US 20060196494A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0196494 A1**

**Kwon** (43) **Pub. Date: Sep. 7, 2006**

(54) **SAFETY COVER OF PORTABLE GAS CONTAINER**

(76) Inventor: **Young Ho Kwon**, Irvine, CA (US)

Correspondence Address:
**PARK LAW FIRM**
**3255 WILSHIRE BLVD**
**SUITE 1110**
**LOS ANGELES, CA 90010 (US)**

(21) Appl. No.: **11/264,795**

(22) Filed: **Nov. 1, 2005**

(30) **Foreign Application Priority Data**

Nov. 2, 2004 (KR) ..... 20-2004-0030963

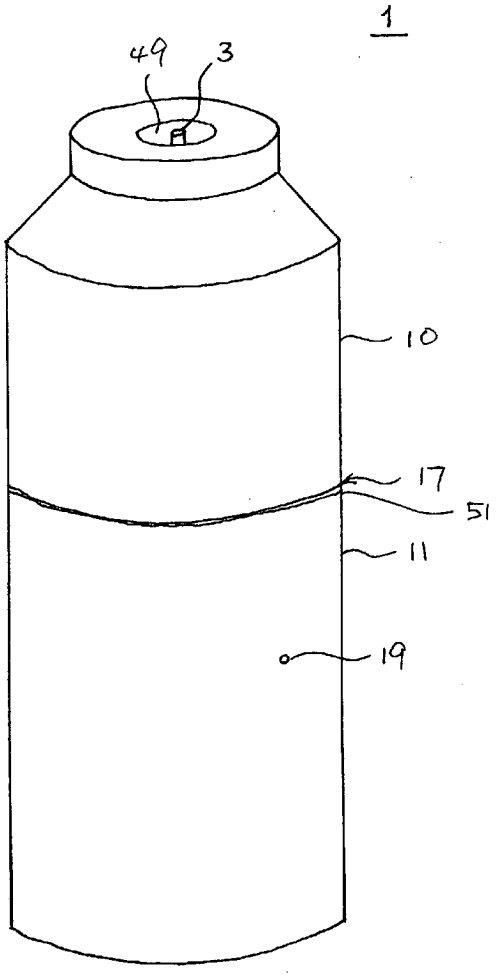
**Publication Classification**

(51) **Int. Cl.**
*F24C 3/12* (2006.01)

(52) **U.S. Cl.** ..... **126/42**

(57) **ABSTRACT**

A safety cover of portable gas container includes top and bottom housings, a locking device, and a first opening on the top housing. The top housing is for covering the upper part of the portable gas container, and includes top and side walls, and a space, confined by the top and side walls, for accepting the upper part of the gas container. The first opening through the top wall of the top housing is adapted to expose a nozzle of the gas container. The bottom housing is for covering the lower part of the portable gas container, and includes side and bottom walls, and a space defined by the side and bottom walls. The locking device is for engaging and securing the top and bottom housings. The safety cover of portable gas container encloses the portable gas container and safely confines an explosion of the gas container inside.



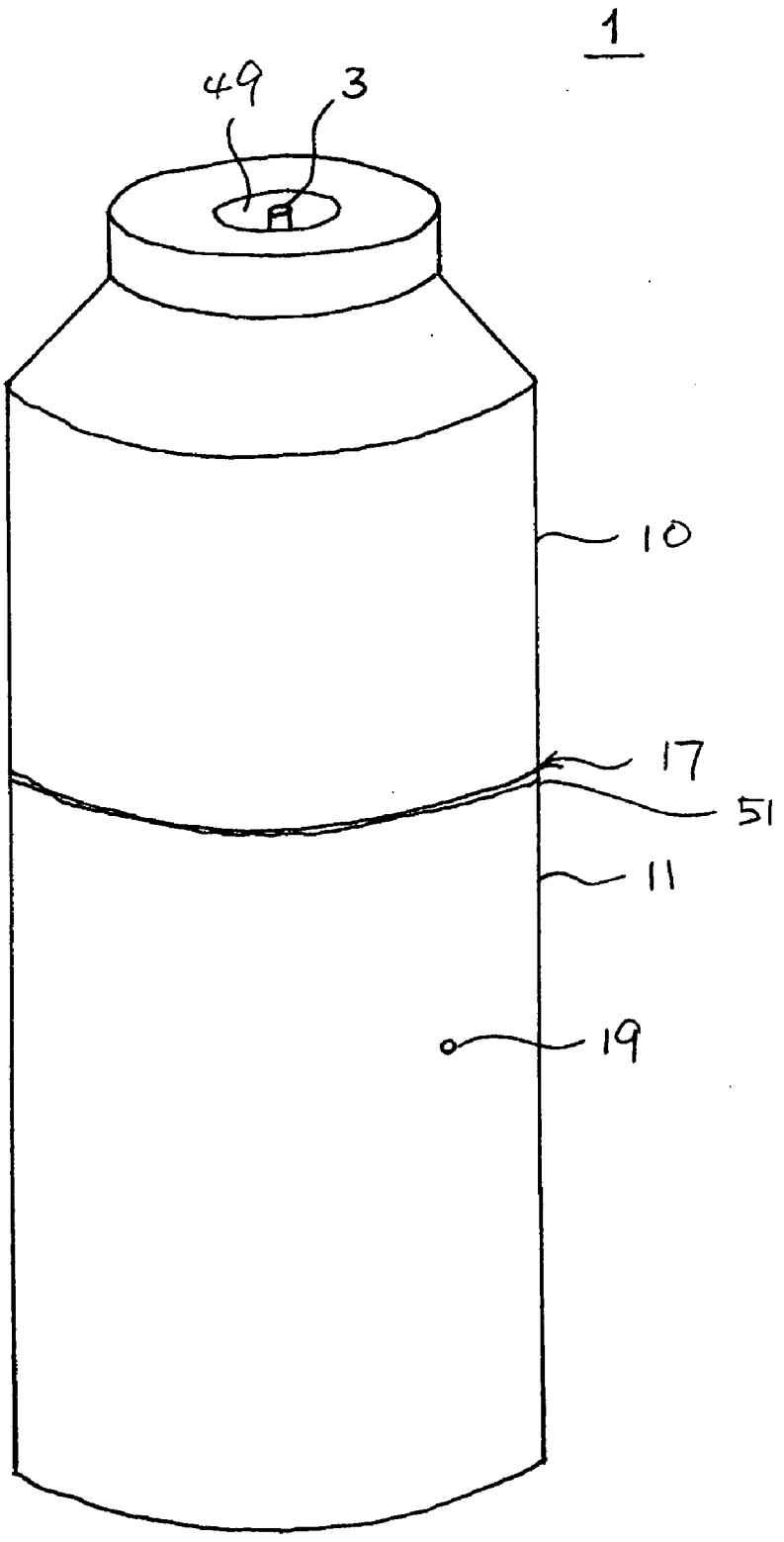



Fig. 1

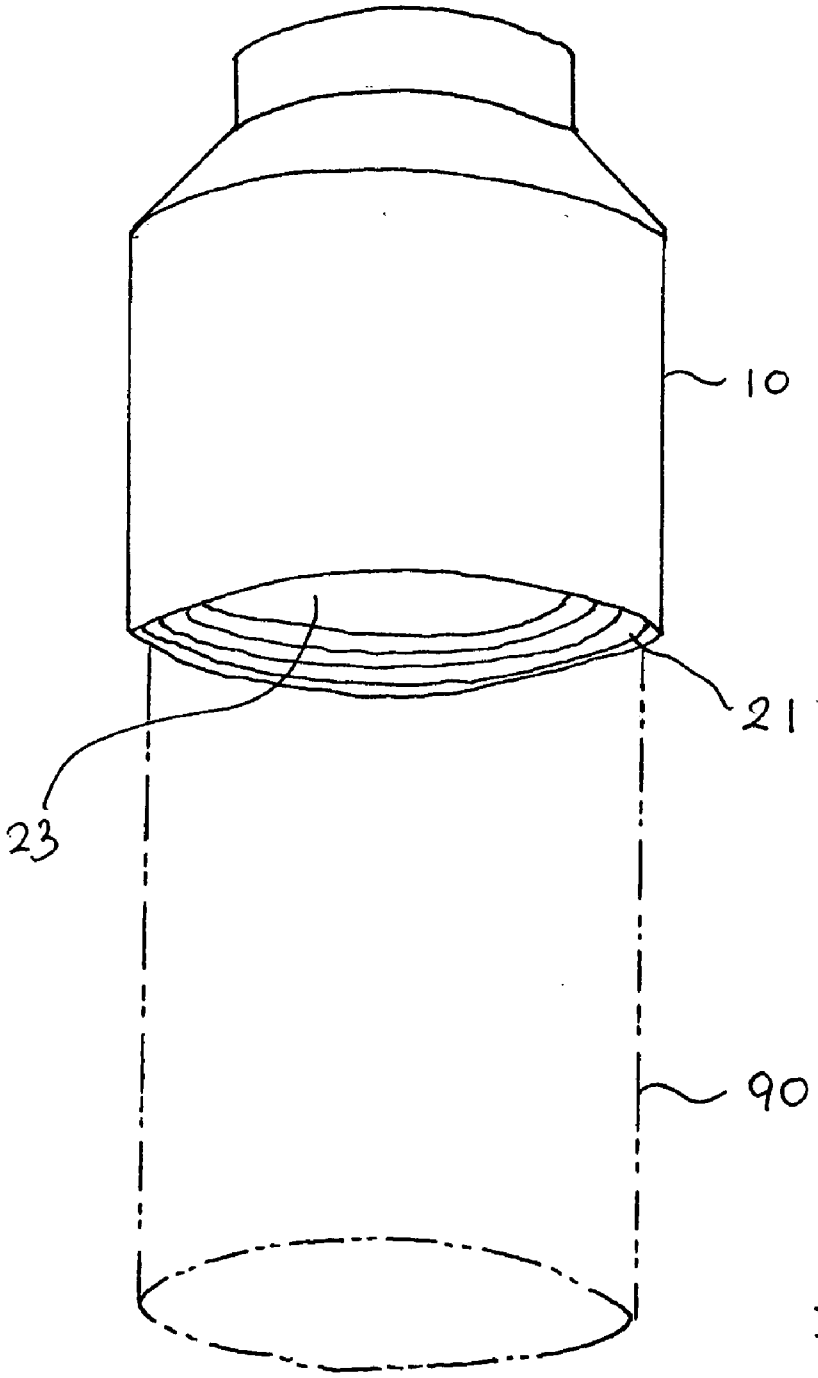



Fig. 2

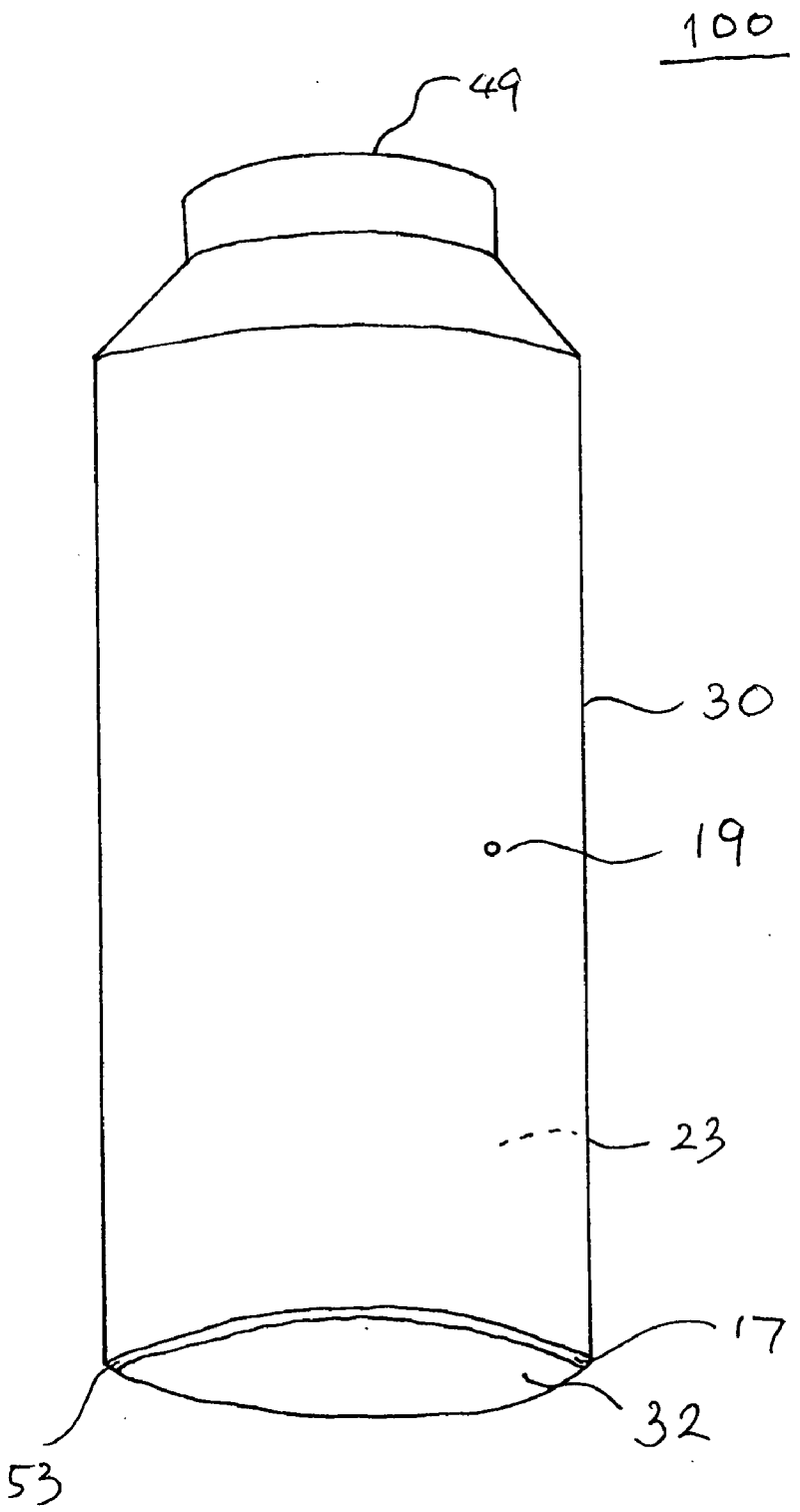



Fig. 4

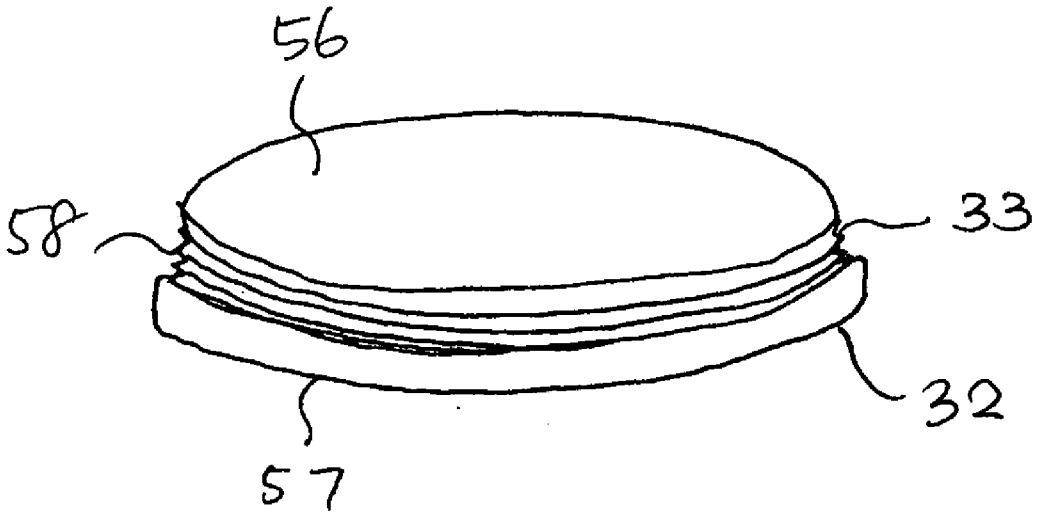



Fig. 5

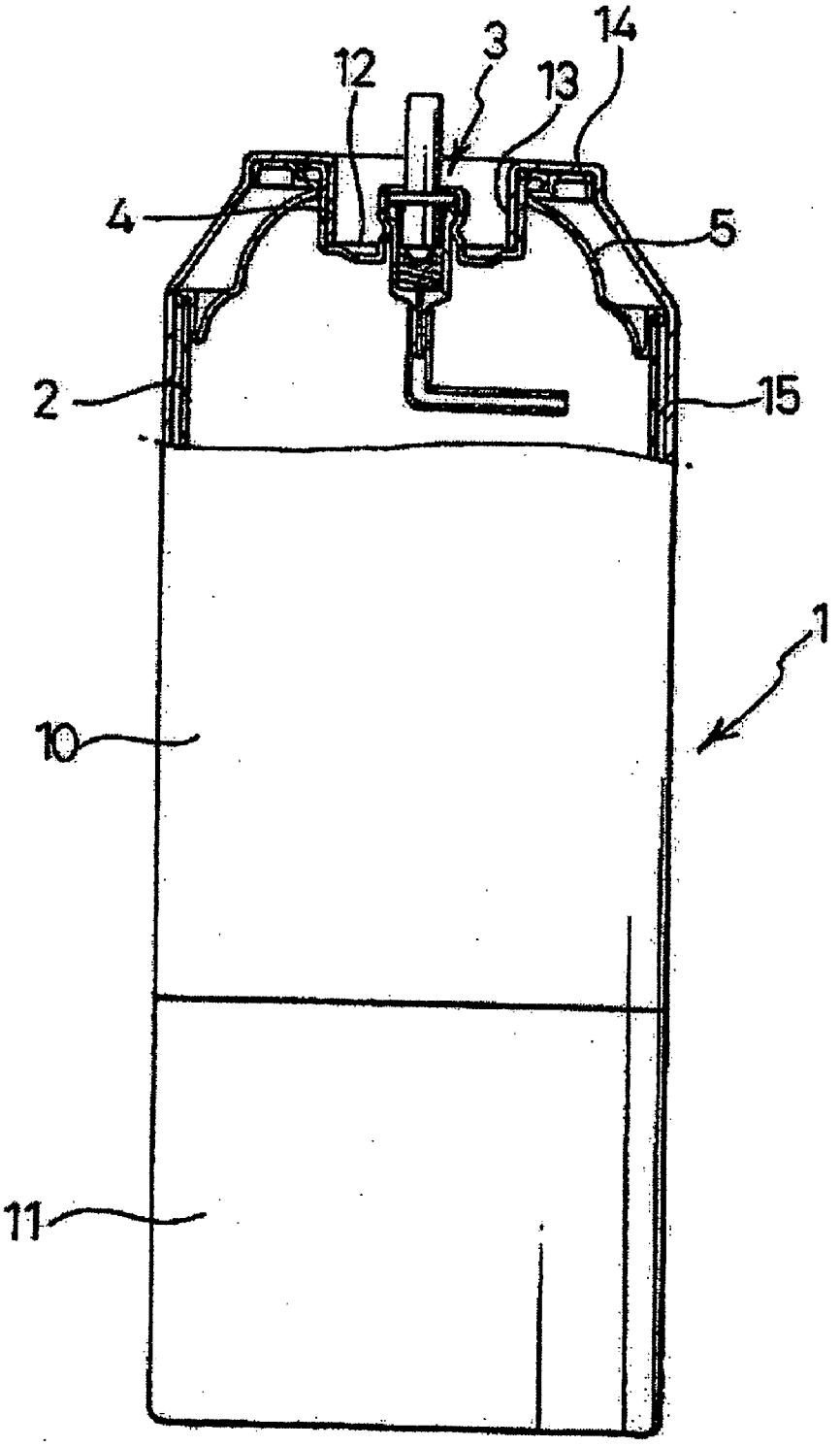



Fig. 6

# SAFETY COVER OF PORTABLE GAS CONTAINER

## BACKGROUND OF THE INVENTION

[0001] The present invention relates to a safety cover for a portable gas container.

[0002] More particularly, this invention relates to a safety cover for a portable gas container that keeps the commercially available gas container from exploding due to some mechanical damages on the canister.

[0003] Also, the invention is related to a safety cover for a portable gas container, which is able to keep a damaged gas container from being used in a condition that even gas leak is happening.

[0004] A portable gas container is a convenient choice for fuel. It is small and light. It contains compressed fuel gas of quantity enough to cook several servings of dishes. That is why so many different types of portable burners or cookers use such kinds of portable gas container. The portable cooker using the portable gas container is widely used not only in outings or camping, but also in some indoor events. For the case of power failure, it is the only way to cook to resort to such a portable cooker and portable gas containers.

[0005] Some problems lie in the portable gas container. The commercially available gas containers are really weak. They are light, which makes the container susceptible to a mechanical shock or pressure on the container. Under the shock and/or external pressure, the thin metal container can be deformed or even fractured especially along the connecting line between the cylinder part and the bottom part.

[0006] Accordingly, a need for a safety cover for portable gas container has been present for a long time considering the impending safety problem and the popularity of the portable gas burner. This invention is directed to solve these problems and satisfy the long-felt need.

## SUMMARY OF THE INVENTION

[0007] The present invention contrives to solve the disadvantages of the prior art.

[0008] An objective of the invention is to provide a safety cover for a portable gas container.

[0009] Another object of the invention is to provide a safety cover for a portable gas container that encloses a portable gas container and confines an explosion inside.

[0010] Still another object of the invention is to provide a safety cover for a portable gas container, which may be used to store a portable gas container safely.

[0011] A safety cover of portable gas container includes top and bottom housings, a locking device, and a first opening on the top housing.

[0012] The top housing is for covering the upper part of the portable gas container, and includes top and side walls, a cylindrical wall, and a space, confined by the top and side walls, for accepting the upper part of the gas container.

[0013] The first opening defined by the cylindrical wall of the top housing through the top wall of the top housing is adapted to expose a nozzle of the gas container. The cylindrical wall engages with the gas container air-tightly.

[0014] The bottom housing is for covering the lower part of the portable gas container, and includes side and bottom walls, and a space defined by the side and bottom walls.

[0015] The locking device is for engaging and securing the top and bottom housings. The safety cover of portable gas container encloses the portable gas container and safely confines an explosion of the gas container inside.

[0016] The side walls of the top and bottom housings are substantially cylindrical. Actually, the external shape of the top and bottom housings is determined according to the receptacle of a gas burner which uses the portable gas container as fuel. In that sense, the cross section of the side walls of the top and bottom housings can substantially angular.

[0017] The top and side walls of the top housing may be integrated into one body. Also, the side and bottom walls of the bottom housing can be integrated into one body.

[0018] The top and bottom housings are made of metal including aluminum, stainless steel, or even fortified plastic. The top and bottom housings can be made of a strong steel wire embedded in the resin. In case of metal, the thickness of the top and bottom housing may be from 1~3 millimeters.

[0019] The space provided in the top and bottom housings fits the gas container with a predetermined margin. The predetermined margin can be controlled and adapted for keeping a damaged gas container from being inserted from the beginning to reduce the danger of fire or explosion.

[0020] The locking device includes a mechanical locking device. The mechanical locking device includes male-female threads provided on the side walls of the top and bottom housings.

[0021] The safety cover may further include a second opening provided on the side walls for easing out the pressure built inside. The diameter of the second opening is from about zero point five (0.5) to about one point five (1.5) millimeters.

[0022] The locking device further comprises a gasket.

[0023] Alternatively, a safety cover of portable gas container includes a housing, a first opening, a plug, and a locking device.

[0024] The housing is for covering the portable gas container, and includes a top wall, a side wall, a bottom opening, a cylindrical wall, and a space confined by the top and side walls, for accepting the portable gas container.

[0025] The first opening defined by the cylindrical wall of the housing through the top wall of the housing is adapted to expose a nozzle of the portable gas container.

[0026] The plug is for covering the bottom opening of the housing to enclose the portable gas container, and includes a top surface, a bottom surface, and an edge around the plug.

[0027] The locking device is for engaging and securing the housing and the plug enclosing the portable gas container.

[0028] The safety cover of portable gas container encloses the portable gas container and safely confines an explosion of the gas container inside.

[0029] The side wall of the housing includes a thread, and the plug includes a corresponding thread on the edge for engaging and securing the housing and the plug.

[0030] The advantages of the present invention are: (1) the safety cover of portable gas container is convenient to use; (2) the safety cover of portable gas container is safe to use; (3) the safety cover of portable gas container is useful even in storing the regular portable gas container with a weak frame.

[0031] Although the present invention is briefly summarized, the fuller understanding of the invention can be obtained by the following drawings, detailed description and appended claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0032] These and other features, aspects and advantages of the present invention will become better understood with reference to the accompanying drawings, wherein:

[0033] **FIG. 1** is a perspective view of a safety cover of portable gas container;

[0034] **FIG. 2** is a top housing of **FIG. 1**;

[0035] **FIG. 3** is a bottom housing of **FIG. 1**;

[0036] **FIG. 4** is a perspective view of a second embodiment of the present invention;

[0037] **FIG. 5** is a perspective view of a plug of **FIG. 4**; and

[0038] **FIG. 6** is a cross-sectional view showing a safety cover with a gas container enclosed.

## DETAILED DESCRIPTION OF THE INVENTION

[0039] **FIGS. 1 through 3** and **6** shows a first embodiment of the present invention.

[0040] A safety cover **1** of portable gas container **90** includes top housing **10**, a bottom housing **11**, a locking device **17**, and a first opening **49** on the top housing **10**.

[0041] The top housing **10** is for covering the upper part of the portable gas container **90**, and includes top wall **14** and side wall **15**, a cylindrical wall **4**, **13**, and a space **23**, confined by the top and side walls **14**, **15**, for accepting the upper part of the gas container **90**.

[0042] The first opening **49** defined by the cylindrical wall **4**, **13** of the top housing **10** through the top wall **14** of the top housing **10** is adapted to expose a nozzle of the gas container **90**.

[0043] The bottom housing **11** is for covering the lower part of the portable gas container **90**, and includes side wall **16** and bottom wall **18**, and a space **24** defined by the side and bottom walls **16**, **18**.

[0044] The locking device **17** is for engaging and securing the top and bottom housings **10**, **11**.

[0045] The safety cover **1** of portable gas container **90** encloses the portable gas container **90** and safely confines an explosion of the gas container **90** inside.

[0046] The side walls **15**, **16** of the top and bottom housings **10**, **11** are substantially cylindrical. Actually, the external shape of the top and bottom housings **10**, **11** is determined according to the receptacle of a gas burner (not shown) which uses the portable gas container **90** as fuel. In that sense, the cross section of the side walls of the top and bottom housings **10**, **11** can substantially angular.

[0047] The top and side walls **14**, **15** of the top housing **10** may be integrated into one body. Also, the side and bottom walls **16**, **18** of the bottom housing **11** can be integrated into one body.

[0048] The top and bottom housings **10**, **11** are made of metal including aluminum, stainless steel, or even fortified plastic. The top and bottom housings **10**, **11** can be made of a strong steel wire embedded in the resin. In case of metal, the thickness of the top and bottom housings **10**, **11** may be from 1~3 millimeters.

[0049] The space **23**, **24** provided in the top and bottom housings **10**, **11** fits the gas container **90** with a predetermined margin. The predetermined margin can be controlled and adapted for keeping a damaged gas container **90** from being inserted from the beginning to reduce the danger of fire or explosion.

[0050] The locking device **17** includes a mechanical locking device. The mechanical locking device includes male-female threads **21**, **22** provided on the side walls **15**, **16** of the top and bottom housings **10**, **11**.

[0051] The safety cover **1** may further include a second opening **19** provided on the side walls **15**, **16** for easing out the pressure built inside. The diameter of the second opening **19** is from about zero point five (0.5) to about one point five (1.5) millimeters.

[0052] The locking device **17** further includes a gasket **51** to facilitate the air-tightness.

[0053] In a second embodiment of the present invention as shown in **FIGS. 4, 5**, and **6**, a safety cover **100** of portable gas container **90** includes a housing **30**, a first opening **49**, a plug **32**, and a locking device **17**.

[0054] As in the first embodiment, the housing **30** is for covering the portable gas container **90**, and includes a top wall **14**, a side wall **15**, a bottom opening **53**, and a space **23** confined by the top and side walls **14**, **15**, for accepting the portable gas container **90**.

[0055] As in the first embodiment, the first opening **49** defined by the cylindrical wall **4**, **13** of the housing **30** through the top wall **14** of the housing **30** is adapted to expose a nozzle **3** of the portable gas container **90**. The cylindrical wall engages with the gas container **90** air-tightly. In **FIG. 6**, the portable gas container is defined by the case **2**, **4**, **5**, **12**.

[0056] The plug **32** is for covering the bottom opening **53** of the housing **30** to enclose the portable gas container **90**, and includes a top surface **56**, a bottom surface **57**, and an edge **58** around the plug **32**.

[0057] The locking device **17** is for engaging and securing the housing **30** and the plug **32** enclosing the portable gas container **90**.

[0058] The safety cover **100** of portable gas container **90** encloses the portable gas container **90** and safely confines an explosion of the gas container **90** inside.

[0059] The side wall of the housing includes a thread (not shown) as in the first embodiment, and the plug **32** includes a corresponding thread **33** on the edge **58** for engaging and securing the housing **30** and the plug **32**.

[0060] While the invention has been shown and described with reference to different embodiments thereof, it will be appreciated by those skilled in the art that variations in form, detail, compositions and operation may be made without departing from the spirit and scope of the invention as defined by the accompanying claims.

What is claimed is:

**1**. A safety cover of portable gas container comprising:

a) a top housing, for covering the upper part of the portable gas container, comprising a top wall, a side wall, a cylindrical wall, and a space, confined by the top and side walls, for accepting the upper part of the portable gas container;

b) a first opening defined by the cylindrical wall through the top wall of the top housing adapted to expose a nozzle of the portable gas container, wherein the cylindrical wall engages with the gas container air-tightly;

c) a bottom housing, for covering the lower part of the portable gas container, comprising a side wall, a bottom wall, and a space, confined by the side and bottom walls, for accepting the lower part of the portable gas container; and

d) a locking device for engaging and securing the top and bottom housing enclosing the portable gas container,

wherein the safety cover of portable gas container encloses the portable gas container and safely confines an explosion of the gas container inside.

**2**. The safety cover of claim 1, wherein the side walls of the top and bottom housings are substantially cylindrical.

**3**. The safety cover of claim 1, wherein the cross section of the side walls of the top and bottom housings are substantially angular.

**4**. The safety cover of claim 1, wherein the top and side walls of the top housing are integrated into one body, wherein the side and bottom walls of the bottom housing are integrated into one body.

**5**. The safety cover of claim 1, wherein the top and bottom housings are made of metal, wherein the thickness of the housing is from about one (1) to three (3) millimeters.

**6**. The safety cover of claim 5, wherein the metal comprises aluminum.

**7**. The safety cover of claim 1, wherein the top and bottom housings are made of fortified plastic.

**8**. The safety cover of claim 1, wherein the top and bottom housings are made of a strong steel wire embedded in the resin.

**9**. The safety cover of claim 1, wherein the space provided in the top and bottom housings fits the gas container with a predetermined margin.

**10**. The safety cover of claim 9, wherein the predetermined margin is adapted for keeping a damaged gas container from being inserted.

**11**. The safety cover of claim 1, wherein the locking device comprises a mechanical locking device.

**12**. The safety cover of claim 11, wherein the mechanical locking device comprises male-female threads provided on the side walls of the top and bottom housings.

**13**. The safety cover of claim 1, further comprising a second opening provided on the side walls for easing out the pressure built inside.

**14**. The safety cover of claim 13, wherein the diameter of the second opening is from about zero point five (0.5) to about one point five (1.5) millimeters.

**15**. The safety cover of claim 1, wherein the locking device further comprises a gasket.

**16**. A safety cover of portable gas container comprising:

a) a housing, for covering the portable gas container, comprising a top wall, a side wall, a bottom opening, and a space confined by the top and side walls, for accepting the portable gas container;

b) a first opening through the top wall of the housing adapted to expose a nozzle of the portable gas container;

c) a plug, for covering the bottom opening of the housing to enclose the portable gas container, comprising a top surface, a bottom surface, and an edge around the plug; and

d) a locking device for engaging and securing the housing and the plug enclosing the portable gas container,

wherein the safety cover of portable gas container encloses the portable gas container and safely confines an explosion of the gas container inside.

**17**. The safety cover of claim 16, wherein the side wall of the housing comprises a thread, wherein the plug comprises a thread on the edge for engaging and securing the housing and the plug.

* * * * *