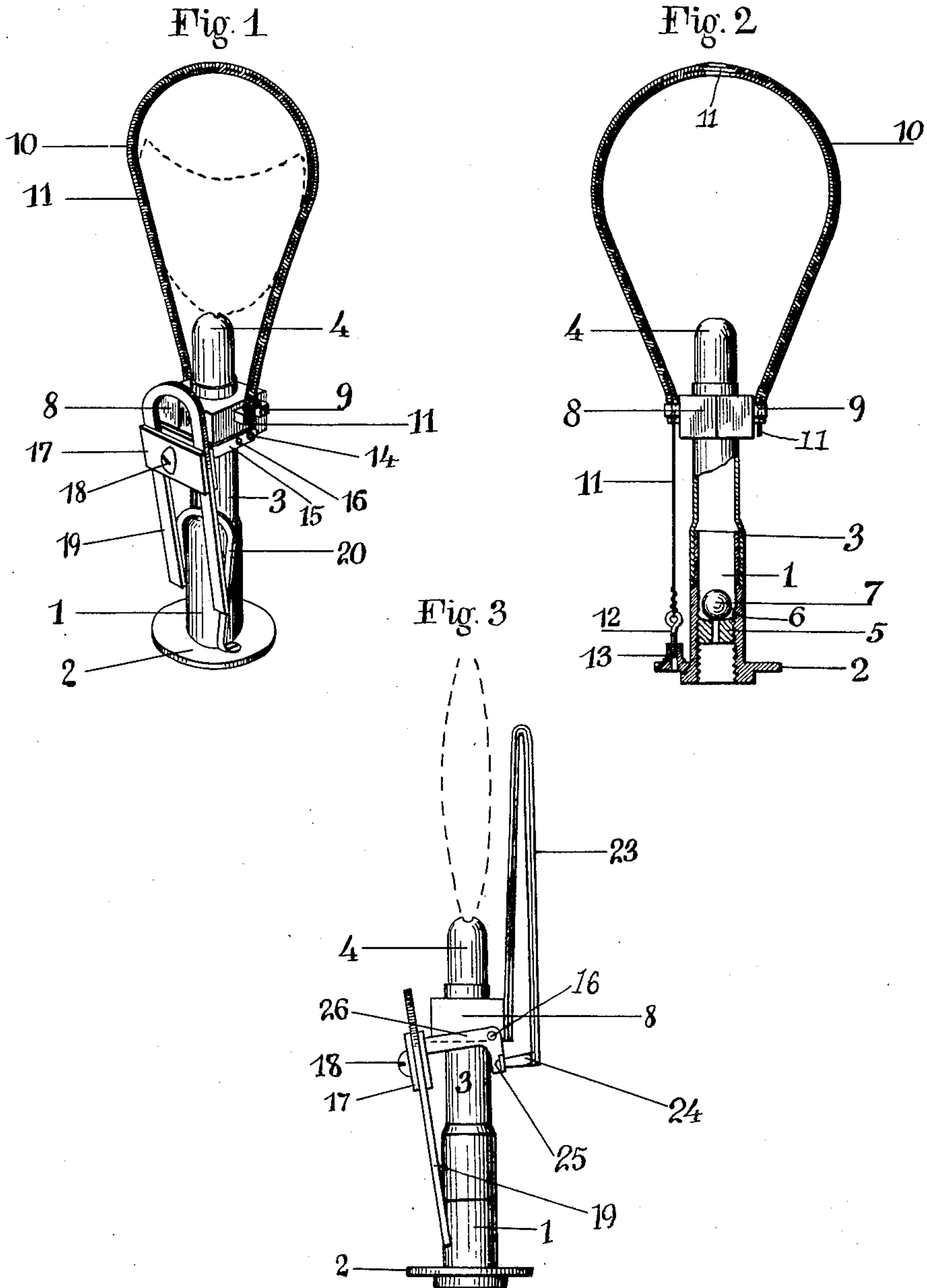


W. V. D. KELLEY.
GAS BURNER.
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UNITED STATES PATENT OFFICE.

WILLIAM V. D. KELLEY, OF NEWARK, NEW JERSEY.

GAS-BURNER.

No. 912,576.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM V. D. KELLEY, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Gas-Burners, of which the following is a full, clear, and exact specification.

This invention relates to gas burners, and has for its objects to provide a thermostatically actuated gas flashing burner wherein the gas will be automatically turned off and on by the cooling and heating of a thermostat, and wherein the gas valve will be operated by a magnet without involving mechanical connections between the thermostat and the valve.

In carrying out the invention, I provide in combination with a steel ball or other magnetic valve disposed within the gas pillar a movable exterior magnet which is moved toward and from the valve by the contraction and expansion of a thermostat which is disposed to be heated by the gas flame, the gas flame being itself controlled by the opening or closing of the magnetic valve.

In the preferred embodiment of the invention herein disclosed a spring normally tends to move the magnet away from the valve thereby permitting the valve to close by gravity, which tendency of the spring is resisted by the tension of the thermostat and the spring is rendered effective to move the magnet away and thereby to permit the valve to close when the tension of the thermostat is relieved by the heating effect of the flame.

In the accompanying drawing, Figure 1 represents in perspective a gas burner embodying the invention; Fig. 2 is a view seen from the left side of Fig. 1 in section, showing the mounting of the thermostat and the tension adjusting means; and Fig. 3 is a view showing a modified form.

1 represents a gas pillar having a base 2 and adapted to be screwed on to a gas supply pipe in the well known manner.

3 is a burner tube adapted to be connected to the gas pillar 1 and carrying the tip 4. The gas pillar 1 is provided with a gas passage formed in a plug 5 of magnetic material, the upper end of which plug is hollowed

slightly so as to provide a somewhat conical shaped seat 6 on which a steel ball 7 is permitted to move. The steel or other magnetic ball normally rests by gravity over the end of the passage in plug 5 which is so arranged that a slight leakage of gas can take place around the ball 7 sufficient to keep the flame at the tip always lighted. The plug 5 is magnetized, so that the ball seats quickly without oscillation.

At the upper end of the tube 3 a block 8 is provided with lugs 9, 9 to which is rigidly attached a bow tube 10. The tube 10 may be of closely coiled wire or a continuous tube having sufficient rigidity to withstand the tension of a thermostatic wire 11, preferably of brass. The wire 11 is attached at its lower end to an eye 12 which screws into a socket 13 carried on the base tube for adjusting the tension of the wire 11. The other end of the wire passes through the tube 10 and is attached at 14 to one end of a lever 15 pivoted on the block 8 at 16. Attached to the longer end of the lever 15 by a plate 17 and a screw 18 is a horse-shoe magnet 19 having its poles disposed opposite the ball 7, which acts as the magnet armature. When the wire 11 is cooled, it is normally under tension sufficient to hold the magnet against the resistance of a spring 20 against the outside of the gas pillar 1, thereby attracting the steel ball 7 away from the seat and permitting the maximum quantity of gas to flow, giving full candle power to the flame. As the thermostatic wire 11 heats up, its tension relaxes and the spring 20 is thereby enabled to throw the magnet outward so that the ball 7 is no longer attracted. The ball 7 therefore drops by gravity on its seat cutting down the flame to a very small extent; thereupon, the wire 11 contracts and pulls the magnet inward again permitting the ball to be attracted from its seat and causing the flame to enlarge. This operation continues automatically as long as the burner is kept lighted, and as before stated, it is provided that when the ball is on the seat sufficient gas shall leak around it to keep a very small flame at the tip.

In Fig. 3, the thermostat 23 comprises a bent compound metal strip disposed in proximity to the flame which when heated will

cause a lug 24 on the lower end to move inwardly so as to engage a lug 25 on the lever 26, and thereby move the magnet away from the ball permitting it to drop back on the seat and cut down the flow of gas. When the flow is cut down the thermostat expands outwardly permitting the magnet to again drop back and pull the ball off the seat.

From the foregoing description it will be seen that an automatic gas flashing device is provided wherein the use of mechanical connections between the thermostat and the valve is obviated, and wherein the gas valve is opened by magnetic attraction and closed by gravity. By magnetizing the ball seat, the valve closes quickly preventing flickering of the flame. Thereby, the device is more effective for advertising purposes. Also it will be seen that in the form shown in Figs. 1 and 2, the magnet is operated positively in one direction by a spring and in the other direction by the tension of a thermostatic wire. By varying the tension of the wire it will be seen that the time of the flashes can be controlled. In Figs. 1 and 2, the tube 10 may be made of such size and shape as to practically surround the flame, or it may be disposed in the flame if desired. By this construction, it is possible to secure a considerable variation in the length of the tension wire when heated and cooled and thereby control the amount of movement to be given the magnet actuating lever 15.

The specific construction herein described by way of example may be changed in various details without departing from the scope of the invention.

Having thus described my invention, I declare that what I claim as new and desire to secure by Letters Patent, is,—

1. A thermostatic gas flashing apparatus comprising in combination a gas burner, a magnetically operated valve, a thermostat, and a magnet mounted to be moved toward and from the valve to magnetically open and close the same by the expansion and contraction of the thermostat.

2. A thermostatic gas flashing apparatus comprising in combination a gas burner, a valve of magnetic material normally seated by gravity to restrict the gas flow, a magnet movable toward and from the valve, and a thermostat disposed to be heated by the gas flame for controlling by its expansion and contraction the movement of the magnet toward and from the valve.

3. A thermostatic gas flashing apparatus comprising in combination, a gas burner, a valve of magnetic material normally seated by gravity to restrict the flow of gas; a magnet movable toward and from the valve to attract and release the same, and a thermostat disposed to be heated by the gas

flame to close the valve, and when cooled opening the valve, said thermostat controlling the magnet.

4. A thermostatic gas flashing apparatus comprising in combination a gas burner, a magnetically controlled gas valve, a thermostat comprising a bent tube and a tension wire therein, a magnet mounted to be movable toward and from the valve, and connections whereby the tension of said wire when cold moves the magnet to such position as to hold the valve open, and when heated permits movement of the magnet to permit the valve to close by gravity, and means whereby the magnet is moved away from the valve when the tension of the wire is relaxed by heating the wire.

5. The combination with a gas burner, and a movable controlling valve therefor composed of magnetic material held by gravity to restrict the flow of gas, of a movable magnet for opening the valve, a thermostat adapted to be heated by the gas flame to permit the valve to close, and means whereby the magnet is moved away from the valve when the thermostat cools.

6. The combination with a gas burner, and a controlling valve therefor composed of magnetic material, of a magnet for controlling said valve, said magnet being mounted to move towards and from the valve, a bent thermostat carried by the gas pillar and disposed to have the bent portion heated by the gas flame, and actuating connections between the free end of said thermostat and the magnet for controlling the valve according to the temperature of the thermostat.

7. The combination with a gas burner, and a controlling valve therefor composed of a magnetic ball adapted to restrict the flow of gas, of a magnet movably mounted to control the ball, and a thermostat for controlling the magnet.

8. The combination with a gas burner, and a controlling valve therefor composed of a magnetic ball adapted to restrict the flow of gas, of a magnet movably mounted to control the ball, and a thermostat for controlling the magnet, said thermostat comprising a tension wire having one end connected to move the magnet.

9. The combination with a gas burner, and a controlling valve therefor composed of a magnetic ball adapted to restrict the flow of gas, of a magnet movably mounted to control the ball, a thermostatic tension wire normally causing the magnet to hold the ball away from its seat, and means for moving the magnet to permit the valve to close when the wire is heated.

10. The combination with a gas burner, and a controlling valve therefor composed of a magnetic ball, and a magnetized ball

seat, of a ball seating thereon to restrict the flow, a thermostat disposed to be heated by the flame, and a magnet operated by the thermostat for unseating said valve.

- 5 11. The combination with a gas burner, and a controlling valve therefor composed of a magnetic ball, and a magnetized ball seat, of a ball seating thereon, a lever pivoted on the gas pillar and carrying a magnet, and a

thermostat for moving the lever to control 10 the magnet and thereby the flow of gas through the valve.

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

WILLIAM V. D. KELLEY.

Witnesses:

GEO. N. KERR,

GEO. A. HOFFMAN.