United States Patent [19]

Flider

[11] **3,927,797**

[45] **Dec. 23, 1975**

[54] **PLASTIC JERRY CAN**

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[22] Filed: **Jan. 21, 1974**

[21] Appl. No.: **434,939**

[52] **U.S. Cl.** ..... **220/318**; 220/94 A; 222/469; 222/471

[51] **Int. Cl.²** **B65D 45/00**

[58] **Field of Search** ..... 220/55.7, 94 A, 36, 255, 220/291, 314, 318, 398; 222/469, 471; 215/10, 100

[56] **References Cited**

UNITED STATES PATENTS

2,365,695	12/1944	Grice	220/36
2,670,107	2/1954	Welden	220/36
2,944,691	7/1960	Serio	220/36
3,469,747	9/1969	Richmond, Jr.	222/469
3,729,122	4/1973	Flider	222/469
3,746,200	7/1973	Flider	215/10
3,770,160	11/1973	Flider	220/36
3,794,235	2/1974	Flider	222/471

FOREIGN PATENTS OR APPLICATIONS

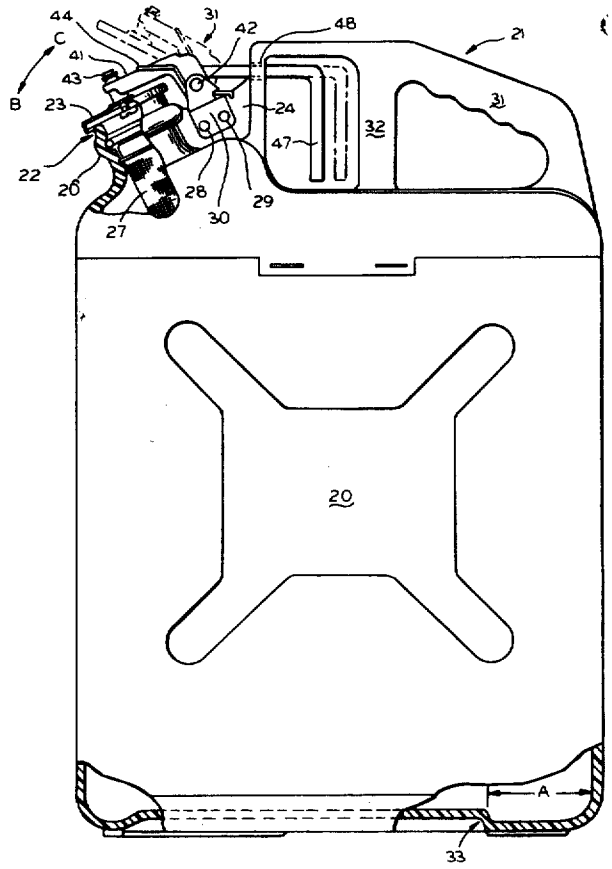
515,694	6/1938	United Kingdom	221/21

Primary Examiner—William Price
Assistant Examiner—R. E. Hart
Attorney, Agent, or Firm—Alter and Weiss

[57] **ABSTRACT**

A single necked, all plastic "Jerry Can" comprising a two position top handle and a bottom grip. The two position top handle includes one part for lifting and carrying the can while in a vertical position. A second part of the top handle includes a post which enables the can to be held in a horizontal position by one hand while the bottom grip is being held by the other hand. Fluid flow control hardware attached to a fin on the top of the can may be operated by the hand holding the post.

3 Claims, 4 Drawing Figures



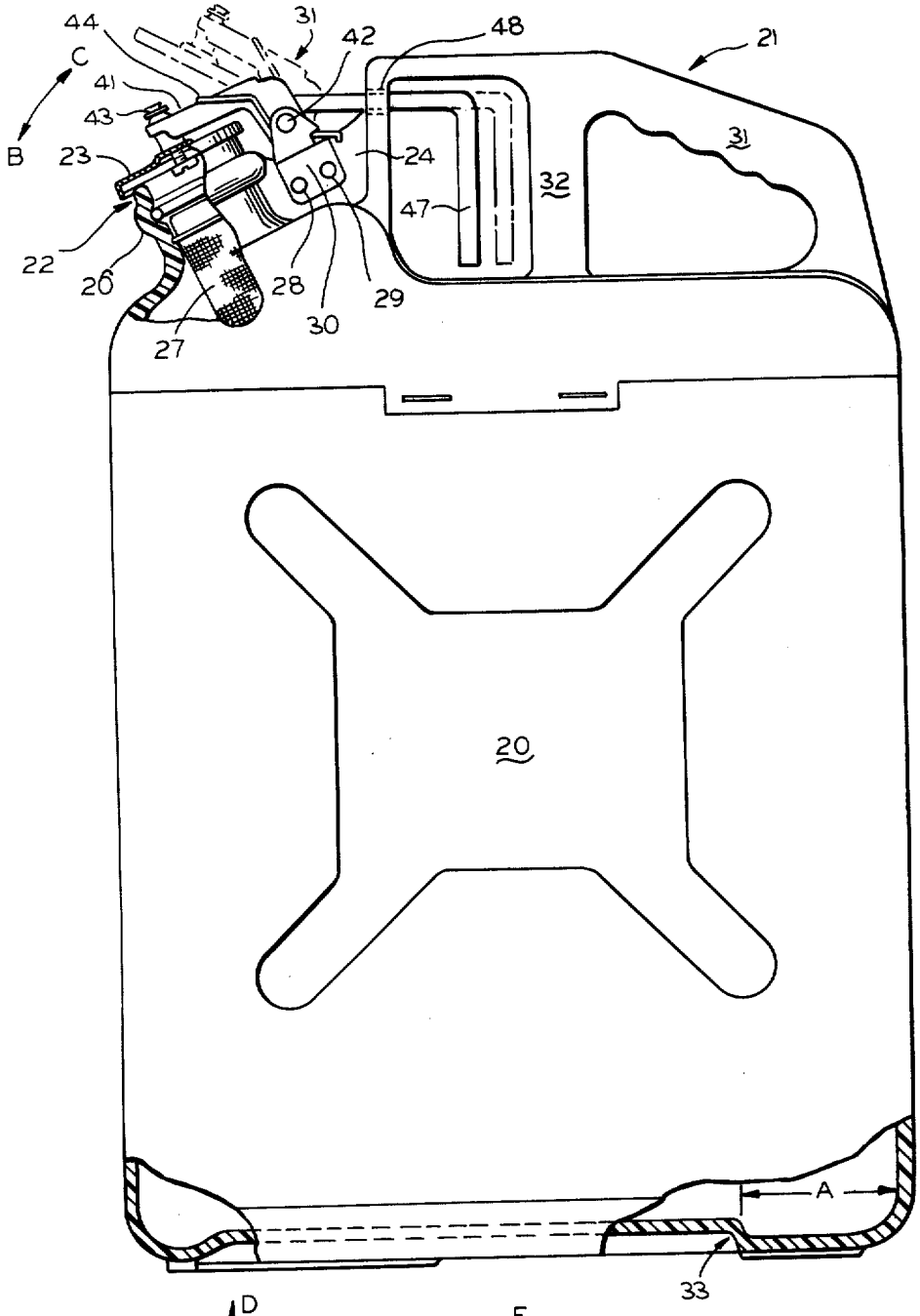


FIG.1

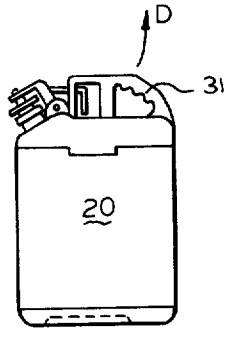


FIG.2

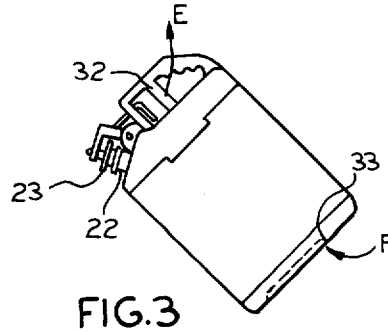


FIG.3

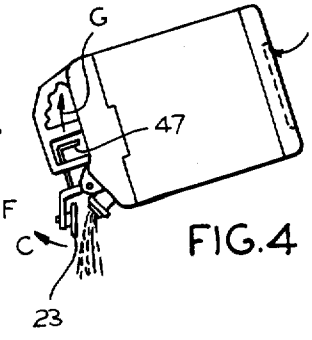


FIG.4

PLASTIC JERRY CAN

This invention relates to plastic safety cans or containers for inflammable fluids and more particularly -- although not exclusively -- to the so-called "Jerry Can" usually -- but not always -- associated with military application.

Containers for inflammables usually have prescribed safety specifications, which are enforced by governmental, industrial, or trade agencies. In addition, military specifications may set forth very rigidly prescribed characteristics very often dating back many years to a time before modern materials or manufacturing techniques became available. For example, the so-called "Jerry Can" specifications were originally written, at least as early as World War II As a result, they are drawn to steel cans made in a presently archaic manner and having particular types of superseded hardware associated therewith. Thus, there has been little improvement in "Jerry Cans" during the last twenty-five to thirty-five years. Accordingly, there is a need for updating the techniques used to make these cans so that new and superior materials and manufacturing techniques may be used and, at the same time, the cost may be lowered.

Ideally, it appears that some of the newer plastics have the best opportunity to advance the state of this heretofore static art. For example, the steel containers have drawbacks in that they are not only expensive to make, but hazardous in explosive ladened atmospheres, and short-lived in use. They tend to rust, corrode, or otherwise deteriorate. They create hazardous sparks and deface the surfaces which they contact. Moreover, when the cans are bumped or dropped, they sometimes leak air and thereafter fail while in service, often without prior warning.

Another problem which has been encountered during the use of "Jerry Cans" and similar containers relates to the weight of filled containers. When full, the can is a heavy one, holding as much as five gallons, for example. It should be easy for one unassisted person to handle and to manipulate these cans while pouring gasoline. The handle should be sturdy enough and arranged to withstand a severe pull, such as an 800-pound pull. This is a substantial and an exacting requirement for a plastic can.

Another problem relates to surging fluids during pouring. If a can full of gasoline is turned to a pouring position over the gasoline tank filler cap of an automobile, much of the gasoline is spilled on the auto, ground, or the like. If the can is tipped too far and the gasoline pours too fast, the fluid fills the entire pouring spout. Then, there is surging wherein the fluid gushes out until a vacuum forms inside the can and the fluid flow stops. A bubble of air rushes into the vacuum, followed by another gush of fluid out the spout.

Hence, there is a need for a can which may be slowly tipped to a pouring position while a cap is closed. Then, the can may be opened to allow fluid to slowly flow out the can utilizing the neck of the can to enable air flow into the can while enabling liquid flow out of the can. This way, the can may be tipped slowly enough to preclude spillage and surging. However, this need requires a careful control over the cap, which is difficult to accomplish while holding a full can of gasoline and aiming the fluid at an automobile filler cap.

Accordingly, an object of the invention is to provide new and improved plastic containers having characteristics which meet both industrial and military standards and specifications, especially for "Jerry Cans."

Another object of the invention is to provide a "Jerry Can" having a two position handle system, for enabling both vertical and horizontal lifting, carrying, and pouring.

Yet another object of the invention is to enable a can to be poured slowly enough to prevent the surging which might otherwise occur if hardware could not be precisely controlled while a full can is in a horizontal position, without the need of a venting orifice.

Still another object of the invention is to provide an all plastic "Jerry Can" which may be manufactured by blow molding techniques.

A still further object of the invention is to provide a low-cost, explosion-resistant, storage can for inflammable fluids.

These and other objects are accomplished by a blow molded, all plastic "Jerry Can" having a completely plastic wall, with an integral two position handle molded thereon. Molded adjacent to and extending from the handle is a single opening covered by a cap and controlled by a grip type lever, operable from one handle position. The two handle positions enable the can to be either carried while in a vertical position or tipped to a pouring position while the cap is closed. Then, without shifting grip, the cap may be opened to allow the gasoline to pour forth in a controllable stream, without the need for a separate venting orifice.

The nature of a preferred embodiment of the invention for accomplishing these and other objects may be understood best from a study of the following description of the attached drawings, in which:

FIG. 1 is a side elevation, partially cross-sectional view of the inventive "Jerry Can", showing the top with the two position handle, showing the bottom with a gripping and lifting portion molded therein, and showing a filter and fire screen in the opening;

FIG. 2 is a schematic view of the "Jerry Can" being lifted or carried by one handle part, while the can is in a vertical position;

FIG. 3 is a schematic view of the "Jerry Can" being rotated to a horizontal position through a use of the other handle part; and

FIG. 4 is a schematic view of the "Jerry Can" in a pouring position.

The principal elements in FIG. 1 are an all plastic, preferably blow molded container **20**, having thereon a two position handle arrangement **21**. The container **20** is filled and emptied by pouring fluids through a neck-like opening **22**, which is integrally molded in the container **20**. Preferably, this opening is shaped to receive and be sealed by cap **23**.

The plastic container **20** may be formed by any suitable means -- such as blow molding -- inside a mold cavity formed by two mold parts with a parting line which is thickened, in part, to form an upstanding fin or rib **24** and, integrally therewith, the handle **21**. The handle **21** is a fairly massive structure in the order of an inch, more or less, in diameter. Thus, when blow molded, the neck **22**, rib **24**, and handle **21** arrangements are made as an integral unit so that these parts strengthen and support each other. An annular ring **26** is formed in the neck **22** and shaped to receive and support filter screen and flame arrestor **27**. Fin **24** has apertures therein which receive fasteners **28, 29** that

pierce the fin, but not the container wall, for attaching a saddle bracket **30** carrying hardware **31** for controlling cap **23.** Hence, no leakage problems occur around the fasteners **28, 29** because there are no existing points where the fasteners pierce the container wall.

While being a single and integral physical unit, the handle **21** has two functional parts **31, 32.** The handle part **31** is a normally horizontal bar of such a shape and dimension that a person may grip the bar and lift the can **20,** for carrying it while in a vertical position. The handle part **32** comprises a normally vertical bar shaped and dimensioned so that it may be gripped and lifted by a person. Obviously, the can **20** will tend to be in a position with the neck facing downwardly when the can **20** is lifted into a horizontal position by the vertical bar **32.** To assist the user and to provide a second horizontal lifting place, a hand hold or grip portion **33** is formed in the bottom of the can **20** near the side wall which is uppermost while fluid is being poured from the can.

It should be noted that the bottom grip **33** comprises a cove for receiving the finger tips and a somewhat bar shape which the fingers curl around. The width A of the foot section extending from the bar to the side of the can is adequate to provide substantial strength, even when the can **20** is completely full.

The hardware for controlling the opening and closing of cap **23** is attached to fin **24** by saddle bracket **30,** and the pair of fastening means **28, 29** (such as rivets) which pass through mating holes in the fin **24** and saddle bracket **30.** An L-shaped bracket **41** is pivotally attached at pin **42** to bracket **30** and at **43** to cap **23.** Spring **44** is wrapped around pin **42** to exert a force acting in direction B for closing the cap **23** upon the top of the neck **22.**

A hooked-shaped operating lever **47** passes through a slot **48** in the front strut portion of handle **21.** Lever **47** pivotally connects, at **42,** to the L-shaped bracket **41.**

In operation, the user holds the normally vertical post **32** of handle **21** in the palm of his hands and wraps his fingers around the vertical hook **47.** When the user wishes to open cap **23,** he pulls the hook **47** and in turn the pin **42,** toward the vertical post **32.** This rocks the L-shaped bracket **41** about the pivot point formed by the pin **42.** Pivoting is in the direction C and against the force of the spring **44,** to raise cap **23** (shown in dashed lines) and open neck **22** of the can. When hook lever **47** is released, spring **44** forces cap **23** back in direction B to its normally closed position.

FIGS. **2–4** show the sequence used to operate the hardware and to pour fluids from the can. In greater detail, FIG. **2** shows a vertically oriented arrow D indicating that the weight of the can is being lifted in a vertical direction by the horizontal handle bar **31.**

FIG. **3** includes an arrow E drawn from the vertical handle post **32,** thereby indicating that the user has shifted his grip to lift the can into a somewhat horizontal orientation. The arrow F is shown acting upwardly upon the bottom grip **33.** It should be noted that the neck **22** may be thus brought near an automobile gas tank fill cap at a time while the cap **23** is still closed. Thus, there is no spillage.

FIG. **4** has been drawn to show that the hook lever **47** is retracted in direction G to open cap **23** after the can is in a pouring position. Since the flow of fluid may thus be controlled, precisely and evenly, it is not necessary to tip the can fast enough to avoid a dribble while the fluid is pouring. Accordingly, the fluid may be poured slowly without filling the entire cross-sectional area of the neck **22.** Thus, space remains for air to flow into the neck **22** while fluid flows out the neck, and there is no tendency for the outflowing fluid to surge.

Those skilled in the art will readily perceive modifications which may be made without departing from the scope and spirit of the invention. Accordingly, the appended claims are to be construed to cover all equivalent structures.

I claim:

1. An all plastic blow-molded can,

said can having an integral fin located at the top thereof,

a two position handle upwardly disposed from said fin and integral thereto,

said can having a single neck opening at one side of the top thereof for dispensing fluid from said can,

means comprising a substantially horizontal bar having an end thereof disposed downward to the top of said can at the side of the can opposite to said necked opening,

a vertical post extending upward from the top of said can to meet said horizontal bar,

said vertical post means being substantially centrally located on the top of said can and being spaced apart from the portion of said horizontal bar extending downward to the top of said can whereby the person can grasp the horizontal bar between the downward extending portion and said vertical post,

fluid flow control hardware means attached to said fin on the top of the can,

said control hardware means including a saddle bracket attached to said fin by fasteners passing through said bracket and the fin without piercing the walls of the can,

said hardware comprising a cap for closing said necked opening on the end of a bracket pivotally attached to said saddle bracket,

hook lever means attached to said pivotal bracket,

the hook on said lever being positioned adjacent to said vertical post to enable the manipulation of said cap, while holding said vertical post, and

bottom grip means held by the user when said can is in a horizontal position, whereby the user of the can can hold the post with one hand while manipulating said control hardware means and using the other hand on the bottom grip means to hold the can in a horizontal position, while dispensing fluid therefrom.

2. The can of claim **1** including front strut means spaced apart from said vertical post toward said necked opening,

said front strut means rising vertically from said fin to approximately equal the height of said vertical post,

said horizontal portion of said handle extending from said vertical post to said strut means, and

an opening in said front strut to enable said hook lever means to extend therethrough and be positioned near said vertical post.

3. The can of claim **2** wherein said cap is normally spring biased to cover said necked opening, and

means responsive to sliding of said hook lever for raising and lowering said cap.

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