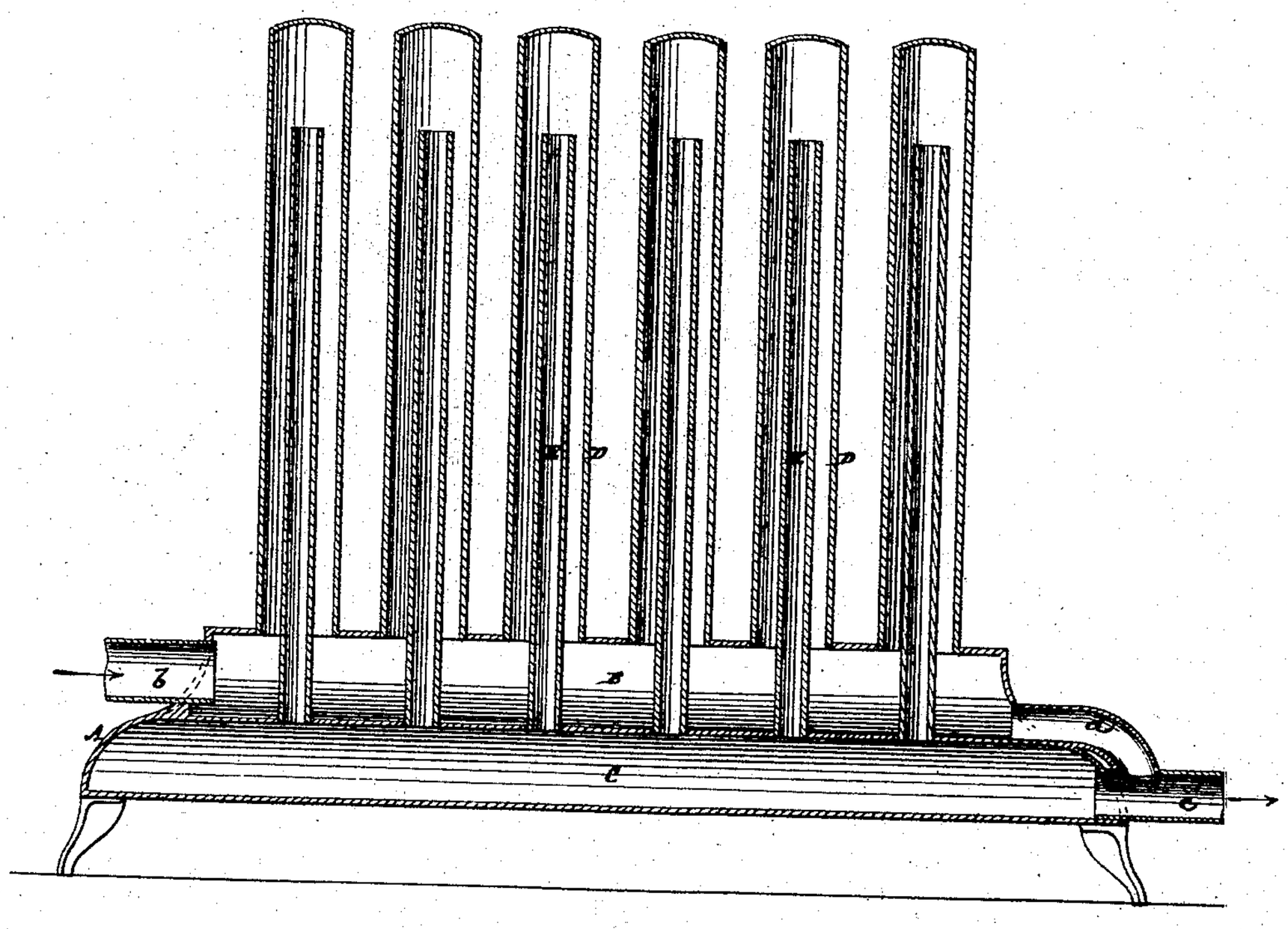
G. W. BLAKE.

Radiators for Steam-Heaters.

No. 156,974. Patented Nov. 17, 1874.



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UNITED STATES PATENT OFFICE.

GEORGE W. BLAKE, OF NEW YORK, N. Y.

IMPROVEMENT IN RADIATORS FOR STEAM-HEATERS.

Specification forming part of Letters Patent No. **156,974**, dated November 17, 1874; application filed June 13, 1874.

To all whom it may concern:

Be it known that I, GEORGE W. BLAKE, of the city, county, and State of New York, have invented a new and useful Improvement in Steam-Radiators for Heating Apartments and other Places or Buildings; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, and which represents a vertical section of a steam-radiator constructed in accordance with my improvement.

This invention relates to that description of steam-radiators in which a base divided so as to constitute upper and lower chambers, separate and distinct from each other, has mounted upon it a number of radiating tubes closed at their tops, but in communication at their bottoms with the upper chamber of the base, and having arranged within them smaller tubes open at both ends and in communication at their tops with the upper spaces of the surrounding larger tubes, and open at their bottoms to the lower chamber of the base, for the purpose of keeping up a circulation by means of suitable openings in the base for the admission of steam and escape of water of condensation.

In such radiators it is very desirable to keep the upper and lower chambers of the base free from water of condensation collecting in either of them, as well to prevent choking as to avoid any bubbling noise arising from the boiling of said water, and at the same time to preserve the two chambers, as distinct receptacles, intact, so that the circulation will not be interfered with.

To these ends, and to insure the more perfect action of the radiator, I combine, with an opening for the introduction of the steam to the upper chamber at one end of the base, and an outlet duct or pipe connecting with the lower chamber at the opposite end of the base, for escape of the water of condensation, an outside small water-escape branch or pipe at the opposite end of the upper chamber to that through which the steam is admitted, and connecting with the outlet-pipe of the lower chamber.

In the accompanying drawing, A represents the base of the radiator, having an upper chamber, B, and lower chamber, C, separate and distinct from each other, and provided—that is, the upper chamber B—with a steam inlet or supply pipe, *b*, at the one end of the base, and the lower chamber C with a main outlet pipe or duct, *c*, at the opposite end of the base. D D and E E are the outer and inner tubes, mounted on the base and communicating with the chambers B and C, as hereinbefore described. The upper chamber B is provided, close to its bottom and at the opposite end, through which steam is admitted, with a small outside branch or tube, *d*, arranged to connect with the outlet pipe or duct *c* of the lower chamber, and whereby water of condensation is run off from the upper chamber by one and the same outlet that carries off the water of condensation from the lower chamber, without a break or opening between the two chambers B C.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination of the outside water-escape pipe *d* with the main outlet or duct *c*, the chambers B C, and the steam-inlet *b*, applied to the base A of a tubular radiator, substantially as specified.

GEO. W. BLAKE.

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