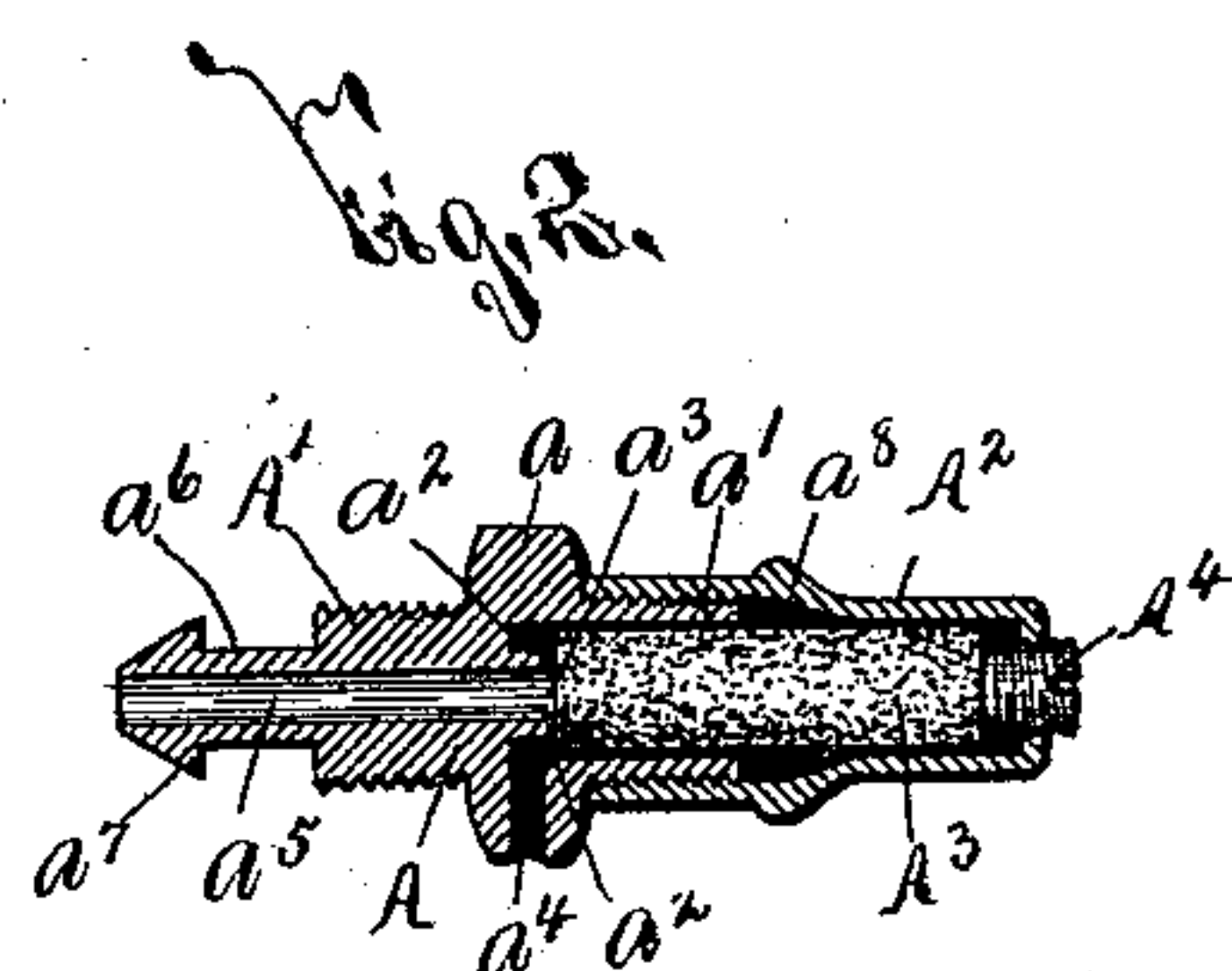
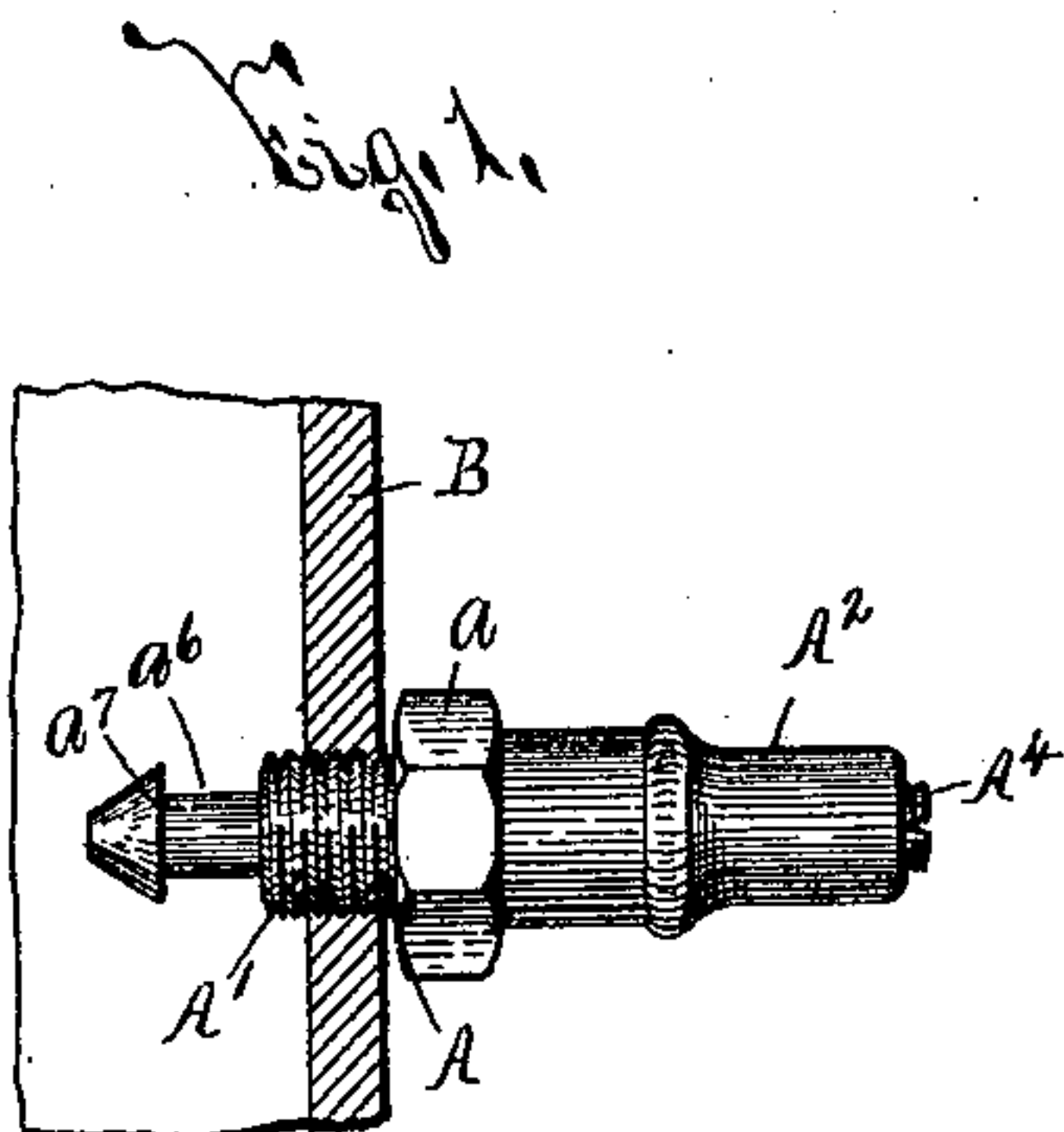


(No Model.)

T. WHEATLEY.
AIR VALVE.

No. 566,954

Patented Sept. 1, 1896.



WITNESSES:
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UNITED STATES PATENT OFFICE.

THOMAS WHEATLEY, OF SYRACUSE, NEW YORK.

AIR-VALVE.

SPECIFICATION forming part of Letters Patent No. 566,954, dated September 1, 1896.

Application filed April 29, 1895. Serial No. 547,561. (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 new and
5 useful Improvements in Air-Valves, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in
10 combination, positive, and automatic air-valves, particularly applicable for use upon radiators, coils, &c., containing steam or other circulating mediums, and has for its object the production of an economically-manufactured and attractive device capable of either
15 automatic or positive operation, which consists of a minimum number of parts, is readily adjusted, prevents the escape of the water of condensation, and is highly effective and durable in use; and to this end 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.

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

30 Figure 1 is a vertical section of a portion of a pipe or steam-chamber and an elevation of my improved valve operatively secured thereto; and Fig. 2 is a longitudinal section of the detached valve, illustrating its general
35 construction and arrangement.

As is well known, when steam is discharged into a coil or radiator it is partially condensed by contact with the cold walls, and the condensation trickles down the inside of the coil
40 or radiator and is readily discharged with the outgoing air through an air-valve connected to the coil or radiator. Various float-valves have been devised for preventing the escape of the water of condensation, but these valves
45 are more or less complicated and expensive, are liable to discharge more or less water before operating to prevent its escape, and are quite readily deranged and rendered inoperative. Air-valves have also been formed with
50 attaching-nipples having their extremities tapered for preventing the escape of the water of condensation, but in the practical op-

eration of such valves the water runs along their pointed extremities, and, when passing over the end thereof, is blown into the nipples. 55

My present invention is of such construction that the water of condensation, following the inner wall of the coil or other steam-chamber to which it is connected, is positively prevented from escaping therethrough with the
60 outgoing air.

My improved valve is formed with a suitable inclosing shell A, provided with a flange or shoulder a , projecting from its outer face, and an internal lengthwise chamber a' . One
65 end of the chamber a' is open, and its opposite end is provided with a valve-seat a^2 , surrounding an inlet-port a^3 . One end of a suitable outlet-port a^4 is arranged adjacent to the seat a^2 , and its other end discharges through
70 the flange or shoulder a . The shell A is attached to a radiator or other steam-chamber B (partly illustrated at Fig. 1) by a suitable nipple A', which projects beyond the inner face of the adjacent portion of the wall of the
75 chamber B, and is provided with a lengthwise inlet-passage a^5 , extending from its end face and discharging into the port a^3 .

The base of the nipple A' is preferably screw-threaded for facilitating its secure
80 ment, and the free extremity of said nipple is gradually decreased in diameter toward its end face. An annular groove a^6 is formed in the outer face of the nipple A' between its opposite extremities, and this groove operates
85 to receive any moisture passing down the adjacent wall of the radiator or steam-chamber B. The outer shoulder a^7 of the groove a^6 prevents the passage of said water to the end face of the nipple A', and consequently it is
90 not discharged with the outgoing air through the passage a^5 , but readily falls from the groove a^6 to the base of the chamber B. A nipple of this peculiar construction, although
95 quite simple and economically manufactured, is particularly efficient for effecting a very important result—viz., prevention of the outward passage of the water of condensation through the air-valve—and forms an important feature of my invention. 100

A cap A² is used for closing the open end of the inclosing shell A and forms a support for a valve-piece A³, presently described. One end of the cap A² is suitably secured to

the outer face of the adjacent end of the shell A, as by screw-threads, and is movable against the annular shoulder a , which limits the movement of said cap and prevents compression or injury of the valve-piece A^3 as the cap A^2 is adjusted lengthwise. The opposite end of the cap A^2 projects beyond the shell A and is formed with an internal chamber a^8 of substantially the same diameter as the chamber a' of the shell A. An expansible valve-piece A^3 , formed of any suitable expansible material, is loosely mounted within the chambers $a' a^8$, so that its entire length is subjected to the action of the steam admitted within said chambers through the port a^3 .

One end of the valve-piece A^3 is movable against the valve-seat a^2 for closing the port a^3 and preventing the entrance of steam within the chambers $a' a^8$, and its opposite end is engaged by a suitable adjusting-screw A^4 , movable in the end wall of the cap A^2 . This screw A^4 is preferably formed with a contracted engaging end, and is set when the valve-piece A^3 is expanded and is in engagement with the seat a^2 , whereupon the valve-piece A^3 then contracts and expands automatically to control the passage through the port a^3 . When desired to use my invention as a positive valve, the cap A^2 is screwed outwardly from the shell A, and when again engaged with the shoulder a the valve is in condition to operate automatically without

necessitating additional adjustment of the screw A^4 .

It will be readily understood that as the cap A^2 is rotated all liability of revoluble movement of the valve-piece and consequent injury to its end in engagement with the seat a^2 is obviated, as the valve-piece is loosely mounted within the chambers $a' a^8$, and the cap A^2 is free to turn without revolving the valve-piece A^3 .

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

The combination with a steam-chamber; of an air-valve secured to the chamber and provided with an attaching-nipple passage through the wall of the chamber and projecting beyond its inner face, said nipple being formed with an inlet-passage extending from its free extremity and an annular groove in its outer face interposed between its opposite extremities, substantially as and for the purpose 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 19th day of April, 1895.

THOMAS WHEATLEY.

Witnesses:

E. A. WEISBURG,
K. H. THEOBALD.