

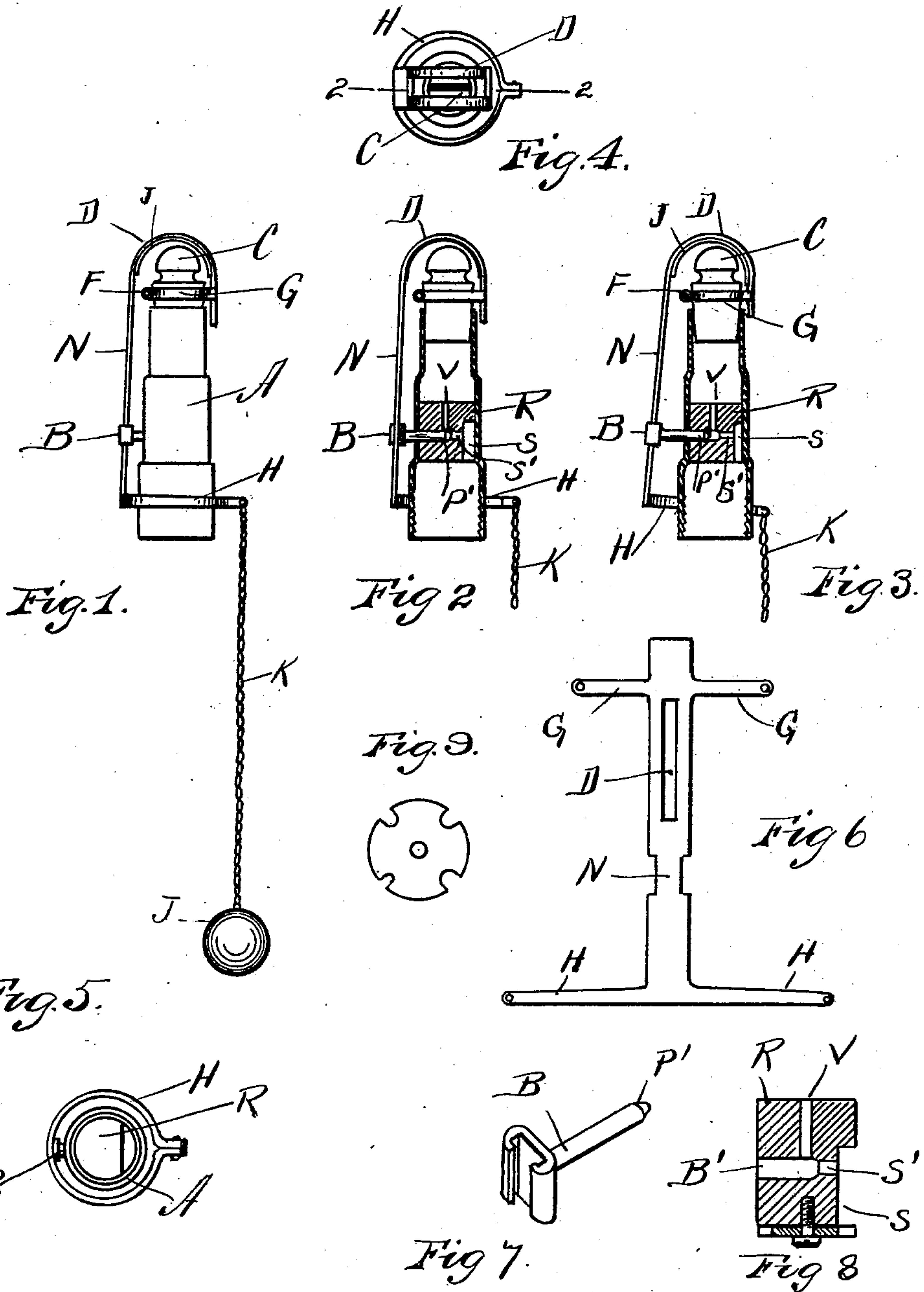
No. 714,023.

Patented Nov. 18, 1902.

G. L. PALMER.  
SAFETY GAS BURNER.

(Application filed Feb. 21, 1902.)

(No Model.)



Witnesses.

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# UNITED STATES PATENT OFFICE.

GEORGE L. PALMER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF TWO-THIRDS TO THOMAS M. LOFTUS AND ARCHER W. LANG, OF PROVIDENCE, RHODE ISLAND.

## SAFETY GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 714,023, dated November 18, 1902.

Application filed February 21, 1902. Serial No. 95,034. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE L. PALMER, a resident of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Safety Gas-Burners; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention consists in improvements in safety gas-burners; and its object is to produce a burner that can be depended upon for prompt action in case of the gas-flame being extinguished and that will not be liable to be opened accidentally after being closed.

It is fully described and illustrated in this specification and the annexed drawings.

Figure 1 represents a side elevation of the burner. Fig. 2 shows a vertical section of the burner with the gas shut off, taken on line 2 2 in Fig. 4. Fig. 3 represents the same vertical section as Fig. 2, excepting that the gas is turned on as when the burner is in operation. Fig. 4 is a top view of the burner. Fig. 5 is a view looking up from the lower end of the case. Fig. 6 represents the shape of the blank that makes the thermostat and valve and the parts that support and operate them. Fig. 7 represents in perspective the valve and its stem separate. Fig. 8 represents a vertical section of the plug that contains the gas-passages and the valve-seat, enlarged. Fig. 9 represents a quantity-regulating plate.

The construction of the burner and its mode of operation are as follows:

A is the main body of the burner, and C is the tip set in its upper end.

N is a plate first punched out of sheet metal in the shape shown in Fig. 6, and then the upper arms G G are bent to fit close around the tip C and drawn tight by means of bolt and nut at F in Fig. 1, and the lower arms H H are bent to form the ring H around the lower end of the burner, large enough to have room to swing, as shown in Fig. 3. The body of the plate N is bent over to form a loop over the tip C and bring the slot D in it di-

rectly over the opening in the top of the tip C. The ends of the ring H are fastened together with a bolt, and a short section of chain K is attached to draw down that side of the ring H and open the valve. A short plug R (shown separately in section and enlarged in Fig. 8) is inserted in the body of the burner near its middle so as to be air-tight, and this plug R has the passages V and S made in it for the gas and also for the valve B. These passages are made by first cutting away one side of the plug from the lower side at S up past the middle, then drilling a hole S' horizontally through the plug and a small hole V down from the top of the plug into the hole S'. The hole S' is drilled out larger on the other side of the plug from the passage S, far enough past the vertical passage V to form a seat for the valve P' on the end of the stem B. (See Fig. 7.) The valve-stem B is fitted to slide closely and easily in the passage B' and has a clasp on its outer end through which the plate N slides (see Fig. 1) as the valve opens and closes.

At the top of the loop D on the under side, on each side of the slot D, a plate of metal J, more expansible by heat than the loop, is attached by hard solder that will withstand the heat of the gas-flame, or it may be held by riveting at the ends, so as to form a thermostat that will by the expansion of the attached metal cause the loop to spread and hold the valve P' open while the gas is burning, as in Fig. 3, and when the flame is out the contraction of the metal will contract the loop and close the valve P' and shut off the gas. To light the gas, the ring H is drawn down by pulling down the chain K. This draws out the valve P' and opens the passage for gas, (see Fig. 3,) and the gas passes up through the opening S, in through the holes S' and V, up to the tip C, and is lighted. Then the heat of the flame will spread the loop and hold the valve P' open; but if the flame is extinguished intentionally or accidentally in any way the loop will contract by cooling and close the valve P' and shut off the gas.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—



1. In a safety gas-burner the combination of the following instrumentalities, a case, a tip, a thermostat attached to the case and curved over the top and extended down on one side to the lower end of the case and having a loose ring attached to its lower end and surrounding said case, and a valve attached to said extension, substantially as specified.

2. In a safety gas-burner the combination of a case and tip, a thermostat attached to said case and curved over the top and having a slot in it registering with the opening in the tip, an extension on the thermostat down one side of the case, a ring on the lower end of the extension surrounding the lower end of the case, a plug held in said case and having passages through it for the gas to pass, a valve held in a hole in said plug and connected with said extension, substantially as described.

3. In a safety gas-burner, the combination of a case, a tip, a thermostat fixed at one end and bending over the top of the tip with its free end extending down the side of the case, a sliding plug-valve connected to the long arm of the thermostat through the side of the case, which valve is drawn in and out by the expansion and contraction of said thermostat, an arm with one end attached to the thermostat and arranged to open the valve when

its free end is drawn down by the cord, substantially as described.

4. In a safety gas-burner, the combination of a case, a tip, a thermostat fixed at one end and bending over the top of the tip with its free end extending down the side of the case, a sliding plug-valve connected to the long arm of the thermostat through the side of the case, which valve is drawn in and out by the expansion and contraction of said thermostat, a plug forced into said case cut away on one side at its lower end to form a gas-passage, a valve-chamber extending partly through said plug, a valve-seat at the inner end of said chamber, a gas-passage from the flattened side of said plug into the end of said chamber, and adapted to be closed by the end of said valve, a gas-passage from the top of said plug communicating with said valve-chamber, an arm with one end attached to the thermostat and arranged to open the valve when its free end is drawn down by the cord, substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of February, A. D. 1902.

GEORGE L. PALMER.

In presence of—

HOWARD E. BARLOW,  
BENJ. ARNOLD.