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COMPLETE SPECIFICATION.



Improvements in Pyrophoric Pocket Lighters.

We, KARL FRIEDRICH PROJAHN, a German citizen, of 5, Friedrichstrasse, Aschaffenburg, Germany, and ISIDOR GILLIS, a German citizen, of 1, Kaiserstrasse, Frankfurt am Main, Germany, 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 a pyrophoric pocket lighter for operation by one hand, of the type wherein the driving spring of the rotatable friction member is tensioned by depressing a lever (for example a lever carrying a cap for the wick) and the lever is locked in the depressed position and must be released to enable the lighter to be used when the tensioned spring actuates the friction member for producing a spark.

According to the present invention the lever, hingedly connected to the friction member by links, is held in the depressed tensioned position by a spring-pressed releasing bolt passing transversely through a bearing frame and being axially movable therein, this bolt being capable of being locked against unintentional movement and thus preventing release of the lever.

In the accompanying drawing is illustrated by way of example one form of construction of the invention.

Figure 1 is a longitudinal section of the mechanism for driving the friction member with the lever released.

Figure 2 is a side elevation of the mechanism for driving the friction member with the lever in the lowered position and the driving spring tensioned.

Figure 3 is a horizontal section on the line A—B of Figure 1 with the releasing bolt, and

Figure 4 is a partial section corresponding with Figure 3 with the releasing bolt in the secured position.

a indicates the bearing frame of U-shaped cross section mounted on the top of the fuel container. *b* the friction member fitted on the shaft *c* and rotated with this over an adjustable flint and *d* is a lever pivotally mounted at *e* and carry-

ing at its front free end an extinguishing cap *f*. The friction member is formed as a lever and its free end is hingedly connected by knee shaped links *g* to the lever *d* in such a manner that this is engaged between the two links and is adapted to be brought therewith into the horizontal closed position as shown in Figure 2. The rear portion *d*¹ of the lever *d* is in the form of a hook and its edge *d*² which is at the bottom when the lever is in the closed position, is sharpened in the manner of a knife blade (Figure 3). The shaft *c* of the friction member has a reduced portion and is provided with an enlarged head *c*¹ which bears against one side wall of the bearing frame whilst the reduced portion of the shaft is provided with a screw thread and is adjustable in the other side wall of the bearing frame by means of a nut *h*. The driving spring *i* coiled around the shaft *c* is located in an annular recess *c*² provided in the enlarged head *c*¹ and has one end connected to the latter and the other end to the bearing frame *a* or to the top of the fuel container. The shaft *c* is provided with flats *c*³ whilst the friction member *b* is provided with a lateral groove *b*¹ engaged by the flats so as to enable the friction member to be driven by the shaft.

Between the shaft *c* of the friction member and the pivot *e* of the lever *d* there is arranged parallel to the pivot *e* the axially movable releasing bolt *k*. This passes through the bearing frame and is guided in the two lateral walls thereof. Between these walls the bolt is formed with a shoulder adapted to cooperate with the edge *d*² of the lever *d*. The larger portion of the bolt bears with an enlarged head *k*¹ against one of the side walls of the bearing frame and its oppositely disposed end of smaller diameter, which passes through the other wall of the bearing frame, is provided with a screw thread on which is screwed the nut *l*. Between this nut, forming the pressure and actuating head of the releasing bolt, and the adjacent lateral wall of the bearing frame is provided a spring *m* which normally tends to move

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[Price 1/-]

the releasing bolt into the locking position. On the rear side the nut *l* is provided with a recess *l*¹ which is capable of accommodating the spring *m* in the depressed position. The nut *l* is of such dimensions that it can be conveniently gripped and has its periphery milled so as to facilitate its operation. In order to prevent the nut from being unscrewed from the free end of the releasing bolt and thus lost the end of the releasing bolt is somewhat enlarged after the nut has been screwed on.

When depressing the lever *d* from the position illustrated in Figure 1 to that illustrated in Figure 2, the driving spring *i* for the friction member *b* is tensioned and at the same time the spring-actuated releasing bolt *k* is moved axially in the direction of the arrow shown in Figure 3. This result is obtained as the sloped edge *d*² of the rear portion *d*¹ of the lever *d* bears with a lateral pressure against the shoulder of the releasing bolt *k* and pushes the latter laterally or outwardly. The reduced portion of the releasing bolt *k* is thus moved into the path of movement of the lever *d* and allows the projecting edge of the hook shaped portion of the lever *d* to pass. As soon as this edge has passed the releasing bolt the latter is returned in a direction opposite to that indicated by the arrow in Fig. 3, under the action of the spring *m*, which was compressed by the lateral movement and is now expanded, and moves its larger portion into the recess adjacent thereto in the rear portion *d*¹ of the lever *d*. In this position, shown in Figures 2 and 4, the depressed lever *d*, holding the driving spring of the friction member under tension, has its rear portion *d*¹ hooked on the releasing bolt *k* and can only be released by pressing the latter inwardly in the direction of the arrow Fig. 3. This is effected by pressing upon the actuating head of the bolt formed by the nut *l*. The enlarged portion of the releasing bolt *k* is thus moved backwardly and out of the hook shaped recess of the lever *d* to such an extent as to release the said lever and to enable the tensioned driving spring *i* of the friction member to expand. The spring thus rotates the friction member *b* and simultaneously actuates the lever *d*, connected thereto by the links *g*, moving this into the position shown in Figure 1.

If it is desired to secure the releasing bolt *k* and thus the tensioned drive of the friction member against undesirable actuation and ignition, then when the lever *d* is in its depressed position the actuating head formed by the nut *l* is

turned on the bolt until it bears against the adjacent side wall of the bearing frame (Figure 4). The spring *m* is thus compressed, and is accommodated in the recess *l*¹ of the nut. In this locked position of the releasing bolt axial movement thereof and release of the actuating mechanism of the friction member is rendered impossible. If the releasing member is to be released it is only necessary to unscrew the nut *l* until it again assumes the position shown in Figure 3.

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. Pyrophoric pocket lighter for operation by one hand, of the type described, characterised in that the lever, hingedly connected to the friction member by links, is held in the depressed tensioning position by a spring-pressed releasing bolt passing transversely through a bearing frame and being axially movable therein, this bolt being capable of being locked against unintentional movement and thus preventing release of the lever.

2. A pocket lighter according to claim 1, characterised in that the releasing bolt is formed with a shoulder between the lateral walls of the bearing frame so arranged relatively to a rear hook shaped portion of the lever that this is capable of being hooked on the bolt in the depressed position.

3. Pocket lighter according to claims 1 and 2, characterised in that the edge of the rear hook shaped portion of the lever, which is turned downwardly when the latter is depressed, is inclined and so arranged relatively to the shoulder of the releasing bolt located between the lateral walls of the bearing frame that the releasing bolt is moved axially when depressing the lever.

4. Pocket lighter according to claims 1 to 3, characterised in that the spring for the releasing bolt is located between a pressure and actuating head of the bolt and the adjacent lateral wall of the bearing frame.

5. Pocket lighter according to claims 1 to 4, characterised in that the pressure and actuating head of the releasing bolt is formed as a nut which is adjustable on the screw threaded portion of the bolt.

6. Pocket lighter according to claims 1 to 5, characterised in that the nut forming the pressure and actuating head of the releasing bolt is of a diameter substantially large relatively to the bolt, whilst its periphery is milled for the purpose of convenient operation by the thumb or finger.

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7. Pocket lighter according to claims 1 to 6, characterised in that the nut forming the pressure and actuating head of the releasing bolt is provided on its rear side with a recess adapted to receive the spring in the depressed position. 5
8. Pocket lighter according to claims 1 to 7, characterised in that the nut is prevented from being unscrewed from the screw threaded portion of the releasing bolt. 10
9. Pocket lighter according to claims 1 to 8, characterised in that the shaft of the friction member is mounted in front of the releasing bolt and parallel thereto, the friction member itself being in the form of a lever with its free end connected to the lever by means of knee shaped links enabling the lever to be depressed into the horizontal position. 15 20
10. Pocket lighter according to claims 1 to 9, characterised in that the links connecting the friction member to the spring actuated lever consist of two knee shaped links arranged on opposite sides of the lever. 25
11. Pocket lighter according to claims 1 to 10, characterised in that the spring driving the friction member and actuating the lever is wound spirally around the shaft of the friction member and is connected at one end to the latter whilst its free end is connected to the bearing frame or to the top of the fuel container. 30
12. Pocket lighter according to claims 1 to 11, characterised in that the driving spring wound spirally around the shaft of the friction member is located in an annular recess formed in an enlarged head on the side thereof turned towards one of the lateral walls of the bearing frame, the shaft itself at the opposite end being provided with a screw thread and capable of adjustment by means of a nut. 35 40 45
13. Pocket lighter according to claims 1 to 12, characterised in that the shaft of the friction member is provided with flats with which the friction member is engaged by means of a laterally open groove. 50
14. Pocket lighter according to claims 1 to 13, characterised in that at the free end of the lever there is provided in the known manner a wick or extinguishing cap. 55
15. Actuating mechanism for a pyrophoric pocket lighter constructed, arranged and adapted for use as a whole substantially as described with reference to the accompanying drawing. 60

Dated the 15th day of August, 1930.

For the Applicants:

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

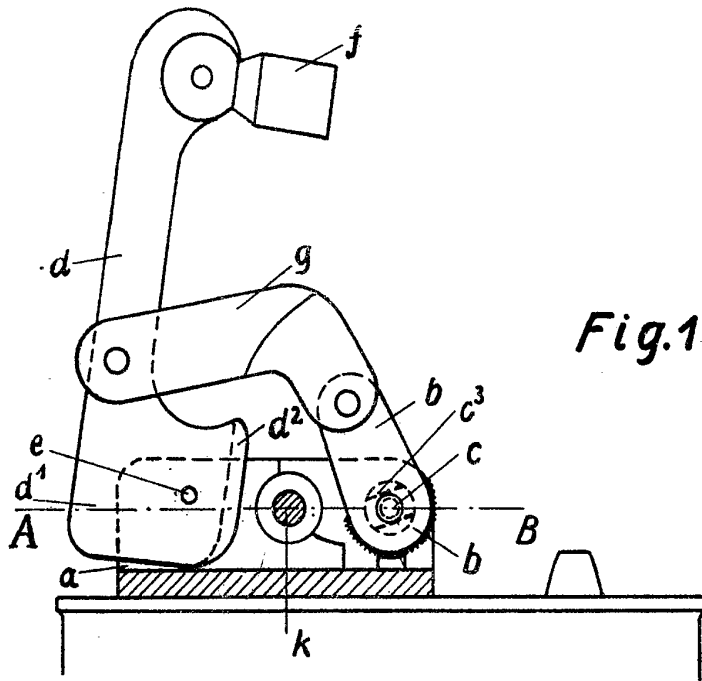


Fig. 1

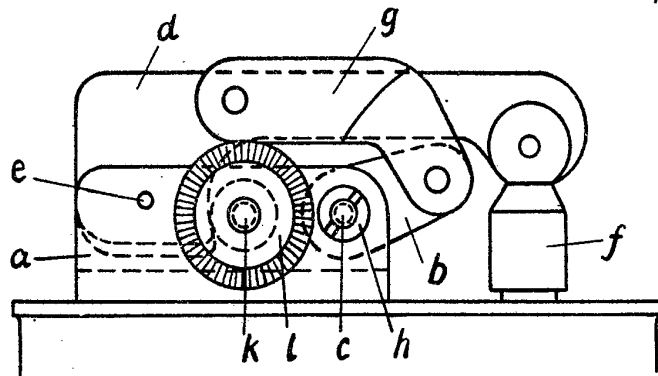


Fig. 2

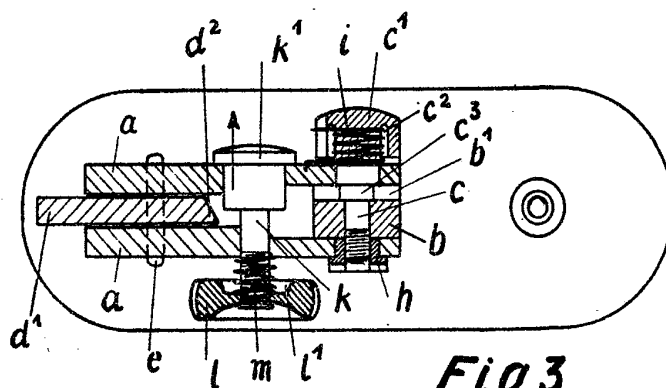


Fig. 3

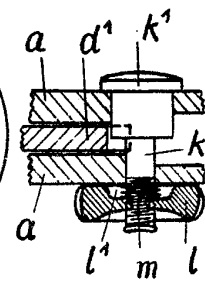


Fig. 4