

July 8, 1969

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3,454,197

CONTAINER HAVING A TEARAWAY PULL TAB AND A FLEXIBLE BLADDER
IN THE CONTAINER ATTACHED TO THE PULL TAB
Filed Aug. 10, 1967

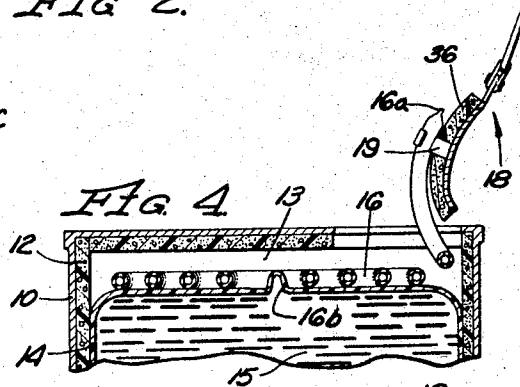
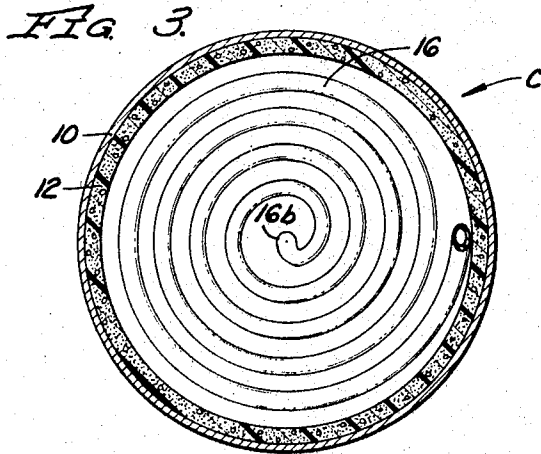
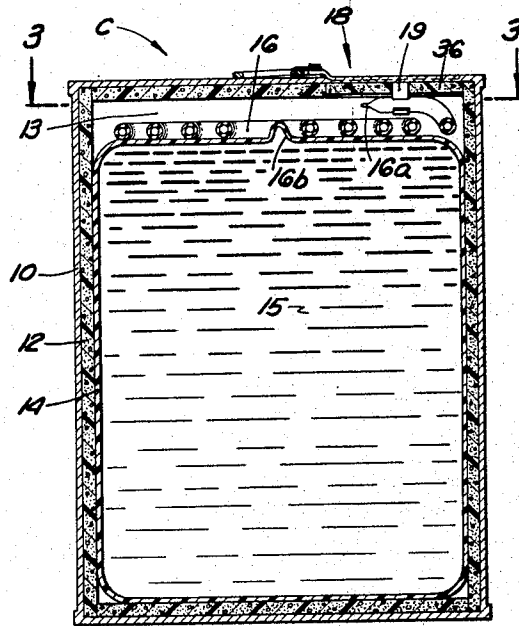
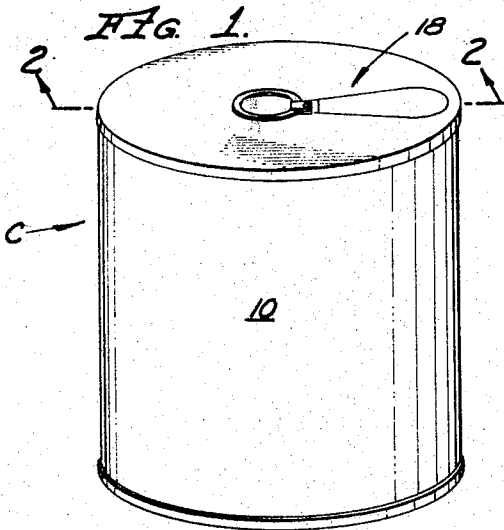
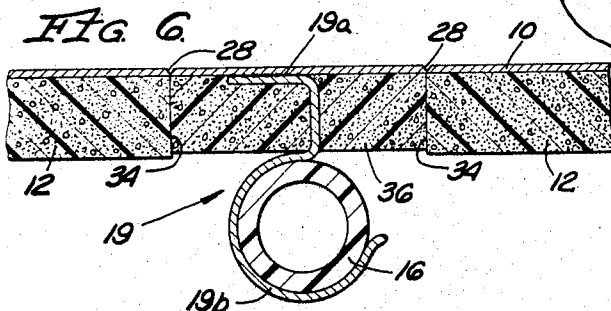
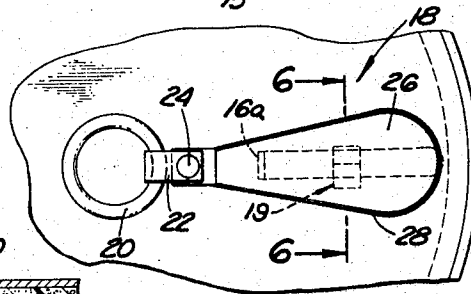


FIG. 5.



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CONTAINER HAVING A TEARAWAY PULL TAB AND A FLEXIBLE BLADDER IN THE CONTAINER ATTACHED TO THE PULL TAB

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Filed Aug. 10, 1967, Ser. No. 659,638
Int. Cl. B65d 35/56, 47/10; B67d 5/64

U.S. Cl. 222—105

3 Claims

ABSTRACT OF THE DISCLOSURE

A gas-tight container for holding relatively small quantities of gasoline for camp or emergency use, comprising an outer can having a pull tab opener in its top and a Styrofoam inner liner, a neoprene inner bladder, a neoprene hose sealed at one end and joined to the bladder at the other, and a spring metal clip attached to the inner surface of the pull tab and adapted to partially encircle and hold the hose near its sealed end. Gasoline is dispensed from the container through the hose by pulling the latter through the pull tab opening and removing its sealed end.

Background of the invention

This invention relates to a new and unique container for gasoline or other volatile liquid. The container is particularly useful for carrying relatively small quantities of gasoline in motor vehicles for emergency use, camp site use, etc., and is insulated for the protection of its contents against shock and expansion due to excessive temperature changes. Liquid can be readily dispensed from the container into the gas tank of an automobile, or any other receptacle, with a minimum of fuss and difficulty and essentially no likelihood of spillage.

Almost every automobile driver has, at one time or another, had the unfortunate experience of running out of gas and facing the necessity of finding his way to the nearest service station to obtain enough fuel to get him to a place where he can refill his gas tank. This experience is unpleasant at best, as, for example, when it occurs in daylight near a service station. At worst, it can assume the proportions of a nightmare, as for example, when it occurs late at night in a remote area and/or in bad weather. There have been instances where persons have died as a result of being stranded without fuel for their cars in the blistering summer heat of remote desert areas or in freezing winter temperatures in isolated parts of the country.

In addition to the above-noted disadvantages of running out of gas, there is often another, of considerable annoyance and no mean threat of danger, of which the stranded motorist becomes acutely aware when he attempts to transfer a small quantity of gas, probably transported with great difficulty from a faraway service station, from a container of conventional type to his gas tank. Because of the unsuitability of such containers for the pouring of gasoline into narrow gas tank fillers, the average motorist's amateurish attempt to perform this operation often results in the spilling of copious quantities of gasoline on painted car surfaces adjacent his gas tank opening, his clothing and his person. All things considered, the experience of running out of gas is usually a time-consuming nuisance that carries with it a potential of great danger, particularly where the involved motorist is a woman, or other individual more vulnerable than the average man to the perils inherent in the situation.

The principal reason why motorists find themselves in the above-described positions of inconvenience and hazard when their gas tanks run dry is the lack of any presently available means for safely carrying a reserve supply

of fuel to meet such an emergency. Gasoline is, by nature, a highly volatile and dangerous liquid which mixes with air in its vapor form to create gaseous mixtures of highly explosive character. Consequently, no practical container of a size suitable for carrying a small quantity, such as, for example, a gallon or some lesser quantity, of gasoline in the trunk of a car, or other out-of-the-way place in a motor vehicle, has yet been devised, insofar as I am aware. Conventional containers, such as cans of the type used to carry paint thinning liquids, bottles, jars, etc., make unsatisfactory containers for gasoline because they are quite vulnerable to rupture or breakage under the high internal pressures generated by that liquid as a result of its high volatility, coupled with the shocks and vibrations to which they are exposed in moving automobiles. The danger of fire or explosion resulting from the rupture or breakage of containers such as this, and consequent escape of gasoline therefrom, is obvious. In this connection, glass bottles or jugs are considered so potentially dangerous as containers for gasoline in some states that their use for this purpose is forbidden by law.

Boating and camping enthusiasts are proliferating at an ever increasing rate and these individuals have an urgent need for suitable containers for the storing and carrying of relatively small quantities of gasoline for boat emergency, camp stove, gasoline lantern, etc., use. However, as pointed out above, no really suitable containers for the safe packaging of gasoline, or the like, in these smaller quantities exist. Campers, boat owners, and other persons having a need for such containers are therefore forced to use conventional cans or bottles instead and suffer the possible dangers of gasoline leakage through ill-fitting closure caps; container rupture as a result of mechanical shock; gasoline pressure from increased heat; or both; etc., obviously incident to such usage.

Summary of the invention

The novel container of this invention has utility primarily as a means for containing a relatively small quantity (for example, a gallon, half-gallon, quart, or similar quantity) of gasoline in a safe manner until needed for emergency use in the gas tank of a motorist who has run out of gas by a fisherman or camper in a boat engine, camp stove, gasoline lantern, or the like. The container is double-sealed against the escape of liquid or vapor therefrom, and comprises basically a rigid, gas-tight outer shell, typically a steel can, and an inner bladder, of neoprene, or other suitably flexible and gasoline resistant material, in which the gas is stored until needed. The bladder has an attached hose, sealed at its outer end, through which the gasoline is ultimately drained from the container for use.

In its preferred form, the container of this invention has a liner of fire-resistant, shock-resistant and heat insulating material, such as Styrofoam, fitted into its outer shell, the bladder being, of course, housed within the space surrounded by the liner preferably with that part to which the hose is attached facing upwardly. The hose is of sufficient length to deliver the liquid contents of the container where needed upon evacuation of the latter. The container can be employed for substantially indefinite storage of its liquid contents, and can be manufactured and sold at a low enough cost to be discarded, as a throw-away item, when finally emptied.

There is sufficient room in the space within the outer shell of my novel container to permit expansion of the liquid confined within the loaded bladder under the influence of heat, or shifting of the liquid when the container is subjected to mechanical vibration or shock, with minimal container-rupturing, and consequent liquid spillage, danger such as would be present in the case of a conventional can or bottle under similar circumstances.

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The hose attached to the bladder is preferably coiled on top of the latter, the bladder and outer shell, or can, as it will sometimes be called hereinafter, being cooperatively sized to provide adequate room for the coiled hose in this position and permit ready withdrawal of the hose from the can when needed. The hose has its outer end sealed against leakage of the contents of the bladder and the can has a pull tab opener of the type found on many beer and soft drink cans, preferably on its top, with a fastener, typically a spring clip fastener, secured to its inner side. The fastener is adapted to grip the hose near its sealed end and hold it until the container is ready for opening.

To open the container, the pull tab is torn loose from its outer shell to leave a hole through which the sealed end of the hose is automatically drawn as a result of its attachment to the tab by means of the aforesaid fastener. The pull tab can now be removed from the hose, after which the latter can be withdrawn from the outer shell of the container to a desired length and its sealed end cut off to prepare it for use. It is now a simple matter to empty the container by inserting the open end of the hose into an automobile gas tank filler, or other suitable receiver for the liquid in the container, and holding the latter high enough to permit drainage of said liquid therefrom. The flexible nature of its walls permits the bladder to collapse as it empties and thereby facilitate fairly rapid expulsion of its contents.

It is thus a principal object of this invention to provide safe containing means for a relatively small quantity of gasoline, or other volatile liquid, which can be kept unobtrusively out of the way until needed for an emergency, or other, purpose.

It is another object of the invention to provide such means which can be readily opened without specialized equipment of any sort and emptied into the exhausted gas tank of an automobile, or the like, with substantially no danger of liquid spillage.

It is still another object of the invention to provide such means adapted to protect its liquid contents against the deleterious effects of temperature extremes and sufficiently immune to rupture or breakage under the influence of mechanical vibration or shock to permit its storage for prolonged periods in moving automobiles, or the like, without danger of loss or leakage of said contents.

It is yet another object of the invention to provide such means with an inherent ability to compensate for the relatively high expansibility of gasoline, or the like, under the influence of heat.

It is another object of the invention to provide such means of sufficiently low manufacturing cost to permit its discard after exhaustion of its liquid contents.

Other objects, features and advantages of the invention will become apparent in the light of the following description of a preferred embodiment thereof.

Brief description of the drawing

FIGURE 1 is a perspective of a preferred embodiment of a double-sealed container in accordance with this invention showing, particularly, the top of the container and a pull tab opener attached thereto.

FIGURE 2 is an enlarged longitudinal section of the container and its contents, taken along line 2—2 of FIGURE 1.

FIGURE 3 is a cross-section of the container, taken along line 3—3 of FIGURE 2.

FIGURE 4 is a fragmentary part of a longitudinal view, mostly in section, of the container, similar to the FIGURE 2 view but showing the pull tab in side elevation and torn completely away from the top of the container.

FIGURE 5 is an enlarged fragmentary top view of the container showing its pull tab in plan detail, the outline of a spring clip attached to the underside of the

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pull tab and holding the end of a hose within the container, as well as a portion of the hose itself, being shown in dotted lines.

FIGURE 6 is a still further enlarged fragmentary view showing, in section, the top of an outer shell of the container; a liner fitted within said outer shell; and said pull tab, spring clip and hose, taken along line 6—6 of FIGURE 5.

Description of the preferred embodiment

Considering now the drawing in greater detail, there is shown generally at C a preferred embodiment of a double-sealed container in accordance with this invention. Container C comprises, in combination, a sealed can 10, preferably made of steel, having a pull tab 18 on its upper end; a Styrofoam liner 12 fitted within the can; a neoprene bladder 14, filled with gasoline 15, fitting snugly within the space enclosed by the liner 12 with the exception of a relatively shallow space 13 between the top of the bladder and the liner; a neoprene hose 16 sealingly connected to the center of the top of the bladder at one end, as shown at 16b, to provide a drain line therefrom, and permanently sealed at its other end, as shown at 16a; and a spring metal clip 19 with a C-shaped lower end 19b fixedly secured to the under surface of pull tab 18 with the open side of said lower end facing toward one edge of the pull tab, the latter as illustrated in FIGURES 2 and 6.

The hose 16 is coiled spirally about its end 16b connected to the center of the top of the bladder to a point near the outer edge of the bladder and underneath pull tab 18, at which point the hose is bent upwardly and fastened to the pull tab by means of spring metal clip 19, the C-shaped lower end of the latter being sized to snugly but firmly grip the hose for a purpose hereinafter discussed at greater length. The space 13 between the top of the loaded bladder and the insulated top of can 10 is sufficiently deep to provide ample room for accommodation of the hose in the spiral-wound form just described, yet confining enough to maintain the hose in that form to prevent its possible entanglement until the container is ready for opening while still leaving room for easy withdrawal of the hose from the can when this becomes necessary in accordance with subsequent teachings herein. In addition to providing room for hose 10, space 13 permits the liquid in bladder 14 to expand under the influence of heat without rupturing can 10.

The pull tab is of the type seen on many beer and soft drink containers, and consists of a pull ring 20; a loop of thin metal 22; a tearaway member 26, including a segment of the can top, outlined, for the most part, by a scored tear line 28, best shown in FIGURES 5 and 6, and a rivet 24 fastening the two ends of loop 22 to one end of the tearaway member 26. These parts are fastened together and integrated with the top of can 10 in such a way as made clear in the drawing and well known to anyone who has opened a beer or soft drink can having such a tab, hence need not be described in greater detail here. The can top segment portion of the tearaway member 26 of the pull tab is larger at one end than the other and shaped to provide an elongate, pear-shaped opening in the top of the can when the pull tab is removed.

The Styrofoam can liner 12 serves as a shock- and fire-resistant barrier between the loaded bladder 14 and can 10, and covers the entire inner surface of the latter. That portion of the liner flush against the can top segment part of tearaway member 26 of the pull tab is divided from the adjacent liner structure along a path 34 similar to the peripheral outline of the can top segment part of said tearaway member, but offset slightly inwardly therefrom to form a plug 36 disposed just underneath that segment. As FIGURE 6 illustrates, spring metal clip 19 passes downwardly through plug 36 from a flange-like segment 19a at its upper end (by means of which it is secured to pull tab 18) to its C-shaped lower end 19b. The clip is de-

signed to help hold plug 36 in place against the top of can 10 by the application of upward pressure from its C-shaped lower end, again as FIGURE 6, illustrates. The presence of plug 36 in the can liner, as will be seen, makes it a matter of the utmost simplicity to provide an opening through which the hose 16 can be pulled when container C is finally opened for evacuation of its contents.

As will now be clear, the gasoline in container C can be easily transferred to the gas tank of an automobile, the fuel holder of a gasoline lantern, or the like, by merely tearing the pull tab 18 away from can 10 and moving the tab so as to pull the attached hose after it through the resulting opening in the can top, this manner of pull tab movement being illustrated by the relative positions of the tab and the can in FIGURE 4. By virtue of its size and location, plug 36 of can liner 12 slips easily out through the aforesaid opening in the can top to assure malfunctionless removal of the pull tab, and withdrawal of the hose, from the container. After a length of hose sufficient for the purpose has been threaded through the opening in the can top, the pull tab is snapped away from the hose by merely forcing the latter out through the opening of C-shaped clip 19 shown to the right in FIGURE 6, and the sealed tip of the hose is cut off, leaving its outer end open. The container is now ready for emptying, and this is accomplished by inserting the open end of the hose into the filler of a gas tank, or the like, and holding the bladder and can high enough to permit the contents of the former to drain out.

As will now be evident, container C provides a safe means for storing gasoline in small quantities, double-sealed from its outer surroundings and insulated against shock, fire and undue temperature variations, and to permit expansion of the gas under the influence of any temperature fluctuations severe enough to reach it through the insulating container walls. The gasoline is thus safely preserved until it is needed, at which time the container can be opened without the use of any special tool or tools and emptied quickly and efficiently with a minimum of effort into any tank, vessel, or the like, into which the end of hose 16 is insertable, including in many cases, such a vessel completely inaccessible to the ordinary container without a drainage hose. Container C is primarily designed for carrying in an out-of-the-way corner of an automobile trunk compartment, or other obscure, and normally wasted, car area. In this connection, it is within the scope of my invention to provide holding means for the container suitable for use in the trunk of a car, or elsewhere. Such means could, for example, take the form of a metal plate with attached bracket adapted to support one or more of the subject containers, the plate being fastenable to the floor of an automobile trunk compartment, or the like, in such fashion as to position the bracket thereabove.

While the illustrated embodiment of my invention has been herein described in terms suggestive of its use as a container for gasoline in quantities adequate for emergency use as reserve supplies of fuel for automobiles, for use at campsites, etc., it will be apparent that the container is admirably suited for the storing and carrying of any volatile liquid, particularly a flammable liquid, so long as its bladder and hose are made from a material substantially resistant to attack by said liquid. The container can, of course, be used as a carrier for any liquid, although as will be appreciated, its unique qualities particularly suit it for use in the packaging and storing of highly volatile and flammable liquids.

It will be appreciated that the particular version of my new and unique container illustrated in the accompanying drawings is merely exemplary of a preferred embodiment thereof, and that there are many variations of said embodiment within the scope of my invention. Some of these variations have already been hinted at and others will occur to those skilled in the art in the light of present teachings. Illustrative of such variations are containers of shapes

other than the cylindrical shape of container C; containers with liners of insulating materials other than Styrofoam (such as, for example, polyurethane foam) substituted for Styrofoam liner 12, or even with no liners at all; containers with pull tabs of different design than pull tab 18 (including pull tabs of the spiral or circular type seen on some soft drink cans); containers having pull tabs on other than their upper ends; containers with insulating liners covering less than the entire inner surfaces of their outer shells; containers with means for fastening the outer ends of their hoses to the inner sides of their pull tabs other than a clip similar to clip 19 (as, for example, a pair of downwardly depending spring metal clips with a space between their lower ends through which a hose can be upwardly inserted); containers having hoses with indented, or otherwise preshaped outer ends to permit easy tearing removal of the latter to open the hoses for liquid drainage purposes; etc.

In summary, my invention has been described in considerable detail in order to comply with the legal requirement for a full public disclosure thereof in at least one preferred form. Such detailed description is not, however, intended to in any way limit the broad features or principles of the invention, or the scope of the patent monopoly sought to be granted, except insofar as dictated by the language of the following claims.

I claim:

1. Containing means particularly adapted to contain a volatile liquid comprising, in combination:

- (a) a rigid outer container having pull tab opening means including a tearaway portion of said container;
- (b) a collapsible bladder adapted to hold said liquid, said bladder being disposed within the rigid outer container;
- (c) an insulating and shock-absorbing liner fitted within said outer container, said liner having a plug segment attached to the tearaway portion and sized to pass through the opening left in the container when said tearaway portion is torn away therefrom;
- (d) a hose sealingly connected to the bladder at the end and sealed against leakage at the other; wherein the pull tab opening means is on the top of the can and the can, liner and bladder are so cooperatively sized and arranged that the hose is coiled on the bladder in a space provided therefor between the top of the bladder and the liner material flankingly adjacent the top of said can; and
- (e) metal clip fastening means for holding the hose near its sealed end adjacent the inner side of the tearaway portion of said container having a first segment fixedly secured to the inner side of said tearaway portion and a second segment into which the hose fits and from which it can be removed after the tearaway portion has been torn away from the container;
- (f) whereby said container can be opened for evacuation of its liquid contents by pulling the tearaway portion of said pull tab opening means away from said rigid outer container to leave an opening in the latter and thread the sealed end of the hose outwardly therethrough; pulling more of the hose outwardly through the opening; and providing an opening in the hose through which liquid can be drained from said bladder.

2. Containing means in accordance with claim 1 particularly adapted to hold a relatively small quantity of gasoline for emergency, or other use, in which the rigid outer container is a steel can, the liner is made of Styrofoam and the bladder and hose are both made of neoprene.

3. Containing means in accordance with claim 1 in which the second segment of said spring metal clip means is a C-shaped strip of spring metal oriented with the open side of the C facing toward one side of said tearaway portion of said container.

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5 WALTER SOBIN, *Primary Examiner.*

U.S. Cl. X.R.

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