

# PATENT SPECIFICATION

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## PROVISIONAL SPECIFICATION.

### An Improved Friction Lighter.

We, RAPHAEL VICTOR CLARKE, 155, Holden Road, N. Finchley, N. 12, and FREDERICK EDWIN LAWSON CLARKE, 155, Holden Road, N. Finchley, N. 12, both British, do hereby declare the nature of this invention to be as follows:—

The lighter consists of a metal reservoir containing inflammable matter with a screwed filler cap at the bottom of this reservoir.

On the top is a tube fixed with a pillar, horizontal with the reservoir, through which a shaft passes carrying at one end of it an abrasive wheel and at the other end a larger wheel by which the abrasive wheel is rotated.

The wick holder stands vertically on the

reservoir. A cap covering the wick is fixed on an arm which works in a saddle piece with a spring at the back of the saddle piece.

The flint tube containing the flint and spring passes vertically through the reservoir and is closed at the bottom with a screw, the top terminating just beneath the abrasive wheel.

The lighter can be used with one hand by lifting the arm and revolving the striking wheel with either the thumb or forefinger.

Dated the 21st day of January, 1927.

RAPHAEL V. CLARKE.  
FREDERICK EDWIN LAWSON  
CLARKE.

## COMPLETE SPECIFICATION.

### An Improved Friction Lighter.

We, RAPHAEL VICTOR CLARKE, British subject, and FREDERICK EDWIN LAWSON CLARKE, British subject, both of 155, Holden Road, N. Finchley, London, N. 12, 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 invention provides the hereinafter described and claimed improvements in friction lighters and the purpose of the invention is to constructionally improve upon the known type of lighter whereby an appliance is produced which can be easily operated and is neat and compact in appearance. The well-known type of friction lighter embodies a revoluble abrasive wheel acting upon a piece of flint or pyrophoric material adjacent to which is a small wick fed with an inflammable liquid from a reservoir or container, the latter usually being packed with cotton wool or the like soaked in petrol or other inflammable hydro-carbon.

In order to clearly differentiate the present invention from proposals hitherto made a review of the prior art will be advantageous. Hitherto a combined pocket lighter and lantern had an abrasive

wheel and an operating wheel located respectively at each end of a rod revolubly supported horizontally between two brackets upon the top of a reservoir or container for inflammable liquid, to which reservoir was fitted a casing constituting a lantern which by a door could be opened for lighting purposes, but in this arrangement the normal position of the rod was low down in the casing, with the operating wheel projecting through the casing, so that in order to remove the container from the casing the operating wheel had to be detached from the rod. In another arrangement of pocket lighter an abrasive wheel was rotatably supported above the top of the reservoir or container for inflammable liquid in the horizontal plane, but transversely or across the container, its spindle being located in a pair of bracket ears between which the abrasive wheel was disposed, the one end of the spindle having a loosely hinged ring connected to it for manual revolution of the spindle and abrasive wheel.

The invention relates solely to a friction lighter of the last described kind, wherein a revoluble shaft carrying an abrasive wheel and a hand moved part is permanently supported, as distinct from detachably,

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above the top of the reservoir or container for inflammable liquid, and provides an arrangement in which said shaft extends horizontally with, that is to say length-  
 5 wise of, the reservoir or container, and carries at its one end the abrasive wheel and at its other end a hand wheel, and in which both the flint tube and the wick tube stand up rigidly from the top of the  
 10 container at the same end thereof. Said shaft is revolubly supported in a tube extending for the full length of the shaft between the abrasive wheel at the one end and the hand wheel at the other end, this  
 15 tube to provide an effective bearing surface for the shaft and to hold said shaft against axial displacement.

The wick to be ignited is normally covered by a cap carried at the one end of an arm hinged to the top of the reservoir and parallel to the axis of the shaft. Said arm is movable to two distinct positions, and works in conjunction with a spring, backing up the extremity of the  
 20 pivoted end of the arm, but this feature is not new per se nor specifically claimed.

The tube is desirably supported by a pillar fixed to the upper end of the reservoir or container.

The invention is represented by the accompanying drawings upon which similar letters of reference denote corresponding parts throughout the several  
 30 views.

Fig. 1 is a front elevation of the improved friction lighter.

Fig. 2 is an end view of Fig. 1.

Fig. 3 is a plan of Fig. 1.

Fig. 4 is a rear elevation showing in  
 40 dotted lines the cap swung away on its arm to a vertical position from covering the wick and abrasive wheel.

Fig. 5 is an end view as in Fig. 2 showing the cap and arm raised to a  
 45 vertical position.

The container or reservoir *a* has horizontal length, vertical depth and transverse thickness and has a vertical pillar *a2* fixed to its top to support a tube *c* constituting a bearing for a revoluble shaft *d* having affixed at its one end the abrasive wheel *e* and at its other end the manually operated thumb or fingers grip wheel *f*. Disposed at right-angles to the shaft *d*  
 50 and below the axis thereof is the upper end *g* of a flint tube *g2* which extends vertically within the container or reservoir *a* and the flint or pyrophoric material *g3* is presented to the periphery of the abrasive wheel *e* by same being backed up  
 55 by the coiled spring *h* supported below by the shanked end of a peg *h2* located within said tube. The tension of the spring *h* is variable by means of a screw *i* engaging  
 60 a hole in the base of the container *a* which

hole is formed a distance from the tube *g2* so that the inner face of the head of the screw will abut against the end of the peg *h2*. A holder *j* for the wick *j2* is disposed  
 70 on the top of the container adjacent the abrasive wheel *e* so that sparks emitted thereby will tend to easily ignite the wick which is normally covered, together with the wheel *e*, by the cap *k* carried at the  
 75 one end of an arm *l* whose other end is secured by a hinge pin to the saddle *m*. Normally said arm *l* occupies the position shown in Figs. 1, 2 and 3, that is parallel with the axis of the shaft *d*, but it is adapted to be swung upwardly to a  
 80 vertical position as indicated in Figs. 4 and 5 to uncover the wick *j2* and the abrasive wheel *e*. The two positions aforesaid are influenced by the small limb spring *n* which operates against the  
 85 extremity of the arm *l*, which as will be seen from Figs. 2, 3 and 5, is located to the one side of the reservoir or container *a*. *o* is a screw in filler cap for sealing the container after the cotton wool or the like therein has been soaked with an inflammable liquid, and the end *o2* of said cap is desirably detachable by screw action so that the interior of said end *o2* serves  
 90 as a receptacle for spare flints.

The lighter is conveniently operated if held by the user in the right hand in the position shown in Fig. 1 the thumb of the user lifting the cap carried at the one end of the hinged spring-influenced arm *l*  
 100 whereupon by a clock-wise revolution of the wheel *f* by the thumb of the same hand the wick is ignited by sparks from the flint.

Having now particularly described and  
 105 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. In a friction lighter of the kind  
 110 wherein a revoluble shaft carrying an abrasive wheel and a hand moved part for revolving the shaft is permanently supported above the top of the reservoir or container for inflammable liquid, an  
 115 arrangement in which said shaft extends horizontally with, that is to say lengthwise of, the reservoir or container and carries at its one end the abrasive wheel and at its other end a hand wheel, and  
 120 in which both the flint tube and the wick tube stand up rigidly from the top of the container at the same end thereof, substantially as described.

2. A friction lighter according to Claim  
 125 1, wherein the shaft is revolubly supported in a tube extending for the full length of the shaft between the abrasive wheel at the one end and the hand wheel at the other end, said tube to provide an effective  
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bearing surface for the shaft and to hold the shaft against axial displacement, substantially as described.

3. A friction lighter in accordance with  
5 Claim 1 or 2 wherein a cap to normally cover the wick is carried at the one end of an arm spring hinged to the top of the container or reservoir and normally parallel with the axis of the shaft, sub-  
10 stantially as described.

4. A friction lighter in accordance with Claim 2 wherein the tube is supported by

a pillar fixed to the horizontal upper end of the container, substantially as described.

5. An improved friction lighter substantially as herein described with reference to the accompanying drawing.

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Dated this 5th day of October, 1927.

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

