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F. N. GLOVER
SELF-CLOSING FILLING DEVICE
FOR LIQUID FUEL CONTAINERS
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Fig. 1.

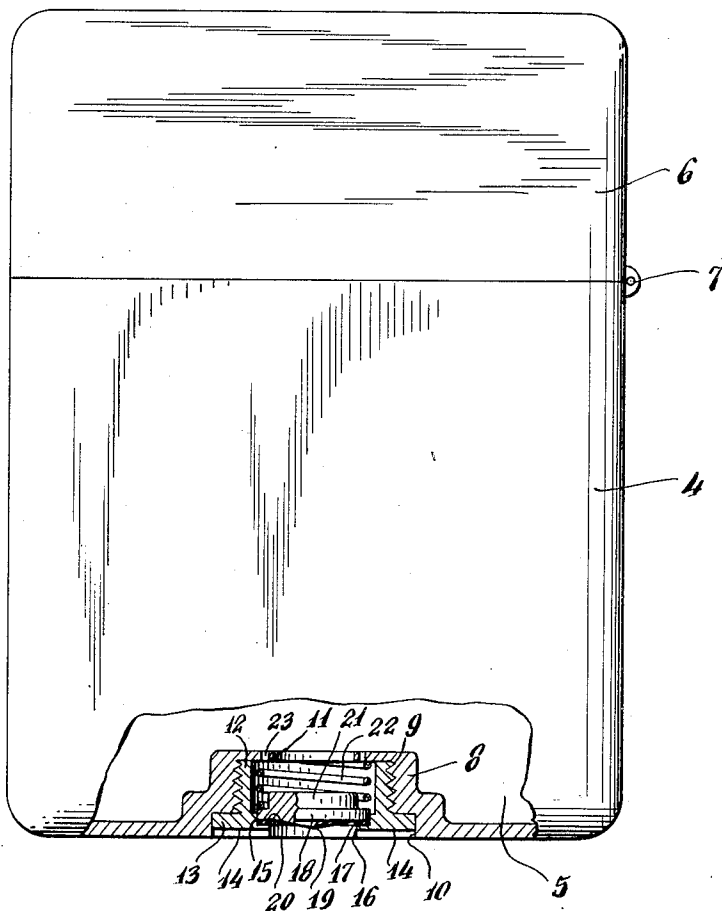


Fig. 2.

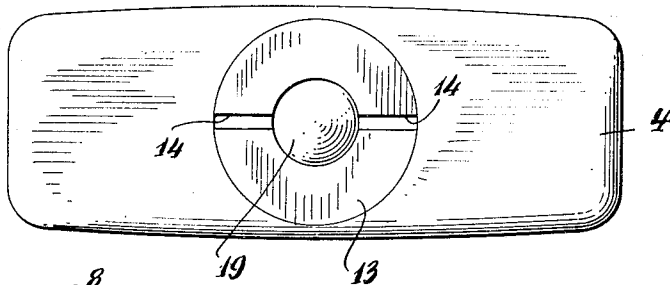
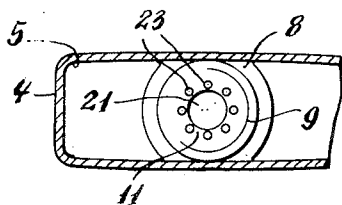


Fig. 3.

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UNITED STATES PATENT OFFICE

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SELF-CLOSING FILLING DEVICE FOR
LIQUID FUEL CONTAINERS

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3 Claims. (Cl. 220—86)

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This invention relates to cigarette or cigar lighters consisting of a casing carrying a wick, flint and rotary striker at one end and having a combustible fluid fuel chamber therein supplying fuel to the wick and adapted to be replenished with combustible fluid fuel through a filler opening, and particularly to means for closing said filler opening.

It is the usual practice in cigarette or cigar lighter casings to close the fuel filler opening thereof by a closure plug screw threaded in said opening and having a head flush with the exterior surface of the casing, whereby it is difficult to remove the plug to replenish the fuel in the lighter casing and usually requires a suitable tool, such as a screw driver or coin.

It is the principal object of the invention to provide a closure member for the fuel filler opening of cigarette or cigar lighter casings which is readily adjusted to open position to permit replenishing of the fuel in the casing by engaging the spout of a fuel container with said closure member and said closure member automatically assuming filler opening closing position upon the removal of the spout from the closure member.

It is another object of the invention to construct and arrange such a closure member which is readily assembled in the fuel filler opening of the cigarette or cigar lighter casing.

Other objects and advantages of the invention will hereinafter appear.

In the drawing accompanying and forming a part of this application,

Figure 1 is an elevational view of a cigarette or cigar lighter with portion of the casing thereof broken away to show the fuel filler opening and my improved closure member in section.

Figure 2 is a view looking at the bottom of Figure 1 to show the exposed end of the closure member.

Figure 3 is a plan view of the filler opening looking from the interior of the lighter casing.

The embodiment of the invention is shown in the accompanying drawing as associated with a cigarette or cigar lighter consisting of a casing 4 having a chamber filled with absorbent material, such as cotton, and constituting a fuel reservoir, as shown at 5 in Figure 1. A cover 6 is adjustably mounted on the casing, as by a hinge 7, to cover the end of the casing arranged with the usual arrangement of wick, flint and rotary striker, not shown. The wick is extended into the fuel reservoir 5 in the usual manner, not shown.

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To replenish the fuel reservoir with fuel, such as a combustible fluid, the opposite end of the lighter casing 4 is provided with a fuel filler opening and shown in the present illustration of the invention as comprising a boss 8 integral with the wall of the casing and arranged with a screw threaded opening 9 and a circular recess 10 at the outer end of the opening, as shown in Figure 1. The inner end of the boss is flanged inwardly to form an annular abutment 11 for a purpose to be hereinafter described.

The filler opening is automatically closed by a spring influenced closure comprising a tubular plug having a shank portion 12 exteriorly screw threaded to be removably mounted in the fuel filler opening 9 and an annular head 13 to be engaged in the recess 10 when the plug is fully mounted in the fuel filler opening 9. The face of the head 13 is arranged with aligned slots 14 in diametrically opposite portions of the head for the engagement of a suitable tool, such as a screw driver or coin, to facilitate the tightening of the plug in the filler opening 9 and removal of the plug from said opening. The outer end of the bore of the plug adjacent to the head 13 is restricted as by an annular flange 15 extended into the bore as a continuation of the head 13 and arranged with an annular seat 16, as shown in Figure 1. The seat 16 is provided with a gasket or washer 17 of suitable material, such as rubber or leather.

The filler opening 9 is automatically closed by a spring influenced member shown in the present illustration as being in the form of a disk 18 having a conical face 19 merging at the periphery of the disk with an annular flat face 20 to engage the gasket 17 and seal the filler opening 19, as shown in Figure 1. The periphery of the disk 18 slidably engages the vertical wall of the annular seat 16. The inner face of the closure disk 18 is arranged with a protuberance 21 for centering a coiled spring 22 relative to said closure disk. The spring 22 is engaged in the bore of the plug 12—16 with one end engaging the abutment 11 and the inner face of the closure disk 18 to yieldingly retain the closure disk in filler opening closing position with the annular flat face 20 engaging the gasket 17.

When it is desired to replenish fuel in the chamber 5, the disk 18 is pushed inwardly against the force of the spring 22 to unseat the annular flat face 20 from the gasket 17 and seat 16 and permit the entrance of the liquid fuel. The conical face 19 facilitates the engagement of the spout of a liquid fuel container, not shown, and

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the tilting of the closure disk 18 to unseat a portion of the annular flat face 20 from a portion of the gasket 17 and annular seat 16 and permit the liquid fuel to flow along the conical face 19 into the bore of the plug. To facilitate the flow of the fluid fuel along the wall of said bore and into the chamber 5, the abutment 11 may be provided with spaced openings 23, as shown in Figure 3.

The closure disk 18 may readily be assembled in the filler opening 9 by first assembling the disk and spring 22 in the plug 12-16 and then screwing the plug in the filler opening 9.

Having thus described my invention, I claim:

1. In a cigarette lighter, a casing having a filler opening for a combustible fluid in a wall thereof arranged with an annular abutment, a tubular plug arranged with an annular abutment extending into the bore of the plug, said plug being removably mounted in the filler opening with the abutment of the plug spaced from the abutment of the filler opening, and a closure member movably mounted in the bore of the plug between the abutments, and a spring compressed between the abutment of the filler opening and the closure member to yieldingly urge the closure member into engagement with the abutment of the plug to seal the filler opening.

2. A cigarette lighter as claimed in claim 1, wherein the abutment of the plug is arranged with a seat, and the closure member comprises a disk having a conical face merging at the periphery of the disk with an annular flat face to en-

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gage the seat of the abutment and the conical face facilitating the unseating of the disk.

3. In a cigarette lighter, a casing having a filler opening for combustible fluid in a wall thereof arranged with an annular abutment, a tubular plug removably mounted in the filler opening and having an annular abutment at one end extending into the bore of the plug and spaced from the abutment of the filler opening, a closure disk having an annular flat face to engage the abutment of the plug and a protuberance extending into the plug of slightly less diameter than the bore of the plug, and a spring mounted in the plug and compressed between the abutment of the filler opening and the disk and encircling the protuberance to urge the annular face of the closure disk into engagement with the abutment of the plug and seal the filler opening.

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