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FLINT POSITIONING MECHANISM

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Fig. 1.

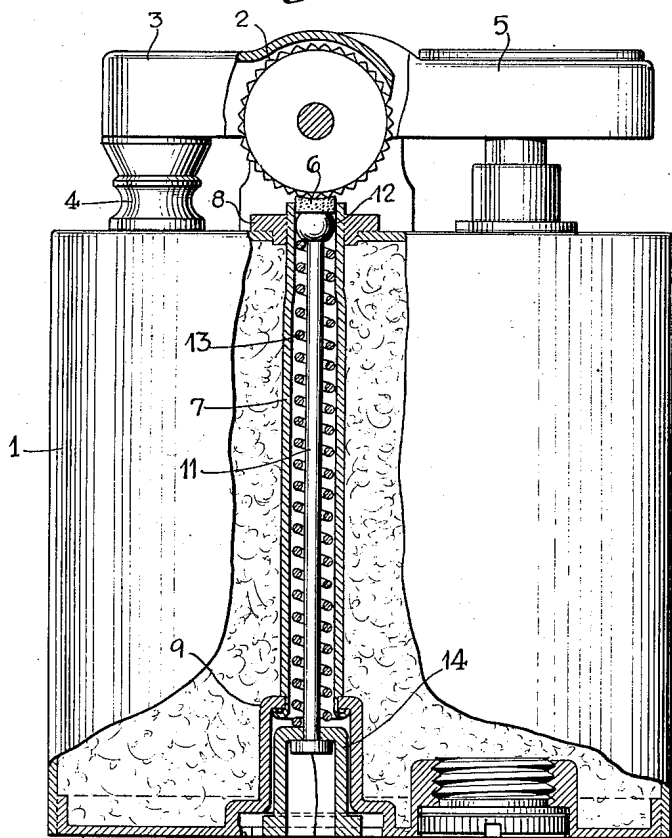


Fig. 4.

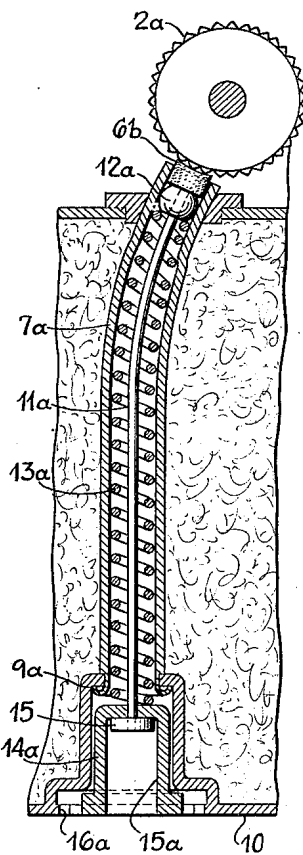


Fig. 2.

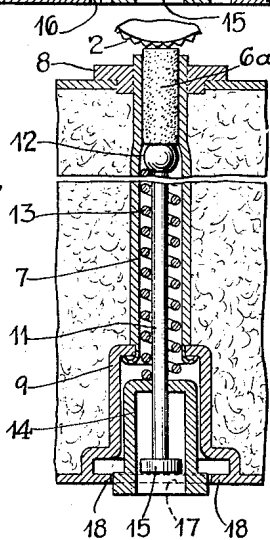
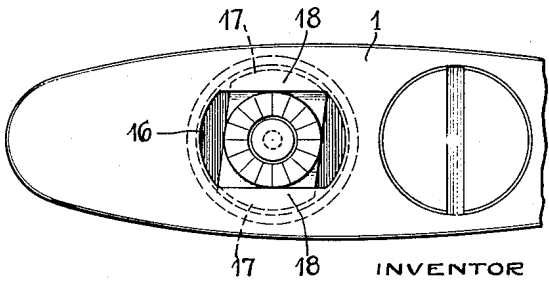


Fig. 3.



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FLINT POSITIONING MECHANISM

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6 Claims. (Cl. 67-7.1)

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The invention relates to pyrophoric spark-producing mechanisms such as are used in cigar lighters and for other purposes wherein a flint of pyrophoric material is pressed against an abradant wheel or the like, to produce sparks when the abradant member is moved with relation to the flint. In mechanisms of the above character, the user is usually unaware of the extent to which the flint has been worn away, and is likely to be uncertain as to the need of substituting a fresh flint; also if operation of the mechanism is continued after the flint has become worn very thin, the latter is likely to jam against the abradant wheel so as to require return to the manufacturer for repair, or if the flint becomes completely consumed without jamming and operation of the mechanism is continued, injury to the abradant wheel or to the parts which press the flint against the wheel is likely to result. The present invention aims primarily to provide a flint positioning mechanism by inspection of which the operator may readily determine at any time the extent to which the flint has been consumed, the mechanism being preferably arranged to serve as a positive stop limiting the extent to which the flint can be consumed and therefore preventing jamming of the latter or injury to adjacent parts of the mechanism. The invention also aims to provide a flint positioning mechanism of the above character which will fit compactly into the assembly and may be readily adjusted as needed in the replacement of flints.

Further objects and advantages of the invention will be in part obvious and in part specifically referred to in the description hereinafter contained which, taken in conjunction with the accompanying drawings, discloses a preferred form of flint supporting mechanism constructed to operate in accordance with the invention. The disclosure however should be considered as merely illustrative of the invention. In the drawings—

Fig. 1 is a side view with certain parts cut away of a cigar lighter equipped with a flint positioning mechanism constructed to operate in accordance with the invention.

Fig. 2 is a detail longitudinal section showing in a different position, the lower parts of the flint positioning mechanism of Fig. 1.

Fig. 3 is a bottom plan view of such mechanism.

Fig. 4 is a fragmentary view similar to Fig. 1 but showing a somewhat modified form of the invention.

The invention is disclosed as applied to a cigar

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lighter which as to most of its parts is of well known construction and mode of operation, which accordingly need not be described in detail. As shown the lighter comprises in general a fuel containing casing 1 having mounted thereon an abradant wheel 2, snuffer 3, wick tube 4 and fingerpiece 5 operating in well known manner to project sparks when the abradant wheel 2 is rotated in contact with the flint 6, upon depression of the fingerpiece 5. The flint 6 is slidably received in a flint tube 7 mounted at its upper end within a collar 8 which is fixed to the top wall of casing 1. At its lower end the flint tube is shown as fixed to a shell 9, which latter is attached to the bottom wall 10 of the casing.

The flint 6 is held in operative position and pressed into contact with the abradant wheel 2 by means of an elongated thrust rod 11, the upper end portion 12 of which engages the flint and is pressed against the latter by a spring 13 which surrounds the rod 11.

In the form of the invention illustrated in Figs. 1-3, the lower end of rod 11 passes slidably through the base of a cup-like fitting 14, the head 15 at the lower end of rod 11 being urged toward the seating position shown in Fig. 1 by spring 13. The space within the shell 9 provides a pocket in the bottom wall 10 of the fuel casing, within which pocket the head 15 of the thrust rod and the fitting are received. The fitting 14 is detachably held in the position shown in Fig. 1, wherein the rod 11 presses the flint 6 against wheel 2, and the length of the rod 11 is such that when the flint 6 has been worn away to the fairly thin disk-like shape shown in Fig. 1, the head 15 of the rod will assume the seating position shown in Fig. 1, thus relieving the pressure on the flint, and preventing the flint from being worn down so thin as to be likely to jam. Under the above conditions sparks are no longer produced and both by the position of the head 15 and the cessation of spark production, it will be indicated to the user that the nearly consumed flint should be removed and a new flint substituted. To remove the nearly consumed flint, the user will turn the fitting 14 to disengage it from the parts fixed to the casing, whereupon the rod 11 and spring 13 will slide out of tube 7 unitarily with the fitting 14. Then the nearly consumed flint 6 will slide out freely through the lower end of tube 7. The spring 13 seats against the base of the fitting 14, as an abutment, which latter when in operative relation to the adjacent parts, occupies a definite and predetermined position longitudinally of the flint

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tube 7, thereby insuring that the longitudinal position of the head 15 within shell 9 and fitting 14, correctly indicates the extent of consumption of the flint.

Fig. 2 shows the position of the parts when a fresh longer flint 6a has been inserted into tube 7, and the rod 11 and fitting 14 have been partially reinserted toward operative position. In the form of the invention under discussion the lower end of fitting 14 projects through a non-circular opening 16 in the bottom wall 10 of the casing, and the head of fitting 14 is also provided with flanges 17 which in one angular position will pass inwardly through the opening 16, but in other angular positions will lock behind the shoulders 18 on the bottom wall 10 of the casing. Fig. 2 shows the parts in the positions they assume before the fitting 14 has been pushed inwardly and rotated to lock the fitting in place, and it will be noted that in this figure, with a fresh flint in place, the head 15 of rod 11 extends out nearly to the plane of bottom wall 10 of the casing. As the flint is progressively worn away, the head 15 will move gradually toward the seating position shown in Fig. 1, its position at any particular time indicating the extent to which the flint has been consumed. To substitute a new flint, the operator need merely apply inward finger pressure to the head of fitting 14, and then rotate the latter until the shoulders 17 are alined with opening 16, the procedure being the reverse when the flint positioning assembly is to be reinserted into operative position.

In Fig. 4 the invention is disclosed as applied to a construction having a bent flint tube 7a which receives the flint 6b, the latter being held in contact with the sparking wheel 2a. In this instance the stiff rod 11 of Figs. 1 and 2 is replaced by a flexible strand 11a of music wire or the like, which is attached at its upper end to a ball shaped part 12a similar to the part 12 previously described, and attached at its lower end to a head 15a similar to the part 15 previously described. A spring 13a similar to the spring 13 previously described surrounds the wire strand 11a, and the parts 9a, 14a, 16a, etc. of Fig. 4, i. e. the remaining parts at the bottom of Fig. 4, may be understood as similar respectively to the parts numbered 9, 14, etc. in Figs. 1 to 3. The mode of operation of the form of the invention shown in Fig. 4, is the same as previously described, except that when inserted into the bent flint tube 7a, the flexible strand 11a will bend as needed to conform itself to the curvature of the tube.

While the invention has been disclosed as applied to flint positioning mechanisms having the above described specific features of construction, it should be understood that changes may be made therein without departing from the invention in its broader aspects, within the scope of the appended claims.

I claim:

1. A flint positioning mechanism of the character described, including a fuel casing, a flint tube enclosed by said casing having its forward flint positioning end located near one wall of the casing and its rear end located near another wall of the casing, the last mentioned wall of said casing having an inwardly extending shell alined with the rear end of said flint tube, a thrust rod for the flint enclosed by said tube and a spring urging said thrust rod toward the forward end of the flint tube, said thrust rod hav-

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ing a head at the rear end of the flint tube which is exposed to view within the aforesaid shell in the casing wall, said spring acting between said thrust rod and an abutment which when in operative relation to the aforesaid parts is restricted to a definite predetermined position longitudinally of said flint tube, whereby in use of the mechanism the position of the head of the thrust rod indicates the extent of consumption of the flint.

2. A flint positioning mechanism of the character described, including a fuel casing, a flint tube enclosed by said casing having its forward flint positioning end located near one wall of the casing and its rear end located near another wall of the casing, the last mentioned wall of said casing having an inwardly extending shell alined with the rear end of said flint tube, a thrust rod for the flint enclosed by said tube and a spring urging said thrust rod toward the forward end of the flint tube, said thrust rod having a head at the rear end of the flint tube which is exposed to view within the aforesaid shell in the casing wall, said spring acting between said thrust rod and an abutment which when in operative relation to the aforesaid parts is restricted to a definite predetermined position longitudinally of said flint tube, whereby in use of the mechanism the position of the head of the thrust rod indicates the extent of consumption of the flint, and a stop member located in the path of movement of said thrust rod, said stop member being positioned to prevent further forward movement of the thrust rod somewhat before the flint is completely consumed.

3. A flint positioning mechanism of the character described including a fuel casing, a flint tube enclosed by said casing having its forward flint positioning end located near one wall of the casing and its rear end located near another wall of the casing, the last mentioned wall of said casing having an inwardly extending shell alined with the rear end of said flint tube, a thrust rod for the flint enclosed by said tube, and a spring urging said thrust rod toward the forward end of the flint tube, said thrust rod having an enlarged head at the rear end of the flint tube, a fitting detachably fixed in position in said shell and having a recess in which the head of said rod is slidably received, the head of the thrust rod being exposed to view within said fitting, said spring acting between said thrust rod and said fitting, and said fitting when in operating relation to the aforesaid parts being restricted to a definite and predetermined position longitudinally of said flint tube, whereby in use of the mechanism the position of the head of the thrust rod with respect to said fitting indicates the extent of consumption of the flint.

4. A flint positioning mechanism of the character described including a fuel casing, a flint tube enclosed by said casing having its forward flint positioning end located near one wall of the casing and its rear end located near another wall of the casing, the last mentioned wall of said casing having an inwardly extending shell alined with the rear end of said flint tube, a thrust rod for the flint enclosed by said tube, said thrust rod having an enlarged head at the rear end of the flint tube, a fitting detachably fixed in position within said shell and having a recess in which the head of said rod is slidably received, the head of the thrust rod being ex-

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posed to view within said fitting, a spring urging said thrust rod toward the forward end of the flint tube and acting between said fitting and thrust rod, said fitting when in operating relation to the aforesaid parts being restricted to a definite predetermined position longitudinally of said flint tube, whereby in use of the mechanism the position of the head of the thrust rod indicates the extent of consumption of the flint, said fitting having a base against which the head of the thrust rod seats and which is positioned to prevent forward movement of the thrust rod somewhat before the flint is completely consumed.

5. A flint positioning mechanism of the character described, including a fuel casing, a flint tube of curved shape enclosed by said casing having its forward flint positioning end located near one wall of the casing and its rear end located near another wall of the casing, the last mentioned wall of said casing having an inwardly extending shell aligned with the rear end of said flint tube, a thrust member for the flint enclosed by said tube and a spring urging said thrust member toward the forward end of the flint tube, said thrust member having a strand extending longitudinally of the flint tube which is flexible to accommodate itself to the curvature of said flint tube, said thrust member having a head at the rear end of the flint tube which is exposed to view within the aforesaid shell in the casing wall, said spring acting between said thrust rod and an abutment which when in operative relation to the aforesaid parts is restricted to a definite predetermined position longitudinally of said flint tube, whereby in use of the mechanism the position of the head of the thrust member in said shell indicates the extent of consumption of the flint.

6. A flint positioning mechanism of the character described, including a fuel casing, a flint tube enclosed by said casing having its forward flint positioning end located near one wall of

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the casing and its rear end located near another wall of the casing, the last mentioned wall of said casing having an inwardly extending shell aligned with the rear end of said flint tube, a thrust rod for the flint enclosed by said tube and a spring urging said thrust rod toward the forward end of the flint tube, a fitting detachably fixed in position in said shell, said thrust rod having a head which is exposed to view within said fitting, said spring yieldably bearing against said fitting whereby said thrust rod, spring and fitting are withdrawable as a unit from said shell when said fitting is detached from the shell, the head of the thrust rod being exposed to view within said fitting and said fitting when in operating relation to the aforesaid parts being restricted to a definite predetermined position longitudinally of said flint tube, whereby in use of the mechanism the position of the head of the thrust rod with respect to the fitting, indicates the extent of consumption of the flint.

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