June 29, 1965 J. G. LICATA 3,191,608

CIGARETTE EXTINGUISHER

Filed June 22, 1962

FIG. 1

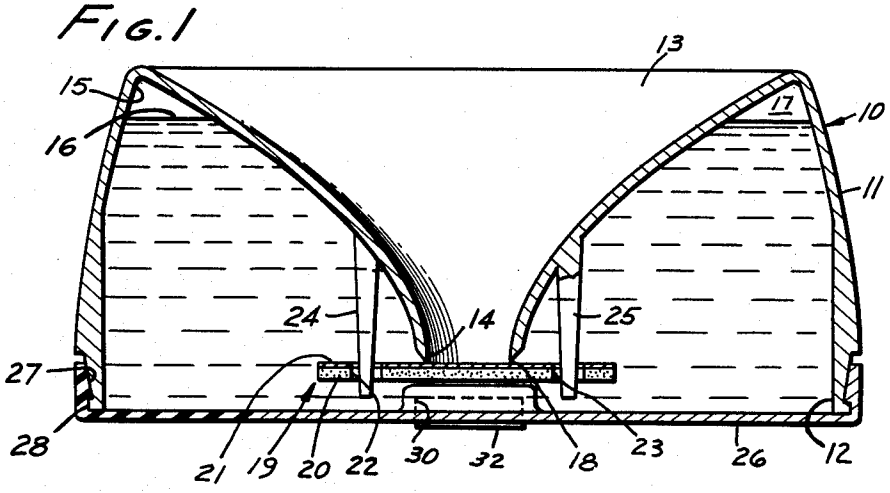


FIG. 2

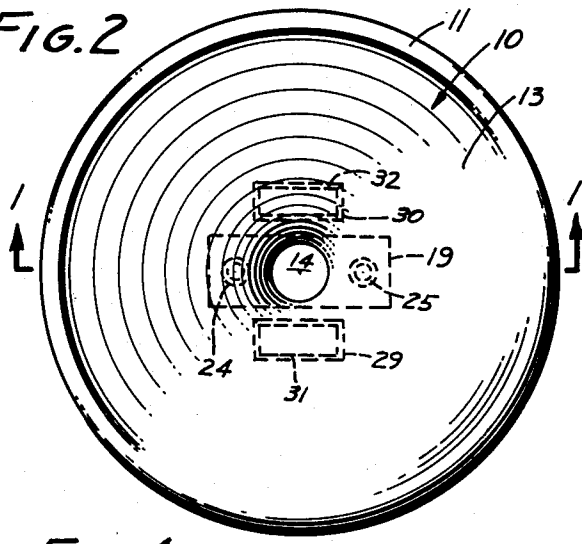


FIG. 3

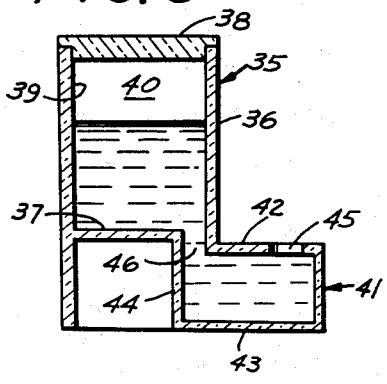
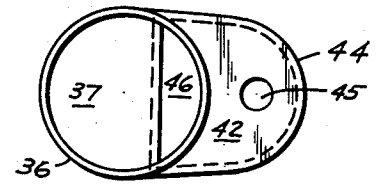


FIG. 4



INVENTOR.
JOSEPH G. LICATA

BY Angus & Mow
ATTORNEYS.

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CIGARETTE EXTINGUISHER

Joseph G. Licata, 2495 Queensberry Road, Pasadena, Calif.

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1 Claim. (Cl. 131—256)

This invention relates to a cigarette extinguisher.

Particularly when riding in automobiles, smokers are aware of the difficulties inherent in the disposition of a burning cigarette. The alternatives at the present time are to throw away the burning cigarette which is unlawful or to snuff it out in the car ashtray, either by rubbing it against a surface, or by letting it burn out. When the cigarette is extinguished in the car as aforesaid, the smoke, ashes, and remaining butts are malodorous, and remain so, even when cold.

It is an object of this invention to provide a means for extinguishing a burning cigarette with water, and for enabling a thoroughly extinguished butt to be thrown away so that there is no residue remaining to smell up the car or room.

A cigarette extinguisher according to this invention includes a structure which encloses a hydrostatic dome that has an upper hermetic seal. This structure includes an upwardly facing opening in fluid communication with the upper hermetic seal and at a lower elevation, so that the dome may be substantially filled with water, the region at the upper hermetic seal being subatmospheric. Water will stand at the opening thereby permitting a cigarette tip to be immersed therein. This structure has the additional advantage that water will not spill out even when the car is put through sharp maneuvers.

A preferred but optional feature of this invention resides in forming the structure as a volume of revolution, with an external wall and a reentrant neck. The opening is disposed at the center of this neck, and forms a valve seat beneath which there is placed a buoyant valve member which floats upwardly to close the opening. This provides an additional assurance that the water will not spill, both by valving it at the opening and by providing a restricted passage which can be very narrow as compared to its height.

The above and other features of this invention will be fully understood from the following detailed description and the accompanying drawings in which:

FIG. 1 is a cross section taken at line 1—1 of FIG. 2;

FIG. 2 is a top view of FIG. 1;

FIG. 3 is a vertical cross section of an alternate embodiment of the invention; and

FIG. 4 is a top view of FIG. 3, with the top removed.

FIG. 1 illustrates the presently preferred embodiment of the invention. It includes a hermetic dome structure **10** which is a volume of revolution bounded by an external wall **11** with a mouth **12** at its lower end and a reentrant neck **13** at its center. The neck slopes downwardly and inwardly toward the mouth and forms an opening **14** which faces upwardly in FIG. 1. The neck is preferably much narrower than it is tall, to minimize sloshing of water which might be in it.

The opening is in fluid communication with an upper hermetic seal **15**. This seal is comprised of the upper imperforate interior surface of the structure. The structure may be filled with a fluid such as water **16**. In accordance with known physical principles, a region **17** at the upper hermetic seal will assume a substantially subatmospheric pressure.

A valve seat **18** is formed around the opening at the lower end of the neck, which is adapted to be sealed by a valve member **19**. The valve member is buoyant. It is preferably made of two layers: a lower buoyant layer

20 of a foam material such as polyethylene foam and an upper metal, heat conductive layer **21** which can receive the heat of a burning cigarette tip and conduct it away without damaging the lower buoyant layer material. The two layers are bonded together.

The valve member has a pair of guide passages **22, 23** therethrough to receive guide posts **24, 25** respectively. The guide posts are integral with the lower inside portion of the neck surface and project downwardly so as to guide the valve member in its up and down movement.

The closure **26** comprises a lid for the mouth, and completes the hermetic dome structure. The dome has a hooked flange **27** at the lower end thereof, adapted to engage a shoulder **28** on the external wall, thereby making a continous fluid seal at the bottom of the dome structure. Alternatively the closure engagement could be by other means, such as threads. The closure should be relatively easily removed so that the device can be filled with water.

The opening at the center of the neck should be located far enough above the closure that the tip of a cigarette can be moved well past the opening. If the opening is too close to the closure, then the valve member will strike the closure and prevent the cigarette from going far enough into the water. The bottom of the neck is located about ¾ inch to 1 inch above the closure, although this is not a limitation on the invention.

The closure is provided with a pair of recesses **29, 30** within which magnets **31, 32** may be fastened. The function of these magnets or of equivalent attachment means such as adhesive patches and the like is to hold the closure, and thereby the entire hermetic dome structure, to a supporting object such as the dash board of an automobile or the instrument panel of an aircraft.

The device of FIG. 3 is a variation of that of FIG. 1. It includes a hermetic dome structure **35** which has an external wall **36**, a bottom **37**, and a removable top **38**. An upper hermetic seal **39** is formed by the top and the wall to create a region **40** of subatmospheric pressure when the device is filled with water.

A lower ash receiver **41** has a top **42**, bottom **43**, and sidewall **44**. An opening **45** is formed in the top. The top intersects the wall of the dome structure, and the sidewall intersects the bottom of the dome structure. A passage **46** is formed between the intersectiing surfaces such that the top of the ash receiver is lower than the bottom of the dome structure. Passage **46** therefore depends downwardly from the dome structure into the ash receiver. With the structure shown, the device appears to perform optinally. The relative elevations between the bottom of the dome structure and the top of the ash receiver appear to aid this performance.

The use and operation of these devices should be evident from the drawings. With respects to FIG. 1, the device is inverted and the closure taken off, whereupon the device is filled with water at least to the level of the opening. Preferably the opening is plugged with a finger while filling, so that even more water can be put in. Then the closure is placed on the dome structure and the device is inverted to the position of FIG. 1, and the finger removed.

The valve member is not essential to the operation of either embodiment of the invention and is an optional feature thereof. Even with the valve member removed, water will not rise far above the bottom of the neck due to the subatmospheric pressure in region **17**. When the valve member is not provided, the cigarette tip is simply passed through the lower opening and is doused by water. When the valve member is provided, the cigarette is pushed against the valve member to push it down which enables the cigarette to be passed through the opening. After the cigarette is doused, and as it is removed the

valve member buoyantly moves up again to close the opening. Again, there will be no substantial tendency for water to escape, because of the subatmospheric pressure in region 17. The valve member does however give some assurance to the users that water will not spill and may be preferred when used in vehicles subject to violent manuevers such as aircraft and the like.

The use of the two layered valve member is a convenience in that it prevents the cigarette from burning and destroying the buoyant portion of the valve member by conducting heat away from it rapidly during the time that the cigarette is pressed against it and is still glowing.

It is found that a layer of aluminum foil about 0.003 inch thick is suitable to protect a foam layer of dimensions about ½ by 1½ inch by 3/32 inch thick.

In the device of FIG. 3, as in the device of FIG. 1, there is a reservoir of water, so that water is always available. Also there is a negative pressure at the upper hermetic seal which prevents the water from running out, thereby providing a significant advantage over the use of a simple open-topped reservoir structure.

This invention provides in simple easily constructed devices, reliable and convenient means for extinguishing the tip of a burning cigarette and thereby making it readily and safely disposable.

Instead of water, other non-inflammable liquids may be used particularly in hot or cold climates where water might evaporate quickly or freeze. Glycols are one example. Another expedient is to dissolve electrolytes such as sodium chloride in water.

The invention is not to be limited by the embodiments shown in the drawings and described in the description which are given by way of example and not of limitation, but only in accordance with the scope of the appended claim.

I claim:

A cigarette extinguisher for dousing a burning cigarette with a liquid, comprising: a hydrostatic dome structure having a re-entrant center neck with a central opening, a closed and an open end providing an internal cavity in the form of a surface of revolution surrounding said neck and extending axially outwardly from the opening;

an external lip on the dome at its open end; a fluid-tight lid with a peripheral flange adapted to snap over and continuously engage the lip to make a hermetic seal, the lid being imperforate, and extending across the open end to close the same, the opening standing substantially closer to the lid than to the closed end of the dome, whereby a major proportion of the volume of the dome structure lies above the opening when the assembled lid and dome structure stands on the lid, and whereby a substantially subatmospheric pressure is developed in the cavity as a consequence of the fluid interconnection between the opening and the inside of the closed end of the dome structure whereby liquid will stand at the level of the opening and not flow out, while backed up by a substantial quantity of liquid; guide posts attached to the inside of the structure and projecting downwardly; a buoyant valve member in the cavity beneath the opening adapted to raise and close the same, said valve member comprising a layer of buoyant foam material, and an upper layer of metalliconductive material and including a guide passage respective to each guide post for guiding the buoyant valve member, said guide posts engaging the float member at the guide posts to restrict lateral movement of the float.

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ABRAHAM G. STONE, *Primary Examiner.*

JOSEPH S. REICH, *Examiner.*