

C. LIACI.
SAFETY ATTACHMENT FOR GAS BURNERS.
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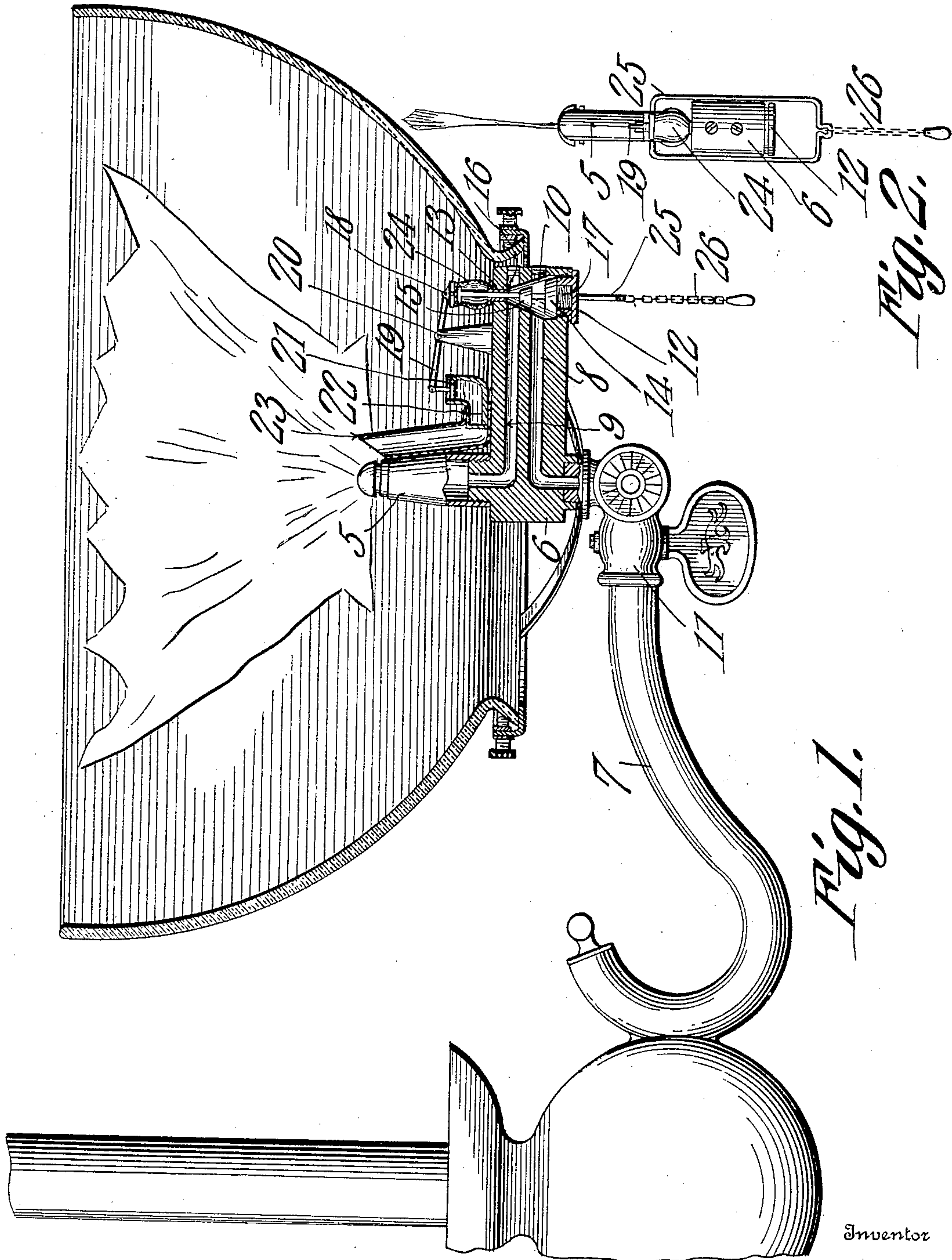


Fig. 1.

Fig. 2.

Witnesses
E. J. [Signature]
Ma. Schmidt

Inventor
Cosmo Liaci.
By *Ca Snowles.*
Attorneys

UNITED STATES PATENT OFFICE.

COSMO LIACI, OF NEW HAVEN, CONNECTICUT.

SAFETY ATTACHMENT FOR GAS-BURNERS.

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Specification of Letters Patent.

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Application filed October 28, 1909. Serial No. 525,115.

To all whom it may concern:

Be it known that I, COSMO LIACI, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Safety Attachment for Gas-Burners, of which the following is a specification.

This invention is the safety attachment for gas burners in the nature of a device which automatically shuts off the gas supply when the flame is extinguished, whereby the escape of gas into the room, and the danger arising therefrom, is effectually prevented.

The device comprises a valve which is under the control of an expansible element, expansion of said element from the heat of the flame, serving to hold the valve open, whereas contraction of the element due to cooling thereof when the flame is extinguished, permits the valve to close, and thus shut off the gas to the burner.

It is the object of the invention to provide an improved form of valve and connection between the same and the expansible element, together with a valve closing means, by which the device is rendered certain in operation at all times, there being no complicated parts to get out of order, and to this end it consists in a novel construction and arrangement of parts to be hereinafter described and claimed, reference being had to the drawing hereto annexed in which:

Figure 1 is a vertical section showing the application of the invention. Fig. 2 is an end view of the device.

In the drawing, 5 designates a gas burner mounted on a casing 6 secured in any suitable manner to the pipe 7 of a gas fixture. In the casing are parallel passages 8 and 9 respectively, the former communicating with the pipe 7 and the latter with the burner 5. These passages are intersected by a valve controlled passage 10. When the passage 10 is open, gas flows through the same from the passage 8 into the passage 9 and thence to the burner. The pipe 7 is provided with a cock 11. The passage 10 extends entirely through the casing 6, and opens through the top and bottom thereof, the lower end being closed by a screw plug 12, and the other end being fitted with a stuffing box 13. That portion of the passage which intersects the passages 8 and 9 is tapered, and in this tapered portion works a valve comprising spaced tapered disks 14

and 15 mounted on a stem 16, passing through the stuffing box 13, to the outside of the casing 6.

The valve disk 14 is so located as to close the passage 8, and the disk 15 the passage 9. The valve disk 14 is located adjacent to the plug 12, and between said disk and the plug is mounted a coiled spring 17, the function of which is to move the valve to closed position. The movement of the valve disks to closed position is upwardly in the direction of the smaller end of the tapered portion of the passage 10, and their opening movement is in the opposite direction toward the plug 12. The spring 17 is therefore compressed when the valve moves to open position, so that upon releasing the latter, it is automatically moved to closed position by the expansion of the spring. The valve stem 16 rises a suitable distance from the top of the casing 6 and terminates in a head 18, to which is connected one end of a lever 19 fulcrumed intermediate its ends on a post 20 mounted on top of the casing. The other end of the lever is connected to a piston 21 working in an angular glass tube 22 containing mercury or some other expansible element. The tube has a perpendicular and horizontally disposed portion, the former being open at its upper end, and the piston working therein. The horizontally disposed portion is closed at its outer end and this end extends into a heat conducting tube 23 leading to, and opening in close proximity to the flame of the burner 5.

The valve stem 16, on the outside of the casing, is inclosed by a rubber bag 24 fastened at one end to the outer end of the stuffing box 13, and at the other end to the head 18, whereby leakage of gas around the valve stem is prevented. The bag is of sufficient length and looseness to permit movement of the valve stem. The valve may be manually operated by means of a loop 25 extending around the casing 6, and secured to the head 18. To the lower end of the loop is connected a pull chain 26. The valve is opened by a pull on this chain.

In operation, to light the burner, the cock 11 is opened, and the chain 26 is given a downward pull to open the valve controlling communication between the passages 8 and 9, whereupon the gas is free to flow to the burner. Upon igniting the gas at the burner, the heat from the flame is conducted down the tube 23 to the tube 22, thereby

heating the mercury contained therein and causing it to expand. When the valve was manually opened as stated, that end of the lever 19 which is connected to the valve stem 5 16 was swung downwardly and the other end swung upwardly, thus elevating the piston 21. Expansion of the mercury holds the piston in elevated position and the valve is therefore held open. The opening move- 10 ment of the valve also compressed the spring 17. Now, if the flame is extinguished accidentally without shutting off the gas by the cock 11, the mercury in the tube 22 quickly cools and contracts, causing the piston to 15 lower, whereupon the valve is released, and permitted to be closed by the spring 17. The same action takes place if the flame is extinguished by shutting off the gas by the cock 11.

20 The device herein described is simple in construction, and has no complicated parts to get out of order, and it is therefore reliable in operation.

What is claimed is:

25 1. A safety device for gas burners comprising a casing having gas passages, one of which is connected to the burner, and the other to the source of supply, and a passage intersecting said passages, and opening 30 through the casing, a valve working in the intersecting passage, and controlling communication between the first-mentioned passages, a closure for one end of the intersecting passage, a stuffing box fitted to the other 35 end of said passage, a stem on the valve passing through the stuffing box to the outside of the casing, a spring between the valve and the aforesaid closure, a lever carried by the casing, one end of said lever being connected 40 to the outer end of the valve stem, a tube mounted on the casing, said tube containing an expansible element under the influence of the heat from the flame from the burner, and a piston working in the tube above the ex- 45 pansible element, said piston being connected to the other end of the aforesaid lever.

2. A safety device for gas burners comprising a casing having gas passages, one of which is connected to the burner, and the

other to the source of supply, and a passage 50 intersecting said passages, and opening through the casing, a valve working in the intersecting passage, and controlling communication between the first-mentioned pas- 55 sages, a closure for one end of the intersecting passage, a stuffing box fitted to the other end of said passage, a stem on the valve passing through the stuffing box to the outside of the casing, a spring between the valve and the aforesaid closure, a lever carried by the 60 casing, one end of said lever being connected to the outer end of the valve stem, a tube mounted on the casing, said tube containing an expansible element under the influence of the heat from the flame of the burner, a pis- 65 ton working in the tube above the expansible element, said piston being connected to the other end of the aforesaid lever, and a loop extending around the casing, and secured to the valve stem, for manually operat- 70 ing the valve.

3. A safety device for gas burners comprising a casing having gas passages, one of which is connected to the burner, and the other to the source of supply, a passage in- 75 tersecting said passages, a valve working in the intersecting passage, and controlling communication between the first-mentioned passages, a stem on the valve extending to the outside of the casing, a stuffing box on 80 the casing through which the valve stem passes, a flexible casing loosely surrounding the valve stem on the outside of the casing, one end of said flexible casing being con- 85 nected to the stuffing box, and the other end to the outer end of the valve stem, yielding means tending to move the valve to closed position, and thermally controlled means connected to the valve stem for holding the valve open. 90

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

COSMO LIACI.

Witnesses:

PIETRE SCALESSE,
GIOVANNI B. VIVO.