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2,459,042

CAPILLARITY CONTROL MEANS

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Fig. 1.

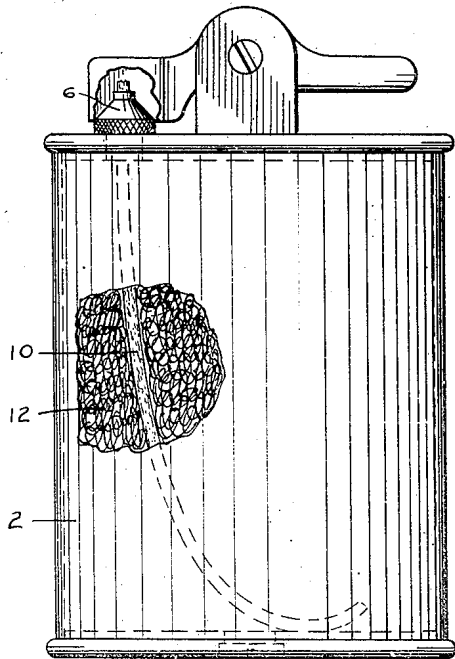


Fig. 2.

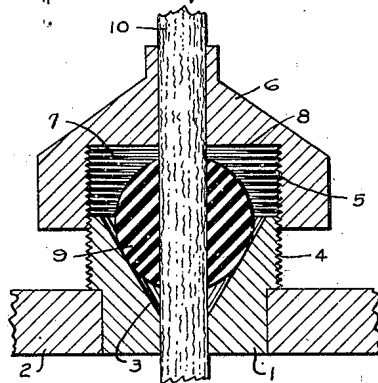


Fig. 3.

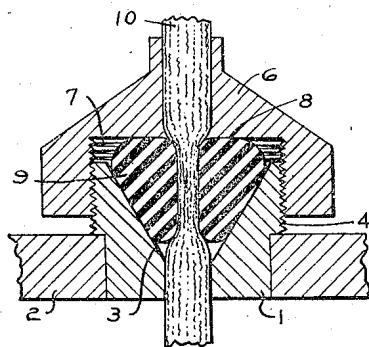


Fig. 5.

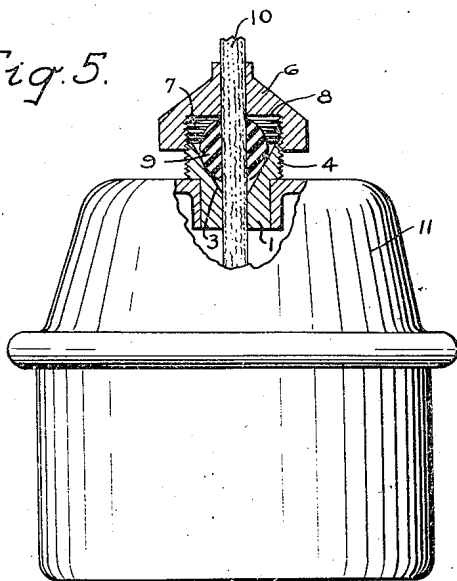
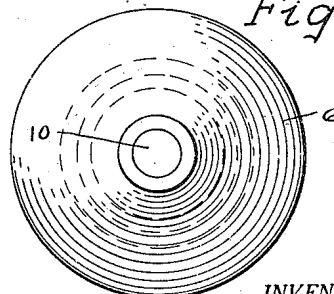


Fig. 4.



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CAPILLARITY CONTROL MEANS

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2 Claims. (Cl. 67-53)

1

This invention relates to means for preventing waste of volatile liquids through wicks when not in use, by reducing or entirely eliminating the capillarity of the wicks.

In a conventional cigarette lighter, e. g., where the body of the tank is filled with cotton in which the lighting wick is laid and into which the volatile liquid is poured until the cotton filling and the wick are saturated, it has been found by experience that the loss of fluid caused by evaporation through the wick during non-use is approximately three to five times as much as the amount of fluid actually used for lighting purposes. If this waste could be saved, the lighter would have to be filled only one fifth as often as the conventional lighter.

Conventional street repair lighting signal bombs which burn kerosene or other oils, likewise waste a lot of fuel by evaporation through the wick.

The object of the present invention is to eliminate or considerably reduce this waste as well as provide means for controlling the flame size in fuel burning wicks by controlling their capillarity.

Another object is to provide means for adjusting the size of opening through which a wick passes in order to control its capillarity.

Another object is to provide a fitting at the exposed end of a wick, for adjustably squeezing it to any degree desired, to control its capillarity.

Another object is to provide a screwably adjustable fitting around the exposed end of a wick having means for squeezing said wick to limit the amount of fluid that will pass through and evaporate into the atmosphere during periods of non-use.

Another object is to provide means as defined above which are adaptable for squeezing said wick to the point of eliminating its capillarity entirely and provide a complete seal against any loss of fluid during non-use, and which will provide adjustable control of the capillarity to regulate the size of flame when in use.

Another object is to make the above fitting by means of a bushing fitted to the tank around said wick and having an outside thread, and another bushing around said wick having an inside thread to fit said outside thread, a rubber washer around said wick in a chamber between said bushings for squeezing around said wick when said bushings are screwed together.

Another object is to make the washer of globular form and the chamber between the bushings convergent at least at one end, whereby a radially inward pressure component will be obtained

2

on said rubber washer to squeeze said wick when the bushings are screwed together.

Another object is to provide the outer bushing with a knurled surface to facilitate manual adjustment thereof.

Other and more specific objects will become apparent in the following detailed description of one form of device made in accordance with the present invention, having reference to the accompanying drawing, wherein:

Figure 1 is an elevational view partly in section of a conventional cigarette lighter to which the device of the present invention has been applied,

Figure 2 is an enlarged detail sectional view of the fitting, with the outer bushing just started on the inner bushing, and the ball shaped washer fully distended,

Figure 3 is the same view with the bushings screwed together and the rubber ball washer compressed to reduce the size of opening for compressing the wick,

Figure 4 is a plan view, on an enlarged scale, of an outer bushing, and

Figure 5 is an elevational view partly in section of a street repair signal light bomb, to which a fitting has been applied in accordance with this invention.

In place of the ordinary wick fitting, on a conventional cigarette lighter, a bushing 1 is fixed in the top of the fuel tank 2, having an opening therein sufficient to pull the wick through. Bushing 1 has a conical upper surface 3 and an outside thread 4, to which is fitted the inside thread 5 of the outer bushing 6. A chamber 7 is formed between the inner surfaces 8 and 3 of the outer and inner bushings respectively. A ball-shaped washer 9, preferably of a rubber material which is not affected by the liquid fuel, fits freely in said chamber around the wick 10, when the threading of the outer bushing is just started on the inner bushing, but as the bushings are further screwed together, the rubber washer is gradually compressed in the shrinking chamber 7, compressing the opening and the wick 10 in the washer 9, thus reducing the capillarity of the wick and ultimately eliminating it entirely to provide a complete seal against the escape of any fluid or gases through said wick to the atmosphere.

Similar parts are designated by the same numerals in the device shown in Figure 5, applied to a street repair signal light bomb 11.

When using this device in a cigarette lighter the cotton filler 12 can be omitted without in-

3

creasing the loss of fluid through the wick, because it may be squeezed to any degree to prevent an excessive loss through evaporation, while permitting sufficient capillarity therein to support a lighting flame when in use. The omission of the cotton filler will permit the determination of the amount of fluid in the tank by shaking it, or a transparent window or gage may be provided to visually show how full the tank is at any time.

Many obvious modifications in the form and arrangement of parts may be made without departing from the spirit and scope of this invention, as defined in the appended claims.

What is claimed is:

1. A container for fuel or other liquids having a fitting, a wick fed through said fitting for delivering liquid by capillarity from said container, said fitting comprising a bushing fixed in the container and having an upstanding externally threaded neck portion, said bushing having an upwardly opening conical socket terminating at its lower end in a cylindrical opening for the passage of the wick, a second bushing having a central opening therein and a depending internally threaded annular flange threadedly engaged with the threaded wick on the first named bush-

4

ing and a ball-shaped compressible gasket between said bushings and being smaller than the normal chamber space between the bushings and having an opening therethrough for the passage of the wick and adapted to be compressed when the second named bushing is screwed into the first named bushing for squeezing that portion of the wick extending therethrough and thereby control capillarity of the wick.

2. A device as defined in claim 1, wherein squeezing of the wick is initially effective in the zone of the lower end of the conical socket.

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REFERENCES CITED

The following references are of record in the file of this patent:

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