(No Model.)

C. J. MILLIGAN.

ESCAPING GAS ALARM.

No. 491,580. Patented Feb. 14, 1893.

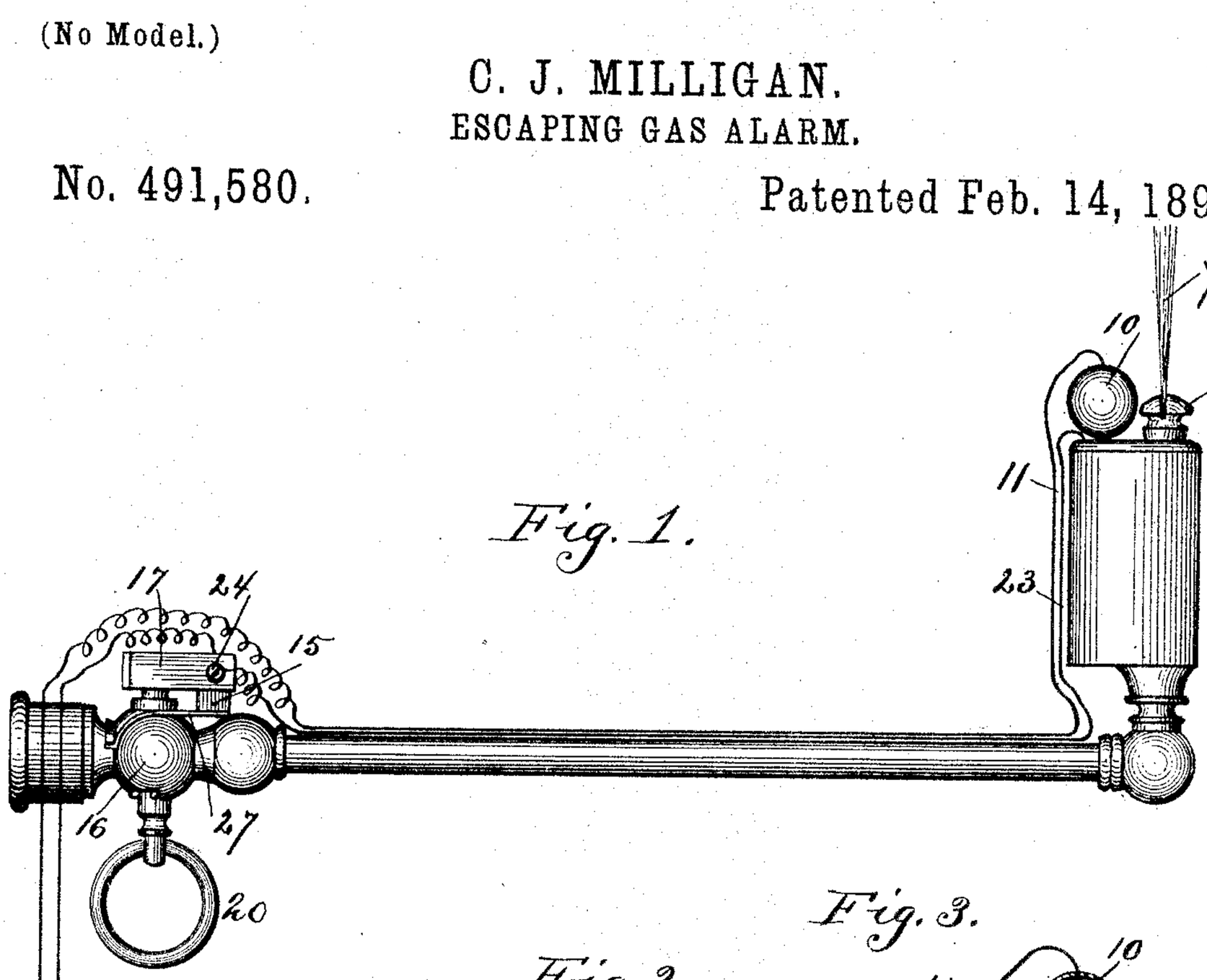


Fig. 1.

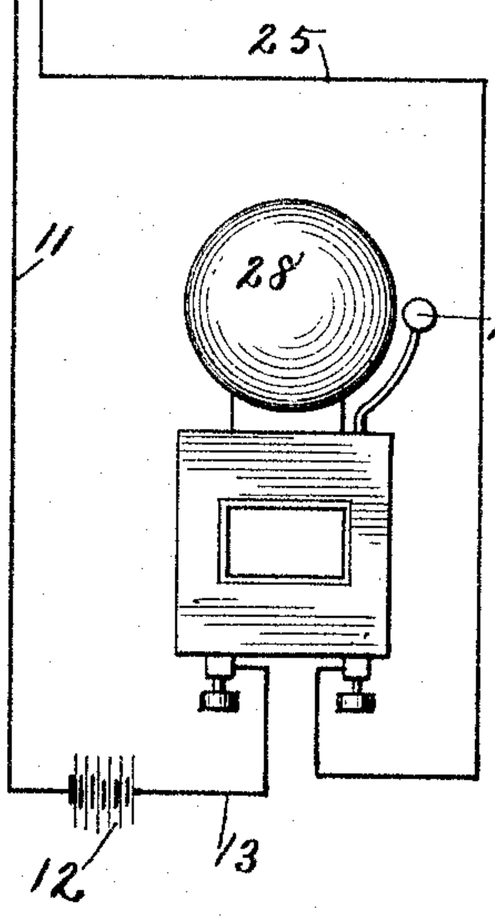


Fig. 2.

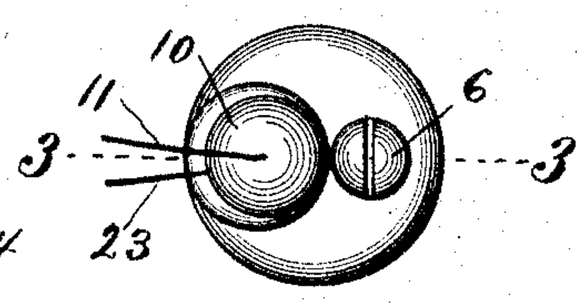


Fig. 3.

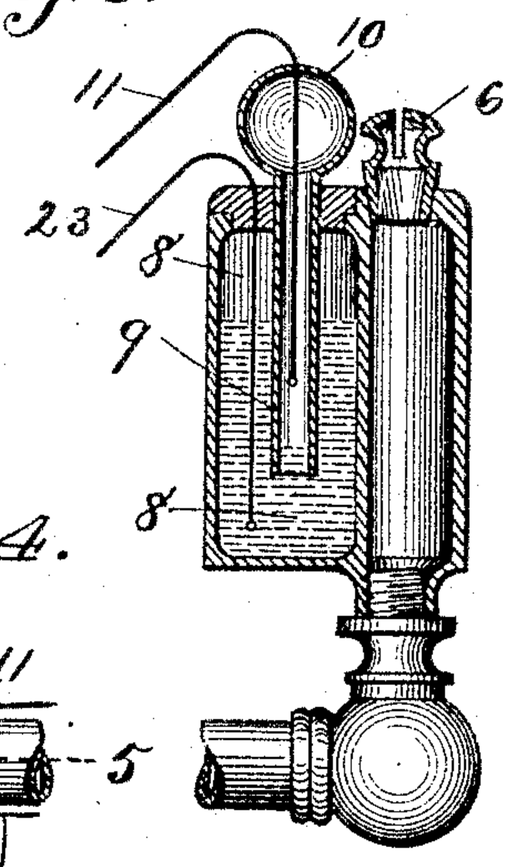


Fig. 4.

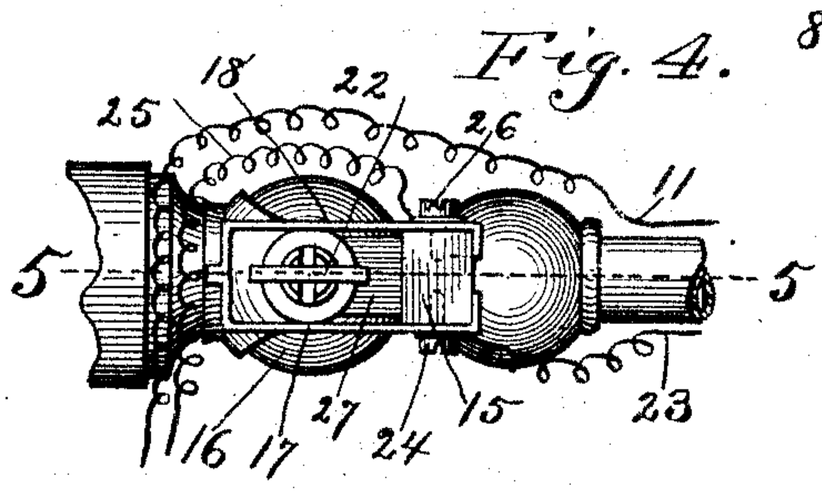
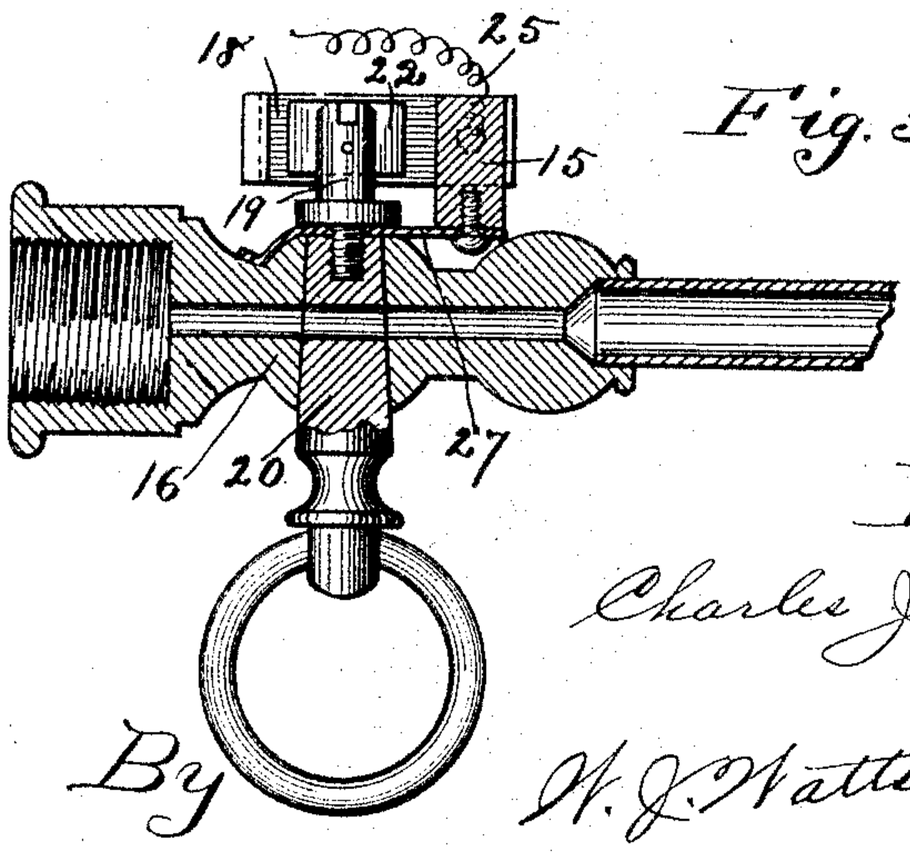


Fig. 5.



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W. C. Corliss

Inventor:
Charles J. Milligan.
By W. J. Watts. Atty.

UNITED STATES PATENT OFFICE.

CHARLES J. MILLIGAN, OF CHICAGO, ILLINOIS.

ESCAPING-GAS ALARM.

SPECIFICATION forming part of Letters Patent No. 491,580, dated February 14, 1893.

Application filed July 23, 1892. Serial No. 440,983. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. MILLIGAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Automatic Escaping-Gas Alarm for Gas-Burners, of which the following is a specification.

My invention relates to improvements in safety attachments for gas burners and its objects are, by means of wires forming circuits from the burner to an electric battery and from the battery to a bell or other sounding or recording instrument, to sound an alarm or give notice whenever gas is escaping from the burner by being turned on and not lighted or by being blown out or otherwise extinguished and not turned off. I attain these objects by means of the mechanism illustrated in the accompanying drawings in which—

Figure 1 is a side elevation of the entire apparatus, showing the burner with its attachments, the wires forming the circuits, the stop-cock with its switch attachment, the battery and the bell. Fig. 2 is a plan view of the burner and its attachment. Fig. 3 is a detail vertical section of the same on the line 3—3 of Fig. 2. Fig. 4 is a plan view of the switch and stopcock. Fig. 5 is a detail vertical section of the same on the line 5—5 of Fig. 4.

Like numerals refer to like parts throughout the several views.

Referring to the drawings, 6 is the tip of the gas-burner.

7 is the flame when lighted.

8 is a chamber cast integrally with the burner and containing mercury or some other conducting fluid.

9 is a tube of non-conducting material, having a bulb 10 at its top, containing air, rigidly fastened just below the bulb in the top of the chamber 8, extending into said chamber, and having its lower portion embedded in the conducting fluid.

11 is a wire rigidly fastened in the top of the bulb 10 extending one way into the tube 9 and the other way to a battery 12.

13 is a wire extending from the battery to a bell, 28, or other sounding or recording instrument, to which may be attached the number of the room with which it is connected.

15 is a block of non-conducting material fastened rigidly to a plate 27, which plate is rigidly fastened to the top of the stop cock 16.

17 and 18 are oblong plates of elastic conducting material, rigidly fastened at their ends to opposite sides of the block 15 and extending parallel to each other and having portions at their other ends bent so as to meet each other unless sprung apart.

19 is a pin screwed into the top of the plug 20 of the stop cock 16.

22 is an oblong block of non-conducting material fastened rigidly to the top of the pin 19, at right angles with said pin.

23 is a wire rigidly fastened in the top of the chamber 8, extending into said chamber, and being embedded in the conducting fluid, and extending from the outside of the chamber 8 to the plate 17 to which it is fastened by the screw 24.

25 is a wire fastened to the plate 18 by the screw 26 and extending thence to the bell.

The operation of the apparatus is as follows: When the gas is turned off the oblong block 22 is at right angles with the plates 17 and 18 with its ends pressed against said plates respectively holding them apart. When the gas is turned on the block 22 is turned so that its ends are removed from the plates 17 and 18 allowing them to meet at their free ends and thus forming a connection between the wires 23 and 25. When the gas is lighted the heat from the flame expands the air in the bulb 10 and tube 9, thus forcing the conducting fluid in said tube below the end of the wire 11 and breaking the connection between the wires 11 and 23. If from any cause the flame is extinguished without the gas being turned off, the air in the bulb 10 is cooled and contracted, allowing the conducting fluid to rise in the tube 9 above the end of the wire 11, thus forming a connection between the wires 11 and 23, which, with the connection formed by the contact of the plates 17 and 18 between the wires 23 and 25 completes the circuit from the burner to the battery and from the battery to the bell, thus ringing it to give the escaping gas alarm. The result will be the same if the gas is turned on and not lighted, since connections will be formed both between the wires 23 and 25 and the wires 11 and 23.

Having described my invention, what I claim and desire to secure by Letters Patent of the United States is,

In an automatic escaping gas alarm for gas burners the combination of a burner, a chamber containing a conducting fluid provided with a tube containing air and two wires in the chamber and tube respectively, said wires extending to a battery and thence to a sounding or recording instrument, forming an electric circuit which may be broken or connected, as, and for the purpose stated.

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