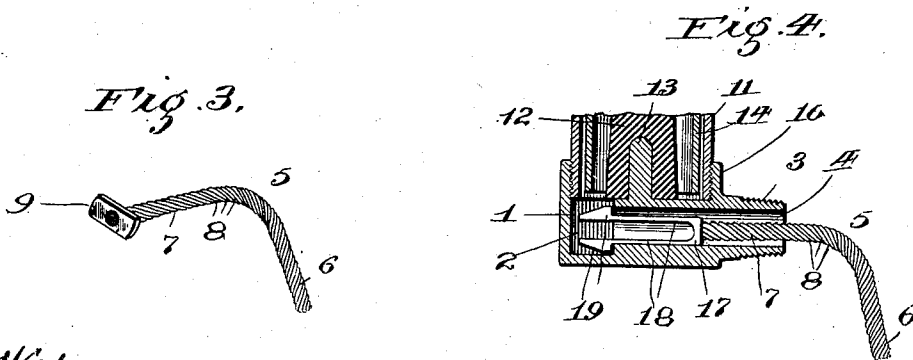
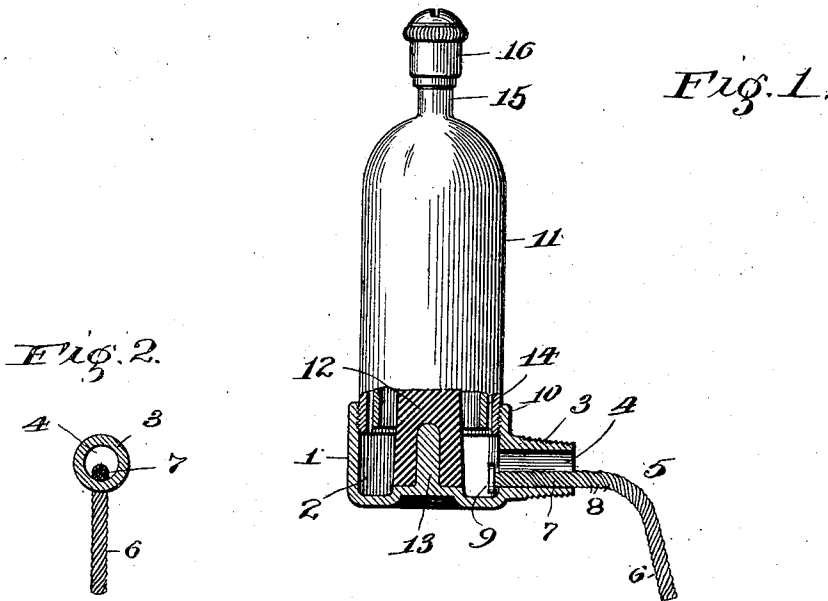


No. 889,141.

PATENTED MAY 26, 1908.

F. W. LEUTHESSER.
VALVE FOR RADIATORS.
APPLICATION FILED AUG. 6, 1906.



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UNITED STATES PATENT OFFICE.

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VALVE FOR RADIATORS.

No. 889,141.

Specification of Letters Patent.

Patented May 26, 1908.

Application filed August 6, 1906. Serial No. 329,285.

To all whom it may concern:

Be it known that I, FRED W. LEUTHESSER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Valves for Radiators of the general style shown in my co-pending applications Serial Nos. 329,057 and 361,040, of which the following is a specification.

The system of heating which is generally termed or known as the radiator system, and which uses as the heating medium steam in connection with radiators, also uses an air valve for the radiator to control the admission of steam and the venting of air. The cooling of the radiator will cause water of condensation to form in the valve and make a water seal between the radiator and valve, which will interfere with the correct operation of the valve in admitting steam and venting air.

The object of the present invention is to construct and apply to an air valve for radiators a drainage or draw-off stem which will be effective and reliable in use for the purpose of removing or drawing off from the chamber of the valve any water of condensation, and which will allow sediment or other foreign material to escape and clear the passage between the radiator and the valve, so that the passage cannot become clogged or stopped.

The invention consists in the features of construction and combination of parts hereinafter described and pointed out in the claims as new.

In the drawings, Figure 1 is an elevation, partly in section, of an air valve for radiators, showing the drainage or draw-off spout inserted in position in the attaching nipple for the valve to the radiator; Fig. 2, a cross-section through the attaching nipple and the drainage or draw-off stem of Fig. 1; Fig. 3, a perspective view of the drainage or draw-off stem; and Fig. 4, a detail in section of the base or lower end of an air valve, showing a modification in the means for retaining the drainage or draw-off stem in position in the nipple.

The air valve in the construction shown has a base or cup 1 inclosing a chamber 2, and the base or cup has a nipple 3 on one side with a passage 4 extending through the nipple and the wall of the base or cup. The nipple furnishes the means by which the air valve is attached to or connected with the radiator, and

the passage 4 furnishes communication between the chamber of the air valve and the interior of the radiator for the passage of air and steam between the radiator and valve, as is usual for the type of air valves shown. The drainage or draw-off stem 5 is made of wire or other metal strip or thread twisted so as to have a cable formation. The stem is bent into shape so as to have a depending member 6 and a horizontal member 7, with the horizontal member, when the drainage or draw-off stem is in position, located within the passage 4 of the nipple, as shown in Figs. 1, 2 and 4, with a clearance between the stem and the wall of the nipple on the upper side of the stem.

The twist of the strands or threads from which the stem is formed furnishes a plurality of winding channels 8, which serve as a medium for collecting the moisture from the water of condensation and thereby create a flow of water from the chamber of the valve back into the coil of the radiator. The stem, as a whole, constitutes a conductor and drainer for removing the water of condensation formed in the chamber of the valve. The stem, in the arrangement shown in Fig. 1, has at the extreme inner end of the horizontal portion a cross-bar 9, suitably secured to the end of the stem so as to abut against the end wall of the nipple or the wall of the chamber 2 and hold and retain the stem in position against withdrawal, and so that when in position the member 6 of the stem will hang downward and the member 7 will stand horizontal.

The valve shown in Figs. 1 and 4 has on the upper side of the base or cup 1 an annular wall or flange 10, with an interior screw thread to receive the threaded lower end of the outer shell or casing 11 of the valve; and the valve has an expansible member or stem 12 secured in place, so as to stand upright within the shell or casing, by a pin or stud upwardly projecting from the bottom of the base or cup 1 of the valve. The valve shown is of that type which employs a float 14 operating within the chamber of the shell or casing and encircling the expansible member or stem on which the upper end of the float rests as usual. The upper end of the shell or casing 11 has a neck 15 with a closing cap 16, in which neck is located a valve seat for a pin valve carried by the float 14, the seat and pin valve being of the usual construction and therefore not shown.

The modification shown in Fig. 4, instead of having a cross-bar or head 9 for retaining the drainage or draw-off spout in position, has the inner end of the stem entered in a band 17 extending out from which, on opposite sides, are arms or bars 18, each having a projection 19 with a square shoulder. The arms or bars 18, with the shouldered projections 19, constitute a spring catch or fork which can be inserted in the passage 4 of the nipple, and, when inserted, have the side arms or bars return to normal position and engage the shoulders of the projections 19 with the end wall of the nipple so as to retain the stem in its inserted position.

The nipple, instead of being located and projecting out from one side of the base or cup, can be located and projected out from one side of the outer shell or casing, which is a well known form of construction for air valve for radiators; and no matter where the nipple is located the drainage or draw-off stem or tube is to be entered in the passage of the nipple which furnishes communication between the chamber of the valve and the radiator.

The operation of the drainage or draw-off stem is as follows: The moisture, by capillary attraction, will accumulate on the exterior of the stem and will follow the channels formed in the stem by the windings of the strands, threads or strips from which the stem is made, and in this manner create a stream which will flow through the passage of the nipple, following the exterior surface of the stem and the channels thereof, producing an action by which any accumulation of water in the chamber of the valve will be drawn off therefrom and will flow downward on the vertically depending member of the stem and into the radiator, clearing the chamber of the valve of water to an extent sufficient to furnish a free passage for air and steam from the water of condensation in the chamber of the cup or casing, preventing such water from forming a seal which would interfere with the venting of the air and the admission of steam from the radiator.

The stem, by the winding channels on its exterior face, serves as a conductor and drainer for the discharge of the water of condensation, and presents a clean surface over which the water can flow and on which, or to which, no sediment or foreign particles or matter will adhere to an extent that would serve to clog or partially close the channel or passage of the nipple and impede the outflow of the water. The horizontal member of the stem will permit of the insertion of the nipple into the opening of the radiator and the at-

tachment of the valve to the radiator without interference from the drainage or draw-off stem in making the attachment, as the depending or vertically hanging portion of the stem will resume its normal position when inserted and remain within the passage of the radiator tube, thus insuring the drainage from the chamber of the valve directly back into the radiator tube.

The stem being somewhat flexible, can, if necessary, be straightened out sufficiently to permit its entrance into the hole in the radiator during the attachment of the screw-threaded valve nipple thereto, and thereafter the natural resiliency of the wire cable will cause the outer end portion of the stem to assume its proper depending position within the radiator and accommodate itself to the space provided therein. This permits a single stem to be used in connection with radiators of differing internal diameters.

It is preferred to have the stem or tube loosely entered in the passage of the nipple, but the stem or tube could be fixedly secured in the passage of the nipple if so desired and have the stem or tube fully operative, so long as the arrangement was one in which the stem or tube would have a horizontal member located within the passage of the nipple and a depending vertical or down-hanging member to enter the radiator tube, both members having channels in the body of the stem or tube as a whole.

What I claim as new and desire to secure by Letters Patent is:

In an air valve for radiators, the combination of a casing with a laterally projecting screw-threaded nipple for attachment of the valve to the radiator, and a drainage or draw off stem, formed of strands of wire closely twisted together in the form of a compact cable, having spirally extending exterior grooves or channels formed between the strands composing the cable, said stem comprising a horizontal member entered through the nipple and terminating at its outer end in a depending member adapted to hang down within the interior of the radiator, the stem having the necessary flexibility to permit it to be sufficiently straightened out, in attaching the valve to the radiator, to permit entrance of the screw-threaded nipple, and having sufficient resiliency to resume its proper shape after the nipple has been screwed into place, substantially as described.

FRED W. LEUTHESSER.

Witnesses:

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WALKER BANNING.