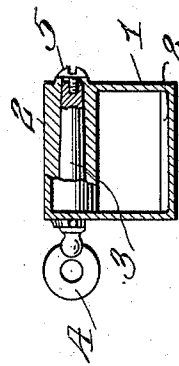
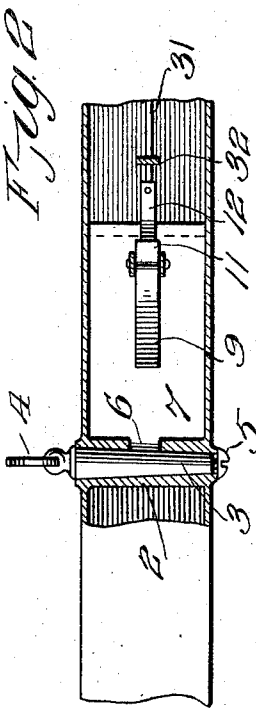
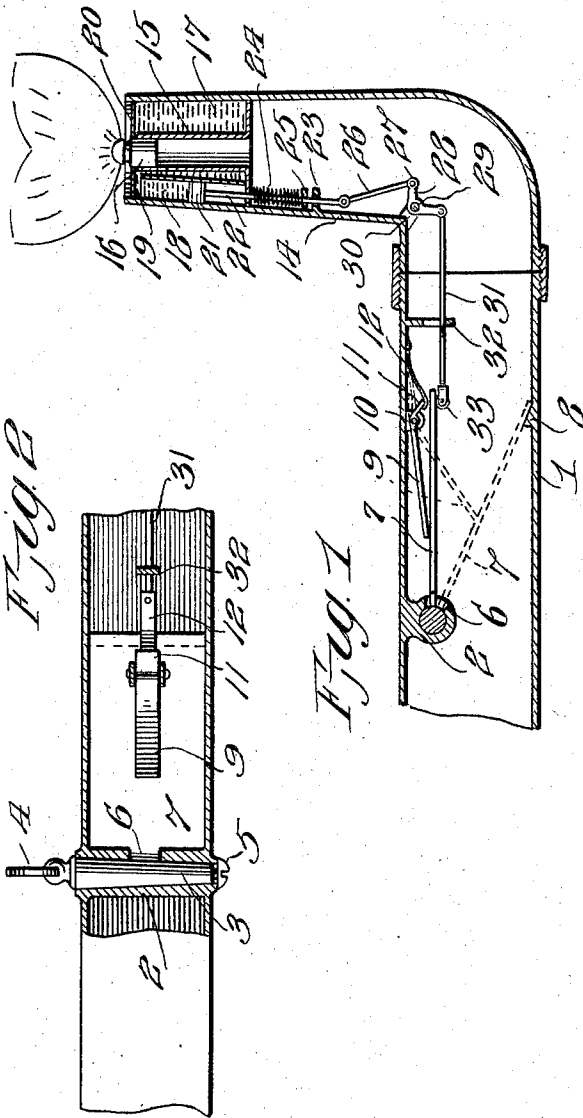


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SAFETY GAS VALVE.  
APPLICATION FILED OCT. 5, 1909.

965,665.

Patented July 26, 1910.



Witnesses  
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# UNITED STATES PATENT OFFICE.

SAMUEL STRAND, OF NEW HAVEN, CONNECTICUT.

## SAFETY GAS-VALVE.

965,665.

Specification of Letters Patent.

Patented July 26, 1910.

Application filed October 5, 1909. Serial No. 521,058.

*To all whom it may concern:*

Be it known that I, SAMUEL STRAND, a subject of the King of Norway, residing at New Haven, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Safety Gas-Valves, of which the following is a specification.

This invention relates to safety gas valves, and one of the principal objects of the same is to provide reliable automatic means for cutting off the flow of gas to a burner when the light has been extinguished by accidental means.

Another object of the invention is to provide an automatic safety gas valve which will cut off the supply of gas to the burner in case the flame is extinguished by blowing it out, means being provided whereby the heat of the burner will hold the valve open, and when the flame has been extinguished the cooling of the burner will close the valve and stop the gas supply.

These and other objects may be attained by means of the construction illustrated in the accompanying drawing, in which,—

Figure 1 is a longitudinal section taken through a gas burner and safety valve made in accordance with my invention. Fig. 2 is a detail transverse longitudinal section of the valve and its actuating mechanism. Fig. 3 is a vertical sectional view in line with the cock.

Referring to the drawing, the numeral 1 designates a casing which, as shown, is of rectangular form in cross section. This casing is provided on its inner side with a lug 2 having a tapering bore therein. Fitted in the tapering bore is a plug 3 having a finger hold 4 formed thereon, said cock having a set screw 5 for holding the same in place. The lug 2 is provided with a slot 6 in one side thereof, and connected to the plug 3 is a flat sheet metal valve 7, the lower end of which is adapted to rest upon an inclined lug 8 extending across the casing 1. A lever 9 pivoted at 10 is provided with a short arm 11, and a spring 12 secured to the casing 1 engages the outer end of the short arm 11 to throw the longer arm against the valve 7 to hold it closed. Fitted to the casing 1 by means of a gas-tight band 13 is a burner tube 14. Fitted in the upper end of the burner tube 14 is a mercury tank having a central tubular portion 15 in the upper end of which is fitted a burner tip 16. Sur-

rounding the tube 15 is a mercury reservoir 17, and a cylinder 18 communicates with the reservoir 17 by means of an opening 19 at the top thereof. A suitable top or cover 20 closes the upper end of the mercury chamber and cylinder.

Mounted to reciprocate in the cylinder 18 is a piston head 21 connected to a piston rod 22 which extends through the bottom of the cylinder and through a guide lug 23 within the burner tube 14. A spring 24 surrounds the piston rod 22, said spring constituting a tension device, the lower end of which is connected with a collar 25 on the piston rod to retract the piston within the cylinder.

Pivotaly connected to the lower end of the piston rod is a link 26, and connected pivotally to the lower end of said link is a bell crank lever 28 which is pivoted at 29 to a bracket 30 in the burner tube. Connected to the bell crank lever 28 is a slide rod 31 guided in a slotted lug 32 within the casing 1. At the end of the slide rod 31 is a roller 33 adapted to engage the underside of the valve 7 when the piston 21 is depressed by the expansion of the mercury in the cylinder 18.

The operation of my invention may be briefly described as follows:—When it is desired to light the gas the plug 4 is turned to throw the lever 7 to the full line position shown in Fig. 1, after which the gas is ignited at the tip 16. The expansion of the mercury in the reservoir under the heat of the flame will quickly project the piston 21 against the tension of the spring 24, thus actuating the bell crank lever 28 to project the slide 31 beneath the valve which is thus retained in an open position. Should the flame be blown out, or by any accident be discontinued momentarily, the mercury in the reservoir will become cool and contract, thus causing the piston head to rise under the tension of the spring 24, thereby withdrawing the slide 31 from under the valve 7, which latter would drop to its closed or obstructing position assisted by means of the lever 9 and the spring 12.

From the foregoing, it will be obvious that an automatic safety gas valve made in accordance with my invention would operate efficiently to cut off the gas whenever the latter is extinguished by means of a draft or if blown out or if momentarily discontinued by any cause.

I claim:—

1. An automatic safety gas valve comprising a casing, a plug mounted in the casing, a valve connected to the plug, a  
5 spring-actuated lever for holding the valve in closed position, a burner provided with a chamber, said chamber containing a thermally sensitive fluid, a cylinder communicating with the chamber, a slide rod for  
10 engaging the lower side of the valve, a reciprocating piston in the cylinder having connection with the slide rod and operable by the expansion of the thermally sensitive fluid in the cylinder to hold the valve  
15 opened, and a spring for moving the piston to close the valve upon the contraction of the thermally sensitive fluid.
2. An automatic safety gas valve comprising a burner provided with a chamber,

said chamber containing a thermally sensitive fluid, a gas plug provided with a valve, a cylinder in the chamber, a reciprocating piston located in the cylinder, a spring-actuated connection between the piston and valve serving to permit the valve to close  
20 when the burner is extinguished, and a thermally sensitive fluid within the chamber adapted to flow into the cylinder and depress the piston against the action of the  
25 spring and hold the valve open when the  
30 gas is ignited in the burner.

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

SAMUEL STRAND.

Witnesses:

OLAF LUND,  
JOHAN ANDERSEN.