a filled lighter evaporates after some time.

It is still another object of the invention to prevent the friction wheel and the flint from being wetted with fuel by the wick which is arranged close by.

With these objects in view the sealing of the tube accommodating the wick is effected by means of a sealing disc pressed over the edge of the wick tube, whereby the wick is pushed down into its tube.

According to another embodiment of the invention a spring member is mounted in the tube of the wick for returning the latter into the igniting position after the opening of the lighter. According to still another embodiment of the invention the upper end of the spring is bent into a loop surrounding the end of the wick, so that when the lighter is being closed the wick is pushed into its tube by pressure of the sealing disc onto the loop.

Further objects and advantages of the present invention will be apparent from the following description reference being made to the accompanying drawing wherein a preferred embodiment of the present invention is clearly shown.

Figure 1 is a cross section of the lighter in its closed position;

Figure 2 shows part of the lighter in the position after the release of the locking means;

Figure 3 shows it in the position at the termination of the ignition, and

Figure 4 is a section along the line A—B of Figure 3.

The lighter consists of a container **1** to be filled with liquid fuel and in which there is mounted a tube **2** for the flint **3** and its spring **4**. Over the flint there is mounted a spindle **6** carrying the small friction wheel **7**, the ends of the spindle being journalled in the side walls of a suitably fashioned wind guard **7A**. A lever **8**, preferably a resilient steel band is fixedly secured to the wheel by rivets or the like, the band being rotatable with the wheel **7** on the shaft **6**. The lever **8** carries a sealing disc or snuffer **9** of oil-proof rubber or other sealing material, which is mounted in a cup **11** secured to the lever **8** by means of a rivet **10**. When closing the lighter the sealing disc **9** comes to lie on the edge of the wick tube **12**, thereby sealing the same.

The locking of the lever **8** is effected by means of another leaf spring **13** which comes to lie against an abutment **14** when the closure is open. In the closed position, a projection **15** engages over the lever **8** and keeps the same in the bent down tensioned position. By applying pressure on the small handle **16** the locking spring **13** is bent out, thereby releasing the leaf spring **8**.

When released, the lever **8** first swings out as is indicated in Figure 2, without causing the friction wheel **7** to turn, and only when, swung out by its elasticity, it reaches its highest speed it also turns the friction wheel **7** upwards, thereby causing it to rub against the flint **3**.

A pressure spring **17** is mounted within the wick tube **12**, the lower end **18** of which spring is secured to the wick tube **12** being, for instance, soldered thereto. At the upper end of the spring **17** there is secured a cup **19** in which is mounted a tuft **20** of asbestos, glass fibre or

like non-inflammable material connected with the container **1** through the wick **21**. The upper end of the spring **17** is bent into a loop **22** which surrounds the tuft **20**, as is shown in Figure 4. By means of the loop **22** the wick can be pushed downwards against the pressure of the spring **7** when the lighter is being closed. The loop also ensures that the tuft is not damaged during closure. When the lighter is being opened the tuft is pushed upwards by the spring **17**, as can be seen from Figures 3 and 4.

The closure according to the present invention provides a perfect seal. A filled lighter provided with such a closure can be stored for a long period of time without any fuel being lost. Consequently the lighter can be filled with fuel through any opening (not shown) and be placed on the market ready for use. With such a construction a wetting of the friction wheel **7** and of the flint **3** by the fuel is no longer possible so that a sure ignition is obtained.

What I claim is:

1. In a pyrophoric lighter, a casing adapted to contain a liquid fuel, a sparking wheel carried by the casing, a flint disposed within the casing, spring means cooperating with the flint and casing to urge the flint against the wheel, a wick tube extending into the casing and having an open end projecting from the casing, such projecting end being spaced from the sparking wheel, a sleeve of lesser outer diameter than the inner diameter of the wick tube mounted within and spaced from the inner wall of the tube, a wick attached to the sleeve with a portion thereof extending above the sleeve, spring means secured to the tube and sleeve normally urging said sleeve and wick toward the open projecting end of said wick tube, a resilient lever attached at one end to the sparking wheel and normally curving upwardly from its point of attachment to the wheel to the free end thereof, a snuffer carried by the lever intermediate the ends thereof, and a locking member on said casing for engaging the free end of the lever to deflect and hold said free end of the lever downwardly to tension the same and to urge the snuffer against the projecting open end of the wick tube and displace the sleeve and wick against the action of the spring means away from the projecting open end of the wick tube, the release of the locking member allowing the resilient lever to flex away from the locking member thereby lifting the snuffer from the projecting open end of the tube to allow said spring means to urge the sleeve and wick toward the projecting open end of said tube and turning the sparking wheel to produce sparks and ignite the wick.

2. A pyrophoric lighter as defined in and claimed by claim 1 further characterized in that said snuffer includes a cup secured to the resilient lever, and a sealing disc disposed within said cup.

3. A pyrophoric lighter as defined in and claimed by claim 1 further characterized in that the portion of the wick extending above the sleeve comprises a tuft of non-inflammable material.

4. A pyrophoric lighter as defined in and claimed by claim 1 further characterized in that a loop element is carried by and extends above said sleeve surrounding the portion of the wick extending above the sleeve so that the snuffer engages the loop element to displace the sleeve and wick away from the projecting open end of the tube to prevent damage to the wick.

5. A pyrophoric lighter as defined in and claimed by claim 4 further characterized in that said loop element is an integral part of said spring means.

6. A pyrophoric lighter comprising a casing adapted to contain a liquid fuel, a sparking wheel carried by the casing, a flint within the casing, spring means cooperating with the casing and flint to urge the flint against the sparking wheel, a wick within the casing and having a portion extending beyond the casing in spaced relation to the sparking wheel, a resilient lever attached at one end to said sparking wheel and normally curving upwardly from its point of attachment to the wheel to the free end thereof, a snuffer attached to the lever intermediate the ends thereof, and a locking member on said casing for engaging the free end of the lever to deflect and hold said free end of the lever downwardly to ten-

sion the same whereby release of the locking member allows said resilient lever to flex away initially from the locking member about the point of attachment of the snuffer to the lever and thereafter rotate the sparking wheel to produce sparks for igniting the wick.

7. A pyrophoric lighter as defined in and claimed by claim 6 further characterized in that said locking member comprises a leaf spring attached at one end to the casing, and a projection on the opposite end of the spring for engaging the free end of the resilient lever.

References Cited in the file of this patent

UNITED STATES PATENTS

647,745	Eldridge et al.	Apr. 17, 1900
1,828,887	Aronson	Oct. 27, 1931
2,301,453	Reich	Nov. 10, 1942

FOREIGN PATENTS

15,171	France	Feb. 29, 1912
210,002	Switzerland	May 31, 1940
466,596	Germany	Oct. 9, 1928
723,190	France	Jan. 12, 1932