

No. 657,059.

Patented Aug. 28, 1900.

A. P. BROOMELL.
VALVE.

(Application filed Mar. 19, 1900.)

(No Model.)

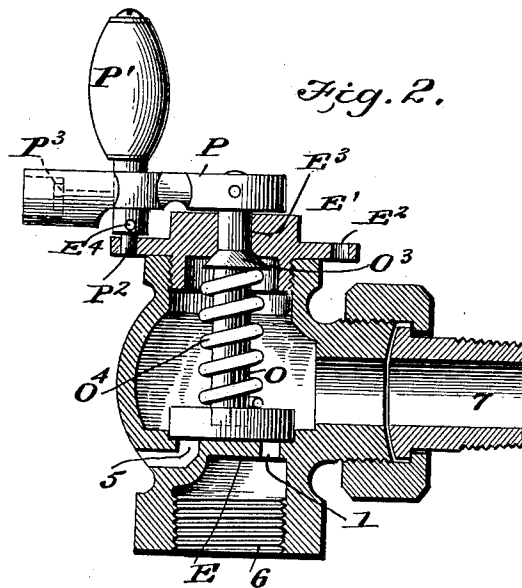
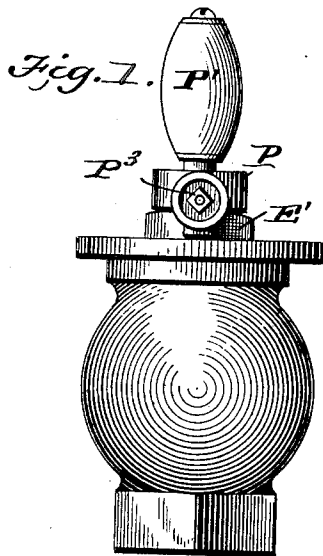


Fig. 3.

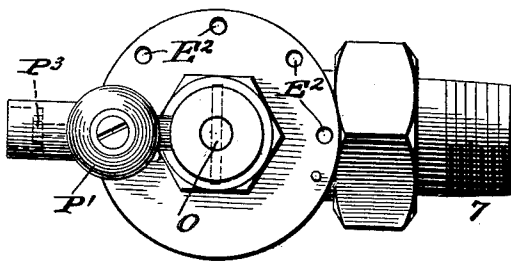
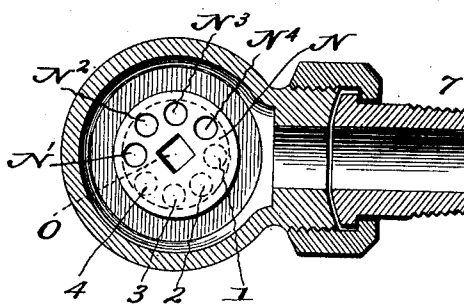


Fig. 4.



WITNESSES:

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VALVE.

SPECIFICATION forming part of Letters Patent No. 657,059, dated August 28, 1900.

Original application filed February 5, 1900, Serial No. 4,046. Divided and this application filed March 19, 1900. Serial No. 9,275. (No model.)

To all whom it may concern:

Be it known that I, ALBERT P. BROOMELL, residing at York, in the county of York and State of Pennsylvania, have invented a new and useful Improvement in Valves, of which the following is a specification.

My invention is an improvement in valves, and while the valve is capable of a certain general application it is especially designed and adapted for use in connection with a steam-heating system, as described in a former application for patent filed by me February 5, 1900, Serial No. 4,046, and of which this is a divisional application. In the said steam-heating system it is desirable to open a vent to the air when the steam is shut off from the radiator, and therefore the valve forming the subject of the present invention is adapted to vent to the atmosphere when it is adjusted to close or shut off the port leading to the supply.

The invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is an end elevation, Fig. 2 a vertical longitudinal section, Fig. 3 a top plan view, and Fig. 4 a horizontal section, of a valve embodying my invention.

The valve, as shown, comprises the casing having a head E', which is provided with a series of sockets E² for the stop-pin and with an opening E³ for the valve-stem. Below and in line with the head E', I provide the valve-seat, which is provided with the feed-ports 1, 2, 3, and 4 for the steam or other medium and with an air or venting port 5 for communication with the atmosphere. The casing is also provided with a nipple 6 for connection with the pipe leading from the source of supply and with a nipple 7, which connects with the radiator or other part to which the steam or other medium is to be supplied. Now in operation the steam or other medium flows into the valve through the nipple 6 and thence out through the nipple 7 when the valve proper is adjusted to feed steam or other medium to the radiator or other device.

The valve proper, N, is provided in its upper side with a non-circular socket O' for the stem O. The valve N fits upon the seat E⁴ and is

provided with the series of ports N', N², N³, and N⁴, which may be turned to register, respectively, with the ports 1, 2, 3, and 4 when the valve is fully opened or to open any desired ones of the said ports 1, 2, 3, and 4 to any desired degree. When the valve is in the position shown in Fig. 3, the ports 1, 2, 3, and 4 are closed and the port N' is in full register with the port 5, thus opening communication with the atmosphere and forming a vent from the radiator or other device with which the valve may be connected. In the case of the use of the device with a steam-radiator this opening of the vent to the atmosphere will break the vacuum and prevent a suction of water from the return-pipe of the system. This position of the valve is shown in Figs. 2 and 4. If now the valve be moved one point to the right, the port N⁴ will register with and open the feed-port 1, the air-port 5 will be closed, and the steam or other medium will be fed through the port 1 to the radiator or other device to be supplied. Another step of the valve will open ports 1 and 2, and so on until the valve is fully opened.

The stem O fits at its lower end in the socket O' and extends upward through an opening O³ in the head-plate E', being provided beneath said plate with a packing portion or shoulder O³ and with a spring O⁴, bearing between the same and the valve-plate and operating to press the valve to its seat and the portion O³ tightly up against the head-plate E'. On the stem above the head-plate I secure the arm P, having near its outer end the handle P', which has a limited longitudinal movement in the arm and has a stop-pin P², which can be set into any one of the sockets E² to hold the valve in any desired adjustment. The outer end of the arm P is socketed and receives a screw P³, by which the handle can be locked in any one of the sockets E², and a cross-pin E⁴ limits the upward movement of the handle and prevents its being pulled out of the arm P. By this means the valve may be readily adjusted to and held in any of the positions before described.

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

1. The valve herein described having a plu-

ality of ports and movable whereby the said ports may be adjusted successively into feed position combined with the valve-seat having a port opening to the atmosphere with which
5 one of the ports of the valve may register when the valve is adjusted to close the feed-ports.

2. The combination in a valve of the casing having sockets for the stop-pins, the valve-seat
10 having feed and air ports, the valve having openings arranged for registration with said ports, the valve-stem extended through the casing and arranged to operate the valve, the valve-arm, the handle carried by the arm
15 and a stop-pin carried by the handle and arranged to engage the sockets in the casing.

3. The combination of the valve-casing having its head provided with a series of sockets for the stop-pins and with an opening for the
20 valve-stem, the valve-seat having feed and air ports, the valve having a plurality of ports arranged for registration with those of the valve-seat, the valve-stem having the packing portion or disk and movable longitudi-
25 nally independently of the valve, the spring between said packing portion and said valve, the valve-arm, and the handle and stop-pin substantially as set forth.

4. The valve-casing having sockets for the
30 stop-pin, the valve-arm, the handle movable longitudinally therein and having the stop-pin to enter the sockets in the casing, and

means for limiting the movement of the stop-pin, substantially as set forth.

5. The combination of the valve-casing hav- 35 ing the sockets for the stop-pin, the valve-arm, the handle movable longitudinally in the said arm and having the stop-pin, the screw for locking the handle from endwise movement, and means for limiting the end- 40 wise movement of the handle, substantially as set forth.

6. The combination of the valve-casing having a series of feed-ports and a vent-port, and the valve having a series of ports one of 45 which registers with the vent-port when the valve is closed and the ports of the valve being arranged for successive registration with those of the seat, substantially as set forth.

7. The valve-seat having feed-ports, and 50 an outlet or exhaust port, and the valve having ports corresponding in number with the feed-ports of the seat and movable into full register with the feed-ports in the feeding position of the valve and having one of said 55 valve-ports movable into register with the exhaust-port when the valve is adjusted to close the feed-ports of the valve-seat, the construction being such that all the feed-ports are closed when the exhaust-port is open. 60

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Witnesses:

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