No. 698,083. Patented Apr. 22, 1902.

J. R. WADE.

RADIATOR ATTACHMENT.

(Application filed Aug. 12, 1901.)

(No Model.)

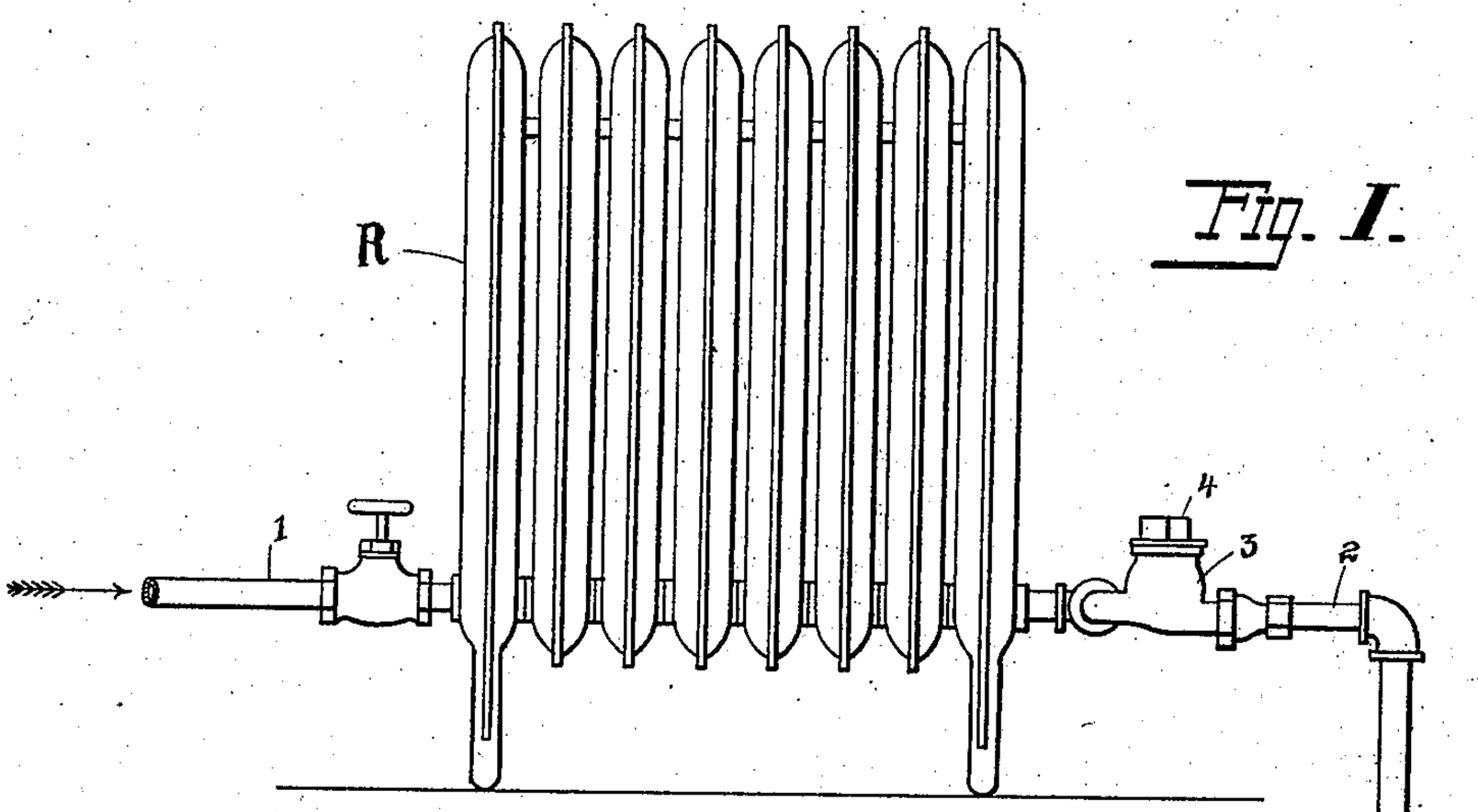

Fig. 1.

Fig. 2.

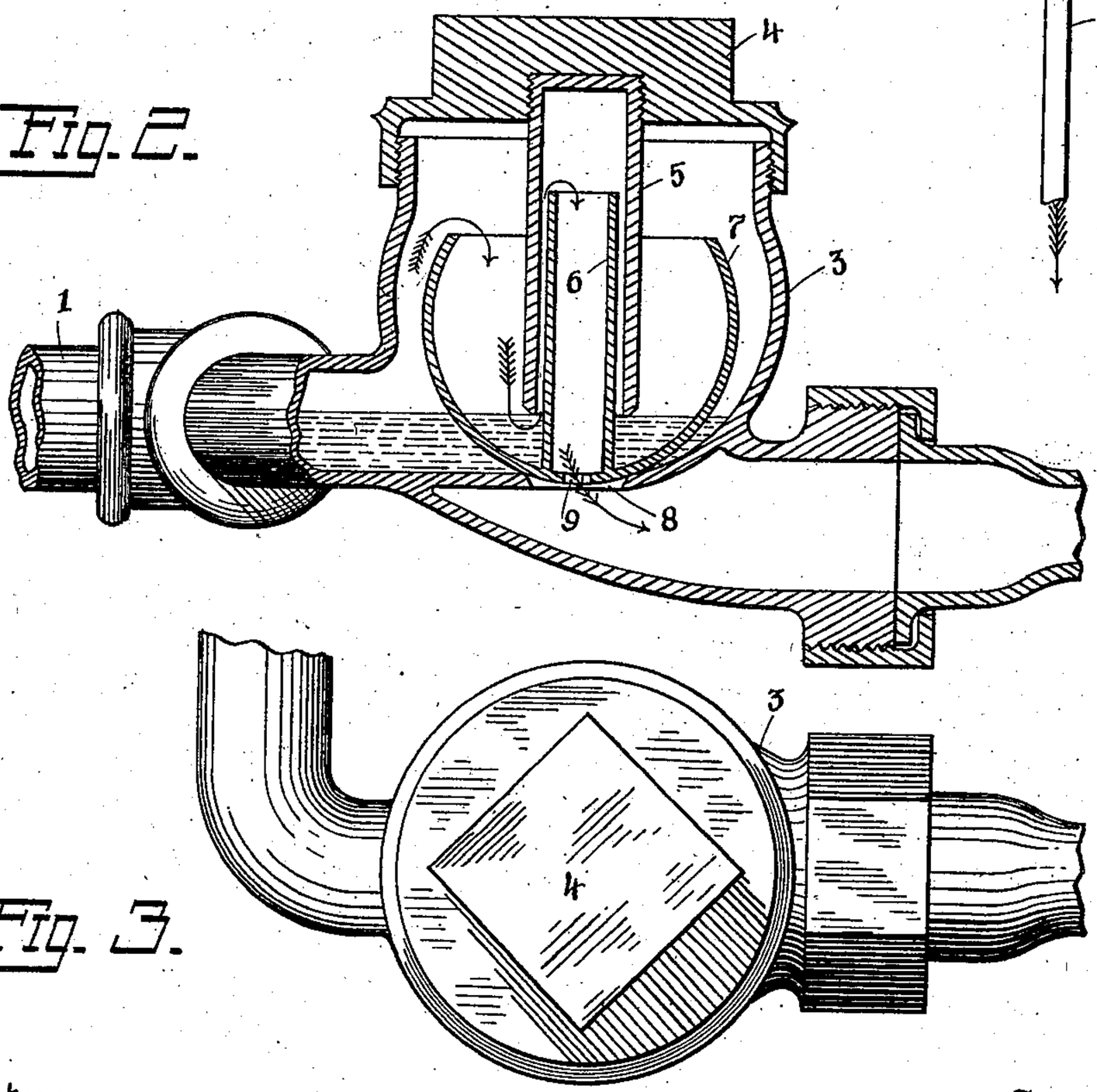

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

JAMES R. WADE, OF ST. LOUIS, MISSOURI.

RADIATOR ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 698,083, dated April 22, 1902.

Original application filed October 16, 1899, Serial No. 733,803. Divided and this application filed August 12, 1901. Serial No. 71,784. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. WADE, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Radiator Attachments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in radiator attachments; and it consists in the novel construction and arrangement of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is an elevation of a radiator of a steam-heating system, showing the application of my device. Fig. 2 is a middle vertical section of the device, and Fig. 3 is a top plan thereof.

The present application is a division of the original application on which there issued to me United States Letters Patent No. 659,776, dated October 16, 1900, for steam-heating systems, and covers in subject-matter the drain cup or valve attached to the outlet end of the radiator shown in said system.

The object of the invention is to provide the outlet or discharge ends of heating systems such as set forth in the patent referred to with a drain cup or valve which (under the exhaust to which the system is subjected) will under ordinary conditions of condensation allow the condensed waters to be drawn off mechanically by the currents induced by the exhaust process and which in case of too rapid a condensation in the system the water will drain off automatically by the mere raising of the valve.

It is to be understood that the present valve or attachment is employed at the outlet end of the radiator forming a part of the system specifically set forth in the patent aforesaid, said system belonging to that class in which exhaust-steam from an engine or other source is employed to circulate through a radiator and its system of connecting-pipes and where specific means are resorted to to produce the necessary rarefaction or vacuum in such radiators and pipes to permit of the free circulation of such exhaust-steam.

In detail the attachment may be described as follows:

Referring to the drawings, R represents a radiator of any heating system, to which leads a steam-supply pipe 1 and from which leads the delivery pipe 2. Interposed at the discharge end of the radiator, between the latter and the pipe 2, is my attachment or valve. The latter comprises an outer valve-casing 3, to the upper open end of which is secured a screw-cap 4, from the center of the inner face of whose top depends a guide-tube 5, designed to receive the central tubular stem 6 of a cup or float 7, adapted to be normally seated about the edge of the opening 8, formed at the bottom of the casing. The bottom of the hollow stem is provided with an opening 9 for the free passage of the currents, as seen by arrows in Fig. 2.

Under ordinary circumstances the water of condensation incidental to the operation of the system will mechanically lodge and in a short time fill the cup up to the lower edge of the tube 5, the water in the casing corresponding to the same level. The condensation-water by thus filling the cup to the lower edge of the tube 5 acts as a seal against a too-violent draining of the radiator under the action of the vacuum-generator (not shown) to which the pipe 2 leads, it being understood that the said condensation-water is maintained at this level in the cup, any excess being carried off mechanically by the currents induced as a result of the vacuum or rarefaction referred to. The water thus carried off passes from the radiator into the cup, thence upward through the space between the stem 6 and guide-tube 5, and thence down through the stem 6 and opening 9 into the pipe 3. Should the condensation take place more rapidly than the currents could carry off the same mechanically, the water which would thus accumulate around the cup would raise the latter off its seat, permitting the water to discharge through the opening 8 into the pipe 3.

It is to be understood that the present device may be applied to any vacuum heating system similar to that set forth in the aforesaid patent.

A review of the foregoing discloses the fact that the openings 8 and 9 both communicate with the common outlet for the casing, that the opening 9 is located in the path of the opening 8 and registers with it, and that the opening 9 is always open to the pipe 2 and to the radiator R.

Having described my invention, what I claim is—

1. A radiator attachment comprising a casing having a suitable inlet-opening, an inner tube depending from the top of the casing, an outlet-opening at the base of the casing located below the tube, an exit-pipe in communication with said outlet-opening, a cup or float surrounding the tube and adapted to seat over the opening at the base of the casing, a tubular stem open at both ends carried by the float and located within the tube and spaced therefrom, thereby affording communication by the passage thus formed, between the radiator and the exit-pipe, substantially as set forth.

2. A radiator attachment comprising a casing having a suitable inlet-opening, a screw-cap covering the top of the casing, an inner tube depending from the center of the cap, an outlet-opening at the base of the casing located below the tube, an exit-pipe in communication with said outlet-opening, a cup or float surrounding the tube and adapted to seat over the opening at the base of the casing, a tubular stem open at both ends carried by the float and located within the tube, and spaced therefrom, thereby affording communication by the passage thus formed, between the radiator and the exit-pipe, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES R. WADE.

Witnesses:
THOS. A. WRENNE,
A. M. CARROLL.