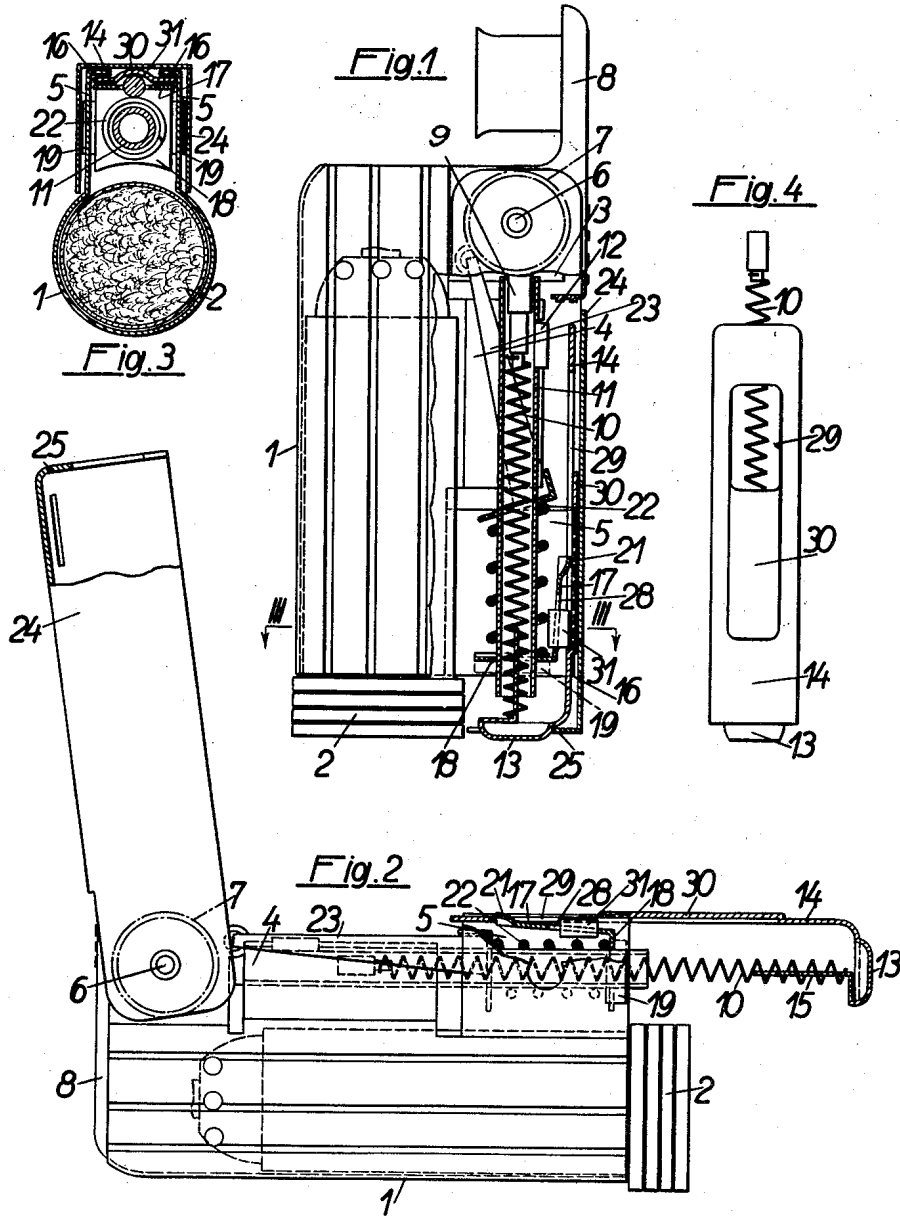


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PYROPHORIC LIGHTER

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This invention relates to pyrophoric lighters of that known type in which a flint spring bears with one end through the intermediary of a flint against the periphery of a friction wheel mounted in a lighter body, more particularly to improved means for holding, guiding and supporting the flint spring.

It is one object of the invention to provide a lighter of the type described, in which the flint spring is held strained by a casing part pivotally connected to the lighter body by means requiring no extra constructional expense for this purpose because they perform at the same time another function essential in the lighter.

It is another object of the invention to provide a lighter of the type described, in which the flint spring is supported so as to exercise no force on the points where the friction wheel shaft is connected to the lighter body.

It is another object of the invention to provide a lighter of the type described with means defining a spare flint space which is accessible only when the flint spring has been relaxed and in which the spare flints are not subjected to the force of the flint spring.

It is another object of the invention to provide a lighter of the type described with improved means preventing the unintended movement of the relaxed flint spring out of the lighter.

It is another object of the invention to provide a lighter of the type described with parts each of which performs several of the functions necessary to achieve any or several of the aforesaid objects.

It is one feature of the invention to provide in a pyrophoric lighter comprising a lighter body, a friction wheel shaft mounted in said lighter body, a friction wheel on said shaft, a flint spring having two ends one of which is supported by the periphery of said friction wheel, and a casing part supporting the other end of said spring, the improvement which resides in that said casing part is pivotally mounted on said friction wheel shaft. In this arrangement the oppositely directed compressive forces exercised by the two spring ends are balanced at the friction wheel shaft.

Other objects and features of the invention will become apparent from the following description of an illustrative embodiment of the invention shown on an enlarged scale on the accompanying drawings, in which:

Fig. 1 is a partly sectional side elevation showing the lighter in ignited position,

Fig. 2 is a partly sectional side elevation showing the same lighter in position for receiving a flint,

Fig. 3 is a cross-sectional view of the lighter, taken on line III—III of Fig. 1, and

Fig. 4 is a side view showing as a detail a slide member connected to the flint spring.

The lighter body, which holds all essential parts of the lighter, consists of a rolled-up sheet metal cylinder, 1, which is open on one side and at both ends. The fuel tank 2 is pushed into the body 1, which is formed at its longitudinal edges with three pairs of projecting lugs 3, 4 and 5. The upper pair of lugs 3 carries a pivot pin or shaft 6 on which the friction wheel 7 is rotatable and the cover 8 is pivotally mounted. The tube 11 containing the flint 9 and the spring 10 is held by the lugs 4, each of which embraces one half of the tube. The tube 11 has a filling opening 12 for the flint.

The spring 10 is engaged at its ends remote from the

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flint by the flange 13 of a slide 14. Preferably the spring is passed over a tongue 15 which is bent from that flange to extend parallel to the flat main portion of slide 14. The lower pair of lugs 5 forms the longitudinal guideways for the slide 14. These guideways consist of the inwardly bent longitudinal margins 16 of the lugs 5 (Fig. 3) and of a resilient tongue 17, which is bent at right angles from a transverse or end wall 18 connected to the lugs 5 by small, laterally bent lugs 19 and determining the distance between lugs 5. The lower end of tube 11 is stuck through and gripped in a central aperture in the transverse or end wall 18. A tilting spring 22 pushed on the flint tube 11, in a manner known from other lighters, is supported at one end by the transverse wall 18 and bears with its other end against the end wall of a rocker lever 23, which is longitudinally guided with that end wall along the tube 11 and accelerates the pivotal movement of the cover, effected with the finger. The rocker lever 23 holds the cover in both of its end positions.

The sparking mechanism described hereinbefore is covered in the normal position of the lighter by a channel-shaped casing part 24 pivotally movable about the friction wheel shaft 6. In the normal position of the lighter, shown in Fig. 1, the apertured end wall 25 of that casing part supports the flange 13 of slide 14 against the action of the flint spring 10 and thus forms an abutment for the spring end remote from the flint.

Due to the spacing of the slide 14 from the flint tube 11 a small space is left free between these parts and the lugs 5. That space may be used for keeping at least one spare flint 31. The tongue 17 extends longitudinally in that space and has a window 28. The slide 14 has a similar window 29 (Fig. 4). When the slide has been pulled into its open position, both windows 28 and 29 register. A boss 21 projecting outwardly at the end of tongue 17 engages the upper edge of the window 29 of the slide to form a stop limiting the opening movement thereof (Fig. 2).

Next to the window 29 the slide 14 is formed with an outward bulge 30 (Fig. 4) to enlarge the space for keeping the spare flint 31.

When the slide 14 is in its active position (Fig. 1), in which it holds the flint spring 10 strained, the slide shuts off the spare flint space from the outside.

When the flint 9 held between spring 10 and friction wheel 7 has been used up, the lighter is brought into the horizontal position shown in Fig. 2, the casing part 24 is swung open and the slide 14 is moved into its open position as far as permitted by the stop boss 21 on tongue 17. Thus a complete removal of the slide from its guideways is prevented. In that position of the slide 14 the filling opening 12 of the flint tube 11 is open and the windows 28, 29 of tongue 17 and slide 14, respectively, are in register to enable the spare flint 31 to be taken. Now the spare flint can be inserted into the flint tube. A new spare flint can be placed into the spare flint space, if desired. Then the slide 14 is pushed back along its guideways to strain the spring 10. The casing part 24 is closed to act again as a support for the slide flange 13 and of the spring end. Thus the lighter is ready for use again. The size of the spare flint 31 space, which may be capable of receiving several spare flints, is determined by the distance between flint tube 11 and slide 14. Owing to the clearance required for depressing the tongue 17 so that the slide can be moved entirely out of its guideways, that distance will in any case be sufficient to permit at least one flint to be accommodated in the space confined by the window 28 of the tongue 17.

The slide 14 is rigidly connected to that end of flint spring 10 which is remote from friction wheel 7.

The casing part 24 is movable relative to the lighter

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body 1 between a first position (Fig. 1), in which it holds the spring 10 strained and supports it at the end remote from the friction wheel, and another position (Fig. 2), in which it permits the spring to relax. At least in a final phase of its movement from said other position to said first position the casing part 24 is in guided engagement with the pair of lugs 5 rigid with the lighter body.

The flint spring tube 11 accommodating the spring 10, and the flat slide 14 are laterally spaced from each other to provide in the casing part 24 a space, which is confined by the lugs 5, the slide 14 and the tube 11 and adapted to accommodate at least one spare flint 31.

What is claimed is:

1. In a pyrophoric lighter, the combination of a lighter body, a friction wheel shaft mounted in said lighter body, a friction wheel on said shaft, a flint spring tube rigid with said lighter body, a flint guided in and protruding out of said flint spring tube and engaging the periphery of said friction wheel, a flint spring accommodated in said tube and having two ends, one of which is supported by the periphery of said friction wheel through the intermediary of said flint, a casing part pivotally connected to said lighter body only on said friction wheel shaft and supporting the other end of said spring, a pair of lugs rigid with and projecting from said lighter body, said casing part being movable relative to said lighter body between a first position in which it supports the other end of said spring and holds said spring strained and another position in which it permits said spring to relax, said casing part being in guided engagement with said pair of lugs in a final phase of its movement from said other position to said first position, a slide having a flat main portion extending in longitudinally guided engagement with said lugs outside said flint spring tube, and a flange rigidly connected to said other end of said spring, a resilient guide member disposed between said lugs to guide said slide and prevent its movement in the spring relaxing sense beyond a predetermined limit after the movement of said casing part from said first to said other position, and an end wall rigidly connecting said lugs and holding said flint spring tube.

2. In a pyrophoric lighter, the combination of a lighter body, a friction wheel shaft mounted in said lighter body, a friction wheel on said shaft, a flint spring tube rigid with said lighter body, a flint guided in and protruding out of said flint spring tube and engaging the periphery of said friction wheel, a flint spring accommodated in said tube and having two ends, one of which is supported by the periphery of said friction wheel through the intermediary of said flint, a casing part pivotally connected to said lighter body only on said friction wheel shaft and supporting the other end of said spring, and a slide having a flat main portion extending in longitudinally guided engagement with said lighter body outside said flint spring tube, and a flange inserted between said other end of said spring and said casing part, said slide and tube being laterally spaced from each other to provide within said casing part between them a space adapted to accommodate at least one spare flint.

3. In a pyrophoric lighter, the combination of a lighter body, a friction wheel shaft mounted in said lighter body, a friction wheel on said shaft, a flint spring tube rigid with said lighter body, a flint guided in and protruding out of said flint spring tube and engaging the periphery of said friction wheel, a flint spring accommodated in said tube and having two ends, one of which is supported by the periphery of said friction wheel through the intermediary of said flint, a casing part pivotally connected to said lighter body only on said friction wheel shaft and supporting the other end of said spring, and a slide having a flat main portion extending in longitudinally guided engagement with said lighter body outside said flint spring tube, and a flange inserted between said other end of said spring and said casing part, said casing part being movable relative to said lighter body between a first position

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in which it supports the other end of said spring and holds said spring strained, and another position in which it permits said spring to relax, said casing part covering said slide and tube in said first position, said slide being formed and arranged to close said space toward the outside in its position corresponding to the strained condition of the spring.

4. The combination set forth in claim 3, which comprises a stop member affixed to said lighter body and in which said slide is formed with an aperture giving access to said space in the position of the slide corresponding to the relaxed condition of said spring, said aperture having an edge adapted to engage said stop member to prevent the movement of said slide in the spring relaxing sense beyond a predetermined limit after the casing part has been moved from said first to said other position.

5. The combination set forth in claim 3, which comprises a stop member affixed to said lighter body and extending in said space in engagement with said slide and in which said slide is formed with an aperture giving access to said space in the position of the slide corresponding to the relaxed condition of said spring, said aperture having an edge adapted to engage said stop member to prevent the movement of said slide in the spring relaxing sense beyond a predetermined limit after the casing part has been moved from said first to said other position, said stop member having an aperture laterally delimiting said space and registering with said aperture in said slide in the position of the slide corresponding to the relaxed condition of the spring.

6. In a pyrophoric lighter, the combination of a lighter body, a friction wheel shaft mounted in said lighter body, a friction wheel on said shaft, a flint spring tube rigid with said lighter body, a flint guided in and protruding out of said flint spring tube and engaging the periphery of said friction wheel, a flint spring accommodated in said tube and having two ends, one of which is supported by the periphery of said friction wheel through the intermediary of said flint, a casing part pivotally connected to said lighter body only on said friction wheel shaft and supporting the other end of said spring, and a slide having a flat main portion extending in longitudinally guided engagement with said lighter body outside said flint spring tube, and a flange inserted between said other end of said spring and said casing part, said slide and tube being laterally spaced from each other to provide within said casing part between them a space adapted to accommodate at least one spare flint, said slide being formed with an outward bulge to enlarge said space.

7. In a pyrophoric lighter, the combination of a lighter body, a friction wheel shaft mounted in said lighter body, a friction wheel on said shaft, a flint spring tube rigid with said lighter body, a flint guided in and protruding out of said flint spring tube and engaging the periphery of said friction wheel, a flint spring accommodated in said tube and having two ends, one of which is supported by the periphery of said friction wheel through the intermediary of said flint, a casing part pivoted only on said friction wheel shaft and supporting the other end of said spring, and a slide having a flat main portion extending longitudinally guided engagement with said lighter body at a distance from said flint spring tube, and a flange inserted between said other end of said spring and said casing part.

References Cited in the file of this patent

UNITED STATES PATENTS

1,749,782	Schild	Mar. 11, 1930
2,507,203	Finch	May 9, 1950

FOREIGN PATENTS

131,663	Australia	Mar. 7, 1949
171,013	Austria	Apr. 25, 1953
805,091	Germany	May 9, 1951