

**PATENT SPECIFICATION**

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**COMPLETE SPECIFICATION**

**Improvements in or relating to Pyrophoric Lighters**

We, COLIBRI LIGHTERS LIMITED, a British Company of 105—107, Wood Street, London, E.C.2, 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:—

The present invention relates to improvements in or relating to pyrophoric lighters. So-called striking lighters in which the flame is produced not on a wick attached to the fuel container but on a removable wick tube or rod are more convenient in operation for certain purposes, for example for lighting pipes. In known lighters of this kind the wick is carried in a tube which is scoop shaped at the end and provided with a hard steel tip and the wick is ignited by rubbing the hard tip against a piece of ferro-cerium which is attached to the fuel container. Such lighters frequently give rise to difficulties in operation particularly when the ferro-cerium has become rough and pitted by the striking operations.

It is an object of the present invention to provide an improved striking lighter which is convenient and efficient in operation and is not subject to the above disadvantages.

It is a further object of the invention to provide an improved striking lighter in which the fuel container as distinct from the lighter element proper, can be made extremely cheaply, so that it may economically be discarded when the supply of fuel is exhausted.

According to the present invention we provide a striking lighter element adapted to be used in conjunction with a separate fuel container, comprising two arms connected together at one end, one of said arms having means for mounting a wick or other absorbent material exposed at its other end and the other arm carrying at its other end a friction wheel and means for supporting a piece of pyrophoric material such as ferro-cerium hereinafter referred to as a flint abutting against the wheel.

When a flint is mounted in position, sparks will be produced when the friction wheel is rotated for example by rubbing it along a suitable surface. The two arms which may be in the form of tubes are so connected together that the free ends are or can be brought adjacent to one another so that the wick if impregnated with fuel can be ignited by rotating the friction wheel. Thus for example the two arms may be so connected together that when the wick has been ignited and the rubbing ceases, the arms spread apart from one another.

According to the present invention also we provide a striking lighter comprising a fuel container and a lighter element as above set forth the fuel container being provided with a striking surface and means for receiving the wick carrying arm of the lighter element so that the wick is in communication with the fuel. The striking surface may be made of any suitable material such that the friction wheel will be rotated upon being rubbed therealong. Rubber for example is very suitable for the purpose.

The fuel container may be of cheap construction and may if desired be provided with an easily breakable seal and it is sold fully charged with fuel. Thus for example the container may be provided with a socket for receiving the wick carrying arm, or sockets for receiving both arms, of the lighter element and the socket for receiving the wick carrying arm may be sealed with thin metal or in any other suitable way, said seal being adapted to be pierced when the said arm is inserted into the socket. Alternatively the fuel may be contained in a breakable ampoule, or capsule within the container.

According to a further feature of the invention therefore, we provide a charged fuel container for a striking lighter having a rubbing or friction surface thereon and a socket for the reception of the wick carrying arm of a lighter element as above set forth, said socket communicating with the interior of the container but being preferably provided with a seal adapted to be broken or pierced when it is desired to insert the wick into the container.

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Such a fuel container may be of cheap construction so that it can economically be discarded when the charge of fuel is exhausted.

5 The fuel container may be filled with any suitable fuel if desired applied to any suitable absorbent material.

In order that the invention may be well understood a preferred embodiment thereof will now be described by way of example only with reference to the accompanying drawing in which:—

Figure 1 is a perspective view of a preferred form of lighter according to this invention showing the two parts separated from one another.

Figure 2 is a side sectional view of the lighter showing the two parts in assembled condition.

20 Figure 3 is a perspective view of the fuel container when the seal has been removed.

Referring to the drawings the lighter comprises a fuel chamber 1 and a lighter element 2. The latter comprises a tube 3 adapted to receive a wick or the like 4 and a tube 5 formed at its end to provide a bracket 6 in which is rotatably mounted a friction wheel 7. Within the tube 5 is a spring 8 which serves for holding a piece of ferro-cerium 9 abutting against the friction wheel 7. The tubes 3 and 5 are connected together being each rigidly connected to a handle 10. The tube 5 is somewhat springy so that the friction wheel 7 can be caused to approach to the wick 4 when the friction wheel is rubbed along a suitable surface. The spring 8 is adjustably carried by a screw cap 18 screwing into the handle 10 and the tube 3 is closed at the top by a removable screw cap 19.

The chamber or container 1 is provided along one edge with a piece of rubber 11 along which the friction wheel 7 may be rolled to rotate it and produce sparks for igniting the fuel with which the wick 4 may be saturated. The container 1 is provided with two internally extending tubes or sockets 12 and 13. The tube or socket 12 is closed at the bottom and serves for the reception of the tube 5 and friction wheel 7. The tube 13 is open at the bottom and serves for the reception of the tube 3 and wick 4, the tube 13 being a close fit on the tube 3. The interior of the container 1 is filled with a suitable porous absorbent material 14 saturated with volatile fuel.

60 The particular lighter illustrated is so designed that the container 1 may be very cheaply constructed and may be sold ready filled with fuel and sealed by means of a seal 15 which may be of metal or of 65 any other suitable material. For the

purpose of piercing the seal when it is desired to use the lighter the tube 3 is provided at its end with a point 16. When the charge of fuel has been exhausted the container 1 may be thrown away and a new container ready charged may be purchased for use with the lighter element 2.

When the lighter is in use the tubes 3 and 5 will be carried in the sockets 12 and 13 respectively whereby the interior of the container 1 will be more or less tightly sealed from the atmosphere. When it is desired to operate the lighter the part 2 is withdrawn from the container 1 and the friction wheel 7 is rubbed along the striking surface 11, the element 2 as a whole being manipulated in much the same way as a match is manipulated when striking it.

It will be obvious of course that the invention is not limited to the particular form shown and above described and if desired, the tube 3 only may be accommodated within the container 1 whilst the tube 5 may be arranged to lie along the outside of the container or in a suitable seating.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A striking lighter element adapted to be used in conjunction with a separate fuel container, comprising two arms connected together at one end, one of said arms having means for mounting a wick or the like exposed at its other end, and the other arm carrying at its other end a friction wheel and means for supporting a flint abutting against the wheel.

2. A striking lighter element as claimed in Claim 1 in which the arms are rigidly connected together so as to be substantially parallel to one another.

3. A striking lighter element as claimed in Claim 1 in which the two arms are so connected together that the free ends can be brought close together when the friction wheel is rubbed along a surface to rotate the wheel and spread apart when the rubbing pressure on the wheel is relieved.

4. A striking lighter element as claimed in any of the preceding claims in which the end of the arm for supporting the wick is provided with a point or piercer.

5. A striking lighter element as claimed in any of the preceding claims in which the one arm comprises a tube for receiving a wick or the like.

6. A striking lighter element substantially as described and as shown in the accompanying drawing.

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7. A striking lighter comprising a fuel container and a lighter element as claimed in any of Claims 1 to 5 the fuel container being provided with a striking surface and means for receiving the wick supporting arm of the lighter element so that the wick would be in free communication with the interior of the container. 30
8. A striking lighter as claimed in Claim 7 in which the container is provided with a socket for receiving the arm carrying the friction wheel. 35
9. A striking element as claimed in either of Claims 7 or 8 in which the striking surface is made of rubber or like resilient material. 40
10. A striking lighter as claimed in any of Claims 7 to 9 in which a socket for receiving the wick arm is provided with a seal adapted to be pierced when the lighter is required for use. 45
11. A striking lighter as claimed in Claim 10 in which the container is sealed up containing a charge of fuel. 50
12. A striking lighter substantially as described or as shown in the accompanying drawing.
13. A charged fuel container having a friction or striking surface and a socket for the reception of the wick supporting arm of a lighter element as claimed in any of Claims 1 to 5 said socket communicating with the interior of the container but being provided with a seal adapted to be pierced or broken when the container is required for use. 35
14. A charged fuel container as claimed in Claim 13 having a second socket for the reception of the friction wheel arm of a lighter element as claimed in any of Claims 3 to 5. 40
15. A charged fuel container substantially as described or as shown in the accompanying drawing. 45
16. A fuel container adapted to be used with a lighter element as claimed in any of Claims 1 to 5 having two sockets adapted to receive the two arms of the lighter element respectively the socket for receiving the wick arm communicating with the interior of the container. 50

Dated this 30th day of April, 1934.

For the Applicants,

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Fig. 1.

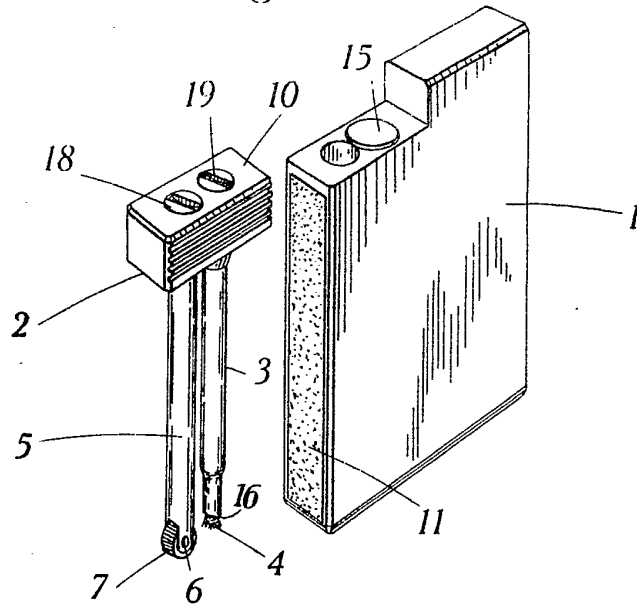


Fig. 2.

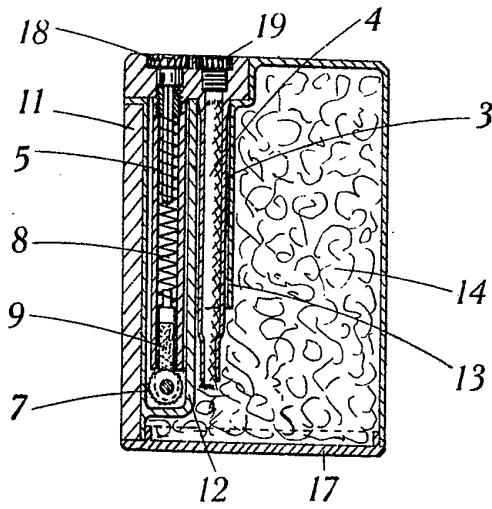
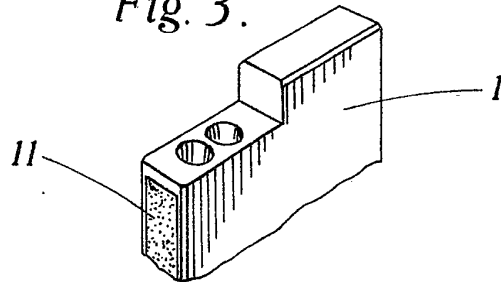


Fig. 3.



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