(No Model.)

T. WHEATLEY.

VENT PLUG.

No. 542,298. Patented July 9, 1895.

Fig. 1.

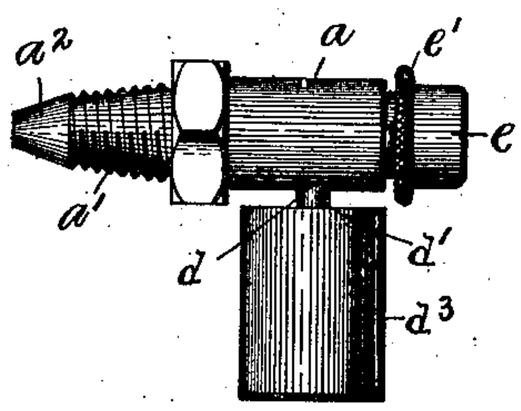
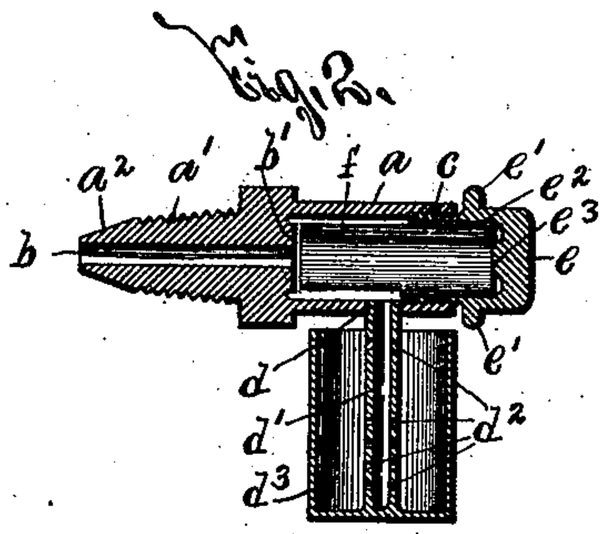


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS WHEATLEY, OF SYRACUSE, NEW YORK.

VENT-PLUG.

SPECIFICATION forming part of Letters Patent No. 542,298, dated July 9, 1895.

Application filed May 10, 1894. Serial No. 510,883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WHEATLEY, of Syracuse, in the county of Onondaga, in the State of New York, have invented certain new and useful Improvements in Vent-Plugs, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in combination positive and automatic air-valves, particularly applicable for use upon radiators, coils, &c., containing steam or other circulating mediums; and it consists, essentially, in the construction and arrangement of the parts of the valve, all as hereinafter more particularly described and pointed out in the claim.

In describing this invention reference is had to the accompanying drawings, forming a part of this specifiation, in which like letters indicate corresponding parts in all the views.

Figures 1 and 2 are respectively elevation and longitudinal vertical sectional views of my improved valve.

My improved valve consists of an inclosing-shell *a*, formed with an internal chamber and having one extremity provided with an inlet-port *b* and its opposite extremity with an opening *c*. The port *b* may be surrounded by a projecting valve-seat *b'*, and the inclosing-shell *a* is formed with a suitable outlet-port *d*. A drip-pipe *d'*, provided with perforations d^2 and surrounded by an evaporating-cup d^3, may be connected to the outlet-port *d*, but said drip-pipe may be dispensed with, if desired. The extremity of the shell *a*, provided with the inlet-port *b*, is formed with a projecting attaching-nipple *a'*, having a lengthwise inlet-passage and a tapered end a^2. The nipple *a'* enters the radiator, coil, &c., to which my valve is secured, and its tapered end a^2 reduces to a minimum the liability of entrance of condensed moisture, &c., within the shell *a* through the lengthwise inlet-passage of said nipple.

e is a positive valve-operating piece for closing the opening *c*, which is preferably revoluble and movable lengthwise of the shell *a*, and is formed with an engaging portion *e'*. The end of the positive valve-operating piece *e*, adjacent to the port *b*, is provided with a socket e^2, formed with a projecting inner bearing-face e^3 of less area than the valve-seat *b'*. A valve-piece *f* is arranged within the shell *a* with one extremity movable toward and away from the seat *b'* for closing and opening the port *b* and its other extremity loosely mounted within the socket e^2 and bearing against said face e^3. As preferably constructed, the extremity of the valve-piece *f*, mounted within the socket e^2, is of slightly less diameter than said socket even when the valve-piece is expanded, and consequently the entire length of the valve-piece is subjected to the action of the steam within the shell *a*. Said valve-piece *f* is also formed of suitable expansible material and preferably of a compound containing more than sixty per cent. of vulcanized gum in conjunction with refractory mineral substances. This composition, and consequently the inner end of the valve-piece, is softer than the seat *b'*, and when heated or subjected to the action of the steam the inner end of the valve-piece becomes more or less softened.

Radiators, coils, &c., contain more or less loose sand, and said parts and valves attached thereto become more or less corroded, and consequently the seats of valves connected thereto are more or less incrusted with grit, rust, &c. By the practical operation of valves of this character I have observed that when the valve-piece is turned by the adjustment of a valve-operating piece fixed thereto, its inner end being more or less softened, is considerably abraded and scratched or grooved by the particles of grit, rust, &c., upon its valve-seat. The joint between the valve-piece and its seat thus becomes more or less imperfect, and renders the valve inefficient and its operation unreliable.

By loosely mounting the outer end of the valve-piece and forming the face e^3 of less area than the seat *b'*, as described, the valve-operating piece when adjusted is free to revolve and move lengthwise without effecting rotation of the valve-piece *f* and the consequent injury to its inner softened end, and the valve-piece may also be forced with great force against its seat without liability of injury to the valve-piece. As is evident to one skilled in the art, the pressure of the steam or air admitted through the port *b* forces the valve-piece *f* lengthwise within the socket e^2

to its normal position with its outer end in engagement with the face e^3 of the valve-operating piece *e*.

When it is desired to remove the valve-piece for scraping or cleaning its inner end or for permitting the substitution of a new one, the valve-operating piece *e* is removed from the inclosing-shell *a*, the outer end of the valve-piece is readily engaged for permitting its removal, replacement, or the substitution of a new one, and the operating-piece *e* is readily secured in position for effecting the desired adjustment of the valve-piece.

The operation of my invention will be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be particularly noted that the same consists of a minimum number of parts, and is readily adjusted for use either as a positive or an automatic valve.

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

In an air valve, the combination of an inclosing shell formed with inlet and outlet ports, and a valve seat surrounding one of the ports, a revoluble valve operating piece provided with a socket extending inwardly from one end and formed with an inner wall of less area than the valve seat and having said end movable lengthwise of the inclosing shell, and an expansible valve piece formed of softer material than the valve seat and having one extremity automatically movable lengthwise within the socket of the valve operating piece and bearing against the inner wall of the socket and its opposite extremity movable into engagement with the valve seat for closing the corresponding port, substantially as described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 8th day of May, 1894.

THOMAS WHEATLEY.

Witnesses:
CLARK H. NORTON,
K. H. THEOBALD.