

(No Model.)

W. S. JOHNSON.
WALL PLATE AND PIPE CONNECTION.

No. 567,029.

Patented Sept. 1, 1896.

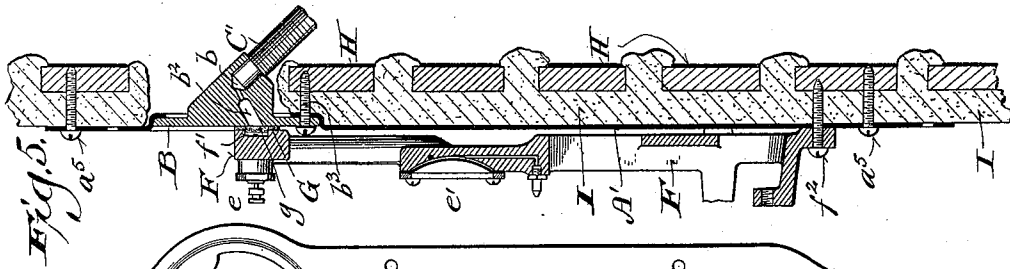


Fig. 5.

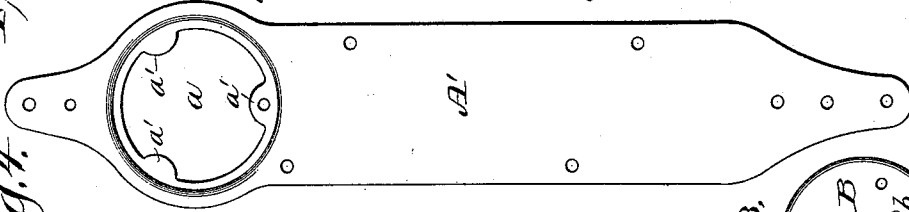


Fig. 4.

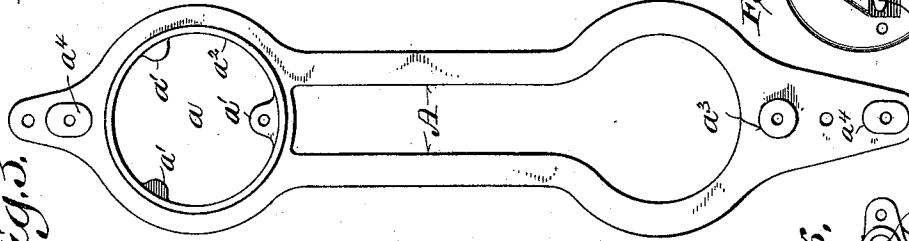


Fig. 3.

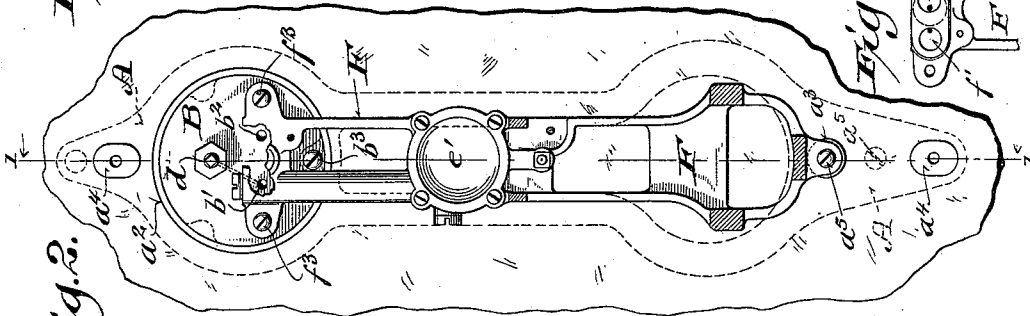


Fig. 2.

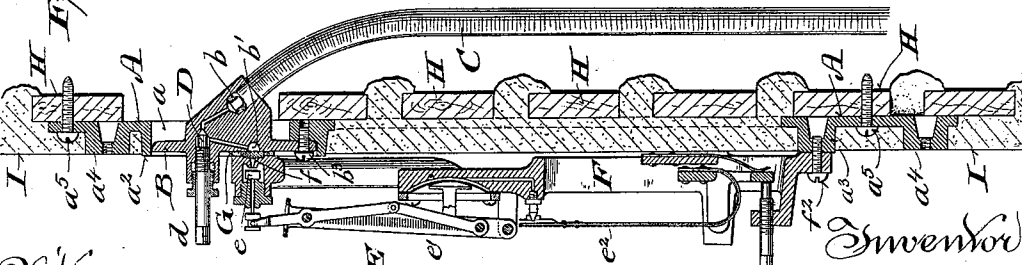


Fig. 1.

Witnesses:
Geo. W. Young
Chas. L. Good

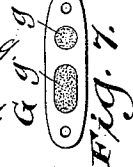


Fig. 7.

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UNITED STATES PATENT OFFICE.

WARREN S. JOHNSON, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE
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WALL-PLATE AND PIPE CONNECTION.

SPECIFICATION forming part of Letters Patent No. 567,029, dated September 1, 1896.

Application filed March 28, 1896. Serial No. 585,293. (No model.)

To all whom it may concern:

Be it known that I, WARREN S. JOHNSON, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain
5 new and useful Improvements in Wall-Plates and Pipe Connections; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it
10 pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The main objects of my invention are to
15 facilitate the attachment and detachment of thermostatic valves or instruments to and from fluid-pressure service-pipes, to insure tight joints between the wall-plates to which such pipes are attached and the bases of the
20 valves or instruments, and to avoid marring the walls of finished buildings.

It consists, essentially, of a wall or coupling plate to which the service-pipes are attached, having one or more ports or openings adapted
25 to register with a corresponding port or ports in the base of a thermostatic valve or instrument, and of certain other novel features in the construction and arrangement of thermostatic-valve attachments and connections
30 hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a longitudinal section on the line
35 1 1, Fig. 2, of a thermostatic valve or instrument and one form of my improved wall attachment and pipe connection specially designed for application to walls before they are plastered. Fig. 2 is a front elevation of the
40 same, portions of the thermostatic instrument being broken away and shown in section. Fig. 3 is an isolated face view of the wall-plate. Fig. 4 is a similar view of a modified form of the wall-plate, specially designed for
45 application to the face of a plastered or finished wall. Fig. 5 is a longitudinal section of the same as applied to a plastered wall, in connection with pipe-coupling plate and the base of a thermostatic instrument. Fig. 6 is
50 a back view of a portion of the base of a thermostatic instrument to which my improve-

ments are applicable, showing the ports with which the ports in the coupling-plate are arranged to register. Fig. 7 is a detached view of a gasket and filter employed between the
55 coupling-plate and base of a thermostatic instrument, and Fig. 8 is a back view of the coupling-plate.

Referring to Figs. 1, 2, and 3, A designates a wall-plate to be permanently attached to
60 the lath or foundation of a wall before it is plastered. It may be cast or otherwise made of metal or any suitable material and of any desired shape, according to the arrangement of the ports and the shape of the base of the
65 instrument with which it is to be used. For use in connection with a thermostatic valve or instrument of the kind shown, which is a form employed by me in heat-regulating apparatus, the plate A is formed with an aperture
70 *a* for the reception of the coupling-plate to which the service pipe or pipes are attached and with a flange or lugs *a'* *a'*, projecting into said aperture to hold the coupling-plate in place therein. It is also formed
75 on its face with a flange *a*² around said aperture and with bosses *a*³ and *a*⁴ *a*⁴, projecting outwardly, flush with the surface of the plaster, as shown in Fig. 1. Said flange and bosses
80 serve as grounds for plastering over the plate A to the proper thickness.

B designates a coupling-plate which is loosely fitted in the aperture *a* of the wall-plate A and is formed with couplings or sockets *b* *b*, as shown in Fig. 8, for the attachment thereto of service-pipes C C', as
85 shown in Fig. 1. These sockets are connected by passages with ports *b'* and *b*² (shown in Fig. 2) in the front face of said plate B.

The passage connecting the supply-pipe C
90 with the port *b'* is controlled by a valve D, the stem *d* of which is threaded in said plate B and, projecting outwardly therefrom through a stuffing-box, is formed at its outer end with a key or wrench head. The plate B is loosely
95 secured in the aperture *a* of the wall-plate A by a screw *b*³ or other fastening, so as to admit of its adapting itself in position to the valve-base and its being clamped snugly thereto, as hereinafter explained, without
100 bending, distorting, or disturbing the adjustments of the thermostatic instrument.

E designates a thermostatic instrument comprising a three-way or supply and waste valve *e*, a fluid-pressure motor *e'*, connected with and arranged to actuate said valve, and a thermostatic expansion-strip *e²*, controlling the operation of said motor. It also comprises a base F, which has in the back ports *ff'*, arranged to register with the ports *b'* and *b²*, respectively, in the face of the coupling-plate B. Said ports communicate through separate passages with the chamber of valve *e*, and the port *f* also communicates through another passage with the expansion-chamber of motor *e'*. A waste passage or opening is formed around the stem of the valve *e*, which, as shown in Fig. 1, closes said waste-passage, leaving the passage between ports *ff'* open and pipes C and C' in communication with each other through said valve-chamber. The connection of the delivery-pipe C' with the port *f'* through coupling-plate B is shown in Fig. 5. When the valve *e* is in the opposite position from that shown in Fig. 1, the waste-passage around its stem is open and communication between the supply-pipe C and the delivery-pipe C' through said valve-chamber is closed, while communication between said delivery-pipe and the waste-passage is open. The expansion-chamber of the motor *e'* is in constant communication through a supply-passage in the base F and the ports *f* and *b'* with the pipe C when the valve D is open, and the expansion-strip *e²*, by closing and opening the exhaust port or passage, which is of larger area than said supply-passage, causes the filling or depletion of the expansion-chamber of said motor and the consequent shifting of the valve *e*. I do not wish to be understood, however, as limiting myself to the form or construction of the thermostatic instrument herein shown and described, as it has been selected merely for the purpose of explaining my improvements, which are applicable to various other forms and constructions.

The base F of the thermostatic instrument E is attached to the wall-plate A by suitable clamping devices, such as screws *f²* and *f³*, the screw *f²* at the lower end of the base being threaded in the boss *a³* of the wall-plate, and the screws *f³* at the upper end of said base being threaded in the coupling-plate B on opposite sides of the ports *b'* and *b²*. Between said base and coupling-plate is interposed a gasket G, of suitable packing material, to insure tight joints around the ports *b'*, *b²*, *f*, and *f'*. Holes are formed through this gasket corresponding with the ports *ff'*, and in these holes are inserted pieces *g g* of felt or other suitable porous material for filtering the fluid-pressure medium passing through them and thereby preventing impurities from entering the expansion-chamber of the motor, the chamber of valve *e*, or the delivery-pipe C' and thereby clogging or interfering with the operation of said motor,

valve, or the apparatus supplied with the fluid-pressure medium by said delivery-pipe C'.

As hereinbefore stated, the screw *b³* loosely connects the coupling-plate B with the wall-plate A, so that when the base F of the instrument E is connected therewith said plate may be drawn by the screws *f³* tightly against said base or the interposed gasket, and thereby prevent leakage around the ports in said plate and base, without danger of bending or injuriously straining the base or disturbing the adjustments and proper operation of the thermostatic-valve mechanism.

Referring to Figs. 4 and 5, A' designates a modified form of the wall-plate designed to be attached to the face of the plaster or finished wall, as shown in Fig. 5. It may be conveniently stamped from sheet metal with a depressed margin around the aperture *a* to receive the coupling-plate B approximately flush with its outer face, as seen in Fig. 5. In other respects the device is like that shown in Fig. 1. In both cases the wall-plate is secured in place by nails or screws *a⁵*, as shown in Figs. 1 and 5, in which H designates the lath, and I the plaster, of a wall to which the device is applied.

During the construction of a building which is to be equipped with apparatus of this character the service-pipes are placed in the walls and partitions before they are finished and the wall-plates A attached to the lath or plaster foundation in places where thermostatic-valve connections are to be made before the walls are plastered. In such cases the openings *a* in the wall-plates are temporarily closed while the walls are being plastered and finished by plain disks or plates corresponding with the coupling-plates B, so as to avoid smearing said coupling-plates and stopping their ports and passages with plaster and dirt. These temporary plates may also be used in connection with the wall-plates A' to close the openings therein while the walls are being calcimined, painted, or otherwise finished. When the walls are finished, the service-pipes C C' are permanently secured in the sockets in the wall-plates B, sufficient length or slack being allowed in said pipes for this purpose. The coupling-plates are inserted and secured in the openings *a* by screws *b³*. The thermostatic instruments E need not necessarily be placed at all points where provision is made for them when the system is installed, but may be supplied whenever they are required after the system is put in service, the valves D being closed at all points where such instruments are not in use.

The wall-plates and pipe connections hereinbefore described not only afford convenient means of attaching thermostatic instruments to and removing them from finished walls and of connecting and disconnecting service-pipes therewith, but also avoid unsightly openings in the walls and the projection of the ends of the service-pipes therefrom at points where

thermostatic valves are not required and provided after the system is put in service. They are also of great convenience in making repairs and maintaining the apparatus in working order, as any thermostatic instrument that may be out of order can be readily removed and quickly replaced by another by taking out the three screws f^2 and $f^3 f^3$, which hold it to the wall-plate, the valve D being temporarily closed for this purpose. With both forms of the wall attachments shown and described covers, which are not shown, are provided for inclosing the thermostatic instruments and preventing injury thereto and unauthorized interference therewith. These covers are attached by two screws to the wall-plates A A' and can be readily removed. With the wall-plate A the cover is screwed to the bosses $a^4 a^4$, hereinbefore mentioned, which project outwardly flush with the face of the plaster.

I do not wish to be understood as limiting myself to the exact details of the wall attachment and pipe connection herein shown and described, as they may be variously modified within the intended scope of my invention. The coupling-plate B for the attachment of the service-pipes C C' may be formed integrally with the wall-plate, although, for the reasons hereinbefore stated, I prefer to make it separate and loosely connect it therewith.

I claim—

1. The combination with a fluid-pressure pipe or pipes for thermostatic purposes, of a wall-plate permanently attached to said pipe or pipes and having ports in its face, and a thermostatic base and attachment for the utilization of fluid-pressure, said base having a port or ports to register with the ports of said wall-plate when brought face to face by suitable clamping devices, substantially as and for the purposes set forth.

2. A wall attachment and pipe connection for thermostatic valves consisting of a wall-plate having provision for the permanent attachment thereto of a fluid-pressure service-pipe, and a port in its outer face communicating with said pipe and arranged to register with the port in a thermostatic-valve base, substantially as and for the purposes set forth.

3. The combination with fluid-pressure supply and delivery pipes of a wall-plate permanently attached to said pipes and having in its outer face ports communicating with said pipes, a thermostatic connection with both supply and delivery pipes registering with said ports when clamped to said wall-plate, and a thermostatically-operated supply and waste valve in said thermostatic connection, substantially as and for the purposes set forth.

4. A wall attachment and pipe connection for thermostatic valves consisting of a plate adapted to be permanently attached to the wall of a building, a coupling-plate to which the service-pipe is attached adapted to be loosely secured in an opening of said wall-plate and having a port in communication

with said service-pipe adapted to register with a port in a thermostatic-valve base, substantially as and for the purposes set forth.

5. A wall attachment and pipe connection for thermostatic valves consisting of a wall-plate provided with a pipe-coupling and a port arranged to register with a port in the base of a thermostatic valve, and a valve for closing the passage between said pipe and the first-mentioned port, substantially as and for the purposes set forth.

6. A wall attachment and pipe connection for thermostatic valves consisting of a wall-plate provided with means for the attachment of a service-pipe and in its face with a port arranged to register with a port in the base of a thermostatic valve, and a filter interposed between the ports of the valve-base and wall-plate, substantially as and for the purposes set forth.

7. A wall attachment and pipe connection for thermostatic valves consisting of a wall-plate adapted to be attached to the lath or plaster foundation of a wall and formed with an outwardly-projecting flange around an opening therein, and bosses for the attachment of a thermostatic-valve base, and a coupling-plate adapted to be loosely secured in the opening of said wall-plate, having provision for the attachment of service-pipes and provided in its face with ports communicating with said pipes and arranged to register with ports in the base of a thermostatic valve, substantially as and for the purposes set forth.

8. A wall attachment and pipe connection for thermostatic valves consisting of a wall-plate adapted to be permanently attached to the lath or plaster foundation of a wall and provided with couplings for the attachment of service-pipes, having in its face approximately flush with the surface of the plaster ports communicating with said couplings and arranged to register with ports in the base of the thermostatic valve, substantially as and for the purposes set forth.

9. A wall attachment and pipe connection for thermostatic valves consisting of a wall-plate adapted to be permanently attached to the lath or plaster foundation of a wall, and formed on its outer face with bosses projecting outwardly flush with the surface of the plaster for the attachment of a thermostatic-valve base and cover, and provided on the back with couplings for the attachment of service-pipes and in its face, approximately flush with the surface of the plaster ports communicating with said couplings and arranged to register with ports in the valve-base, substantially as and for the purposes set forth.

10. A wall attachment and pipe connection for thermostatic valves consisting of a wall-plate for permanent attachment to a wall, formed with an opening, a coupling-plate for the permanent attachment of service-pipes adapted to be loosely secured in said opening, and having ports in its face communicating with the service-pipes, and a thermostatic-

valve base adapted to be secured by a suitable clamping device to said wall and coupling plates, and having ports in the back arranged to register with the ports in the face
5 of said coupling-plate, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as

my own I affix my signature in presence of two witnesses.

WARREN S. JOHNSON.

Witnesses:

CHAS. L. GOSS,
M. L. EMERY.