Dec. 20, 1949 A. H. ORMESHER 2,492,060

PYROPHORIC LIGHTER

Filed May 15, 1948

Fig.1.

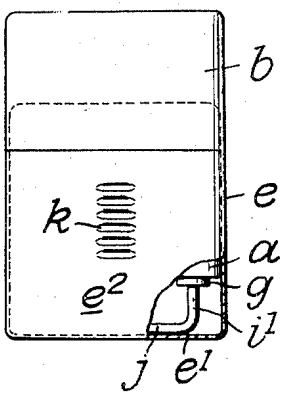


Fig.2.

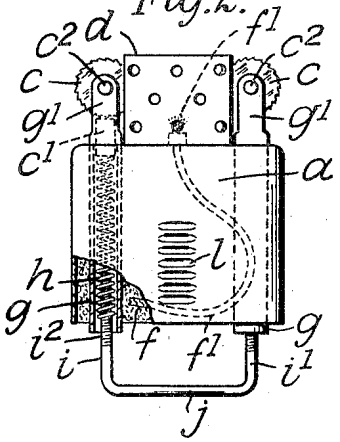


Fig.3.

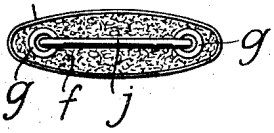


Fig.4.

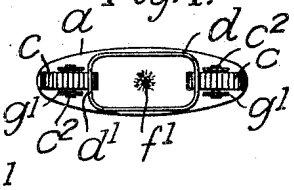


Fig.5.

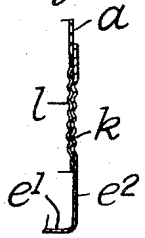


Fig.7.

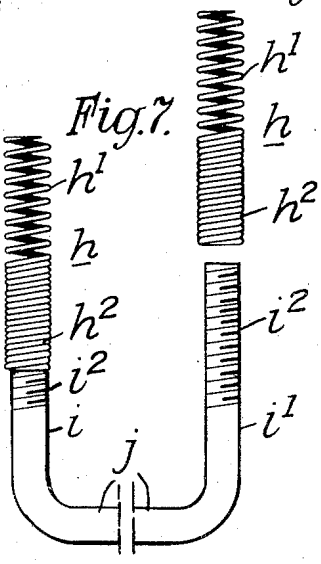
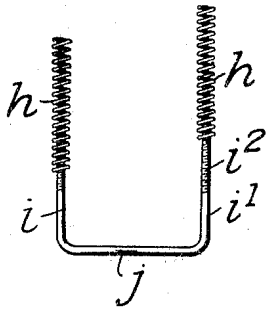


Fig.6.



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PYROPHORIC LIGHTER

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3 Claims. (Cl. 67—7.1)

1

The present invention has reference to frictional igniters or pyrophoric lighters of the kind in which the cylindrical or other flint is pressed into operative contact with the friction wheel by means of a helical spring located in a guide tube which extends into a casing.

In this kind of igniter, the casing is usually provided with a single friction wheel located to one side of the flame-guard and with a coiled spring pressing a single flint against the periphery of said friction wheel. The result is that if, from any cause, the wheel fails to operate so as to ignite the charged wick, or if the flint itself wears out, the device is out of action. Moreover, the adjustment of the pressure of the coiled spring upon the flint, is often a matter of difficulty due to various causes.

The present invention is applicable to small pyrophoric lighters or pocket igniters and has for objects to overcome those disadvantages and to provide duplicated igniting means associated with a single wick and single flame guard. It also has for objects to impart pressure simultaneously to the flints of said duplicated igniting means, to provide a fine adjustment of the spring pressure upon the flints and to provide a simple method of adjusting the pressure upon both said flints, and to provide a visual indication of the degree of pressure exerted.

The present invention is hereafter described with reference to the annexed drawings in which—

Fig. 1 is an elevation of a pocket igniter, with its upper and lower caps in position and a corner broken away. Fig. 2 is an elevation showing the main casing with its caps removed and a corner broken away. Figs. 3 and 4 are plan views of respectively the underside and the top of Fig. 2. Fig. 5 is a diagram showing the cap-member held in position on the main casing. Fig. 6 shows the U-shaped member detached to illustrate the screw-threaded arms engaged by the springs. Fig. 7 is an enlarged view of the U-shaped member and springs, the parts being separated.

The casing *a* is shown fitted at top with a sheath-like cover or cap *b* to protect the two friction wheels *c* and the single flame-guard *d*, said flame-guard being common to the wheels *c* and having gaps d^1d^1. A second sheath-like cap member *e* having a skirt e^2 covers the lower part of the casing *a* and can slide to a limited extent upon the latter.

The casing *a* contains fuel-charged wadding or the like *f* and also two parallel guide tubes *g*, which extend up the casing towards the friction

2

wheels. Each of these wheels *cc* is mounted on an axle c^2 extending between fork-arms g^1g^1 formed at top of the tubes *g*. The single wick is indicated at f^1 in Figs. 2 and 4, inside the flame-guard *d*. Wire compression springs *hh* are fitted in the tubes *gg* to press the usual flints (one of which c^1 is indicated in Fig. 2) against the friction wheels *c*, and these springs are themselves acted on by the parallel arms ii^1 of a U-shaped intermediate member having a mainly flat cross-piece *j*, the said member being formed, for example, from metal rod.

These parallel arms are detachably or releasably connected with the springs and they extend partly into the tubes *gg*. As shown in Figures 2 and 6, the arms ii^1 are screw-threaded externally at i^2i^2 to a pitch corresponding with that of the coils of the springs *hh* so that each spring can, when necessary, be adjusted along the corresponding arm.

By applying pressure to the cross-piece *j*, both the springs *hh* and the flints will be simultaneously pressed up the guide tubes *gg*. For that purpose, the cap member *e* which fits over this displaceable intermediate member, is slidable to a limited extent upon the casing *a* and its base or closure e^1 is adapted to bear against the flat cross-piece *j* (see Fig. 1) so that as the cap member *e* is pushed up the casing *a*, the pressure of the two arms ii^1 upon the two coiled springs *hh* will be increased. This one U-shaped member can thus simultaneously transmit the pressure upon both springs *hh* and the pressure on the spring can also be increased by unscrewing the spring along the arm.

The pressure-applying cap member *e* is also provided with means for holding it in the desired position upon the casing *a*. As shown in Fig. 1 and Fig. 6, I form the skirt e^2 of the cap member *e* with a series of spaced indentations *k* equidistant apart and adapted to engage and be sprung over a series of similar cross ribs *l* provided upon and upstanding from the casing *a*. These indentations and ribs thus inter-engage to form a spring-rack connection and serve to hold the cap member *e* in the desired pressure-applying position upon the casing *a*.

Because of the connection between the springs *hh* and the arms ii^1 and the cross piece *j*, the whole can be bodily removed, when required, from the lighter.

An advantage of the U-shaped member *iij* is that it can be turned through 180 degrees, so that the arm-carried spring *h* which has been provided for one guide tube *g* and the flint there-

in can be exchanged if necessary with those parts in the other guide tube. Thus either arm i and its spring can be employed for either tube g which is often advantageous, as will be obvious.

A further feature of my invention is that to secure the helical springs to the arms ii^1 in a manner which permits of a finer adjustment between spring and arm I form said helical springs h with coils h^1 which are open or of coarse pitch at the end adjacent to the flint, the said springs having closed-together or close-lapped coils h^2 at the opposite end. Such an arrangement is illustrated in Figure 7. The close-lapped coils h^2 resemble an internally screw-threaded sleeve with a thread of a fine pitch and the arm i engaging such close-lapped coils is externally screw-threaded to a pitch corresponding with that of the close-lapped coils h^2. By rotating the springs they can be screwed or unscrewed along the arm.

In this way, the length of spring extending beyond the end of an arm i can be varied and the pressure of the spring on the flint c^1 can be increased.

It is to be noted that pressure of the spring upon the flint can be regulated by the cap e acting on the arms ii^1 through cross piece j and a secondary adjustment of such pressure can be made by unscrewing the spring along its arm.

Storage space for aligned lengths of spare flints inside the tubes gg^1 can also be obtained by adjustment of the spring along the arm and towards the open end of the casing.

The cross section of the main casing a and of its extremital caps bc is preferably of flattened oval shape which is a suitable shape for a pocket igniter (see Figures 3 and 4) and the two sets of igniting means are preferably arranged symmetrically of the casing. The casing may, however, be of other shape in cross section.

It will be noted from Figs. 2 and 4 that the wheels cc pass in part through the sides of the flame-guard d.

As compared with the arrangement described in my co-pending application No. 27,311 filed on the same date, the pressure-transmitting member acted upon by the pressure-applying base e^1 of the slidable cap e, includes a cross-piece j between two parallel arms ii^1 and that cross-piece is mainly flat and directly acted upon by the base e^1 of the cap-member so that both arms i and i^1 are pushed up simultaneously.

What I claim is:

1. A pyrophoric lighter of the kind having a casing with duplicated, individually operable lighting devices thereon, said devices including guided compression springs pressing flints towards rotatable friction wheels, said lighter comprising a sheath-like cap closed at its outer end and adjustably slidable at its open inner end upon said casing, means for retaining said cap in an adjusted position on said casing, and an intermediate member consisting of parallel arms projecting from across-piece, each of said arms being connected at its extremity with one of said springs, and the closed outer end of said cap bearing against said cross-piece to apply pressure simultaneously through said arms to both of said springs.

2. A pyrophoric lighter having a casing and two parallel guide tubes enclosed therein, a coiled spring in each of said guide tubes, and a lighting device associated with each tube-guided spring, and comprising a skirted, base-fitted cap slidable in position upon said casing, means provided between the skirt-portion of said cap and said casing for retaining said cap in an adjusted position, and an intermediate member having a cross-limb and two parallel arms, said arms extending into said tubes and bearing against said coiled springs, said arms being screw-threaded externally to engage adjustably with the coils of said springs, the base of said cap contacting said cross-limb to apply pressure simultaneously to both said springs.

3. In a pyrophoric lighter which includes a casing, a single flame-guard mounted on said casing, a single wick projecting from said casing and into said flame-guard, parallel tubes extending through said casing, a flint and a compression spring located in each of said tubes, each said spring adapted to bear on the flint in that tube, and rotatable friction-wheels supported on said casing and each passing in part through a gap in said flame-guard, the combination of a U-shaped member having parallel arms engaging against said springs, said parallel arms being each releasably connected with one of said springs, a cap member slidable upon said casing and applying pressure constantly against both said springs through said U-shaped member, and means for holding said cap in an adjusted position, said holding means consisting of a spring-rack connection between said casing and said cap member.

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