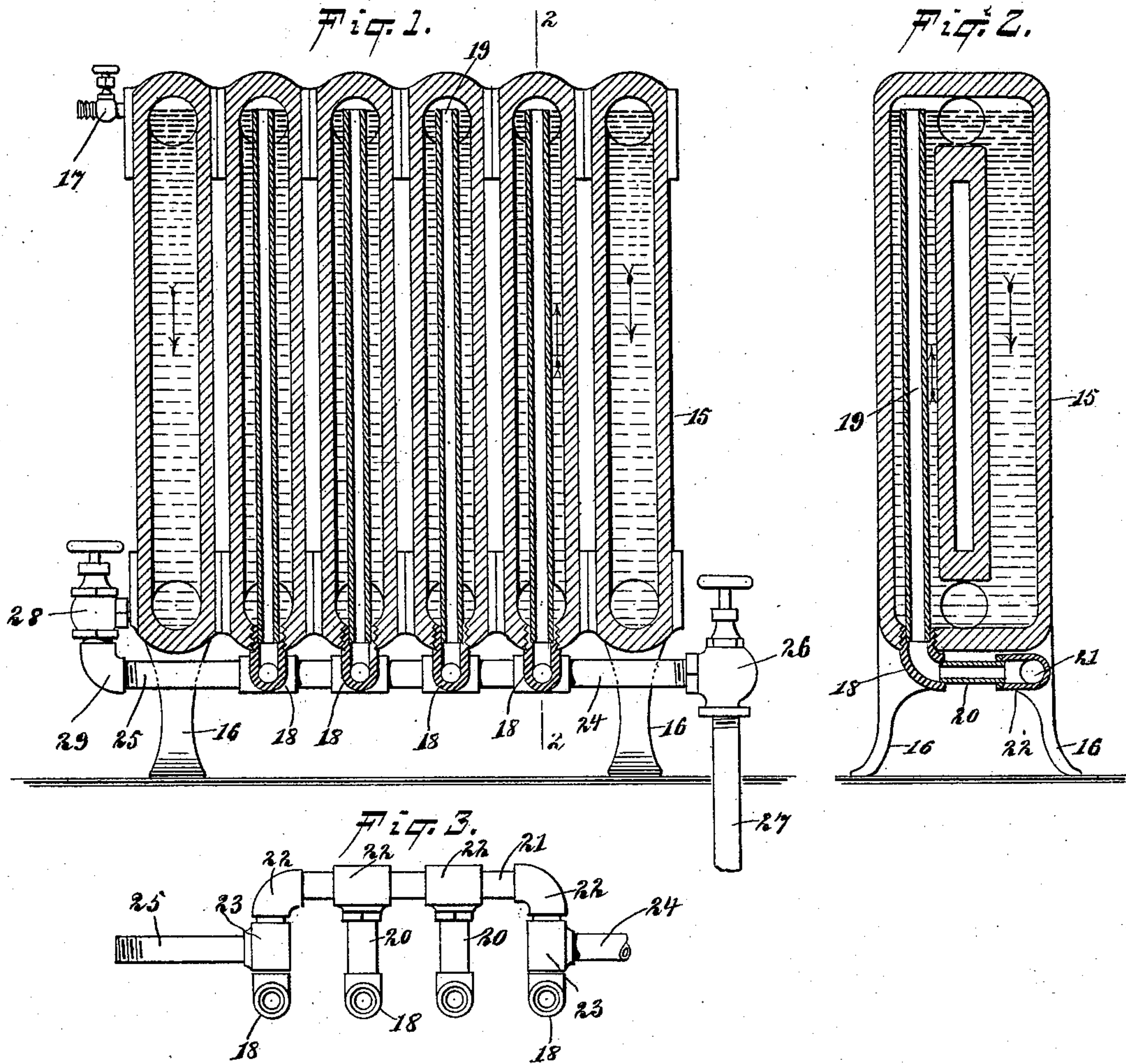


(No Model.)

F. BASON.
RADIATOR.

No. 575,515.

Patented Jan. 19, 1897.



WITNESSES:

William P. Goebel.

Isaac B. Mous.

INVENTOR

F. Bason.

BY

muny

ATTORNEYS.

UNITED STATES PATENT OFFICE.

FREDERICK BASON, OF CHICAGO, ILLINOIS.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 575,515, dated January 19, 1897.

Application filed May 9, 1896. Serial No. 590,839. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK BASON, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Radiator, of which the following is a full, clear, and exact description.

The object of this invention is to provide a superior radiator in which both steam and water is used, forming an apparatus capable of use exclusively as a steam-heater or exclusively as a water-heater or with part of each. In attaining this end I may employ a radiator having a series of connected loops, vertical steam-leading pipes extending through a number of the loops and having open upper ends, a steam-feed pipe communicating with the steam-leading pipes and also having communication with the loops of the radiator, whereby steam may be admitted to the radiator either directly to the loops or through the steam-leading pipes, and whereby also any amount of water may be retained within the loops, causing the radiator to be exclusively a water-heating apparatus or a part water and part steam heater.

The invention will be fully described hereinafter, and its scope defined in the claim.

Reference is to be had to the accompanying drawings, which illustrate a species of my invention and which form a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical longitudinal section of my invention. Fig. 2 is a cross-section thereof on the line 2 2 of Fig. 1, and Fig. 3 is a plan view of the connections for the radiator in Figs. 1 and 2.

The loops 15 may be of the usual construction, they being in communication with each other at each end and supported by legs 16. An air-discharge valve 17 commands an orifice in the upper end of one loop. Formed in the lower rear portion of all of the loops, excepting the end loops, are a series of vertically-extending openings into which elbows 18 are screwed. Each elbow has screwed into its vertical upper portion a steam-leading pipe 19, such pipes extending upwardly through the rear section of each respective loop, the upper ends of the pipes terminating a short distance below the open upper ends

of the loops. The elbows 18 are each turned forwardly and are respectively provided with right and left hand threaded thimbles 20. The thimbles 20 extend transversely with the radiator and are connected to a pipe 21 by means of unions 22. The end thimbles 20 are respectively connected by T's 23 with a pipe 24 and a pipe 25. The pipe 24 extends to a valve 26, in turn communicating with a pipe 27, while the pipe 25 is connected to a valve 28 by means of an elbow 29. The valve 28 controls an opening into one of the end loops of the radiator, and the valve 26 controls the pipe 27.

With the radiator constructed as above described the opening of the valve 26 and the closing of the valve 28 will permit the steam to pass through the leading-pipes 19 and be discharged from the open upper ends thereof, the valve 17 having been previously opened to permit the escape of the air within the radiator. As the steam condenses within the radiator the water of condensation settles in the lower portion thereof and gradually rises until, as shown in the drawings, it reaches the level of the upper ends of the pipes 19. The passage of the steam through the pipes 19 keeps the water hot, and in this way the radiator is made to heat exclusively by hot water. The surplus water of condensation returns through the leading-pipes 19, past the valve 26, and out via the pipe 27.

To convert the radiator into a part steam-heater, the valve 28 will be opened, whereupon the water within the radiator will be withdrawn. Supposing now that the water is half withdrawn, it will be seen that the steam still heats the water, and the steam in the upper portion of the radiator will furnish further heat. If the water is entirely withdrawn and the valve 28 left open, so as to prevent the accumulation of more water, it will be seen that the radiator is converted into an exclusively steam-heater.

By means of the peculiar connections for the steam-pipes I provide a radiator which will be neat in appearance, since all of the connections are hidden beneath the radiator. This construction also permits readily applying the invention to radiators not previously built for it.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

5 A radiator having a series of loops, communicating with each other and having an air-outlet orifice at the upper portion of one loop, a series of leading-pipes extending longitudinally through the rear run of a number of the loops, the leading-pipes extending
10 downwardly through the lower portions of the loops, elbows beneath the radiator with which the leading-pipes respectively communicate, the elbows turning forwardly from the leading-pipes, a pipe running longitudi-

nally beneath the forward portion of the radiator, the pipe having communication with the 15 elbows, an additional pipe in communication with the said longitudinal pipe, the additional pipe communicating directly with the lower portion of the interior of the radiator, and a valve for said additional pipe, substantially 20 as described.

FREDERICK BASON.

Witnesses:

THOMAS BASON,

FREDERICK WILLIAM BASON.