

# PATENT SPECIFICATION



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## COMPLETE SPECIFICATION.

### Pyrophoric Lighter.

We, Dr. H. KELLERMANN G.M.B.H., a Company organised under the Laws of the Republic of Germany, of 6—8, Ruschestr., Lichtenberg, Berlin, Germany, do hereby  
5 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:—

10 The present invention relates to a pyrophoric lighter of the kind claimed and described in British Patent 354,076 and forms an addition thereto.

Just as indicated in the patent referred  
15 to, also in the present case the extinguisher carrier adapted to be rotated round the pivot of the wheel file is provided with a link or bridge-like part engaging the extinguisher carrier at a point  
20 which, when the lighter is closed, is situated between the two vertical transverse parallel planes which pass through the pivot axle of the carrier and the wick holder respectively, said link or bridge  
25 being under the action of a spring and being adapted to be moved by a pressure lever in such a manner, that the extinguisher will be thrown open suddenly  
30 by the action of said spring after the dead point position has been overcome, thereby rapidly revolving the wheel file independently of the speed and intensity of the pressure of the finger.

The object of the present invention is a  
35 further development of the invention protected by the said main patent. It is the intention here to so develop the construction in accordance with the main patent that it may be applied to lighters of that  
40 known kind, in which the aperture of the casing provided for the passage of the flame is placed not at the top but at the side thereof, the pressure lever or part of the casing, by the movement of which the  
45 opening of the extinguisher is effected, being situated above the latter at the top of the casing. For this purpose an angular link is inserted between the bridge-like part, hingedly joined to the  
50 extinguisher, and the pressure lever serving as a handle, the arrangement of said

angular link rendering possible the disposition of the pressure lever above the extinguisher as described and a most compact  
55 structure of the whole lighter.

Preferably the spring which retains the extinguisher in its closing position and which, after overcoming the dead point position, effects the rapid movement of  
60 the extinguisher and of the wheel file, is also disposed between the bridge-like part and the angular link, i.e. in such a manner, that it exerts its pressure against said bridge-like part from above.

If the lighter is constructed so that it  
65 will close automatically, the second and stronger spring required for that purpose is disposed, in accordance with the present invention, between the pressure lever and a cranked arm which is hingedly  
70 joined to the frame of the mechanism and to said angular link and which also carries the pivot for the latter.

In the accompanying drawing one embodiment of the invention has been represented  
75 by way of example.

Fig. 1 is a side view of the lighter in the closed position,

Fig. 2 a front view and

Fig. 3 the rear view thereof.

80 Fig. 4 shows a side view of the mechanism of the lighter in the closed position, after being removed from the casing,

Fig. 5 a sectional view of this casing.

85 Fig. 6 shows the lighter in a vertical section through the upper part of the casing, the parts of the mechanism being shown in the open position.

Figs. 7 to 13 represent details of the mechanism of the lighter in various views,  
90 partly in section.

The lower part of the casing 1 of the lighter is formed by the fuel container 2. Through this container is passed the small tube 3 containing the pyrophoric pin 4  
95 which projects from said tube. The upper end of the casing 1 is open. At the front side of the upper part of the casing 1 a gap or opening 5 is provided which allows the flame to pass to the out-  
100 side. Holes or perforations 6 are arranged at the rear of the upper part of the casing.

[Price 1/-]

1, said openings serving for supplying air to the interior of the casing or for the purpose of ventilation.

The whole mechanism of the lighter, with the only exception of the pyrophoric element and the wick holder, is carried by a frame-like structure 7 (Fig. 8) which is connected with the casing 1 in such a manner that it may easily be detached therefrom. For the purpose of establishing this connection the end 8 of the wick tube (Fig. 5) projecting from the fuel container 2, is provided with a male thread, whereas the frame 7 possesses an opening 9 (Fig. 4) for the passage of the tube end 8. On this tube end 8 is screwed a nut 10 (Fig. 13) after the insertion of the frame 7 into the casing 1, the end of the wick then being made to pass through this nut. This nut may be constructed so as to serve for facilitating the adjustment of the wick in accordance with British Patent 305,988.

The common pivot for the wheel file 12 and the extinguisher carrier 13 is arranged at 11 on frame 7, both said parts 12 and 13 being coupled with each other in a usual manner, not illustrated herein, so that only in the opening movement of the extinguisher carrier 13 the wheel file 12 will be taken along with it as described in the main patent specification 354,076. The interior of the extinguisher carrier 13, which is shown separately in section and in plan view in Fig. 9, contains the extinguisher proper 14, resting under the action of a small spring 15 and being movable within narrow limits so that a reliable sealing of the end of the wick is ensured in that way.

The link or bridge-like piece 17 (Fig. 10) is pivotally connected with the extinguisher carrier 13 at 16, i.e. at a point situated between the wick tube 8 and the pivot 11 of the wheel file 12 and carrier 13, when said carrier is in the closing position. The other end of this link 17 is connected at 18 with an angular link 19 shown in detail in Fig. 11 in a side and a front view. At the bend 20 this link 19 is pivotally connected with a cranked arm 21 (Fig. 12), which at 22 is hingedly connected to the frame 7. The bearing in the cranked arm 21 for the pin arranged at 20 is formed by an oblong hole 23, which allows the required mutual yielding against one another of the parts when moving.

The angular link 19 is hingedly connected at 24 with the pressure lever 25, shown separately in Fig. 7 in a side view and in plan view. This pressure lever, as shown, has the form of a cap which is open below, its pivot being situated at 26. By means of this pivot 26 the pressure

lever 25 is connected on the one hand with the frame 7 and on the other hand with the casing 1, the pivot 26 passing through all these three parts. It is preferable to arrange the pivot 26 so that it can easily be removed. For this purpose it may be in the form of a bolt screw, so that, at this point too, the frame 7 and the casing 1 may easily be separated from one another.

A spring 28 is mounted on a pin-shaped projection 27 in the centre of the link or bridge-like part 17, the other end of said spring being seated on a hingedly arranged pin-shaped projection 29 of the angular link 19. A second and stronger spring 30 is disposed between the cap-like pressure lever 25 and the cranked arm 21 and is held in position on a pin-shaped projection 31 of the latter.

The operation of this lighter is as follows:

If the parts are in the closing position (Figs. 1—4) and pressure is now exerted by a finger on the cap-like pressure-lever 25, preferably on the milled or roughened part 32 thereof (Fig. 7), this pressure will be transmitted through the angular link 19 and the bridge-like part 17 to the extinguisher carrier 13, and the pivot point 16 will be caused to move and to cross the dead point position, i.e. the vertical plane passing through the pivot 11 and perpendicular to the plane of the drawing sheet. Whilst until that moment the spring 28 had the tendency to retain the extinguisher carrier 13 in the closing position, it will now, owing to the displacement of the parts, cause the rapid movement of the extinguisher carrier 13 and of the wheel file 12 coupled thereto, and, as a result thereof, the production of sparks of considerable intensity. The parts will thus be brought into the position represented in Fig. 6, the wick will be ignited, and the flame will be exposed through the aperture 5 of the casing 1.

During the said operation of pressing down the cap-like pressure lever 25 the stronger or closing spring 30 will be compressed too and thus be placed under tension. When now the pressure lever 25 is released, it consequently will jerk back under the action of the spring 30 into its original position, taking along with it all the other parts so that they will assume their original position, the extinguisher carrier 13 lowering down again upon the wick tube.

If it is desired, to remove the mechanism from the casing of the lighter for the purpose of effecting repairs or the like, it will only be necessary to remove the pivot 26 and the nut 10, whereupon the whole of the mechanism together with the

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frame or block 7 may be withdrawn from the casing in an upward direction. The replacement and attachment of the mechanism may then be effected in a corresponding simple manner. This feature is of importance also inasmuch as it will be possible in this way when assembling the lighter to postpone the insertion of the mechanism until the casing of the lighter has been completely finished and provided with all desired ornamentations, tarsia work or the like. Thus the risk of damaging the casing when inserting the mechanism will be obviated and also the necessity of touching up the casing again in consequence of being damaged.

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 modification of the pyrophoric lighter described and claimed in the parent patent 354,076, in which the extinguisher carrier is hingedly connected to a link or bridge-like part by means of a pivot arranged at a point which, when the lighter is closed, is situated between the vertical transverse planes passing through the pivot axle of said carrier and the wick holder, respectively, said link or bridge being under the action of a spring and adapted to be moved by means of a pressure lever, characterised in that between said link or bridge and said pressure lever a second angular link is arranged in such a manner, that the pressure lever is disposed above the extinguisher carrier.

2. A lighter in accordance with claim 1, characterised in that the spring retaining the extinguisher carrier in the closing position and effecting its rapid opening after overcoming the dead point position is disposed between the bridge-like part and the angular link and is made to press against the bridge-like part from above.

3. A lighter in accordance with claims 1 and 2, characterised in that a stronger closing spring is disposed between the pressure lever and a cranked arm hingedly joined to the frame of the mechanism and to the angular link.

4. A lighter in accordance with claim 1, characterised in that the mechanism of the lighter is arranged on a frame adapted to be connected with the fuel container in such a manner that it may be easily detached therefrom.

5. A lighter in accordance with claims 1 and 4, characterised in that the connection of the frame for the mechanism with the casing of the lighter is formed by a nut adapted to be screwed on to the threaded end of the wick tube capable of being passed through a hole in the frame.

6. A lighter in accordance with claims 1, 4 and 5, characterised in that the pivot for the pressure lever is made to pass through the frame and the casing of the lighter and is made to be easily detachable therefrom.

Dated this 28th day of October, 1932.

BARKER, BRETTELL & DUNCAN.

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

