

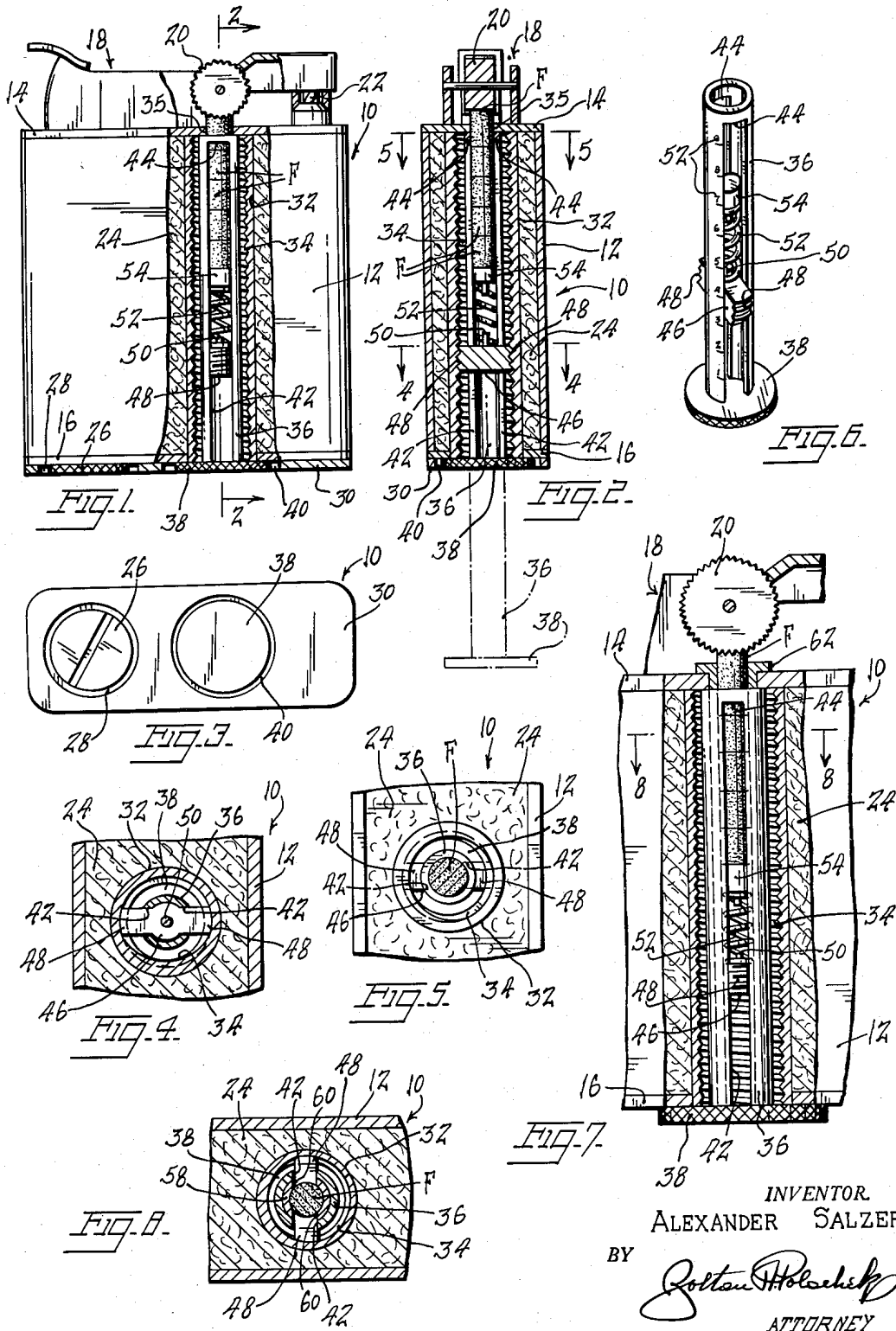
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CIGARETTE LIGHTER AND FLINT SUPPLY INDICATOR THEREFOR

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CIGARETTE LIGHTER AND FLINT SUPPLY INDICATOR THEREFOR

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1 Claim. (Cl. 67—7.1)

This invention relates to cigar or cigarette lighters, and, more particularly, has reference to a lighter having means incorporated therein that facilitates inspection to determine the amount of flint remaining within the lighter.

Most usually, a lighter is not equipped with means whereby one can readily ascertain the amount of flint remaining therein, and it is ordinarily required that one unscrew the flint tube cap, and allow the flint positioning spring, and any flint or flints in the flint tube, to drop out of said tube. Obviously, this is undesirable by reason of the fact that the operation is time-consuming, and to a certain extent annoying, particularly when, as is often the case, the flint is lost when it drops out.

The main object of the present invention, in view of the above, is to provide in a lighter a flint tube assembly which need not be removed in its entirety when one desires to ascertain the extent of flint remaining in the lighter, but which is instead provided with a tubular member slidable outwardly in such a manner as to indicate readily the amount of flint remaining, without disturbing in any way of the flint spring or the flints forced by said spring in the direction of the flint wheel.

A further object of importance is to provide a supply-indicating flint tube assembly as stated which is adapted to hold a substantial number of flints within the lighter, with each flint being automatically fed into position against the flint wheel on consumption of the flint immediately thereabove.

Another object is to utilize the outwardly slidable supply-indicating member as a rotatable handle that serves to adjust the flint spring follower in the direction of the flint wheel to take up for consumption of the flints.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevational view of a lighter formed in accordance with the invention, part being broken away and the flint tube assembly being shown in longitudinal section.

Fig. 2 is a sectional view substantially on line 2—2 of Fig. 1, the dotted lines showing the position of the parts when the supply of flints is being checked.

Fig. 3 is a bottom plan view of the lighter.

Fig. 4 is an enlarged sectional view taken transversely through the flint tube assembly, substantially on line 4—4 of Fig. 2.

Fig. 5 is an enlarged transverse sectional view through the flint tube assembly, substantially on line 5—5 of Fig. 2.

Fig. 6 is a perspective view of the inner portion of the flint tube assembly.

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Fig. 7 is a fragmentary longitudinal sectional view of a lighter showing a modification.

Fig. 8 is a sectional view on line 8—8 of Fig. 7.

At 10, there has been generally designated a lighter having an outer casing 12, top and bottom walls 14, 16, a triggering assembly 18, flint wheel 20, and wick 22. These parts of the lighter are conventional, it being understood that on depression of the trigger, the flint wheel is rotated to strike a spark simultaneously with elevation of the wick cap. The lighter could as well be of the type wherein the flint wheel is manually rotated, with the wick cap being manually lifted off the wick to expose the same, the illustrated lighter being merely representative of one type of lighter in which the invention can be advantageously employed.

The outer casing of the lighter is filled with cotton wadding 24, as usual, and access to said wadding for the purpose of saturating the same with fluid is obtained by removal of a filler plug 26 normally recessed in a circular opening 28 of a bottom plate 30 fixedly secured to and overlying the bottom wall of the outer casing.

Extending from top to bottom of the outer casing, and fixedly secured at its opposite ends to the top and bottom walls thereof, is an open-ended flint tube housing 32 of cylindrical form, provided from end to end thereof with internal threads 34. The upper end of the housing 32 abuts against the underside of the top wall 14, said top wall having a small opening 35 concentric with the housing 32, through which opening the uppermost flint of a supply of flints F projects into engagement with the flint wheel. The lower end of the housing 32, however, is fully open for insertion of a flint tube 36 thereinto.

The flint tube 36 is externally smooth-walled and has an outer diameter distinctly less than the inner diameter of the flint tube housing, thus to permit the flint tube to be freely slidable in the direction of its length between one extreme position (shown in full lines in Fig. 2) in which it is fully recessed within the housing, and any of a number of positions (one of which is shown in dotted lines in Fig. 2) in which it is partially extended out of the housing.

At its outer end, the flint tube is rigid with a flat, circular cap 38 which can be peripherally knurled to facilitate grasping of the same, said cap, in the recessed flint tube position, being seated in an opening 40 of the bottom plate 30.

At diametrically opposite locations thereon, the flint tube is formed with longitudinal slots 42 extending substantially the full length thereof. The slots are closed at one end by the cap 38, as best shown in Fig. 6, and at their other ends terminate just short of the upper end of the tube, so as to define, at the upper ends of said slots, abutments 44.

Housed in the flint tube is a supply of conventional flints F. In the illustrated example, five flints are contained within the flint tube. However, more or fewer flints can be placed therein, it being possible, in the illustrated example, to charge the tube with as many as eight or nine flints. In any event, the flints are held firmly against one another in end-to-end, abutting relation, by pressure exerted against the lowermost of the series of flints by a flint spring held under compression in the flint tube.

A flint spring follower 46 of circular formation (Fig. 4) is snugly but slidably fitted within the flint tube, and has diametrically opposite, radial lugs 48 formed thereon. The lugs project outwardly through the slots 42, and at their outer ends have arcuately shaped end surfaces threaded for engagement with the internal threads of the flint tube housing 36.

Formed on the upper surface of the follower 46, is a centrally disposed, upstanding stud 50 extending up-

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wardly within the lower end of a flint spring 52 to center the same upon the follower. The flint spring, at its upper end, receives a depending stud formed on a flint support plug or tip 54 abutting against the lowermost flint F.

As shown in Fig. 6, the flint tube can be calibrated throughout its length as at 56, so as to be provided with a scale composed of uniformly spaced markings having associated therewith numerals ascending in order from the lower to the upper end of the flint tube.

In use of the lighter, and assuming that the flint tube assembly is to be charged with a completely new supply of flints F, one first pulls the flint tube 36 outwardly from its recessed position shown in full lines in Fig. 2, and rotates the same in a direction to thread the follower 46 downwardly within the flint tube housing 32, until said follower is detached from the housing. This permits all the parts shown in Fig. 6 to be removed bodily from the lighter casing, and a new supply of flints F can be dropped into the upper end of said flint tube.

The flint tube is now slid back into the flint tube housing, for part of its length, and the projecting portion of the flint tube is now rotated in a direction to threadedly engage the radial follower lugs with the threads of the housing. Continued rotation of the flint tube in the same direction causes the follower to move upwardly to shift the uppermost flint against the flint wheel, the follower spring compressing near the end of the upward travel of the follower to exert pressure tending to hold the flints against the wheel. The flint tube, when further rotation of the follower becomes difficult owing to movement of the spring to a condition approaching closing of its convolutions, is then slidably shifted inwardly of the housing to its fully recessed position.

During regular use of the lighter, one can check the supply of flints merely by pulling the flint tube outwardly. Thus, assuming that there are five flints left in the lighter, the flint follower will be approximately positioned as shown in Fig. 2. As a result, the flint tube can be pulled outwardly a distance slightly more than half its length, before the abutments at its upper end are engaged by the radial lugs 48 to limit further outward movement of the flint tube. One need merely, then, inspect the calibrations and under these conditions will note that the marking "5" will be exposed at the inner end of the projecting portion of the flint tube. This will signify to the user that there are five flints remaining within the flint tube.

It will be noted that periodically, one rotates the flint tube to move the follower further upwardly within the same, to take up for consumption of the flints. This can be done at the time the flint supply is to be observed, after the flint tube has been pulled out and before the calibrations are checked. Each adjustment of the follower in the direction of the flint wheel will, of course, reduce the distance the flint tube can be pulled outwardly. Thus, if there is only one flint remaining, the follower will be located near the upper end of the flint tube, and the flint tube can be pulled out only a very short distance before the abutments 44 engage the follower. Under these conditions, only the marking "1" would be seen. Conversely, if there are perhaps eight flints in the lighter, the follower will be near the lower end of the flint tube, thus allowing the flint tube to be pulled outwardly a substantial distance to expose the marking "8."

In Figs. 7 and 8, all parts are formed as in the Fig. 1 embodiment, with the exception that there is, within the flint tube 36, a flint guide cylinder 58. This extends the length of the flint tube, and is formed with slots 60

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aligned with those of the flint tube. At its upper end, the cylinder 58 is rotatably engaged in an opening of the top wall of the casing, said upper end of the cylinder having a flange 62 seating against the outer surface of said top wall.

The flints are engaged in the cylinder, and when the flint tube is pulled outwardly, said flints will be held in a straight line by the cylinder. The cylinder will, of course, rotate with the flint tube whenever necessary, due to the extension of radial lugs 48 through slots 60.

It will be understood that any suitable means can be employed to hold the flint tube in its normally recessed position. For example, the cap 38 can be frictionally engaged with the wall of the opening 40 in which it is normally seated. Or, in some lighters the casing 12 is itself housed in an outer shell, not shown, which would hold the flint tube in a recessed position.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

In a cigar and cigarette lighter, a casing having top and bottom walls with aligned openings therein, a flint wheel supported on the top wall of the casing over the opening therein, an internally threaded cylindrical flint tube housing fixedly mounted in the casing and extending from the top to the bottom walls and opening through the opening in the bottom wall of the casing, a smooth-walled flint tube substantially coextensive in length with the housing and freely slidable in the direction of its length into and out of the housing, said flint tube having diametrically opposed longitudinal slots, a cylinder inside said flint tube for housing the flints of the lighter and for guiding same to the flint wheel, said cylinder having slots aligned with the slots in the flint tube, and flint follower means threadedly engaged with the housing and mounted in the cylinder, said follower means engaging the flint tube on movement thereof out of the housing so as to signify, by the extent to which the flint tube can be pulled outwardly, the amount of flint remaining within the cylinder, said follower means including a follower threadedly engaged with the housing, a spring supported on said follower, a flint support tip carried by said spring, the follower being formed with a circular center portion housed in the cylinder and engaged by the spring, diametrically opposed lugs on the follower projecting through the slots in said cylinder and flint tube, said lugs having arcuate outer end surfaces threaded to effect engagement with the threads of the housing, indicia spaced along the surface of the flint tube adjacent one of its longitudinal slots, the slots in said flint tube being closed at their inner ends to define abutments engageable with the lugs to limit outward movement of the flint tube, and a cap rigidly connected to the outer end of the flint tube closing the outer ends of the slots of said flint tube and disposed exteriorly of the casing to facilitate grasping of the flint tube.

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