

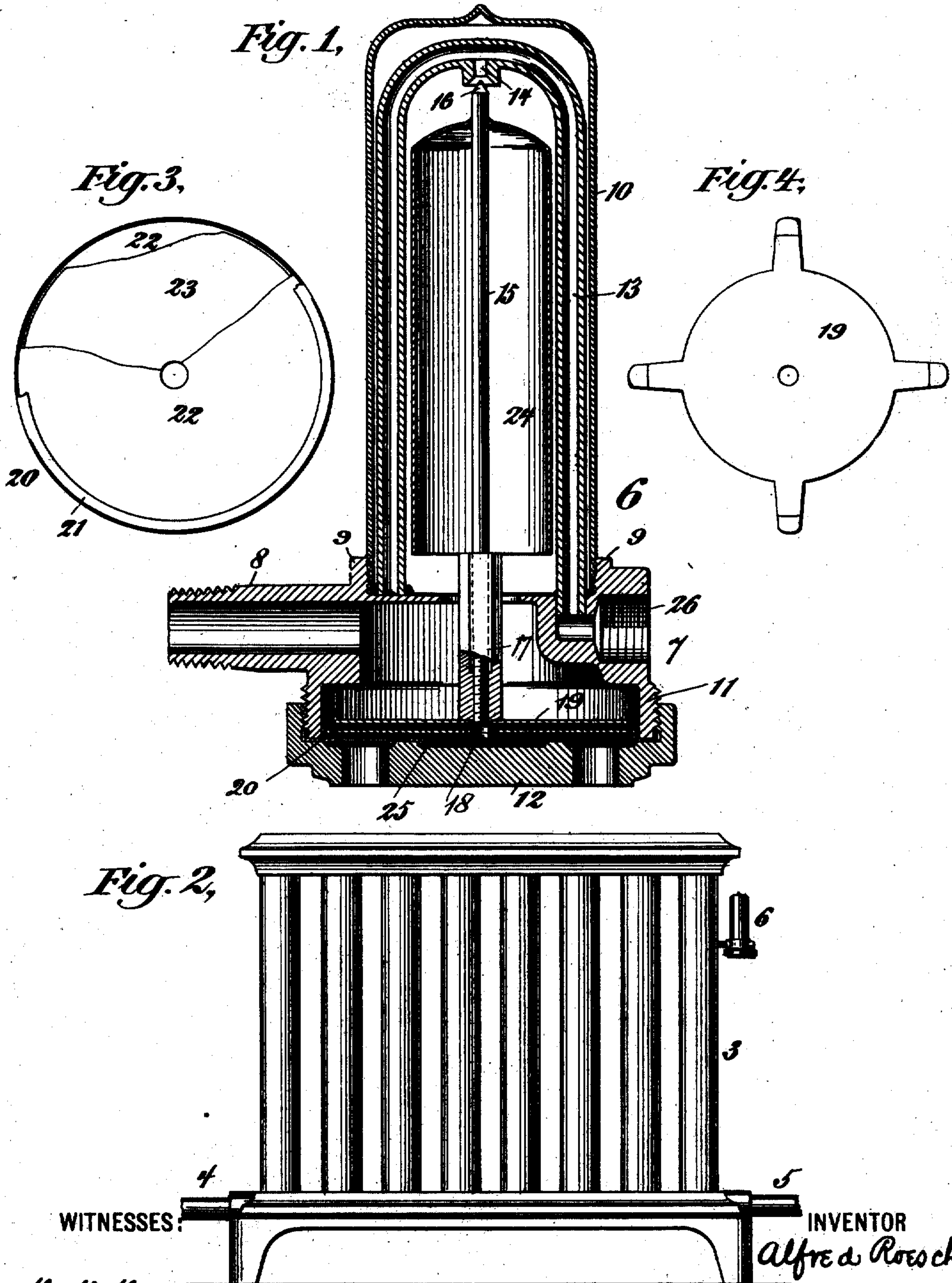
No. 689,229.

Patented Dec. 17, 1901.

A. ROESCH.
AIR VENT.

(Application filed Jan. 28, 1899.)

(No Model.)



WITNESSES:

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AIR-VENT.

SPECIFICATION forming part of Letters Patent No. 689,229, dated December 17, 1901.

Application filed January 23, 1899. Serial No. 703,032. (No model.)

To all whom it may concern:

Be it known that I, ALFRED ROESCH, a citizen of the United States of America, and a resident of Bridgeport, Fairfield county, Connecticut, have invented certain new and useful Improvements in Air-Vents, of which the following is a specification.

My invention relates to a thermostat, and more particularly to a thermostat for controlling the air-vents of heating devices comprised in a heating system.

I will now describe a device embodying my invention and will then point out the novel features in the claim.

Figure 1 represents a central vertical section through an automatic air-vent of a heating device and a thermostat controlling the same, the latter made in accordance with my invention. Fig. 2 is a side elevation of a heating device. Fig. 3 represents a top view, partly in horizontal section, of a thermostat embodying my invention. Fig. 4 is a detail top view of a part embodied in the construction of the air-vent of Fig. 1.

Similar reference characters represent corresponding parts in all the figures.

Reference character 3 designates a radiator which is a part of a steam-heating system.

4 is a steam-inlet pipe, which may be provided with a suitable valve, as usual, and 5 is an exhaust-pipe, which may also be provided with a valve.

6 designates my automatic air-vent as a whole. As shown, it is attached to the discharge side of the radiator, near the top thereof. I have shown it as directly connected; but it may, if desired, be connected through the medium of a pipe and located in any position as may be desired.

Referring now more particularly to Fig. 2, in which my automatic air-vent is shown in central section on an enlarged scale, reference character 7 designates a base-piece, consisting of a casting provided at the rear with a hollow screw-threaded boss 8, by which it is connected to the heating system, and at the top with an internally-screw-threaded cylindrical portion 9, which receives an inclosing dome or casing 10, screw-threaded to register therewith, and below with an externally-screw-

threaded cylindrical extension 11, to which is fitted a cap or cover 12.

Reference character 13 designates a hollow tube, connected at one end with the discharge-opening 26, and its opposite end closed and supported in the casting 7. It is substantially inverted-U shaped and in the bend or arch is provided with an opening 14, which affords communication between the interior of the said tube and the dome or casing 10, which opening flares outwardly to form a valve-seat.

15 designates a valve-rod having a pointed end forming a valve 16, which is adapted to register with the seat and close the opening 14. The valve-rod is made up of two parts, threaded together for the purpose of initial adjustment, the lower or internally-screw-threaded part 17 being reduced at its extreme end to form a shoulder 18.

19 designates a spider or valve-rod support, (shown separately in detail in Fig. 4,) which has a central opening, through which the reduced end 18 of the valve-rod is adapted to pass and against which the shoulder bears.

20 designates a thermostat of peculiar construction. It is shown more clearly and in detail in Fig. 3, and, as will be seen, consists of three disks, each having a central opening and all secured together by a band or ring of metal 21. The two outer disks 22 are quite thin and are composed of some material having a high coefficient of expansion, such as brass. The inner disk 23 is comparatively thick and is either composed of some material having a lower coefficient of expansion, such as steel, or is made of smaller diameter. The outer ring 21 is also composed of some such material as steel. Under conditions of rise of temperature, such as would be caused by steam impinging upon the thermostatic device, the outer disks 22, being secured against lateral movement in all directions, would buckle, while the middle disk, if smaller in diameter, would be free to expand laterally. The thermostat being confined on one side by the cap or cover 12 and on the other by the spider supporting the valve-rod the said rod would by the said buc-

klung of the outer thermostatic plates be forced upwardly and the valve 16 caused to close the opening 14.

In the drawings the various parts are shown as they would be while air was being discharged and before the steam had acted upon the thermostat to close the valve. The valve-stem or rod 15 is provided with a bell-float 24 in order that should liquid, such as the water of condensation, rise in the heating system it shall not be allowed to escape through the air-vent. Rise of water in the device would raise the bell-float and close the valve independently of the thermostat.

25 designates a diaphragm arranged to close the lower end of the thermostat-chamber and is held in place between the cap or cover 12 and the cylindrical extension 11. This diaphragm is intended to close the valve 16 independently of the thermostat or float when the pressure of the heating system falls below atmospheric pressure, thus preventing the taking into the system of air through the air vent or discharge. The cap 12 has suitable orifices to allow the atmospheric air access to the under side of the diaphragm.

The discharge-opening 26 from the tube 13 is shown as internally screw-threaded. A pipe may be fitted thereto and may lead away anywhere as may be desired.

By my arrangement it will be seen that air may at all times be discharged through the air-vent from the heating system, but that the discharge of steam or water or the return of air upon the condensation of steam in the system after the supply has been cut off is absolutely prevented in and by a device which is extremely simple and reliable in operation, easy of construction, and composed of parts unlikely of derangement.

I do not make any claim to the air-vent herein described, as the same forms the subject-matter of a copending application filed May 5, 1899, Serial No. 715,708.

What I claim is—

A thermostat consisting of a plurality of disks having different coefficients of expansion, and a ring having a low coefficient of expansion for holding said disks together at their peripheries, said disks being arranged first a disk having a high coefficient of expansion, next a disk having a low coefficient of expansion, and so on alternately.

Signed by me at New York, N. Y., this 21st day of December, 1898.

ALFRED ROESCH.

Witnesses:

JAMES C. CHAPIN,
FRED. H. DAVIS.