R. M. G. PHILLIPS.

GAS COCK.

APPLICATION FILED FEB. 9, 1914.

1,152,213.

Patented Aug. 31, 1915.

Fig. 1.

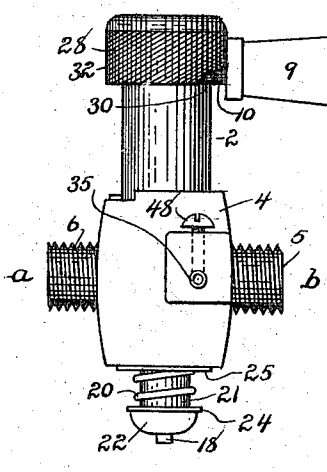


Fig. 2.

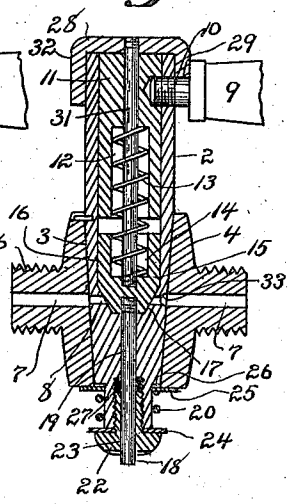


Fig. 3.

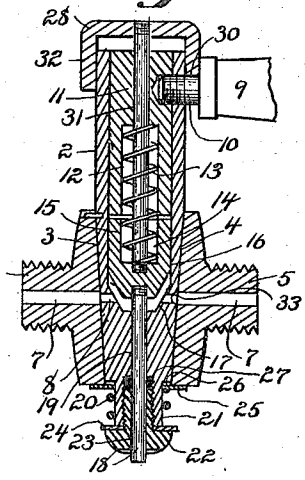


Fig. 4.

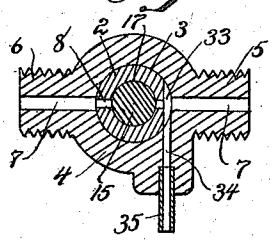


Fig. 5.

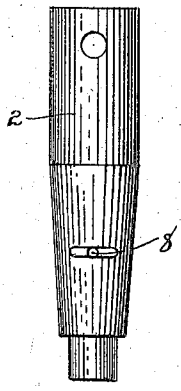


Fig. 6.

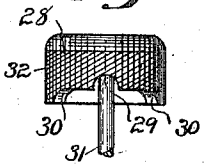


Fig. 10.

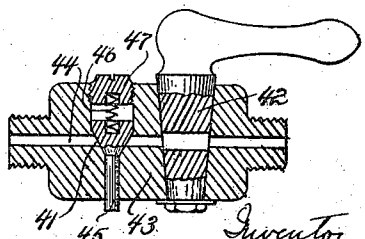


Fig. 7.

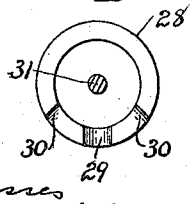


Fig. 8.

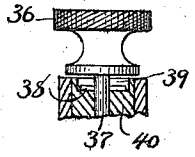
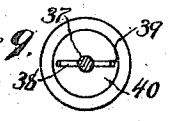


Fig. 9.



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UNITED STATES PATENT OFFICE.

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GAS-COCK.

1,152,213. Specification of Letters Patent. Patented Aug. 31, 1915.

Application filed February 9, 1914. Serial No. 817,554.

To all whom it may concern:

Be it known that I, Ross M. G. PHILLIPS, a citizen of the United States, residing at West Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Gas-Cocks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1 a view in side elevation of my improved convertible automatic gas-cock. Fig. 2 a view thereof in vertical section with the valve shown as closed and in position for automatic operation. Fig. 3 a corresponding view showing the cock converted for operation as a manual cock. Fig. 4 a view of the gas-cock in horizontal section on the line *a*—*b* of Fig. 1, showing the pilot-light port in the plug of the cock and the pilot-light connection of the valve-body. Fig. 5 a detached view in side elevation of the plug showing its pilot-light port. Fig. 6 a detached view in side elevation of the notched converting-cap which is mounted upon the plug. Fig. 7 a reverse plan view thereof. Fig. 8 a broken view partly in elevation and partly in vertical section showing a modified construction for converting the cock from an automatic to a non-automatic device. Fig. 9 a plan view of the plug and core of Fig. 8. Fig. 10 a broken view in vertical section of a modified cock in which the automatic valve is located in the valve-body rather than in the plug itself.

My invention relates to an improved automatic gas-cock primarily designed for use with gas-burning stoves but not limited to such use, the object being to provide a compact, convenient and reliable gas-cock adapted to be automatically operated without turning its plug.

With these ends in view, my invention consists in an automatic gas-cock having certain details of construction and combination of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention as herein shown, I employ a tapered chambered plug 2 the lower portion of which is fitted into a vertically arranged tapered opening 3 in a valve-body 4 formed on one side with a threaded inlet-nipple 5 for the connection of the cock to a gas-supply pipe, not shown. The opposite side of the valve-body 4 is provided with a threaded outlet-nipple 6 located in line with the nipple 5 and connecting the cock to the burner whatever its form may be, in which the gas controlled by the cock is utilized.

The main gas-passage 7 formed in the valve-body 4 traverses the axis of the nipples 5 and 6 and properly includes a transverse gas-port 8 formed in the plug 2 and brought into alinement with the passage 7 when the plug is properly positioned by rotation in the valve-body 4.

The plug 2 is turned in the valve-body 4 to permit or intercept the flow of gas through the main gas-passage 7, by means of a handle 9 having a threaded stem 10 which is screwed into the upper end of the plug and also into the solid upper end of a core 11 fitting snugly within the upper end of the plug and formed in its lower end with a concentric chamber 12 receiving the upper end of a helical spring 13 the lower end of which is seated in a socket 14 in the upper end of an automatic valve 15 located in the lower portion of a chamber 16 formed in the plug 2 and terminating at its lower end in a conical valve-seat 17 intersecting the transverse gas-port 8 of the plug. The said core 11 occupies the upper end of the chamber 16 as clearly shown in Figs. 2 and 3.

When the automatic valve 15 is on its seat 17 no gas can flow through the gas-port 8 and hence through the main gas-passage 7 which includes it no matter what the position of the plug is. When, however, the valve 15 is lifted from its seat gas may flow through the passage 7 and port 8, provided, of course, the plug 2 is turned to bring the port 8 into alinement with the passage 7 of which it is a part to all intents and purposes.

To provide for the automatic action of the valve 15 so that the cock may be brought into play to furnish a flow of gas without manually turning the plug 2 by its handle 9, I furnish the valve 15 with a depending stem 18 extending downward through an axial bore 19 in the solid lower end of the plug 2. The projecting lower end of the stem 18 is utilized for automatically lifting the valve 15 from its seat 17 by means not

shown but which derive their character from the use to which my improved cock is put. It will be understood in this connection that the means co-acting with the stem 18 for the automatic operation of the valve 15 must be of such a character and operated under such pressure as will overcome the normal tension of the spring 13 which is relied upon to normally hold the valve 15 in its closed position upon the seat 17.

The plug 2 is kept seated in the tapered opening 3 in the valve-body 4 by means of an adjustable helical spring 20 encircling a concentric sleeve 21 formed integral with the lower end of the plug 2 and internally threaded for the reception of an adjusting screw 22 having a central bore 23 for the downward passage through it of the operating stem 18. The head of the screw 22 supports a washer 24 upon which the lower coil of the spring 20 rests. The upper coil of the said spring 20 impinges against a corresponding washer 25 abutted against the lower face of the valve-body 4. A take-up space 26 (Fig. 2) in the valve-body 4 provides for utilizing the screw 22 to take up wear in the plug 2 and chamber 3. A packing 27 for the stem 18 is located within the bottom of the sleeve 21 and held in place therein by the stem of the screw 22, whereby the same is given the three fold function of providing for the adjustment of the spring 20 and the take-up of the plug 2 as well as providing a packing for the stem 18.

To adapt my improved gas-cock to be converted from an automatic cock into a regular or manual cock, I employ a converting-cap 28 fitting loosely over the upper end of the plug 2 and formed in its lower edge with a clearance notch 29 flanked on either side by converting notches 30. A converting valve-stem 31 depending from the cap 28 has its lower end connected with the automatic valve 15, the converting stem 31 and the automatic service stem 18 being located in line, as shown, in Figs. 2 and 3. When the cap 28 is positioned so that its clearance-notch 29 is registered with the stem 10 of the handle 9, the valve 15 is left undisturbed on its seat 17. However, when the cap 28 is raised by grasping it by its knurled face 32, the valve 15 is raised by the stem 31 from its seat 17 and supported in its raised and open position by turning the cap 28 in one direction or the other to cause one or the other of the converting-notches 30 therein to ride over the stem 10. The cap being now raised, the valve-spring 13 holds it in place with the valve 15 suspended over its seat 17, whereby the automatic feature of the cock is cut out, so to speak, and the cock becomes, to all intents and purposes, an ordinary manual cock into which it may thus be readily converted at any time for any cause when it is desirable to suspend the automatic operation of the cock and cause it to operate in the ordinary way.

In case it is desired to have the cock supply a pilot-light burner, the plug 2 may be formed with a transverse pilot-light port 33 extending transversely across the outer end of the gas-port 8 therein as shown in Fig. 5. From the port 33, the pilot-light supply of gas thus tapped off, flows through a small passage 34 (Fig. 4) formed in the valve-body 4 into a small pipe 35 mounted therein and connected with the pilot-light burner in any suitable manner.

When the plug 2 is positioned to bring its transverse passage 8 into alinement with the main gas-passage 7 in the valve-body 4, and hence for the effective automatic operation of the valve 15, the pilot-light port 33 will be in position for supplying the pilot-light burner with gas which will not be shut off until the plug 2 has been manually turned by its handle 9 for a sufficient distance to entirely cut off the supply of gas so that the pilot-light will always stand in readiness to ignite any gas supplied by the cock. A supply of gas to the pilot-light burner is therefore never shut off until the cock is entirely closed. The amount of gas supplied to the pilot-light burner is controlled by a needle-valve adjusting screw 48 mounted in the valve-body 4 as seen in Fig. 1.

In the modified construction shown by Figs. 8 and 9 of the drawings, the converting-cap 28 with its notches 29 and 30 is replaced by a knurled button 36 mounted directly upon the upper end of the converting-stem 37 which is furnished with a transverse pin 38 normally entering a transverse slot 39 in the upper end of a chambered core 40. By lifting the button 36, the pin 38 is lifted out of the slot 39. Now by turning the button 36 the pin will be supported upon the flat top of the core 40 and the automatic valve 15 will be maintained in its open position and prevented from automatic operation.

In the modified construction shown by Fig. 10, the automatic valve 41 instead of being mounted in the plug 42 is mounted in the valve-body 43 in such a position that it intersects the main gas-passage 44 so as to normally close the same. The valve 41 is provided with a depending valve stem 45 for its automatic operation by co-action with the automatically operated device engaging with its projecting lower end, this device being determined in character by the use to which the cock is put.

In the modified form shown by Fig. 10, the cock is not convertible, and therefore has no converting stem corresponding to the converting stems 31 and 37 of Figs. 6 and 8. As shown in Fig. 10, the valve 41 is held upon its seat by a helical spring 46 the

upper end of which is confined within the removable screw-plug 47.

I claim:—

1. In a gas-cock, the combination with a valve-body having a gas-passage, of a rotatable plug located in the said body and adapted to open and close the said passage, an automatically operable valve located within the said plug and normally controlling the passage of gas through the said passage in the valve-body and plug, a core located within the plug at a point above the valve, a lifting-stem passing upward through the said core, and means connected with the projecting upper end of the said stem for lifting the valve and holding the same away from its seat in the plug.

2. In an automatic gas-cock, the combination with the body and plug thereof, of an automatic valve located within the said plug, a lifting-stem connected with the valve, a spring located within the plug for holding the valve upon its seat, and a converting cap fitting over the upper end of the plug and connected with the said stem for lifting the valve and cutting it out of operation.

3. In an automatic gas-cock, the combination with the body and plug thereof, of an automatic valve located within the said plug, a lifting-stem connected with the valve, a handle mounted in the plug for turning the same, and a converting cap fitting over the upper end of the plug and connected with the said stem and co-acting with the said handle for lifting the valve and cutting it out of operation.

4. In a gas-cock, the combination with a valve-body, of a chambered plug located therein, a valve located within the said plug, a chambered core located in the said plug above the said valve, a spring interposed between the said core and valve, means for lifting the said valve, and means for manually opening the valve and holding it in its open position.

5. In a gas-cock, the combination with a valve-body, of a plug mounted therein, a valve located in the said plug, a chambered core located in the said plug above the said valve, means for lifting the valve, a converting-stem connected at its lower end with the valve, a handle mounted in the said plug and extending into the said core, and means co-acting with the said stem and handle for cutting the said valve out of play.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

ROSS M. G. PHILLIPS.

Witnesses:

C. L. WEED,

G. D. SEYMOUR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."