

No. 691,796.

Patented Jan. 28, 1902.

G. W. NISTLE.
RADIATOR ATTACHMENT.
(Application filed July 11, 1901.)

(No Model.)

Fig. 1.

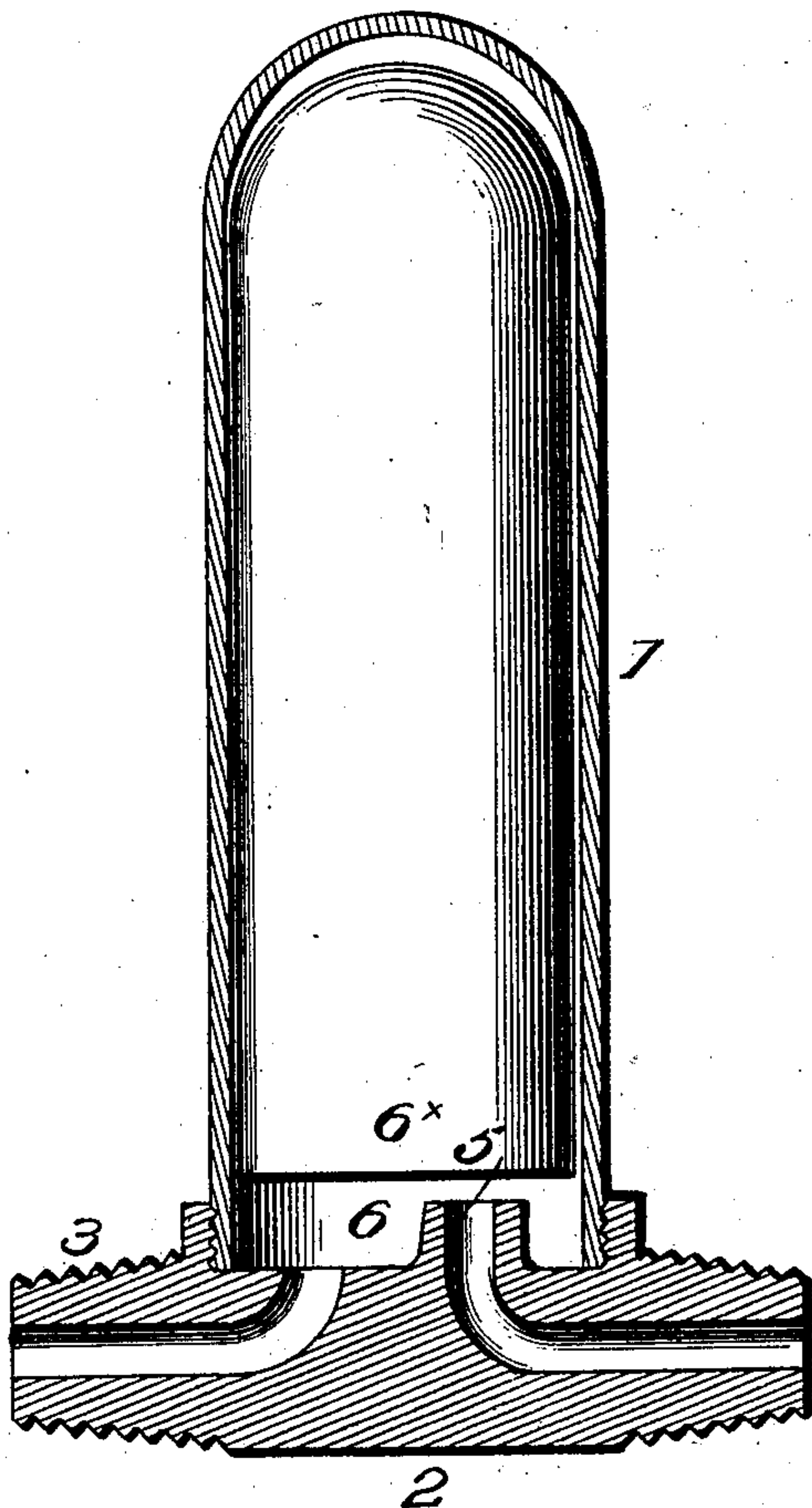
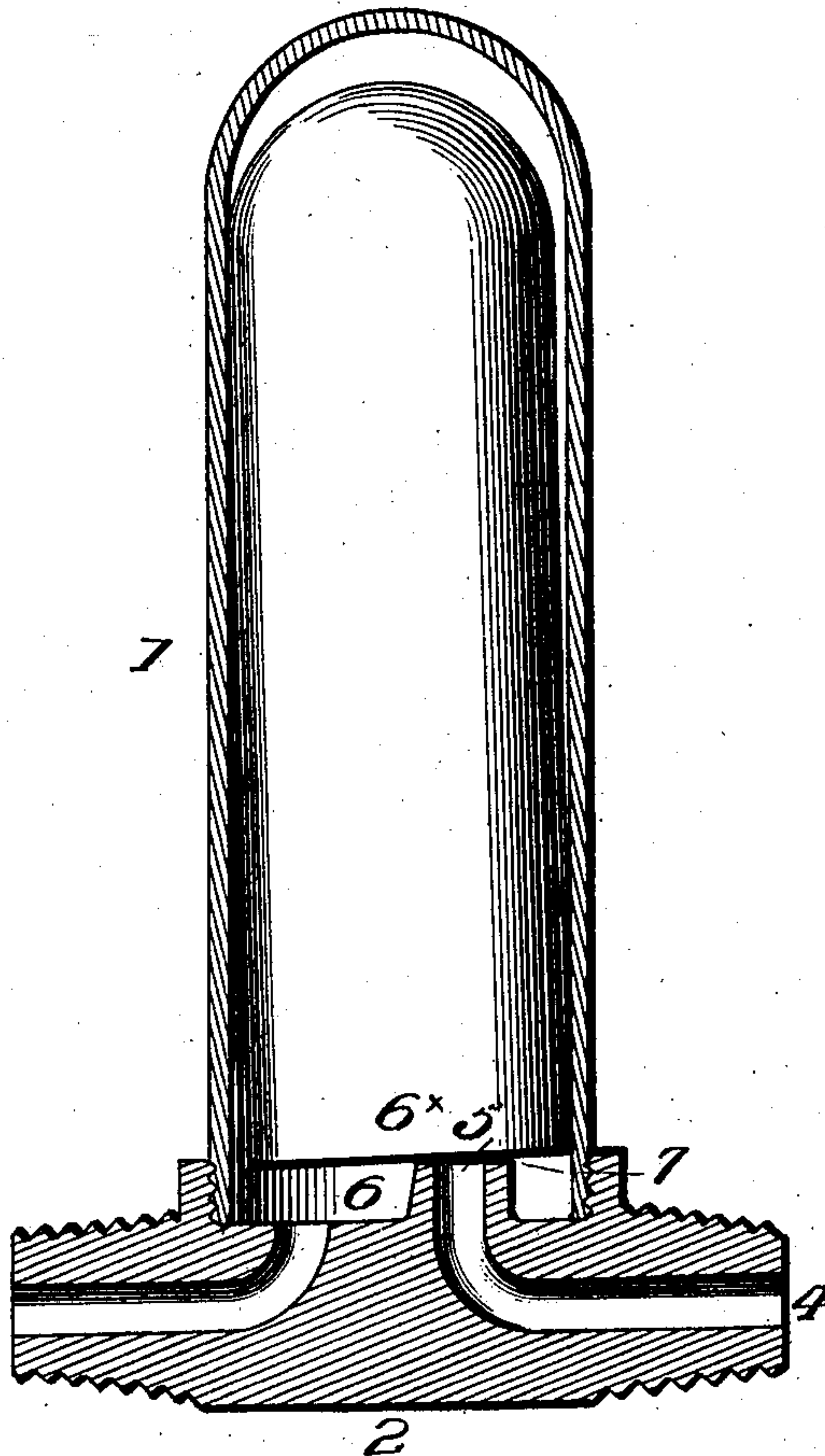


Fig. 2.



Witnesses

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RADIATOR ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 691,796, dated January 28, 1902.

Application filed July 11, 1901. Serial No. 67,851. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. NISTLE, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Radiator Attachments, of which the following is a specification.

This invention relates to radiator attachments of that class known as "traps" for collecting and discharging water of condensation that accumulates in steam heating and other apparatus; and it has for its object, among others, to provide a simple and improved attachment embodying a self regulating or adjusting float-valve, which may be used in exhaust heating where it is desired to avoid back pressure on the engine or engines supplying the exhaust. I make provision whereby the interior of the radiator shall be at all times in communication with the vacuum whether there be any water present or not.

It is well, perhaps, to here note that when water is not present there will still be some air in the radiator to permit of the egress, of which a small opening is sufficient when the vacuum acts thereon through the valve. Too large an opening would permit the steam to pass through, and if many radiators worked thus they would spoil the vacuum. By the construction and arrangement of parts hereinafter described a very slight opening, which is provided by tipping the float, has been found sufficient and will permit of the use of steam at atmospheric pressure, which would not go into the radiator without the vacuum to help it.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a substantially central vertical section of my improved attachment; and Fig. 2 is a similar view showing the parts in their normal position, the float-valve being tilted.

Like numerals of reference indicate like parts in the different views.

Referring now to the details of the drawings, 1 designates a casing, which by preference is in the nature of a shell (drawn brass being preferred) screwed into the casting 2, which has the threaded coupling or nipple 3 for attachment to the radiator, (not shown,) and the outlet 4, designed for connection with a water-return pipe, through which the water of condensation from the radiator is returned to the usual place, it being understood that the nipple or shank having the passage 4 is to be connected with any suitable vacuum-producing device, such as are well known in the art of steam heating and which it is therefore not necessary to show or further describe.

The body portion of the casting 2 has the outlet-nozzle 5, which is raised above the bottom of the annular chamber 6, into the surrounding wall of which the shell 1 is fixed, and this nozzle is disposed eccentrically with relation to the shell and to said chamber.

6^x is a float or valve disposed within the shell and of less height than the distance between the top of the nozzle 5 and interior wall of the top of the shell, so that the float may have limited movement within the shell.

In operation with the device connected up in the manner described, the port 3 being in communication with the radiator and the port 4 with the return-pipe and the vacuum-producing device and there being no steam or water in the radiator or the chamber or shell 1, it is evident that the float 6 by its own weight rests upon the top of the outlet-nozzle 5, and by reason of the eccentrical disposition of this nozzle the float will tip over to the side of the casing farthest from the nozzle until the float touches the casing or shell. When in this position, of course the bottom of the float instead of being horizontal and resting flatly upon the top of the outlet-nozzle will be slightly inclined from the horizontal and will leave a small angular-disposed opening or gap between the top of the nozzle and the bottom of the float, as is clearly indicated in Fig. 2. This small opening permits the vacuum to pull on the radiator until an equal vacuum exists there, and when the supply-valve of

the radiator is open, although the steam has no pressure above the atmosphere, it will enter the radiator and be condensed and the water of condensation will flow into the chamber 6 of the casing and out through the small angular opening 7 between the bottom of the valve and top of the outlet-nozzle and into the port or passage-way 4 and from thence to the return-pipe. So long as steam is admitted to the radiator there will always be some of it condensing and supplying generally as much water as can flow out through the opening 7, and should the last drop of water be thus taken out the next heaviest thing in the radiator being air it follows the water and is then followed by more water, and as the opening 7 is comparatively small and may not be sufficient to conduct away all the water, in which case the water will rise in the casing or shell until it lifts the float-valve, and thus fully discloses the full outlet-opening of the outlet-nozzle, and this opening will remain fully uncovered so long as there is water enough present to raise the float off from the nozzle. When the water falls sufficiently, the float falls and touching on the upper face of the nozzle is again tilted and the opening 7 only is provided, and the water and air are discharged in the manner above described; but by reason of the comparatively small area of the opening 7 the steam is prevented from escaping.

It will be noted that the casing or shell is but slightly larger in diameter than the float or valve, so that the latter will be guided easily by the casing or shell and allowed to tip only sufficiently to provide the proper-sized opening between its bottom and the top of the outlet-nozzle.

It will thus be seen that I provide a simple yet efficient means for accomplishing the end sought, and while the structural embodiment of the invention as herein illustrated is what at the present time is considered most preferable it is evident that variations, modifications, and changes therein may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages, and therefore I do not restrict myself to the details herein disclosed, but reserve the right to make such variations, modifications, and changes as come clearly within the scope of the protection prayed.

What I claim as new is—

1. In a radiator attachment, the combina-

tion of a valve-casing provided with an inlet and with an outlet nozzle, and a float-valve guided by said casing, the said valve and outlet-nozzle having coacting surfaces correspondingly formed, the arrangement of the nozzle relative to the valve being such that the valve when in its lowest position is normally tilted providing between it and the nozzle a restricted opening, said opening being formed by the tilting of the valve, substantially as described.

2. In a radiator attachment, the combination of a valve-casing provided with a water-inlet and with an outlet-nozzle, said nozzle formed with a substantially plane upper surface, and a float-valve guided by said casing and formed with a substantially plane lower surface, the arrangement of the nozzle relative to the valve being such that the valve when in its lowest position, is normally tilted, providing between it and the nozzle a restricted opening, said opening being formed by the tilting of the valve, substantially as described.

3. In a radiator attachment, the combination of a valve-casing provided with a water-inlet and with an eccentrically-disposed outlet-nozzle, and a float-valve guided by said casing and normally supported on said eccentrically-disposed nozzle, the arrangement of the nozzle relative to the valve being such that the valve, when in its lowest position, is normally tilted providing between it and the nozzle a restricted opening, said opening being formed by the tilting of the valve, substantially as described.

4. In a radiator attachment, the combination of a valve-casing provided with a water-inlet and with an eccentrically-disposed outlet-nozzle, a chamber surrounding the outlet-nozzle, and a valve normally supported on said outlet-nozzle and guided by said casing, the arrangement of the nozzle relative to the valve being such that the valve when in its lowest position is normally tilted providing between it and the nozzle a restricted opening, said opening being formed by the tilting of the valve, substantially as described.

Signed by me at Chicago, Illinois, this 5th day of July, 1901.

GEORGE W. NISTLE.

Witnesses:

H. P. ALTMAN,
H. A. RUMSEY.