G. A. PETERSON.

GAS ALARM.

APPLICATION FILED MAY 17, 1909.

980,831. Patented Jan. 3, 1911.

Fig. 1.

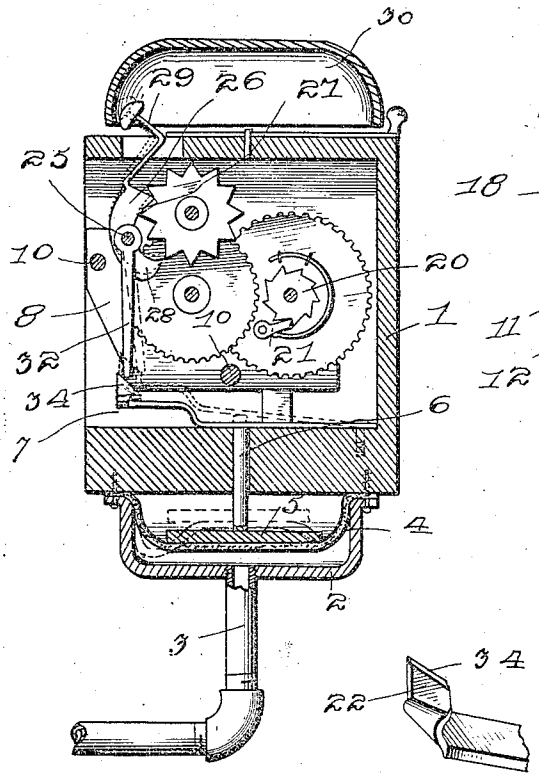

Fig. 2.

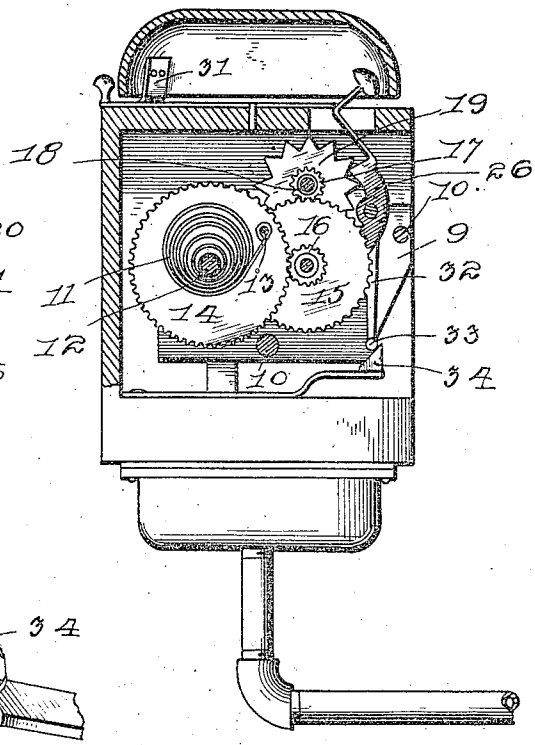

Fig. 4.

Fig. 5.

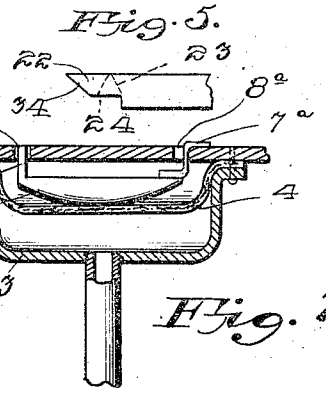

Fig. 7.

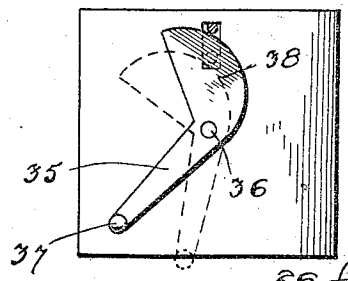

Fig. 3.

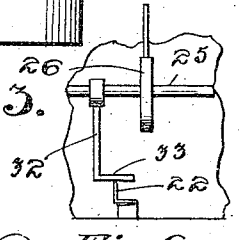

Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

GUS A. PETERSON, OF CLARKSBURG, WEST VIRGINIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-THIRD TO A. S. GOULD AND ONE-THIRD TO EDMUND HUGILL, BOTH OF CLARKSBURG, WEST VIRGINIA.

GAS-ALARM.

980,831. Specification of Letters Patent. **Patented Jan. 3, 1911.**

Application filed May 17, 1909. Serial No. 496,446.

To all whom it may concern:

Be it known that I, GUS A. PETERSON, a citizen of the United States, 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 improvements in automatic gas alarms, and has for its object the production of improved means whereby a marked reduction in gas pressure, such for instance as would occur were the gas in a main cut off from the source of supply, will cause an alarm to be sounded.

It often happens that the gas will be lighted at one or more burners, and that for some reason the supply is cut off, or the pressure reduced to such an extent that the gas flame will be extinguished, and this without the valves being turned off and then the gas pressure coming on again causes the escaping of gas, which without some means of alarm or cutting off may result in serious injuries.

In the drawings: Figure 1 is a vertical section of my alarm device. Fig. 2 is a vertical section of the same looking from the opposite side. Fig. 3 is a top plan view of the same, showing the gong removed therefrom. Fig. 4 is a detail perspective view of the tripper. Fig. 5 is a top plan view of the tripper in a blank form before the same has been folded. Fig. 6 is an end view of the alarm mechanism, showing the relation of the crank-lever to the escapement-lever. Fig. 7 is a sectional view of the auxiliary casing, showing a modification of the device for actuating the alarm.

Referring to the drawings by numerals, 1 designates a primary casing, which has secured to the bottom thereof an auxiliary casing 2, which casing is supported by means of a pressure, or gas inlet pipe 3, through which the gas is adapted to be admitted into the auxiliary cup-shaped gas pressure chamber 2 having an annular flange 2′. Within the casing 2 is a normally cup-shaped diaphragm 4, which supports upon the upper face thereof a plunger head 5, which plunger head is provided with a vertically-extending stem 6, adapted to engage the tripper 7, as hereinafter described. By means of forming the gas pressure chamber of a cup-shape with an annular flange on the diaphragm of corresponding shape, not only will a quick response be given to the operating parts when the pressure is released, but also a gas tight chamber will be provided.

Positioned in the primary casing 1 is a bell movement, which is mounted between two plates 8 and 9, which are connected by means of the transversely-extending rods 10. The bell movement is actuated by means of a spring 11, which is wound around the shaft 12 and secured, at one end, to the stud 13 formed upon the gear 14. The end of the shaft 12 projects through the casing, which is provided with a square, or otherwise constructed end adapted to receive a key as usual for winding the spring 11. When released, the spring strives to unwind and thereby imparts to the shaft a rotary motion in the opposite direction. Carried between the plates 8 and 9 is also a gear 15, which is actuated through the medium of a gear 16, which is mounted upon the same shaft as the gear 15. This gear 15 meshes with a gear 17, which is mounted upon a shaft 18 to which shaft 18 is fixedly secured an escapement wheel 19. Therefore, it will be seen that as soon as the gear 14 is rotated that the escapement wheel 19 will also tend to rotate. Upon the opposite side of the wheel 14 to the spring 11 is secured a ratchet wheel 20, which is held against rotation in one direction by means of a spring-pressed pawl 21.

Fixedly secured, at one end, within the casing 1 is a tripper 7 hereinbefore mentioned, preferably, formed from spring metal and said tripper is provided, near its outer end, with an upwardly-bent portion constituting an offset portion, and said portion terminates, at its outer end, into a reduced-portion 22, which is substantially half the width of the body portion thereof, and the outer end of said reduced portion is beveled, as shown in Fig. 5. The reduced-portion or end 22 is first bent upon the dotted line 23 thereby laying the reduced portion flat against the body portion of the tripper 7, then the end is again bent upwardly and upon the line 24, which forms a peculiarly constructed end, as clearly shown in Fig. 4.

Fixedly secured to the shaft 25 is an escapement-lever 26, which is provided with

an upper tooth-engaging end 27, and a lower hook-shaped tooth-engaging end 28. The escapement-lever 26 carries, at its upper end a clapper 29, which clapper is adapted to engage the gong or bell 30, which is fixedly secured to the upper end of the casing 1 by means of a bracket 31, and when the bell movement is actuated to oscillate the clapper 29 and thereby sound a gong or signal. Fixedly secured to the same shaft 25 as the escapement-lever 26 is a crank-lever 32, which is provided, at its lower end, with an angle extension 33, which is adapted to rest upon the beveled end 34 of the tripper.

When the gas pressure is cut off the diaphragm will take up the position, as shown in full lines in Fig. 1, and, therefore, the plunger stem 6 will be withdrawn and the tripper will lie flat against the bottom of the casing and the escapement wheel 19 will be rotated through the medium of the spring 11, and thereby actuate the clapper 29, and sound an alarm. As each cog passes by the upper end 27 of the escapement-lever 26, the lower end 28 will be in engagement with one of the teeth of the ratchet wheel and thereby cause the escapement-lever to oscillate. However, when the pressure is great enough to raise the plunger, as shown in dotted lines in Fig. 1, the stem 6 will engage the tripper 7 and raise the same, which will cause the crank-lever to swing to one side, as shown in dotted lines for the angle extension 33 will readily slide down the beveled end 34 of the tripper and as long as the pressure is great enough to keep the plunger in such a position, the crank-lever 32 will be held in the position as shown in dotted lines and the hooked end 28 will engage the escapement wheel 19 thereby holding the bell movement against operation and the alarm from sounding. However, it will be obvious that as soon as the pressure is cut off the plunger will immediately drop and also allow the tripper 7 to drop and the crank-lever 32 to swing to position, as shown in full lines, and thereby allow the signal to actuate.

Upon the top of the casing 1, and under the bell 30, I secure a lever-member 35, which is pivotally mounted at 36, and is provided, at one end, with a knob 37 for facilitating the operation of the same. The lever 35 is also provided with a cam end 38, which is adapted to engage the clapper 29 and as the same is thrown in a position, as shown in full lines to hold the same against operation when it is desired to not have the signal operated when the gas is cut off, but when the same is in dotted position, it will readily allow the same to actuate.

In Fig. 7, I have shown a modification of my invention which shows the auxiliary casing 2 as usual, and the diaphragm 4 adapted to support a plunger 5^a. The plunger 5^a is provided, at one end, with an integral upwardly-extending stem 6^a, which is adapted to engage a tripper 7 similar to that shown in Fig. 1 and operate the signal as in Fig. 1. The plunger 5^a is held against displacement by means of an angle member 7^a, which passes through an aperture 8^a and is fixedly secured to the upper face of the plunger 5^a. Therefore, it will be obvious that as soon as the diaphragm 4 is raised that the integral-extending end 6^a will readily pass through the aperture 8^a and engage the tripper for actuating the signal, and that the plunger will be readily held against displacement through the medium of the angle member 7^a.

The present invention is especially involved where natural gas is used as means for lighting or heating, and it provides for means for sounding an alarm if the gas, for any reason should be cut off during the night, and thereby adds to the safety of people who are sleeping in a room where the present invention is used.

What I claim is:

In a device of the class described, a primary casing, signal actuating means carried thereby, an auxiliary casing secured to said primary casing, means for admitting pressure thereto, a diaphragm secured in said auxiliary casing, a plunger supported by said diaphragm, an integral upwardly-extending stem secured near one end of said plunger and passing through said primary casing and adapted to engage said signal actuating means for holding the same against operation, said primary casing being provided with an aperture communication with said auxiliary casing, and an angle portion positioned in said aperture and having one portion thereof overhanging said primary casing, and the other end fixedly secured to the upper surface of said plunger for preventing the displacement of said plunger.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

GUS A. PETERSON.

Witnesses:

TANEY HARRISON,

M. B. NEWLON.