G. LEONARDI.

SAFETY GAS JET.

APPLICATION FILED APR. 10, 1918.

1,309,482.

Patented July 8, 1919.

Fig. 1.

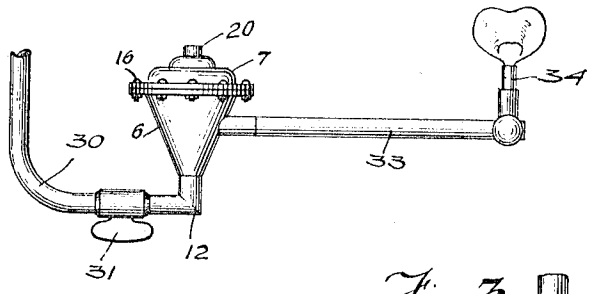


Fig. 2.

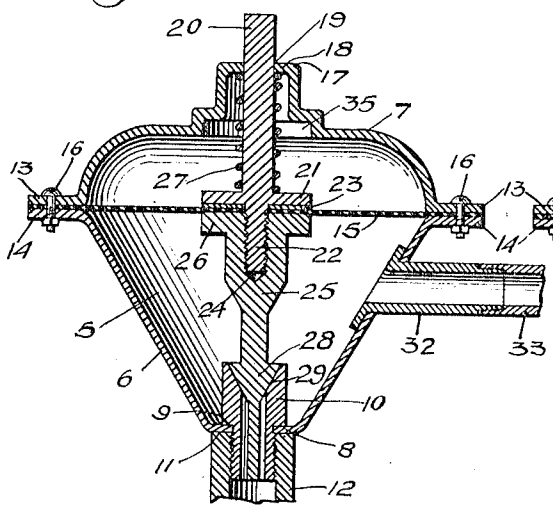


Fig. 3.

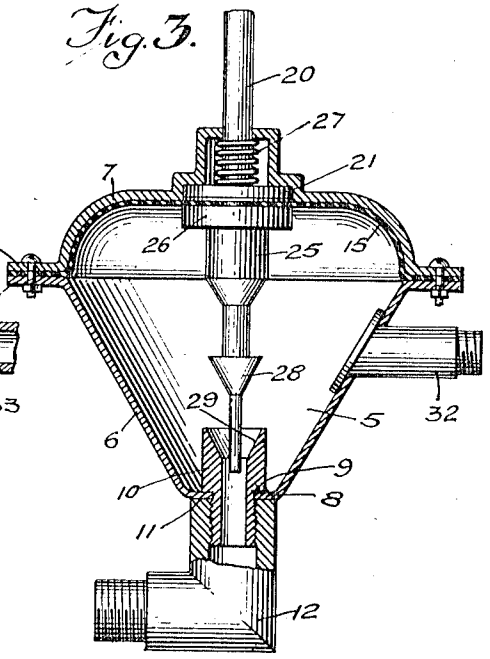
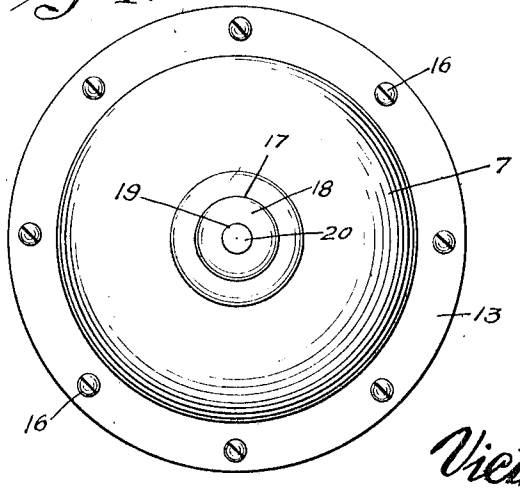


Fig. 4.



INVENTOR
Guilio Leonardi

BY
Victor J. Evans
ATTORNEY

UNITED STATES PATENT OFFICE.

GIULIO LEONARDI, OF LONG ISLAND CITY, NEW YORK.

SAFETY GAS-JET.

1,309,482. Specification of Letters Patent. Patented July 8, 1919.

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To all whom it may concern:

Be it known that I, GIULIO LEONARDI, a citizen of United States of America, residing at Long Island City, in the county of Queens and State of New York, have invented new and useful Improvements in Safety Gas-Jets, of which the following is a specification.

This invention relates to automatic controlling devices for gas burners and has for its principal object the provision of a device of this character which can be readily installed in the feed pipe of a burner structure and which will be provided with means automatically operable to permit of the discharge of gas to the burner as long as the latter is lighted, the said means being also automatically operable to cut off the supply of gas to the burner should the latter be accidentally extinguished.

With the above and other objects in view which will appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement of parts which will hereinafter be fully described and particularly pointed out in the claim.

In the accompanying drawings, has been illustrated, a single and preferred form of the invention, it being, however, understood that no limitations are necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

Figure 1, is a conventional illustration showing the application of the invention to an illuminating burner.

Fig. 2, is a vertical section through the device showing the valve closed.

Fig. 3, is a similar view showing the valve opened.

Fig. 4, is a plan view of the device.

The device comprises a chamber 5, which is defined by mating superposed sections 6 and 7, the former being preferably of frustoconical form and provided at its restricted end with an inturned flange 8, which is interposed between the shoulder 9, of a valve seat member 10, and the shoulder 11, of a coupling 12.

These mating sections 6 and 7, of the chamber are provided with flanges 13 and 14 respectively, which receive the marginal edges of a flexible diaphragm 15, there-between. These flanges are held in operative contact with said diaphragm by means of detachable fastening screws 16. The upper section 7, of the chamber is substantially of dome shape and at its center it is provided with an upstruck reduced extension 17, the crown wall 18, thereof having an opening 19, therein which receives the upper end of a valve stem section 20. This section is provided with a broad circular base 21, having a threaded stud 22, depending therefrom. This stud passes through a washer 23, above the diaphragm 15, it is then extended through the center of the diaphragm and then into a correspondingly threaded socket 24, in a lower stem section 25. This latter section is provided with a broad circular portion 26, which is arranged in flat contact with the under surface of said diaphragm. In this manner, it will be readily observed that the two sections of the stem can be readily separated manually to permit of the convenient removal of the diaphragm when worn and the substitution thereof of a new one. This diaphragm is preferably constructed of light rubber or other thin pliable and elastic material. Interposed between the crown wall 18, of the extension 17, and the said circular base 21, of the stem section 20, is a light coil spring 27, which operates to normally hold the diaphragm in the horizontal position shown in Fig. 2. The stem section 25, is provided with a valve 28, which is adapted to engage with the seat 29, of the member 10, under the action of said spring 27.

The coupling 12 is adapted to be connected in a pipe line 30, in which a manually controlled valve 31, is included so that gas may be discharged against the valve 28, and escape into the chamber 5, where it will be made to impinge against the diaphragm 15. In the initial operation of the device the stem section 20, of the valve, which has its upper terminal arranged beyond the wall 18, is drawn manually in an upward direction to remove the valve 28, from its seat and permit the gas to pass to the chamber as described above. The section 6, of the chamber is provided with a discharge nipple 32, which is adapted to be connected with a pipe section 33, with which the burner 34, is associated.

The invention is designed primarily for the purpose of preventing persons from being asphyxiated through the accidental discharge of gas to the atmosphere and it will

be observed through the instrumentalities described that as long as the burner 34, remains lighted there will be a sufficient restriction of the passage of gas to the burner to permit the diaphragm 15, to be operatively maintained in the raised position as shown in Fig. 3. Incident to the arrangement of the diaphragm slight suction will be induced between the same and the walls of the sections 7, of the chamber and the valve 28, thereby positively assured of being held opened as long as gas is passing to the burner and the latter remains lighted. Should the burner be accidentally extinguished it follows that the restriction in the pressure of gas will be broken and as a consequence thereof, the spring 27, will immediately operate to restore the valve to a closed position. The section 7, is provided with a socket 35, in which the base 21, and washer 23, are adapted to seat when the diaphragm is elevated as shown in Fig. 3. This arrangement is found desirable in that no undue distorting of the diaphragm is set up when the diaphragm is raised in contact with the walls of the section 7.

What is claimed as new is:

A device of the character described comprising a casing including a lower portion formed of inverted frusto-conical shape and having its lower end provided with an inturned flange, a plug extending through a central hole in said flange and provided in its upper end with a valve seat communicating with a bore, a coupling threaded upon the lower end of said plug and coöperating with said plug for clamping engagement with said flange, said casing having its upper portion formed as a dome secured to the lower portion, a flexible diaphragm disposed between the upper and lower portions of said casing, a vertically movable member disposed within said casing and provided with a valve adjacent its lower end for closing said seat and having its lower extremity formed as a reduced stem slidably received within the bore of said plug, the upper portion of said member being enlarged and being provided with a central threaded socket, a rod slidable through the top of the dome portion of said casing at its center and threaded at its lower end into said socket, said rod being provided with an enlarged portion engaging against the top of said diaphragm and coöperating with the enlarged upper end of said member for clamping engagement with said diaphragm, and a coil spring surrounding said rod and abutting at one end against the top of said dome and at its lower end against the enlarged portion on said rod, and an outlet pipe extending from one side of and communicating with the interior of the lower portion of said casing.

In testimony whereof I affix my signature.

GIULIO LEONARDI.