

E. HUGILL, A. S. GOULD & G. A. PETERSON.  
GAS ALARM.

APPLICATION FILED FEB. 12, 1910.

980,785.

Patented Jan. 3, 1911.

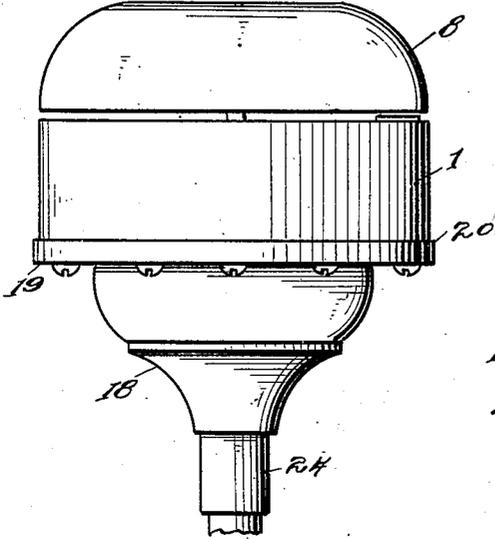


Fig. 1.

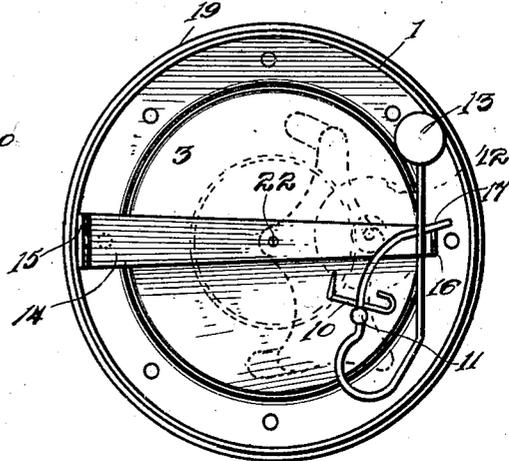


Fig. 2.

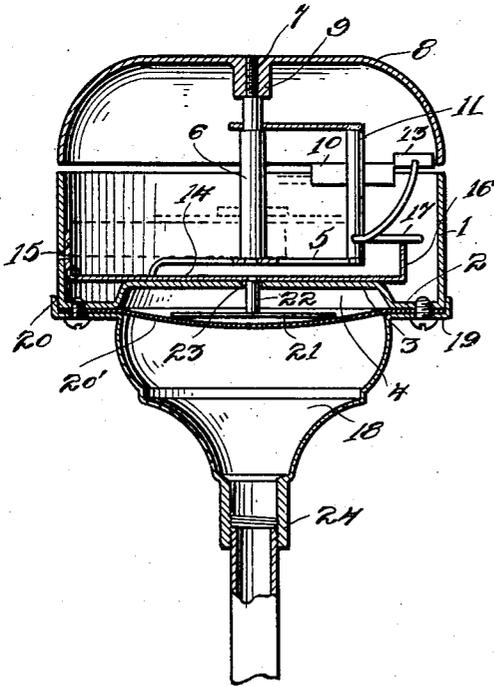


Fig. 3.

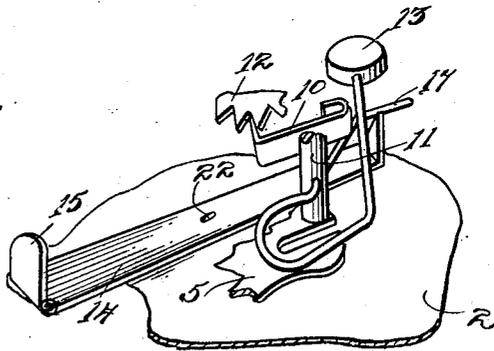


Fig. 4.

Witnesses

*J. M. Rice*  
*Stewart Rice*

Inventors

*Edmund Hugill,*  
*Albert S. Gould*  
*Gus A. Peterson.*

By *E. O. Sherman*  
his Attorney.

# UNITED STATES PATENT OFFICE.

EDMUND HUGILL, ALBERT S. GOULD, AND GUS A. PETERSON, OF CLARKSBURG,  
WEST VIRGINIA.

## GAS-ALARM.

980,785

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed February 12, 1910. Serial No. 543,477.

*To all whom it may concern:*

Be it known that we, EDMUND HUGILL, ALBERT S. GOULD, and GUS A. PETERSON, citizens of the United States of America, residing at Clarksburg, in the county of Harrison and State of West Virginia, have invented certain new and useful Improvements in Gas-Alarms, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to that class of automatic gas alarms in which an alarm sounding mechanism is employed, which is automatically tripped to sound an alarm by means of a vibratable diaphragm actuated by the variance in pressure of the gas which communicates with said diaphragm.

It is the object of this invention to provide an improved device of this kind by means of which the alarm sounding mechanism will be promptly and efficiently set in motion.

A further object of the invention is to provide an improved device of this kind which will be simple in construction and leakage of gas prevented.

These and other objects of this invention will appear in the course of the following specification.

Referring to the accompanying drawing,—Figure 1 is a view in elevation of the exterior of a gas alarm constructed in accordance with this invention. Fig. 2 is a plan view of the same with the bell and a portion of the alarm sounding mechanism removed. Fig. 3 is a view in vertical section of the invention. Fig. 4 is an enlarged detail view in perspective and partly broken away, of a portion of the alarm sounding mechanism and the device for tripping and releasing the same.

In carrying out the invention, a casing 1, preferably of a cylindrical shape, is provided having an open top, and a closed bottom 2 formed with a raised portion 3, which provides a shallow chamber or recess 4 in the under side of the casing. Mounted on the bottom of casing 1 is a frame 5, partly shown in Fig. 3, and partly in dotted lines

in Fig. 2, in which is mounted an alarm 50 clock-work mechanism only a portion of the same being shown to illustrate the manner of applying the invention.

The frame 5 includes a central post 6 having an attenuated screw-threaded projection 7 at its upper end on which is detachably mounted a bell 8, screwed onto the same by a threaded lug 9. The escapement 10 mounted on the rotary post 11, engages the escapement wheel 12, as shown in Fig. 4, the bell hammer 13 being carried by the post 11. The clock-work mechanism is normally held in locked position as follows: A flat strip of metal 14, serving as a lever arm, extends across the bottom of the casing 1 and is hinged at one end to the short upturned strip 15 secured to one side of the casing and has at its other end the upturned triangular projection 16, one of the tapering sides of the projection 16 normally resting in an uplifted position against the end of an angular arm 17 projecting from the post 11 and thereby locking the escapement and escapement wheel.

The device for holding the tripping device in normally locked engagement with the escapement mechanism is constructed as follows: Secured to the bottom of the casing 1 is a cup-shaped gas chamber 18 formed in one piece with a lateral flange 19 which fits against the bottom of the casing 1, adjacent to the recessed chamber 4 and has an upturned edge 20 which overlaps the lower corner of the casing 1, and aids in forming a tight joint. Extending over the chamber 4 and having its edges clamped between the bottom of the casing 1 and the flange 19 of the gas chamber 18 is a flexible disk or diaphragm 20' which is concave as shown in Fig. 3. Resting on the diaphragm 20' is a plunger 21, which preferably consists of a disk of thin sheet metal and has a short pin or rod 22 which projects into a hole 23 in the bottom of casing 1 and is secured to the lever arm 14.

The position of the parts shown in Fig. 3 is such as when the device is not in use. The gas chamber 18 is formed with a de-

pending neck 24, internally screw-threaded, by means of which the device is connected to a gas pipe 25.

The operation of the device is as follows:

5 As shown the clock-work mechanism is unwound and the lever 14 rests flat on the bottom of casing 1, its upturned end 16 being out of engagement with the arm 17. When the gas pressure is on in chamber 18, the diaphragm 20' will be lifted, thereby acting  
10 on the plunger 21 and raising the arm 14 and its projection 16 into engagement with the arm 17. The clock-work mechanism may then be wound up by turning the bell  
15 8 with the post 6 which rotates to wind up the clock-work mechanism. When there is a gas leak or from any other cause the pressure of gas against the diaphragm 20' is lessened, the latter will drop to the position  
20 shown in Fig. 3 and the lever arm 14 will drop to the position shown in Fig. 3, thereby releasing the arm 17, and the escapement mechanism and setting the alarm sounding mechanism in motion.

25 By means of the hinged tripping lever arm 14, the plunger and its rod secured to the arm 14, the recessed chamber 4 in the bottom of casing 1, and the concave diaphragm 20, a prompt and efficient action is  
30 obtained when the gas pressure is lessened by a leak or other cause, so that the alarm sounding mechanism is instantly released. The recessed chamber 4 permits the diaphragm to be lifted up to such a position by  
35 the gas pressure that when the pressure is released the diaphragm will have a degree of play which will cause the rapid release of the tripping arm 14 from the arm 17. The cup shape of the gas chamber formed in one  
40 piece with the flange and upturned edge clamping the edge of the diaphragm to the casing 1 affords a construction which will provide against leakage.

45 The entire apparatus is composed of a small number of parts, is simple in construction and may be readily taken apart and put together.

What we claim as our invention is:—

50 1. In a device of the character described, a casing with an open top, a clock-work mechanism mounted in said casing, and having a hammer provided with an arm having a horizontal projecting portion, an alarm bell mounted over the top of said casing, a lever  
55 hinged at one end to one side of said casing and having an upwardly-projecting portion at its other end adapted to be raised into position in the path of the arm of the hammer, a gas chamber secured to the bottom  
60 of said casing and having a vibratable diaphragm, and a plunger bearing against said diaphragm and having a rod extending

through the bottom of said casing and secured to said lever arm.

2. In a device of the character described, 65 a casing having mounted thereon an alarm bell sounding mechanism having a bell hammer arm with a horizontal projecting portion, said casing being formed with a raised portion in its bottom forming a chamber 70 on its under side, a lever arm hinged at one side to said casing and having at its other end a vertical triangular projection movable vertically into position at one side of the hammer arm of the alarm bell, a 75 gas chamber secured to the bottom of said casing, a vibratable diaphragm mounted in said chamber, and a plunger resting against said diaphragm and having a rod projecting through the bottom of said casing and con- 80 nected with said hinged lever.

3. In a device of the character described, a casing, an alarm bell sounding mechanism mounted in said casing and having a bell hammer arm with a horizontal projecting 85 portion, a lever hinged to one side of said casing and having at its other end a vertical triangular projection adapted to move vertically against the side of the hammer arm of the alarm mechanism, a gas chamber 90 formed in one piece with an annular lateral flange at its top provided with an upturned outer edge overlapping the bottom of said casing, a vibratable diaphragm mounted in said gas chamber and having its edge 95 clamped between said casing and the flange of the gas chamber, and a plunger bearing against said diaphragm and having a rod extending through the bottom of said casing and secured to said tripping lever 100 arm.

4. In a device of the character described, a casing formed with a recess in its underside, an alarm bell sounding mechanism mounted on said casing and having a bell hammer 105 arm with a horizontal projection, a lever hinged to one side of said casing and having at its other end a vertical triangular projection adapted to move vertically against the side of the hammer arm of the alarm 110 mechanism, a gas chamber having a lateral flange at its top with upturned edge secured to the bottom of said casing, a diaphragm having a hollow central portion, said diaphragm having its edge clamped 115 between the casing and the flange of the gas chamber, and a plunger consisting of a thin disk of metal and a rod extending through the bottom of said casing and secured to said hinged lever. 120

5. In a device of the character described, a casing having a chamber formed in the under side of its bottom, an alarm bell sounding mechanism mounted in said casing

and including an escapement wheel, an escapement, and a hammer arm and hammer carried by the rotary post of said escapement and an arm laterally projecting from said post, a vertically movable lever extending across the bottom of said casing and having at one end a vertical triangular projection adapted to be lifted vertically into engagement with one side of said arm of the rotary escapement post, a gas chamber having an annular flange at its upper end with an upturned edge overlapping said casing, a concave diaphragm, said diaphragm being

clamped between the casing and the flange of the gas chamber, and a plunger consisting of a thin disk of metal with a rod projecting through the bottom of said casing and secured to said vertically movable lever. 15

In testimony whereof we hereunto affix our signatures in presence of two witnesses. 20

EDMUND HUGILL.  
ALBERT S. GOULD.  
GUS A. PETERSON.

Witnesses:

MORD LEWIS,  
R. A. GARLAND.