F. GROTT.

SAFETY GAS APPLIANCE.

APPLICATION FILED JAN. 18, 1909.

923,646. Patented June 1, 1909.

Fig. 1.

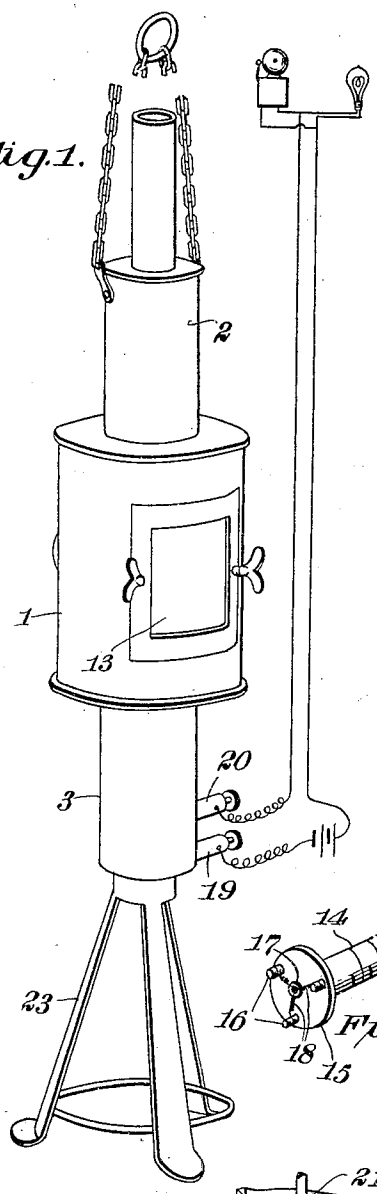

Fig. 2.

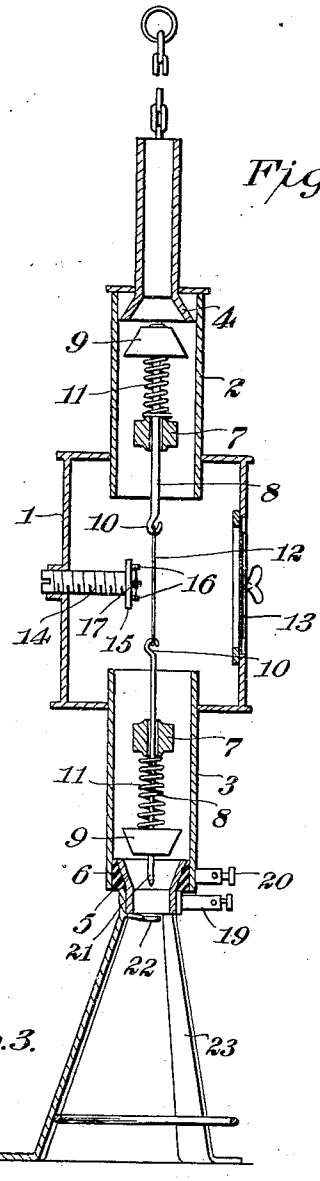

Fig. 3.

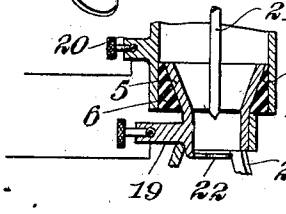

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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SAFETY GAS APPLIANCE.

No. 923,646. Specification of Letters Patent. Patented June 1, 1909.

Application filed January 18, 1909. Serial No. 472,921.

To all whom it may concern:

Be it known that I, FRANK GROTT, citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety Gas Appliances, of which the following is a specification.

The present invention relates to improvements in safety gas appliances, and the object of the invention is the provision of a novel device of this character which when placed in a room, mine, or similar place, will operate to give warning in case of an escape of gas.

The invention further contemplates a safety gas appliance which is simple and inexpensive in its construction, which can be readily set up in position, and which will operate in a positive and effective manner to give the desired warning.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of a safety gas appliance embodying the invention; Fig. 2 is a vertical sectional view through the same; Fig. 3 is a detail perspective view of the stem for supporting the ignitible pellet within the casing; and Fig. 4 is an enlarged vertical sectional view through the lower valve seat.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawing, the numeral 1 designates the casing which is shown as having a cylindrical formation and which is provided at its opposite ends with the upper and lower tubular extensions 2 and 3 respectively, A valve seat 4 is applied to the upper extension 2 and a similar valve seat 5 is also applied to the lower extension 3, a sleeve 6 of insulating material being interposed between the lower valve seat and the lower extension.

Extending across the interior of each of the tubular extensions 2 and 3 is a cross bar 7, the said cross bars serving as guides for the valve stem 8 which are slidably mounted thereon, the outer end of each of the valve stems being provided with a valve 9 adapted to coöperate with the respective valve seat, while the inner end of each of the valve stems is provided with a hook 10. Coil springs 11 which surround the valve stems 8, are interposed between the valves and the cross bars and tend to normally hold the valves upon their seats. The hooks 10 are designed to be connected by an inflammable thread 12 which holds the two valves away from their seats with the springs 11 in a compressed condition. The front of the casing 1 is formed with an opening closed by mica 13 or similar transparent material which enables the thread to be observed from the outside of the casing, while a stem 14 is threaded in the back of the casing. This stem projects into the interior of the casing and terminates at its inner end in a head 15 provided with a series of studs 16. An ignitible pellet 17 is designed to be secured to this head 15 by means of a wire 18 or similar member which is wrapped around the studs 16. By turning this threaded stem 14 the head 15 may be moved in and out within the casing and may be brought into the required position with respect to the thread 12 so that when the pellet is heated to a red heat by the presence of gas, the thread will be burned.

A binding post 19 to which one of the terminals of an electric circuit is designed to be connected projects from the lower valve seat 5, while a second binding post 20 to which the opposite terminal of the electric circuit is designed to be connected, projects from the lower extension 3. When the valves are held away from their seats the electric circuit is broken and no current flows, while as soon as the valves are released and permitted to close, the electric circuit is closed. A bell and also an electric light are designed to be introduced into this circuit so that as soon as the valves are seated both an audible and a visible alarm will be given. A pin 21 projects downwardly from the lower valve 9 so as to engage a spring contact arm 22 upon the lower seat when the valve is closed, such a construction insuring that the electric circuit will be closed when the valves are released and eliminating any possibility of the grease which might be placed upon the valves interfering with the proper flow of electric current.

A stand 23 is applied to the lower extension 3 and the apparatus is designed to be placed in a room at any convenient point, so

that should any gas escape it will enter the casing and cause 17 to become red and burn the inflammable thread 12, thereby releasing the self closing valves 9. As soon as the lower valve is seated, the electric circuit is closed as previously described, and the bell which is introduced into the circuit sounded and the light caused to burn.

Supplemental to the foregoing description it may be explained that the pellet 17 is preferably composed of a substance which becomes heated and turns red in the presence of gas. As soon as this pellet has become red and thrown off sufficient heat to sever the thread 12, the two valves are closed thereby preventing the remainder of gas in the room or mine within which the device is placed, from coming into contact with the pellet, and preventing the pellet from becoming heated to such an extent as to throw off a flame which might result in an explosion.

Having thus described the invention, what is claimed as new is:

1. In a safety gas appliance, the combination of a casing, oppositely disposed self closing valves carried by the casing, an inflammable thread connecting the valves and normally holding them in an open position, and means for supporting an ignitible pellet within the casing and adjacent the inflammable thread.

2. In a safety gas appliance, the combination of a casing, oppositely disposed self closing valves carried by the casing, an inflammable thread connecting the valves and normally holding them in an open position, a stem threaded within the casing and terminating in a head, and means for supporting an ignitible pellet upon the head adjacent the inflammable thread.

3. In a safety gas appliance, the combination of a casing, oppositely disposed self closing valves carried by the casing, an inflammable thread connecting the valves and normally holding them in an open position, and a stem projecting within the casing and terminating in a head, the said head being provided with a series of studs and the said studs serving as a means for securing an ignitible pellet to the head, the said ignitible pellet being supported adjacent the inflammable thread.

4. In a safety gas appliance, the combination of a casing, valve seats carried at the opposite ends of said casing, one of said valve seats being insulated therefrom, self closing valves mounted in said casing in cooperative relation to the valve seats, means for holding the valves in an open position, means for releasing said valves at times, and an electric circuit having the terminals thereof connected respectively to the insulated valve seat and the valve coöperative therewith to close the circuit upon the closing of the valve for the purpose of signaling such operation.

5. In a safety gas appliance the combination of a casing, a valve seat carried by the casing and insulated therefrom, a self closing valve mounted in the casing in coöperative relation to the valve seat to admit gas into said casing, means in the casing for holding the valve in an open position, means in said casing for releasing the valve upon the entrance of gas in the casing, electric contact members carried by the valve and valve seat respectively and an electric circuit having the terminals thereof connected respectively to the valve and valve seat to give an alarm upon the closing of said valve.

6. In a safety gas appliance, the combination of a casing, tubular extensions projecting from the top and bottom of the casing, a valve seat carried by each of the tubular extensions, one of the valve seats being insulated from the respective tubular extension, a valve stem slidably mounted within each of the tubular extensions, the inner ends of the valve stems being hooked, valves carried by the outer ends of the valve stems, springs normally holding the valves in a closed position, an inflammable thread connecting the hooked inner ends of the valve stems and serving to hold the valves in an open position, a stem projecting within the casing and provided with a head adapted to have an ignitible pellet secured thereto and to support the ignitible pellet adjacent the thread, and an electric circuit having the terminals thereof connected respectively to that valve seat which is insulated from the casing and the valve coöperating with the said valve seat.

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

FRANK GROTT. [L. S.]

Witnesses:
JAMES J. KERWIN,
JAMES A. GRIMES.