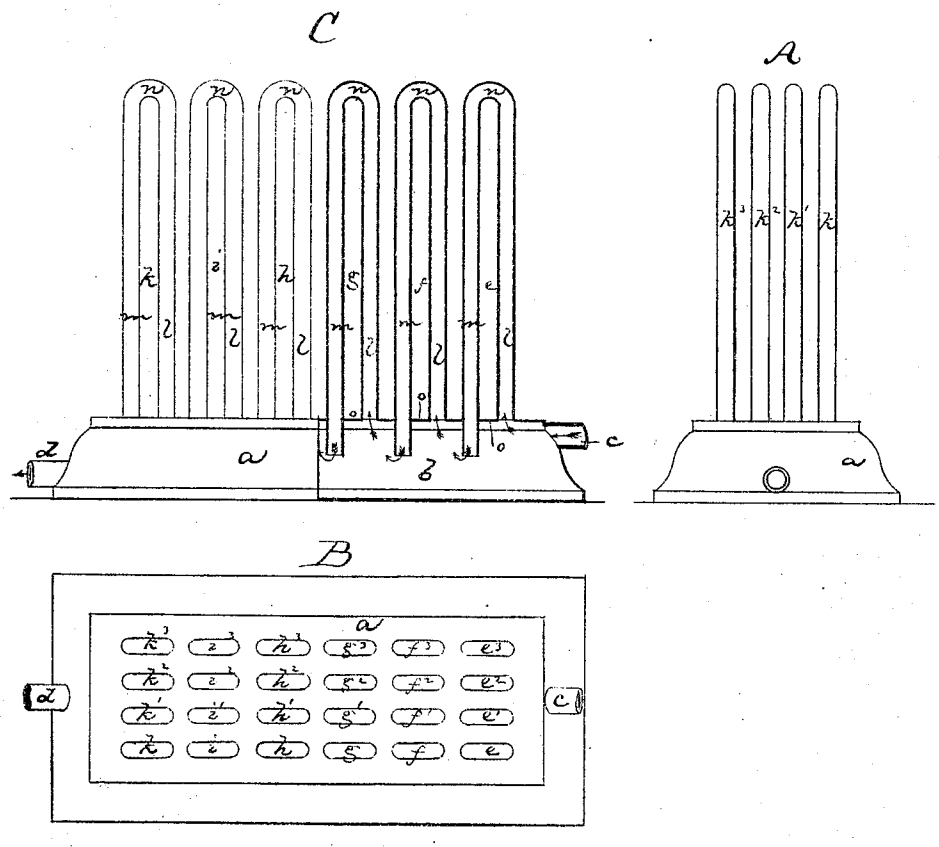
G. W. WALKER.

Radiator for Steam-Heaters.

No. 130,088. Patented July 30, 1872.



Witnesses.
Mo. W. Frothingham.
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Inventor.
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A.M. PHOTO-LITHOGRAPHIC CO. N.Y. OSBORNE'S PROCESS.

UNITED STATES PATENT OFFICE.

GEORGE W. WALKER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN RADIATORS FOR STEAM-HEATERS.

Specification forming part of Letters Patent No. **130,088**, dated July 30, 1872.

To all whom it may concern:

Be it known that I, GEORGE W. WALKER, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Radiator for Steam-Heaters, &c.; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to the construction of radiators for disseminating heat, the improved radiators being particularly designed for heating by steam.

In my invention I use a series of pipes of ∩-shape, except that one leg of each pipe is longer than the other, and these pipes pass through and extend up from a tube sheet or plate that forms the top of a steam-chamber common to all the pipes, the chamber-plates forming the base of the radiator and said chambered base having one or more, but preferably several, series of these radiator-pipes, each series extending from end to end of the base. Into the steam-chamber at the base leads a steam-inlet pipe, and while the nearest leg of each radiator-tube just passes through the tube-sheet, the second leg extends down into the chamber, so that as steam enters the base it passes through the highest openings for its escape in the first set of tubes, and thence up through the short leg of each tube and down through the other into the steam-chamber, thence up through the short legs of the next series, and down through their long legs into the steam-chamber, thus gradually passing through all the tubes of each series, forcing the air in front of it and out through an outlet or through the condense pipe at the end of the chamber. It is this construction that constitutes my invention.

The drawing represents a radiator embodying my invention. A shows an end view of the radiator. B is a plan of it. C is a front and sectional elevation.

a denotes a chambered base, containing the steam-chamber *b*, into one end of which enters the inlet-pipe *c*, and from the opposite end of which passes the outlet-pipe *d*. *e f g h i k* denote one series of radiator pipes or tubes; e^1, f^1, &c., a second and similar series; and e^2, f^2, &c., e^3, f^3, &c., two other similar series. Each pipe of each series consists of a bent tube, having two vertical and parallel legs, *l m*, united at top by the bend *n*, and passing at bottom through the upper or tube sheet *o* of the steam-chamber *b*, each leg *l* extending only through the sheet to open into the chamber, while each leg *m* extends down into the chamber a considerable distance, as seen at C. The chamber *b* and all the tubes being full of air, the cocks in the inlet and outlet pipes *c d* are opened, and as steam rushes into the chamber *b* it meets the body of air and rushes up the first short tubes *l*, and down through the long tube *m* into the chamber *b;* thence up into and through the next tubes *l*, and down through the long tubes *m*, and so on, driving the air out of each cross row of tubes *l m* in succession, and through the chamber *b*, finally reaching the end of which chamber, the air is driven off through the condense-pipe. After the air has been thus expelled, the cock in the air-escape is closed, and the radiator-pipes are kept hot by the presence of the steam under pressure throughout the pipes.

This construction and arrangement of the tubes and the steam-chamber is very simple, but is very effective in insuring the discharge of air from the radiator, and the dissemination of the steam throughout the tubes.

Claim.

In combination with the steam-chamber *b*, the series of steam-pipes, constructed and arranged as shown and described, each pipe having one leg opening from the top of the steam-chamber, and its other leg extending down into the same chamber, substantially as shown at C.

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Witnesses:

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