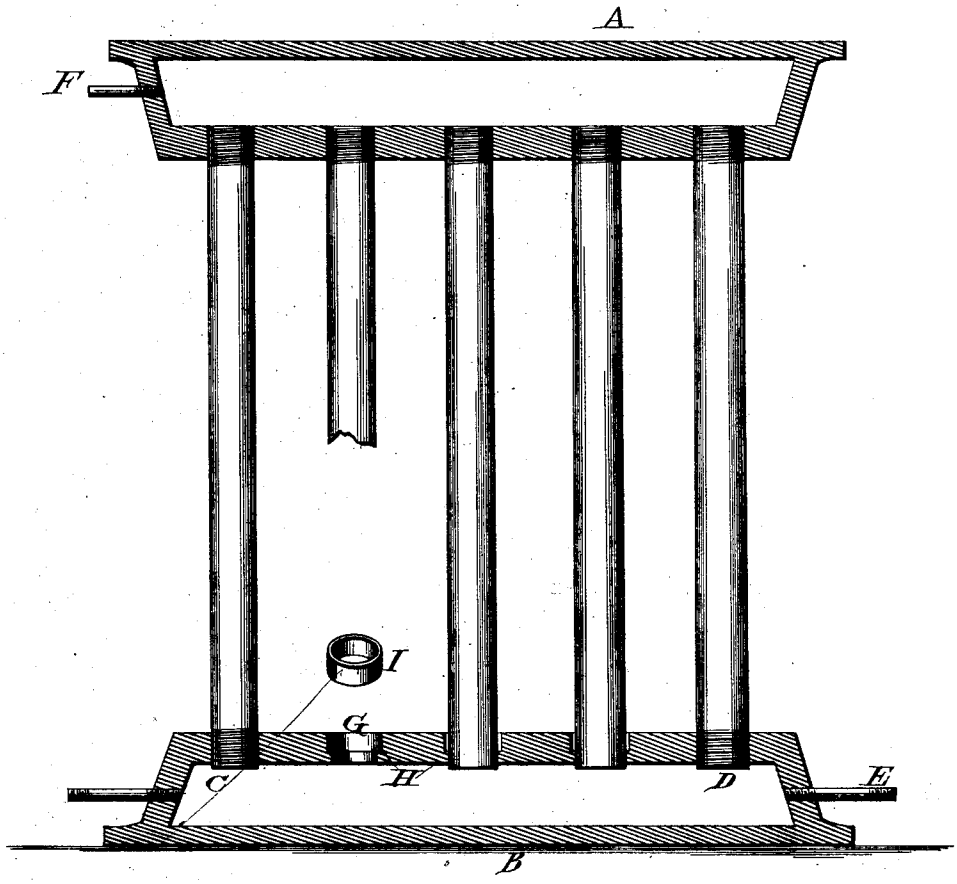
(No Model.)

R. C. PAUL.

STEAM RADIATOR.

No. 244,762. Patented July 26, 1881.



Witnesses:
C. F. Wallen
J. S. Metzger

Inventor:
R. C. Paul
per Ger. C. Thompson
Attorney.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ROBERT C. PAUL, OF FROSTBURG, MARYLAND.

STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 244,762, dated July 26, 1881.

Application filed March 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. PAUL, a citizen of the United States, residing at Frostburg, in the county of Alleghany and State of Maryland, have invented a new and useful Improvement in Steam-Radiators, of which the following is a specification.

Heretofore vertical tube radiators have been constructed, generally, without a top chamber to contain steam like the bottom chamber or base. This has been in consequence of the difficulty encountered in connecting a top and bottom chamber with tubes having upon one end a right and upon the other a left hand screw-thread. The top and bottom being unyielding, and not allowing the necessary play the tubes must have when both ends are being screwed in at the same time, prevents the possibility of radiators being constructed in this manner. Hence the old method has been to screw the lower ends of the tubes into a chamber or base, and connect them in pairs at the top by screwing them into return bends, which permit of their being put together with the right and left hand threads. This old method is objectionable, because a top chamber cannot be used, and in a radiator of this kind, although occupying as much space as one with a top chamber, the radiation is much less. Besides, each pair of tubes at their upper ends form a reservoir for the collection of air, which cannot be conveniently drawn off, and which prevents the circulation of the steam in those parts, and necessarily prevents instantaneous and perfect heating.

I overcome the objectionable features of the old style of construction by an improved means of connecting the top and base chambers.

The mode of construction is as follows: A top and base chamber, A B, of any required dimensions, and similar in shape and size, are made with holes in the bottom of chamber A for receiving the upper end of the tubes, and with holes in the top of chamber B for receiving the lower ends of the tubes. All of the holes in chamber A are straight and threaded, for receiving the threaded upper ends of the tubes, while those in chamber B are without threads, except one upon each end, which is straight and threaded like those in the top chamber. These holes, excepting C and D, are made one-eighth of an inch larger than the tubes to a depth of two-thirds of the hole, and about as large as the tubes the remaining depth, for the purpose of forming a space around the tubes for the reception of metal rings, by means of which the tubes are calked steam-tight to the chambers.

In putting the radiator together a tube with a right-hand thread upon one end and a left-hand thread upon the other is screwed to the hole C in the lower chamber and to the hole opposite in the upper chamber, and another tube is similarly fitted to the hole D, and the opposite one above those being the only ones which can be conveniently fitted in this manner. The upper ends of the remaining tubes are then threaded and screwed into the threaded holes in the upper chamber, while their lower ends are made fast with wrought-iron rings about one-sixteenth of an inch thick, which surround the lower ends of the tubes, and are calked tightly between the large part of the holes and the tubes.

In a radiator of this kind the steam, entering through the supply-pipe at E, instantly circulates through all parts of the radiator forcing the air to chamber A, where it is drawn off by means of the air-valve F.

What I claim as my invention, and desire to secure by Letters Patent, is—

In combination with the hole G, having the shoulder H, the ring I, the upper and lower steam-chambers, and the threaded holes C and D, as described.

ROBERT C. PAUL.

Witnesses:
WM. ARMSTRONG,
G. A. WINGERT.