UNITED STATES PATENT OFFICE.

VICTOR I. RICHARDS, OF NEWARK, NEW JERSEY.

TWIN-VALVE CONNECTION FOR GAS-LOGS.

1,286,108.


Application filed April 10, 1918. Serial No. 227,757.

To all whom it may concern:

Be it known that I, VICTOR I. RICHARDS, 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 Twin-Valve Connections for Gas-Logs; and I do hereby 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 appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention relates, generally, to improvements in gas-logs for fire-places; and the invention has reference, more particularly, to an improved means for delivering and controlling the flow of combustible gas to gas-log burners.

The invention has for its principal object to provide a novel construction of twin valve connection for controlling the flow of combustible gas and mixing the same with a proper proportion of air for admission to gas-log burners.

A further object of the invention is to provide a twin valve connection for the purpose above mentioned, which may be used with grouped or double gas-log burners, and which is adapted to permit the gas to be delivered either to a single gas-log burner, while the other remains shut off, or simultaneously to both gas-log burners, so that the desired amount of heat may be attained, and so that gas may be conserved against waste through unnecessary use of all the gas-log burners when a smaller amount of heat is all that is desired.

Another object of the present invention is to provide the twin valve connection with detachable operating handles, which may be quickly and easily removed to prevent children or ignorant persons from tampering with the valves, or inadvertently turning on the gas when the gas-log burners are not in use.

Other objects of the present invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

With the various objects of the present invention in view the same consists, primarily, in the novel construction of twin gas delivery and mixing valve for gas-log burners hereinafter set forth; and, the invention consists, furthermore, in the several novel arrangements and combinations of the various devices and parts, as well as in the details of the construction of said parts, all of which will be more fully described in the following specification, and then finally embodied in the claims appended thereto.

The invention is clearly illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation and part longitudinal vertical section of a gas-log burner equipped with the novel twin gas delivery and mixing valve embodying the principles of the present invention.

Fig. 2 is a vertical cross section, taken on line 2—2 in said Fig. 1, looking toward the right, the novel twin gas delivery and mixing valve being shown in side elevation.

Fig. 3 is a horizontal section through the twin valve connection, taken on line 3—3 in said Fig. 1, looking downward; said view being drawn on an enlarged scale, and one valve member being shown in closed position while the twin valve member is shown in opened position.

Fig. 4 is a detail transverse section taken on line 4—4 in said Fig. 2, looking toward the left; said view being drawn on an enlarged scale, and one valve member being shown in closed position while the other is shown in opened position.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

Referring now to said drawings, the reference character 1 indicates a base upon which is mounted a gas-log burner comprising a lower stick 2, an upper stick 3, and a water reservoir stick 4, all grouped together in an integral structure having separating walls providing the lower stick chamber 2', the upper stick chamber 3' and the water stick chamber 4'. A filling opening 5 leads down through the walls of the sticks 3 and 4 into said water stick chamber 4', and said water stick 4 has an opening 6 in its upper side through which the water vapor may escape to humidify the surrounding air. Extending upwardly through the central partition wall 7 of said gas-log burner structure is a lower stick gas conduit or inlet passage 8 which leads into said lower stick chamber 2', and also extending upwardly through said partition wall 7, in properly spaced separation from said inlet passage 8, is an upper stick...
gas conduit or inlet passage 9. Said lower stick 2 is provided in its exterior wall with a plurality of burner perforations 10 leading out of its chamber 2', and in like manner said upper stick 3 is provided in its exterior wall with a plurality of burner perforations 11 leading out of its chamber 3'.

The novel twin valve connection for use with the gas-log burner above described comprises a main body 12 providing an interior chamber 13. Said main body 12 is provided with a rearward tubular extension 14 providing a gas intake passage 15. Said extension 15 is exteriorly threaded to connect, by means of a suitable fitting or union 16, with a main gas supply pipe 17. Integ rally connected with one end of said main body 12 is a lower stick gas valve housing 18, and, in like manner, connected integrally with the opposite end of said main body 12 is an upper stick gas valve housing 19. The intervening wall 20 between said housing 18 and said body 12 is provided with a gas port 21, and in like manner a gas port 22 is provided in said wall 20 between said housing 18 and said body 12. Each housing is provided with the respective tapered valve seats 23 and 25. Rotatably mounted within said seat 24 of the housing 18 is a tapered valve plug 26, and rotatably mounted within the housing 19 is a tapered valve plug 27. Each valve plug is provided with the respective transverse valve ports 28 and 29. Each valve plug is provided at its small end with a centrally disposed outwardly projecting stud 30, over which is arranged a washer 31 adapted to rest exteriorly upon the ends of the housings. A screw 32 is engaged in the end of each stud 30, each screw having a washer 33 beneath its head. A coil-spring 34 is arranged around each stud between the respective washers 31 and 33, the compression of said springs exerting an outward thrust upon the screws 32, whereby each valve plug is drawn snugly upon its seat in its housing, and maintained so at all times, so that gas leaks between the housing and plugs are entirely eliminated.

The outer end of each housing 18 and 19 is cut away to provide stop shoulders 35, against which stop-pins 36 abut upon rotation of the valve plugs, to limit the movement of the latter, and thereby to determine the "open" and "shut-off" position of the valve-ports of said valve-plugs. Connected with each valve plug 26 and 27 are the respective forwardly extending shanks 37 and 38. Said shanks 37 and 38 are rectangular in cross section preferably throughout their length, but at any rate at their free ends. Engaged over each free end 39 of said shanks are the respective handle-members or keys 40 and 41, which each possess a rectangular receiving socket 42 adapted to engage telescopically over said shanks so as to impart a turning movement to the latter. Each handle-member or key is provided with a lock-screw 43 for detachably securing the same to their respective shanks. It will thus be apparent that the handle-members or keys may be easily removed from the shanks to prevent manipulation of the gas valve plugs by children or others, thereby eliminating danger of accidentally or inadvertently turning on the gas, and liberating into the air a dangerous quantity of unconsumed gas.

Extending vertically upward from each housing 18 and 19 are the respective exteriorly threaded extensions 44 and 45, having at their free ends the respective reduced extensions 46 and 47, each terminating in a conical adjusting valve 48. Each housing is also provided with an upwardly extending gas discharge port 49, which terminates at a lateral discharge orifices 50 formed in said reduced extensions beneath said adjusting valve. Engaged upon the threads of each extension 44 and 45 is an adjusting cap 51 having a discharge opening 52 adapted to be adjusted relative to said adjusting valves to provide more or less opening of the gas discharge port, to control the amount of gas permitted to flow through the gas valve device, as may be desired.

Arranged telescopically over each adjusting cap 51 are the respective air admission devices 53 and 54, which are provided with the central passages 53' and 54', through which the gas is conducted, and which are further provided with air admission openings 55 communicating with central passages. The lower outer extremities of said air admission passages terminate in the under side of an annular shoulder 56 connected with each air admission device. The lower extremity of each air admission device beneath said shoulder 56, is threaded to receive an adjustable air control plate 57, which may be moved toward or away from said air admission passages to control the amount of air admitted thereinto.

The upper end of said air admission device 53 is threaded exteriorly to be engaged in the lower stick gas conduit or inlet passage 9, while the upper end of said air admission device 54 is threaded exteriorly to be engaged in the upper stick gas conduit or inlet passage 9.

It will be understood that by turning the valve-plug 26 to cause its valve-port 28 to communicate mutually with the gas port 21 and the gas discharge port 49 of the housing 18, the gas from the main supply is permitted to flow upwardly through the adjusting valve devices and air mixing devices into the inlet passage 8 of said lower stick chamber 2'; and in like manner by turning the valve-plug 27 to cause its valve port 29 to communicate mutually with the gas port 22 and
the gas discharge port 49 of the housing 19, the gas from the main supply is permitted to flow upwardly through the adjusting valve devices and air mixing devices into the inlet passage 9 of said upper stick chamber 3.

Since each valve mechanism may be operated independently of the other, it follows that the gas delivery to each stick, and the air mixture with the gas, may be independently controlled for each stick, and consequently an exact adjustment for the desired combustion condition is easily attained for each stick independently of the other; or one stick may be ignited, while the other stick remains shut-off; all of which tends to conserve gas, and encourage economy.

I am aware that some changes may be made in the various arrangements and combinations of the several devices and parts as well as in the details of the construction of same, without departing from the scope of the present invention, as above described and as defined in the appended claims.

Hence, I do not limit myself to the exact arrangements and combinations of the several devices and parts as above described, nor do I confine myself to the exact details of the construction of said parts as illustrated in the accompanying drawings.

I claim:

1. The combination with a gas-log device having an upper stick burner and a lower stick burner of a twin valve connection comprising a main hollow body having means for connecting the same in communication with a gas supply pipe, a gas valve housing at each end of said body, a rotatable valve plug in each housing, each housing having a gas discharge port, means on each valve plug affording communication between the interior of said main body and said respective gas discharge ports, each valve plug having a shank projecting forwardly therefrom, a detachable handle on each shank, means connected with the outlet end of each gas discharge port for regulating the flow of gas therethrough, means for coupling one said lower stick burner, means for coupling the other gas discharge port in communication with the upper stick burner, and air admission means connected with each coupling means.

2. The combination with a gas-log device having a pair of burner sticks of a twin gas valve connection comprising a main hollow body having means for connecting the same in communication with a gas supply pipe, a shut-off valve at each end of said hollow body, a forwardly projecting shank connected with each shut-off valve, a detachable handle connected with the free end of each shank whereby each shut-off valve is capable of independent operation, and a gas discharge means having air intake devices connected with each shut-off valve, the gas discharge means of one shut-off valve being connected in communication with one of said burner sticks, and the gas discharge means of the other shut-off valve being connected in communication with the other of said burner sticks.

3. A twin valve connection for gas-log burners comprising a main hollow body having means for connecting the same in communication with a gas supply pipe, an independently operable gas valve at each end of said main body, each gas valve having a forwardly extending shank provided with a detachable handle, and a gas discharge means having air intake devices connected with each gas valve for independent communicating connection with separate burners of said gas-log.

4. A twin valve connection for gas-log burners comprising a main hollow body having means for connecting the same in communication with a gas supply pipe, a valve housing at each end of said main body, a gas discharge means having air intake devices connected with each housing, a tapered valve plug in each housing having a valve port adapted to afford communication between the interior of said main body and a gas discharge means, stop means for limiting the opening and closing movements of each valve plug, a shank extending forwardly from each valve plug, and a detachable handle connected with each shank.

5. A twin valve connection for gas log burners comprising a main hollow body having means for connecting the same in communication with a gas supply pipe, a valve housing at each end of said main body, an adjustable gas discharge means connected with each housing, an adjustable air admission means for each valve, a tubular gas conveying means connected with each valve housing with which said adjustable gas discharge means and said adjustable air admission means communicate, a tapered valve plug in each housing having a valve port adapted to afford communication between the interior of said main body and a gas discharge means, and means for independently operating each valve plug.

6. A twin valve connection for gas-log burners comprising a main hollow body having means for connecting the same in communication with a gas supply pipe, a valve housing at each end of said main body, an adjustable gas discharge means connected with each housing, an adjustable air admission means for each valve, a tubular gas conveying means connected with each valve housing with which said adjustable gas discharge means and said adjustable air admission means communicate, a tapered valve plug in each housing having a valve port.
adapted to afford communication between the interior of said main body and a gas discharge means, a forwardly projecting shank connected with each valve plug, and a detachable handle device connected with the free end of each shank.

In testimony that I claim the invention set forth above I have hereunto set my hand this 6th day of April, 1918.

VICTOR I. RICHARDS.

Witnesses:

GEORGE D. RICHARDS,
FREDK. H. W. FRAENZEL.

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