

No. 722,302.

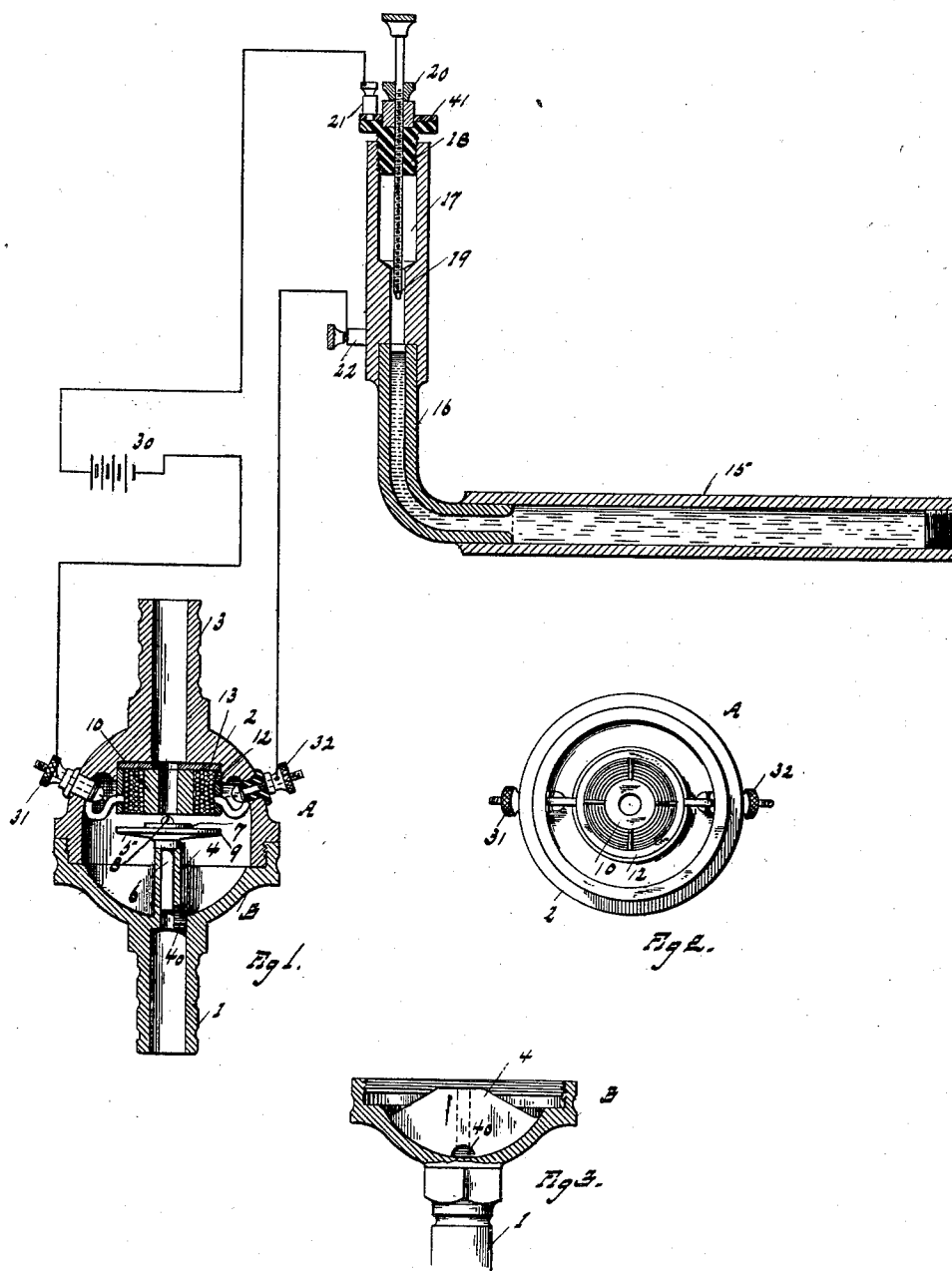
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C. M. HOLLEY & M. H. RIX.
AUTOMATIC GAS REGULATING VALVE.

APPLICATION FILED FEB. 3, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:
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UNITED STATES PATENT OFFICE.

CLARENCE M. HOLLEY AND MILTON H. RIX, OF ANN ARBOR, MICHIGAN,
ASSIGNORS TO HOLLEY HEAT REGULATOR COMPANY, OF DETROIT,
MICHIGAN, A CORPORATION OF MICHIGAN.

AUTOMATIC GAS-REGULATING VALVE.

SPECIFICATION forming part of Letters Patent No. 722,302, dated March 10, 1903.

Application filed February 3, 1902. Serial No. 92,320. (No model.)

To all whom it may concern:

Be it known that we, CLARENCE M. HOLLEY and MILTON H. RIX, citizens of the United States, residing at Ann Arbor, county of Washtenaw, State of Michigan, have invented a certain new and useful Improvement in Automatic Gas-Regulating Valves; and we declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to automatic gas-regulating valves, and has for its object an improved regulating-valve adapted to be employed with the use of gaseous fuel and to be regulated by the action of the heat on a thermostatic closer of an electric circuit which energizes a magnet arranged to actuate a valve in the gas-conduit.

In the drawings, Figure 1 shows in sectional elevation the valve and its inclosing casing and the thermostat employed to actuate the same. It also shows in diagram the wiring between the thermostat and the valve. Fig. 2 is a bottom view of the valve-casing, showing the lower part removed. Fig. 3 is a vertical section through the lower part of the valve-casing, showing parts in elevation; and Fig. 4 is an elevation, partly in section, showing the general arrangement of the device in operative relation to a melting-pot.

In Fig. 4 the device is shown as connected with a burner C, located below a melting-pot D, an outer casing E being shown around the pot.

A indicates the casing, which is made in two parts inclosing a chamber. The lower part B is provided with a nipple 1, by which it may be secured to a pipe or flexible tube. The part 2 is secured to the part 1 by a screw connection, and this also is provided with a nipple 3, by which it may be secured to a pipe or a flexible tube. The part B is provided internally with a stem-guide 4, arranged to hold and guide the stem 6 of an armature 5. The armature 5 is formed of free or clear magnetic metal and is provided at its upper end with an annular tube or disk

9. Secured on the face of the disk by a screw 8 is a valve 7 in the nature of a packing-disk, which is preferably formed of some soft material, such as rubber or leather.

In the part 2 is secured a magnet which is hollow or has a hole running through it axially and which is wound with a magnetizing-coil, and the coil is preferably surrounded by a jacket of magnetic material 12, forming an external pole of the magnet. Preferably the interior pole 10 and the external pole 12 are connected by a ring connection 13. The magnet thus described is a well-known form of jacketed magnet of high efficiency in actuating a disk armature.

Through the stem-guide 4 are openings 40 for the free passage of gas from the nipple 1 into the chamber in the interior of the casing A.

The thermostat employed consists of a large metal bulb 15, from which extends a neck of smaller bore 16, and at the top of the neck is a chamber 17 for possible overflow and a closing-plug 18, of insulating material. Through the closing-plug 18 is inserted a contact-point 19, arranged to be run by screw-threads through the plug 18, having on its stem a set-nut or jam-nut 20. A binding-post 21 is secured to a metallic ring 41 under the jam-nut. On the body of the thermostat is another binding-post 22, and the thermostat is wired to the valve-actuating magnet by wiring that runs through a battery 30. The ends of the wire are secured by binding-posts 31 and 32 to the casing. The bulb 15 is filled with some expansible fluid, preferably mercury, and the electric current is broken or completed from the binding-post 22 through the mercury and through the adjustable stem 19 in accordance with the condition of the mercury in the bulb. The stem can be regulated to close the circuit at any desired temperature.

The casing A forms part of the channel through which gaseous fuel is supplied to the fire, the gas entering the nipple 1, passing into the chamber, thence into and through the hollow core of the magnet, and out through the nipple 3, and this channel is open so long as the magnet is not actuated and the arma-

ture not drawn toward it. However, as soon as contact is made between the mercury in the bulb or stem and the contact-point 19 the magnet is excited, the armature is drawn
5 forcibly toward the magnet, and the packing-disk 7 is brought into close contact with the end of the hollow magnet, closing the passage through it. The closure may be complete or provision may be made for a small amount of
10 leakage sufficient to keep up a pilot-fire, if desired.

What we claim is—

1. In combination with a thermostat provided with means for closing an electric circuit, a valve-casing provided with a magnet
15 in its upper portion and having a longitudinal passage through the core of said magnet, an armature carrying a valve and arranged to be raised against the core to close said passage and an electric circuit connecting the
20 magnet and the thermostat, substantially as described.

2. In combination with a thermostat provided with adjustable means for making electric contact, a valve-casing provided with inlet and outlet openings and with a hollow magnet in alinement with said opening, an
25 armature for said magnet arranged below the same and a packing-gasket arranged on the upper face of said armature and adapted to close the passage through the magnet and conducting-wires from the thermostat to the
30 magnet, substantially as described.

3. The combination with a thermostat provided with means for closing an electric circuit, a valve-casing formed in detachable sections, a magnet having a hollow core secured to one section, an armature carrying a valve
35 for closing the passage in the core carried and guided by the other section, and an electric circuit connecting the thermostat with the magnet.

4. In combination with a thermostat provided with means for closing an electric circuit, a valve-casing provided with a magnet
45 and having a longitudinal passage through the core of said magnet, an armature having an annular table of free or clear magnetic material and with a central packing-disk se-

cured thereto, a stem to said armature and a
50 guide secured to the casing for said stem in axial alinement with the magnet, substantially as described.

5. In combination with a thermostat provided with adjustable means for making electric contact, a valve-casing provided with inlet and outlet openings and with a hollow magnet secured therein with the opening
55 through said magnet in alinement with the openings in said casing, an armature for said magnet provided with a stem, a stem-guide on the casing arranged to engage the stem of said armature, a packing-disk on the face of said armature adapted to close the passage
60 through the magnet and conducting-wires from the thermostat to the magnet, substantially as described.

6. In connection with a gas-conduit, a valve-casing provided with openings thereinto and made in two parts arranged to be joined, a
70 hollow jacketed magnet secured in one of said parts having an opening therethrough in continuation of the gas-openings in the casing, a stem-guide secured to the other of said parts, a valve arranged to close the
75 opening through the magnet, an armature connected with said valve, a stem engaging in the stem-guide and arranged to direct the movement of the armature and valve, and means for closing an electric circuit around
80 the magnet, substantially as described.

7. In combination with a thermostat provided with means for closing an electric circuit, a valve-casing, a tubular cored jacketed magnet in said casing, the aperture through
85 the core of said magnet forming a part of the passage through said casing, the coil of said magnet being interposed in said circuit, and a disk adapted to serve as an armature and valve to close the aperture through the core.
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In testimony whereof we sign this specification in the presence of two witnesses.

CLARENCE M. HOLLEY.
MILTON H. RIX.

Witnesses:

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