July 20, 1954 W. H. GEY 2,684,182

CIGARETTE LIGHTER FUEL FILLER

Filed March 29, 1952

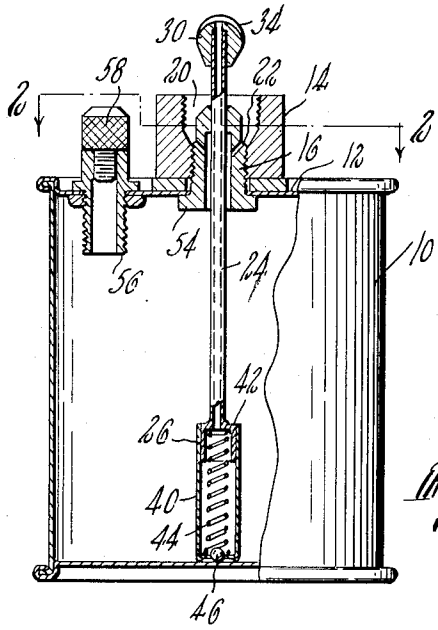



Fig. 1.

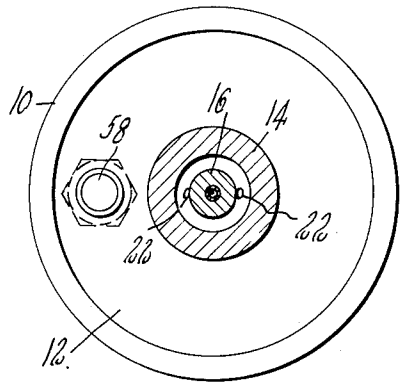



Fig. 2.

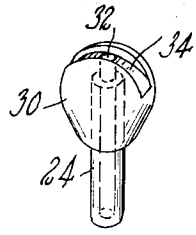



Fig. 3.

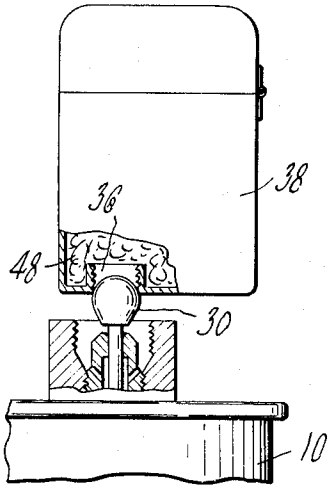



Fig. 5.

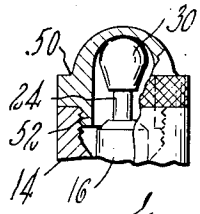



Fig. 4.

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# UNITED STATES PATENT OFFICE

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## CIGARETTE LIGHTER FUEL FILLER

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1 Claim. (Cl. 222—123)

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This invention relates to a device for facilitating the filling of a cigarette lighter with a suitable supply of fuel. The ordinary procedure in filling a lighter is to invert the lighter, remove the stopper, pour fuel into the hole until the lighter is full, pour back the excess fuel not absorbed by the absorbent material in the lighter, and then replace the stopper. This procedure is slow and is apt to be wasteful as the highly volatile fuel is easily spilled in the pouring operations.

According to the present invention, a ball nozzle is provided on the upper end of a tube extending up from a pump which is mounted in a container adapted to hold a considerable supply of fuel. The ball nozzle is of a size to enter part way into the orifice left in the bottom of the lighter by the removal of the stopper. The pump is then operated to inject fuel upward into the interior of the lighter to saturate the absorbent material, the excess fuel draining back into the container through suitable drain holes. This operation is quick, easy and clean, no fuel being spilled.

For a more complete understanding of the invention reference may be had to the following description thereof, and to the drawing, of which—

Figure 1 is an elevation of the device embodying the invention, a portion being broken away to show the parts in section;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a perspective view of the upper portion of the tube shown in Figure 1 with the ball nozzle on the upper end;

Figure 4 is a fragmentary elevation of the head shown in Figure 1 with a cap thereon, a portion being broken away to show in section;

Figure 5 is a fragmentary elevation of the device together with a cigarette lighter, a portion being broken away to show in section.

The device illustrated in Figure 1 comprises a container 10 which may be cylindrical or any other convenient shape, this container having a top 12 on which is mounted a head consisting of a tubular member 14 having a thick wall. This member has a bore in its lower portion which flares at the mid portion to a bore of larger diameter in the upper portion. The lower portion of the bore is screw threaded to receive a gland 16 which is fitted in the lower portion of the bore and which projects upward therefrom within the mid and upper portions of the bore. As the gland is of smaller diameter than the mid and upper portions of the bore of the tubular member 14, these portions of the bore constitute a recess 20

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in the upper end of the tubular member 14. One or more drain holes 22 extend through the wall of the gland to connect the recess 20 with the interior of the container 10. Slidably fitted in the gland 22 is a vertical tube 24 which extends upward from a pump 26 in the lower portion of the container 10 and projects above the top of the tubular member 14. Mounted on the upper end of the tube 24 is a ball nozzle 30 having an orifice 32 in the top thereof communicating with the interior of the tube 24. If desired, a surface groove 34 may be provided in the top of the ball nozzle 30, this groove extending from the orifice 32 down the side of the ball nozzle. The nozzle is made of a size and shape to enter part way into the fuel opening 36 of the cigarette lighter 38 as indicated in Figure 5. The pump 26 may comprise a tubular casing 40 within which is slidably fitted a piston 42 mounted on or integral with the lower end of the tube 24. A spring 44 within the pump casing 40 presses the piston 42 and tube 24 upward. A ball check 46 is provided within the pump of the casing 40 to admit fuel into the casing but to prevent discharge thereof downward from the casing. When the ball nozzle 30 is pushed down, the piston 42 causes the liquid in the casing 40 to be displaced upward through the tube 24 so as to be discharged from the orifice 32 of the ball nozzle 30. The spring 44 is then allowed to raise the piston and tube to its initial position. Thus the ball nozzle can be pressed downward in successive strokes to force jets of fluid to be expelled from the orifice 32. If the ball nozzle is pushed downward when in engagement in the filling opening 36 of a cigarette lighter, the fuel is thus squirted into the interior of the lighter. Any excess fuel thus discharged into the lighter over and above that required to saturate the absorbent material 48 within the lighter flows back through the groove 34 and down the sides of the ball nozzle 30 into the recess 20 and thence through the drain holes 22 into the container 10. By pressing the lighter 38 down on the ball nozzle 30 one or more times, as required, the correct amount of fuel is introduced into the lighter, any excess being automatically drained back into the container. Thus spilling and waste of fuel are avoided. When the filler is not in use, a suitable cap 50 may be mounted on the head so as to seal the recess 20 and prevent the escape of fuel by evaporation. For convenience, this cap may have an extension 52 which is screw-threaded into the upper part of the recess 20 or it

may be removably secured to the head in any other suitable manner.

The head may be soldered or welded to the top of the can or may be secured thereto by means of the threaded interengagement of the tubular member 14 and the gland 16. For this purpose the gland may have a flange 54 at its lower end to engage the underside of the top 12 when the gland is screwed into the bore of the tubular member 14.

In order to replenish the supply of liquid fuel within the container 10, a supply opening may be provided. As shown, this opening is a tube 56 which extends through the top 12, the upper portion of the tube 56 being closed by a suitable stopper or plug 58.

I claim:

In a cigarette lighter fuel filler which comprises a container and a pump including a tube reciprocable to force liquid from the container



up through the tube; a head on the tube having a hemispherical portion adapted to be pressed against the filling orifice of a cigarette lighter, said head having a groove in its surface extending from the top thereof down the sides, said head also having a discharge aperture communicating with the bore of said tube and opening into said groove at the uppermost point thereof.

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