Nov. 13, 1934. C. MALTNER 1,980,868

FRICTION LIGHTER

Filed Sept. 21, 1933

Fig.1

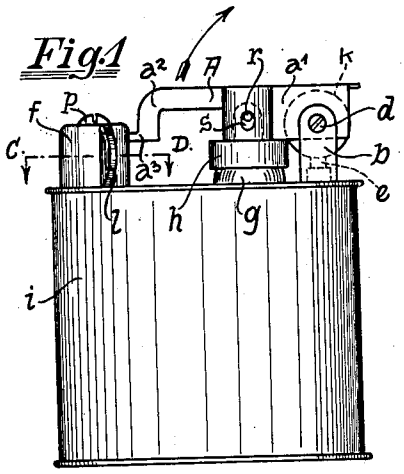


Fig.2.

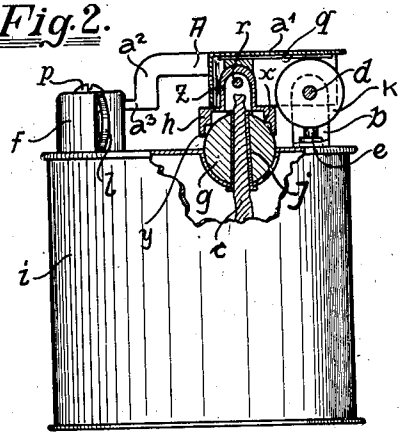


Fig.3.

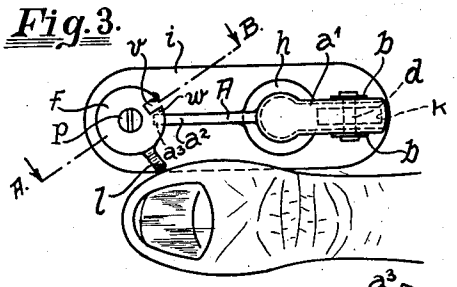


Fig.4

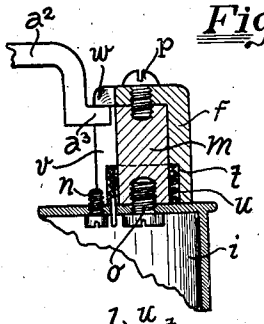
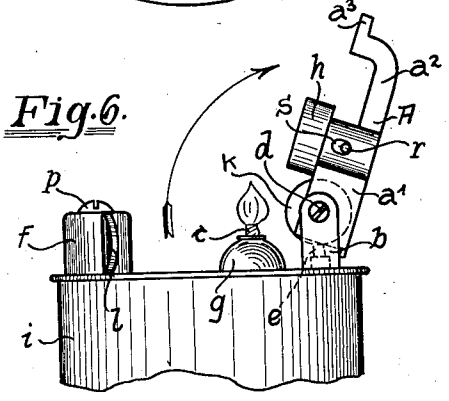


Fig.6.



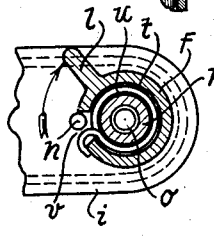


Fig.5

Inventor:
Carl Maltner
by David Rines
Attorney

Patented Nov. 13, 1934 1,980,868

UNITED STATES PATENT OFFICE

1,980,868

FRICTION LIGHTER

Carl Maltner, Offenbach-on-the-Main, Germany

Application September 21, 1933, Serial No. 690,381
In Germany September 21, 1932

2 Claims. (Cl. 67—7.1)

The invention relates to a frictional lighter, more particularly to a lighter of the type in which a friction wheel is rotated in contact with a body of a pyrophoric alloy for producing a spark emission which serves to ignite a fuel containing wick.

In friction lighters of this class a liquid fuel is contained in a receptacle, the top or cover of which bears an upward flinging arm carrying the extinguisher cap cooperating with the wick holder and the wick on one end of the top of the fuel container and a movable catch member for this upward flinging arm on the other end of the top of the container.

One of the problems solved by the invention consists in facilitating the work of the thumb of the hand holding the container in releasing the extinguisher cap carrying arm from the catch member taking care in an ample manner to the security against undesired release of the locking of this arm. It makes use of the positions which the thumb together with the fingers of the hand naturally assume when holding the lighter, and accomplishes the release of the locking device of the extinguisher cap carrying arm with the thumb fully extended or nearly extended, the thumb having, in effect, only to push. For this reason, the releasing member of the locking device is located in the neighbourhood of the top of the thumb towards the inside of the same and has a wing extending up and down along the length dimension of the locking device remaining within the area of the top of the container and being gripped by the thumb.

Another problem solved by the invention is to prevent evaporation of the fluid, or more or less solid fuel, when the lighter is not in use, which evaporation is promoted when the lighter is being carried about in the pocket through the warmth of the body, or otherwise through the warmth of the atmosphere.

As the extinguisher cap must surround the wick with adequate play in order that, when the carrying lever is flung upwards, it can move over a circular path round the pivot of the said arm, the evaporated fuel collects in the space thus formed and passes under the sealing edge of the cap into the open and is lost. The existence of this difficulty has already been recognized; and therefore, to prevent such loss, it has been proposed to provide a ball-sealing surface between the wick holder and the extinguisher cap. But as the ball-shaped wick holder had been made from pretty soft material the surface is likely to lose soon its ball-shape in use so that the evaporation sought to be prevented nevertheless does take place. It is therefore a further object of this invention to make the ball from hard and, particularly, from hardened bright polished, steel.

To the accomplishment of the foregoing and such other objects as will hereafter appear, my invention consists in the elements and their relation one to the other as hereafter more particularly described and sought to be defined in the claims, reference being had to the accompanying drawing which shows the preferred embodiment of my invention and in which:

Fig. 1 is an elevational view of the improved friction wheel lighter with the upwardly flinging arm carrying the extinguisher cap in closed position.

Fig. 2 is an elevational view thereof with parts broken away and the wick holder and extinguisher cap in longitudinal section.

Fig. 3 is a plan.

Fig. 4 is a section on line A—B of Fig. 3 through the locking device, on a greater scale.

Fig. 5 is a cross-section, on a greater scale, through line C—D of Fig. 1.

Fig. 6 is an elevational view of the lighter in its open position.

The carrying arm A for the extinguisher cap *h* is mounted to rotate on the spindle *d*, mounted in the lugs *b* on the fuel container *i* under the influence of an upward flinging spring (not shown). The friction wheel *k* rubbing on the flint *e* is disposed on the said spindle, and rotates with the arm A which is widened out at its one end into a casing a^1 which encloses the friction wheel. The part a^2, disposed on the other side of the extinguisher cap, is kept very small, is bent down at right angles, and terminates in an end piece a^3 which engages the locking device. The locking device consists of a short rotatable hollow cylinder *f* mounted to be under the influence of a coiled spring *u* and being provided with a lengthwise projection or wing *l* on the cylinder forming a thumb piece. This wing is formed in such a manner that it remains within the area of the lid of the container. On the container lid, a pin *m* is secured by means of a screw *o* passing through the said lid. The pin *m* forms a stationary pivot for the cylinder *f* which is prevented from moving axially by the screw *p*, which passes through a perforation in the top of the cylinder and is screwed into the pin *m*. The hollow cylinder *f* has an annular turned recess *t* for receiving the coiled spring *u* the one end of which is attached to the container lid, whilst the other end is fixed to the cylinder. A slot *v* is provided in the wall of the cylinder *f*, which slot

is continued into a narrower slot in the top end wall of the cylinder thus forming an end projection *w*. A screw *n* on the container lid projects into the slot *v* and limits the rotary movement of the cylinder under the action of the spring *u*.

When holding the lighter, the thumb is laid sideways, close to the spark producing device, so that the inside face of the top of the thumb lies against the thumb piece or wing *l* (Fig. 3). It, therefore, only requires a small push of the thumb, which causes the grip or wing *l* to function in order to swing the narrower end of the slot in the cylinder opposite the arm A carrying the extinguisher cap *h*. A small rotary movement of the cylinder is sufficient to move the end projection *w* from over the end a^3 of the arm A, the width of the lower portion of the slot *v* allowing the required movement, whereupon the arm A is hurled upwards. When the cylinder *f* is released by the thumb, it returns under the influence of the spring *u* to its initial position limited by stop *n*.

On the lowering of the arm A, the end piece a^3 of the same bears on the end piece *w*, which may be bevelled, and presses same to one side to rotate the cylinder so that the end piece a^3 can enter the slot *v* in which it is held, since the cylinder is driven back by the spring *u*, after the passage of the arm A below the end piece *w*, into the initial position. The wick *c* protruding from the fuel container *i* is held in the tube of mesh material *j* which is originally cylindrical and which is passed through a narrower cylindrical bore in a hardened bright polished steel ball *g*, whereby it is conically contracted. The ball is let into a recess in the container lid, in which it is held by folding back the ends of the mesh material. The extinguisher cap *h* has a dome-like lining *z* with a base turned to suit the spherical surface of the ball *g*. The turning is suitably stepped twice so that the dome rests on the ball in two zones *x* and *y*.

In order that the cap or dome should always adjust itself axially on the perpendicular main axis of the ball, the dome *z* hangs from a plate spring *q* (Fig. 2) in contact with its crown and is carried by pins *r* engaging in longitudinal slots *s* in the wall of the cap *h* (Fig. 1).

I claim:

1. A friction lighter comprising a fuel container, an upward flinging arm carrying an extinguisher cap, a wick holder partly let into the top wall of the container and formed as a ball of hardened material, a ball-shaped seal between the wick holder and the extinguisher cap, and a wick-guiding tube passing through the ball and holding the ball in position.

2. A lighter in accordance with claim 1 characterized in that the ball-like turning of the cap base is cut or stepped back more than once for the formation of more than one sealing edge.

CARL MALTNER