

PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION.

No. 4545, A.D. 1925.

An Improved Friction Ignition Device or Petrol Lighter.

I, ERNEST ROBERT BENEY, of 11 & 13, Spenser Street, Victoria Street, Westminster, London, S.W. 1, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to friction ignition devices or petrol lighters of the kind comprising a wick saturated with petrol or other inflammable liquid or vapour, a stationary flint and a rotary toothed wheel intended to be rotated in contact with the flint in order to cause an emission of sparks whereby the wick is ignited.

The improved ignition device comprises a petrol tank and a wick holder mounted in one end thereof and supporting a wick dipping into the petrol in the tank. From the opposite end of the tank to that on which the wick holder is carried, a flint carrying tube extends from end to end or obliquely through the tank so as to pass out through a side wall of the tank near to the wick holder or this tube may be arranged on the outside of the tank. The flint tube is constructed to hold a flint of the material usually employed in such igniting devices in a convenient position adjacent to the wick holder, and the notched wheel is conveniently arranged to rub against the flint when rotating, the said wheel preferably projecting laterally from a wall or side of the petrol tank. A screw and spring are provided as usual for holding the flint in position in the tube and readjusting its position as it becomes worn away by use.

The end of the tank at which the said adjustment screw is provided has a filling aperture formed therein closed by a screw cap or other fluid tight closure.

[Price 1/-]

In this end of the tank there is also provided a small chamber in which spare flints can be stored or in which a box or carrier containing the spare flints can be lodged. Means may also be provided, preferably at this end of the petrol tank, to hold a pin useful for trimming the wick carried in the wick holder. The adjustment screw, screw cap and other parts at this end of the tank are enclosed by a hinged or removable cap or cover and from within this cap or cover one or more air conduits extend beside or within the petrol tank to the end of the latter on which the wick holder is mounted. The cap or cover has one or more perforations formed therein for the admission of air to the said air conduits, the perforations being arranged out of alignment with the air conduits so as to prevent a current of air flowing directly from the perforations in the cap to the wick holder, whereby the wick if ignited might be extinguished.

At the end of the petrol tank on which the wick holder is carried, a hinged or removable cap or cover is provided, the sides and top of which rise and extend above the wick holder and act as a draught screen. Access is had to the wick, or the flame burning thereat, through a hole in this cover which is closed by a hinged or sliding door. This door carries a lateral extension serving as a guard around the notched wheel when the door is in its closed position, and also carries a cap of the usual kind to close upon the wick holder in order to extinguish the wick if alight, and to serve as a closure to prevent evaporation or leakage from the wick when the latter is extinguished.

When the door is open, access can be had to the notched wheel to rotate the same and thereby to ignite the wick which is protected from the effects of draughts by the cap or cover at this end of the petrol tank, the opening provided allowing access to be had to the flame,

for example, for the purpose of lighting a cigarette.

Dated this 18th day of February, 1925. 10

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PROVISIONAL SPECIFICATION.

No. 28,840, A.D. 1925.

An Improved Friction Ignition Device or Petrol Lighter.

15 I, ERNEST ROBERT BENNEY, of 11 and 13, Spenser Street, Victoria Street, Westminster, London, S.W. 1, a British subject, do hereby declare the nature of this invention to be as follows:—

20 This invention relates to friction ignition devices or petrol lighters of the kind comprising a wick saturated with petrol or other inflammable liquid or vapour, a stationary flint held near to the wick and
25 a rotary toothed wheel intended to be rotated in contact with the flint in order to cause an emission of sparks whereby the wick is ignited.

The said invention more especially
30 relates to arrangements of the tube for holding the flint so as to bring the toothed wheel into a convenient position for actuation and also to bring the wheel and flint close to the wick tube but
35 nevertheless in such a position that the wheel and the flint will not be injured by a flame burning at the wick even when the flame remains alight for a considerable length of time, an inclined
40 arrangement of the wick tube itself aiding to obtain this result. The improved device also comprises a wind guard for the wick having an advantageous
45 arrangement of apertures for the admission of air to the wick to support combustion.

The improved ignition device comprises a wick holding tank having at one end thereof a wick tube block from which
50 the wick tube projects in an inclined direction. The said tank is preferably of a substantially rectangular or flattened oval cross-section and has a flint tube extending from the bottom thereof
55 more or less diagonally through the tank to the top at a point near the wick tube, the said flint tube being conveniently curved or bent on a large radius so that the upper protruding end thereof is
60 inclined away from the wick tube, but passage of the flints through the tube is not obstructed. By curving the flint tube the protruding end can be made to diverge from the wick tube at a greater

angle than would be possible if a straight diagonal tube were used. A part of the wick tube block is cut away to form a recess in which the flint tube is lodged, so that the flint and the wheel are below and to one side of a flame burning at the wick. The protruding upper end of the flint tube is constructed in the usual manner to support the spindle of the rotary toothed wheel which is preferably arranged close to the edge of the top of the tank, at or near to the centre of one of the longer sides in a rectangular tank, or on a part of the circumference at or near the end of the minor axis, in the case of an oval tank.

The upper end of the tank is provided with a hinged or removable cap or cover serving as a wind shield having apertures therein for the admission of air to support combustion. These apertures are preferably in the form of narrow slits below the wick tube. This cap or cover has an opening therein above the wick tube to allow access to be had to the flame, and to allow escape of the products of combustion. A hinged lid is provided to close this opening and, if desired, this lid can be conveniently constructed to carry an extinguishing cap by means of which the wick tube can be covered to prevent escape of vapour, and also to carry a guard for protecting a part of the toothed wheel projecting out through the said hinged cap or cover.

At the bottom of the tank, openings are provided closed by screw or other plugs through which the tank can be charged with petrol or the like and through which fresh pieces of flint can be introduced into the flint tube. This end of the tank can also be provided with a removable cap or cover enclosing the said plugs.

Dated this 16th day of November, 1925.

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COMPLETE SPECIFICATION.

An Improved Friction Ignition Device or Petrol Lighter.

I, ERNEST ROBERT BENEY, of 11 & 13, Spenser Street, Victoria Street, Westminster, London, S.W. 1, a British subject, 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 friction ignition devices or petrol lighters of the kind comprising a wick saturated with petrol or other inflammable liquid or vapour, a stationary flint and a rotary toothed wheel intended to be rotated in contact with the flint in order to cause an emission of sparks whereby the wick is ignited.

The said invention more especially relates to arrangements of the tube for holding the flint so as to bring the toothed wheel into a convenient position for actuation, and also to bring the wheel and flint close to the wick tube but nevertheless in such a position that the wheel and flint will not be injured by a flame burning at the wick even when the flame remains alight for a considerable length of time. The improved device also comprises an advantageous arrangement for the admission of air to the wick to support combustion.

According to this invention, the improved friction ignition device comprises a petrol tank which is of substantially rectangular, oval or flattened tubular cross-section provided with a cap or cover at one end thereof the sides of which rise and extend above the wick holder to act as a draught screen, a perforated cap or cover at the opposite end of the tank, and one or more air conduits extending between the said caps or covers. This tank has a flint carrying tube which extends obliquely outwardly with respect to a side wall of the tank from a part thereof near to the wick holder in such a manner that the sparks emitted from the flint are thrown off in an upward direction so that the wick tube can be arranged substantially above the point of contact of the flint with the wheel, and in order to bring the wick close to the point of contact between the wheel and the flint, the wick tube may be inclined outwardly towards the flint tube. The cap or cover serving as a draught screen has apertures therein in the form of narrow slits formed in the cap or cover below the level of the wick

tube, for the admission of air to support combustion.

In the accompanying drawing which shows how my said invention may be conveniently and advantageously carried into practice.

Figure 1 is a side view of the improved ignition device.

Figure 2 shows a vertical central section of the same with the upper removable cap or cover drawn off from the tank or body part.

Figure 3 shows a section on the line *x-x*, Figure 1.

Figure 4 is a plan view of the said tank or body part.

As shown in the drawing *a* is a tank containing a wick *b* which can be saturated with a suitable inflammable liquid or vapour, and part of which can be drawn out through a wick tube *c* mounted in a block *d* on the top of the tank. From the bottom of the tank *a*, a flint carrying tube *e* extends upwardly passing through or across the interior of the tank from one side thereof to the other so as to pass out from the top of the tank in an outwardly inclined direction. The upper end of this tube is extended to provide lugs or ears *f* in which the pivot *g* of a toothed wheel *h* is rotatably mounted. A spring *i* is provided within the flint tube to press a flint *e'* inserted in the tube, against the notched wheel *h*, the spring being retained in the tube, for example, by means of a screw plug *j*.

At the bottom of the tank, a filling aperture is provided closed by a screw cap *k* at one end of which a pin *l* may be provided which, when the screw cap is removed from the filling aperture, may be used for trimming the wick extending out through the wick tube. The screw plugs *j* and *k* are enclosed in a removable cap or cover *m*, as shown by the drawing, held on the tank or body part of the device by means of prongs *n* projecting from the said body part, and spring latches *o*. This cap *m* has one or more perforations *p* formed therein for the admission of air to air conduits *q* extending upwardly beside or within the petrol tank to the top thereof on which the wick tube block *d* is mounted. The space within the cap or cover *m* may be utilised to hold a box or carrier containing spare flints.

A removable cap or cover *r* is held on the top of the tank by prongs *n* and a

spring latch *o*, so that the sides thereof rise above the wick tube *c* and surround the same to act as a draught screen. Access is had to the wick or the flame burning thereat, through a hole *s* in this cover which can be closed by a hinged door or lid *t* which can be held in the open or closed position by means of a spring *u*. This door or lid *t* carries a lateral extension *v* serving as a guard around the notched wheel *h* when the door or lid is in its closed position, and also carries a cap *w* of the usual kind to close or cover the wick tube *c* on the block *d* in order to extinguish the wick, if alight, and to serve as a closure to prevent evaporation or leakage from the wick when the latter is extinguished.

When the door or lid *t* is opened, access can be had to the notched wheel *h* to rotate the same and thereby to ignite the wick which is protected from the effect of draughts by the cap or cover *r* at this end of the petrol tank, the opening *s* provided allowing access to be had to the flame, for example, for the purpose of lighting a cigarette. At or near to the lower edge of the cap or cover *r*, or between this edge and the top of the tank *a*, narrow slits *y* are provided to admit air for combustion into the interior of the cap.

The tank *a* is of a substantially rectangular or flattened oval cross-section and the part of the flint tube *e* carrying the notched wheel *h* is arranged to overhang or project laterally from the top of the tank at one side at a central part thereof so that when the tank is held in one hand by the user the wheel *h* can be conveniently rotated by a movement of the thumb whether the tank is held in the right hand or in the left hand. By curving the flint tube *e*, the protruding end can be made to diverge from the wick tube at a greater angle than would be possible if a straight diagonal tube were used, and the curvature of the tube allows a flint to pass freely through it, which would not be the case if the tube had an angular bend at any part thereof. By inclining the flint tube *e* and the wick tube *c* in the same direction, the wick tube is brought close to the point of contact of the wheel *h* with the flint *e* without causing injury to the flint or wheel by the action of the flame which in this case rises upwardly away from these parts. A part of the wick tube block *d* may be cut away as shown in the drawing to provide a recess allowing the flint tube to be brought close to the wick tube.

Having now particularly described and ascertained the nature of my said inven-

tion and in what manner the same is to be performed, I declare that what I claim is:—

1. A friction ignition device of the kind hereinabove specified comprising a petrol or like tank of substantially rectangular, oval or like cross-section provided with a cap or cover at one end thereof the sides of which rise and extend above the wick holder to act as a draught screen, a perforated cap or cover at the opposite end of the tank, and one or more air conduits extending between the said caps or covers.

2. A friction ignition device as claimed in Claim 1, wherein the flint carrying tube extends obliquely outwardly with respect to a side wall of the tank from a part thereof near to the wick holder.

3. A friction ignition device as claimed in Claim 2, wherein the flint tube is curved.

4. A friction ignition device as claimed in Claim 2, wherein the friction wheel is carried on an extension of the flint tube projecting laterally beyond a wall or side of the tank.

5. A constructional form of the friction ignition device claimed in Claim 4, wherein the flint tube extension and the friction wheel are arranged at or near to the centre of one of the longer sides in a tank having a substantially rectangular top, or at or near an end of the minor axis in the case of a tank with an oval top.

6. A friction ignition device as claimed in Claim 2, wherein the part of the flint tube extending out from the top of the tank is inclined outwardly away from the wick tube base and the wick tube is inclined towards the flint tube.

7. A frictional ignition device as claimed in Claim 1, provided with a cap or cover serving as a draught screen and having narrow slits for the admission of air for combustion at or near to the lower edge of the said cap or cover.

8. A friction ignition device as claimed in Claim 1, provided with a removable cap or cover having a hole in the top thereof closed by a door or lid.

9. A friction ignition device as claimed in Claim 8, wherein the door or lid carries an extinguishing cap and a wheel guard.

10. A friction device as claimed in Claim 1, constructed substantially as described with reference to the accompanying drawing.

Dated this 18th day of November, 1925.

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

