C. SCHNEIDER.

SAFETY GAS BURNER.

APPLICATION FILED JUNE 15, 1909.

993,111. Patented May 23, 1911.

Fig. 1

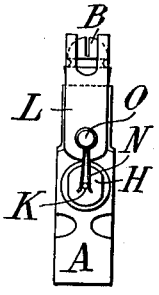


Fig. 2.

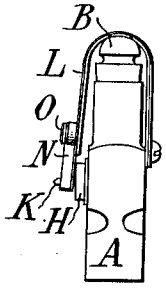


Fig. 3.

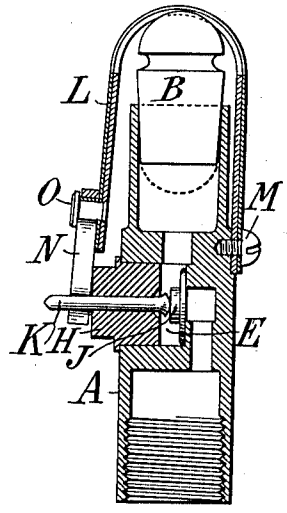
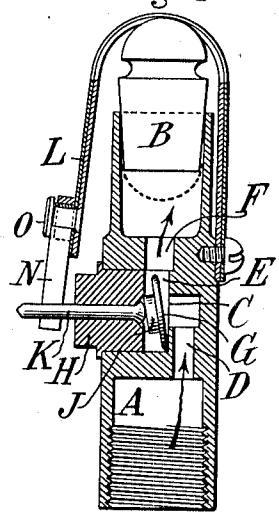


Fig. 4.



WITNESSES

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SAFETY GAS-BURNER.

993,111. Specification of Letters Patent. Patented May 23, 1911.

Application filed June 15, 1909. Serial No. 502,280.

To all whom it may concern:

Be it known that I, CARL SCHNEIDER, a citizen of the United States, residing in Jersey City Heights, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Safety Gas-Burners, of which the following is a specification.

This invention aims to provide a gas burner, which may be of the ordinary or simple type or of the Welsbach or other type, in which the gas is automatically shut off and held so when the light is extinguished or when the pressure falls.

The device is simple in construction and operation so as to be reliable, durable and cheap, and operates promptly so as to save the loss of even a small quantity of gas.

The accompanying drawings illustrate embodiments of the invention.

Figures 1 and 2 are vertical side and front elevations of the burner. Figs. 3 and 4 are vertical sections of the same burner in the closed and open positions of the valve respectively.

Referring to the embodiments of the invention illustrated, the tube A and tip B may be of any usual or suitable style. The tube may for example, constitute the base of a Welsbach or other burner and may be mounted on a pipe provided with a simple turning plug of the ordinary kind or not, as desired. It may also be made in one piece as shown or with the valve seat and other passages formed in a separate piece for convenience.

The valve seat C is in a substantially vertical plane. The gas passes from the base of the tube through the passage D to the valve chamber E and thence out by way of the passage F. The valve G also stands in an approximately vertical position. It is a free or floating valve with its lower edge resting upon the bottom of the chamber E, the chamber and valve being preferably circular, and the chamber being closed by a removable plug H also circular as indicated in Fig. 1, and which is preferably held in place by friction although it may be fastened in any suitable way.

The valve opens with the pressure of the gas and is given an additional opening force by forming it with a weight J on its outer face, and by making its edge beveled so that it rests upon a thin smooth line in the rear of its inner face, and thus tends always to fall outward, and closes perfectly.

The valve is normally prevented from moving in the opening direction by means of a pin K passing through the plug H and held against accidental loss by a small head on its inner end. In its outer position the pin K permits the valve to move unobstructedly. The pin is normally held in, however, so that its end presses the valve toward its seat, the pin engaging the outer face of the valve as shown in Fig. 3. The pin is under control of a thermostat such for example, as the bi-metallic bow L fixed at one end to the side of the burner, by means of a screw M which fastens the end of the thermostat in a suitably shaped recess or socket in the burner tube, so that the thermostat is held rigidly at this end. The thermostat passes up and over the tip of the burner, being slotted at the top to avoid interference with the flame, and its free end passes down upon the opposite side of the burner toward the pin K. It is this free end of the thermostat which moves the pin K in and out and so operates or releases the valve.

The connecting device between the thermostat L and the pin K is a frictional device which causes the very first contracting or expanding movement to be transmitted to the valve. After the first movement of the thermostat sufficiently to move the pin K its full distance there is always a considerable continued movement of the thermostat, and the frictional connection permits this continued movement of the thermostat without necessitating a continued movement of the pin. On the return movement of the thermostat, it first moves the pin to its opposite position and then continues to the limit of movement of the thermostat. Thus a very small movement of the pin is all that is necessary, and the length of time during which the thermostat must continue to expand or contract in order to shift the pin from one position to another, can be made accordingly small. At the same time ample room for the flow of gas is provided by the use of a float valve with a large orifice. The frictional connection shown comprises a spring N fastened upon a stud O on the free end of the thermostat, and having a pair of arms which embrace the pin K frictionally.

With this construction it is not necessary to hold the valve open in order to light the gas. A match held at the tip will heat the thermostat in about the length of time required to light a candle, sufficiently to withdraw the pin K and permit the gas to flow and to light. The heat of the gas expands the thermostat further, but it continues to grip the pin K through the frictional device N, and within a few seconds of the disappearance of the flame the thermostat will have contracted sufficiently to cut off the gas.

Various modifications may be made in detail and in the arrangement of the parts, without departing from the invention.

What I claim is:—

1. A safety gas burner having a valve, a member controlling said valve and a thermostat frictionally connected to said member so as to actuate the same and to move relatively thereto when expanded or contracted beyond the distance corresponding to the limit of movement of said member, said valve being adapted to be opened automatically by the pressure of the gas upon the heating of the thermostat.

2. A safety gas burner having a valve seat and a valve G standing in an approximately vertical plane and weighted to assist its opening movement, a substantially horizontal pin K extending outside of the burner and having its inner end in line with said valve, and thermostatic means for moving said pin inward to close the valve when the light is out.

3. A safety gas burner having a valve seat and a valve G standing in an approximately vertical plane and weighted to assist its opening movement, a substantially horizontal pin K extending outside of the burner and having its inner end in line with said valve, a thermostat, and a frictional connecting device N below said thermostat and engaging said pin for moving said pin inward to close the valve or outward to open it, and permitting an excess movement of the thermostat beyond that of the pin.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

CARL SCHNEIDER.

Witnesses:

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FRED. WHITE.