

A. W. BOWDEN.  
SAFETY GAS BURNER.  
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1,034,866.

Patented Aug. 6, 1912.

Fig. 1

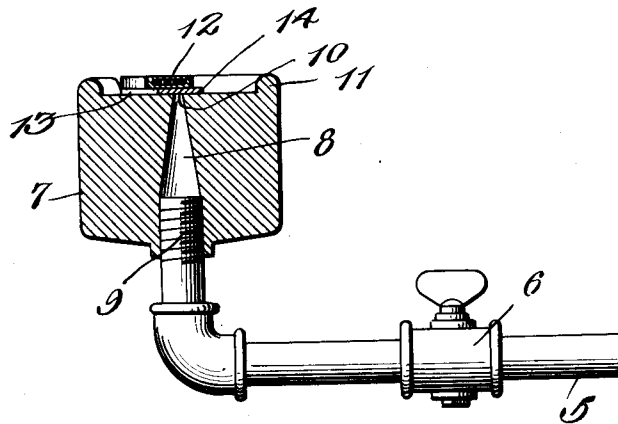


Fig. 4

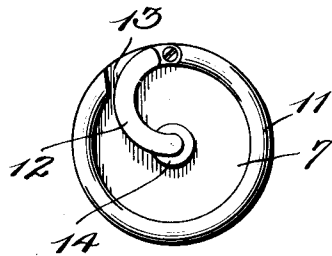


Fig. 3

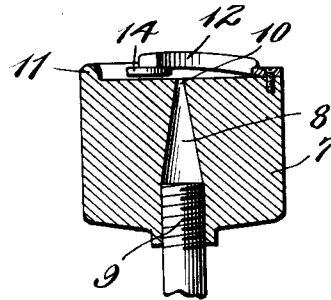
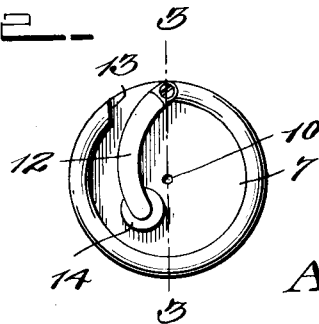


Fig. 2



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Witnesses

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# UNITED STATES PATENT OFFICE.

ALANSON W. BOWDEN, OF GREENVILLE, MAINE.

## SAFETY GAS-BURNER.

1,034,866.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed April 20, 1912. Serial No. 692,069.

*To all whom it may concern:*

Be it known that I, ALANSON W. BOWDEN, a citizen of the United States, residing at Greenville, in the county of Piscataquis and State of Maine, have invented certain new and useful Improvements in Safety Gas-Burners, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in safety gas burners and has for its object to provide a simple, efficient and positively acting device whereby the escape of unlighted gas from the burner is prevented.

A further object of the invention resides in the provision of a burner head having arranged thereon a thermostatic tube carrying a valve member normally disposed over the jet opening of the burner, said thermostatic tube being so mounted as to permit of the application of a lighted taper thereto whereby the expansive action of a suitable fluid contained within the tube disposes the valve member to one side of the jet opening to permit of the ignition of the gas which escapes therefrom.

Still another object of the invention is to provide a safety gas burner of the above type wherein the use of springs and similar holding devices is entirely eliminated, whereby the efficiency and durability of the device is enhanced and the cost of manufacture reduced to a minimum.

With the above and other objects in view, the invention consists in the novel features of construction and in the arrangement and combination of parts, hereinafter more fully described, pointed out in the claims and shown in the accompanying drawings, in which—

Figure 1 is a vertical section view of a gas burner embodying the present invention; Fig. 2 is a top plan view showing the valve member in its open position; Fig. 3 is a section taken on the line 3—3 of Fig. 2, and Fig. 4 is a top plan view showing the valve member in its closed position.

Referring in detail to the drawing 5 designates the service pipe which is connected to the gas main and is provided with the usual cock 6 whereby the flow of gas to the burner may be turned on or off.

The burner consists of a cylindrical head 7 which is provided with a central longitudinally extending gas receiving chamber 8, one end of which is threaded to receive the

threaded end 9 of the gas pipe. From the threaded end portion of the chamber 8 the same tapers longitudinally to provide a jet opening 10 which opens upon the upper surface of the burner head. The burner head is provided at its upper edge with an annular rim or bead 11 which is disposed above the surface of the head.

To the annular rim 11, one end of a flat metal tube 12 is secured. This tube contains mercury or other expansible fluid and is commonly known as a Bourdon tube. The rim 11 is recessed as at 13 to receive the end of this tube so that the end of the tube is exposed at the outer edge of said rim. This Bourdon tube is of substantially semi-circular form in plan and is also curved or inclined upwardly from its outer secured end to its inner free end as clearly shown in Fig. 3. The free end of this tube has attached thereto a valve disk 14 which is normally disposed over the jet opening 10 of the burner head to prevent the emission of gas therefrom.

In the use of the device the flame of a lighted match or taper is applied directly to the end of the Bourdon tube at the rim 11 of the burner head so that the fluid in said tube is heated, thereby causing the tube to gradually expand as the temperature increases and become slightly straightened or less curved than when in its normal position as shown in Fig. 2, so that the valve member on the free end of the tube is disposed above the surface of the burner head and at one side of the jet opening 10. After the valve member has moved to this position, the flame of the match or taper is applied to the jet opening so that the gas issuing therefrom is ignited. It is understood that the expansible tube 12 and the valve member 14 are so designed and proportioned that the temperature at the jet opening 10 or the base of the gas flame will be just sufficient to cause the valve to remain open, whereby a very rapid closure of the jet opening is obtained when the supply of gas to the burner is cut off. As the liquid in the Bourdon tube cools and said tube contracts, the under surface of the valve disk will be drawn downwardly into close contact with the surface of the burner head and over the jet opening 10, thereby effectually closing said opening in the event that the gas flame is blown out or otherwise extinguished without turning the cock 6 to shut off the gas

flow. Thus liability of accidental asphyxiation is prevented.

From the foregoing it is believed that the construction and manner of operation of my improved safety burner, will be clearly understood.

Owing to the simplicity of the invention, it will be obvious that the same is reliable, efficient in its action and may also be produced at very small cost.

While I have shown and described the preferred form and proportions of the various parts, it will be obvious that the device is susceptible of considerable modification without departing from the essential features or sacrificing any of the advantages of the invention.

What I claim is:—

1. The combination with a burner having a jet opening, of a Bourdon tube fixed at one end to the outer surface of the burner body and at the upper edge thereof for the application of a lighted taper directly thereto, and a valve member on the other end of said tube normally disposed in contact with the upper surface of the burner head over the jet opening to close the same and movable to a position above the surface of the head and at one side of the jet opening by the expansion of said tube.

2. The combination with a burner having a jet opening and an annular flange extending above the upper surface of the burner body, of a Bourdon tube fixed at one

end to said flange, and normally curved inwardly and upwardly therefrom, and a valve member secured to the free end of the tube normally engaging the upper surface of the burner and disposed over the jet opening to close the same, said tube being expanded by the application of a lighted taper to the fixed end thereof whereby the valve member is moved out of contact with the burner and to one side of the jet opening to permit the gas to issue therefrom.

3. The combination with a burner having a jet opening and an annular flange projecting above the upper surface of the burner body, of a Bourdon tube, said flange being provided with a recess to receive one end of said tube, said tube being fixed to the burner body and curved inwardly from said flange, and a valve disk secured to the free inner end of the tube and normally disposed in frictional engagement with the upper surface of the burner body and over the jet opening, said valve member being moved to one side of the jet opening and out of contact with the surface of the head by the expansion of said tube induced by the application of a lighted taper to the fixed end thereof.

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

ALANSON W. BOWDEN.

Witnesses:

F. W. ALLEN,  
E. B. CROWLEY.