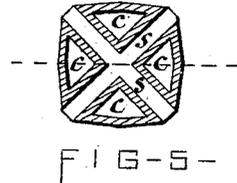
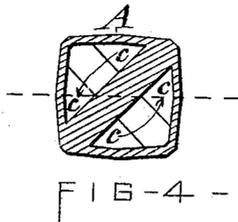
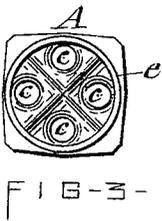
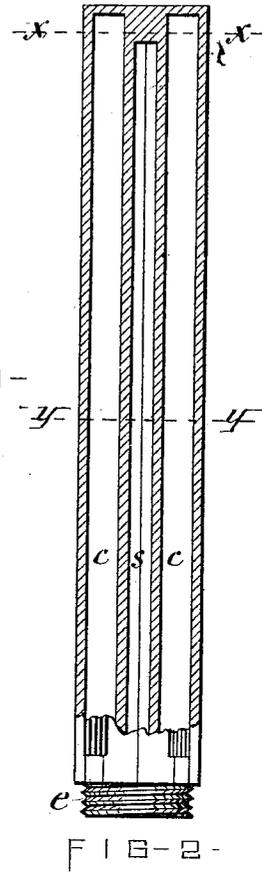
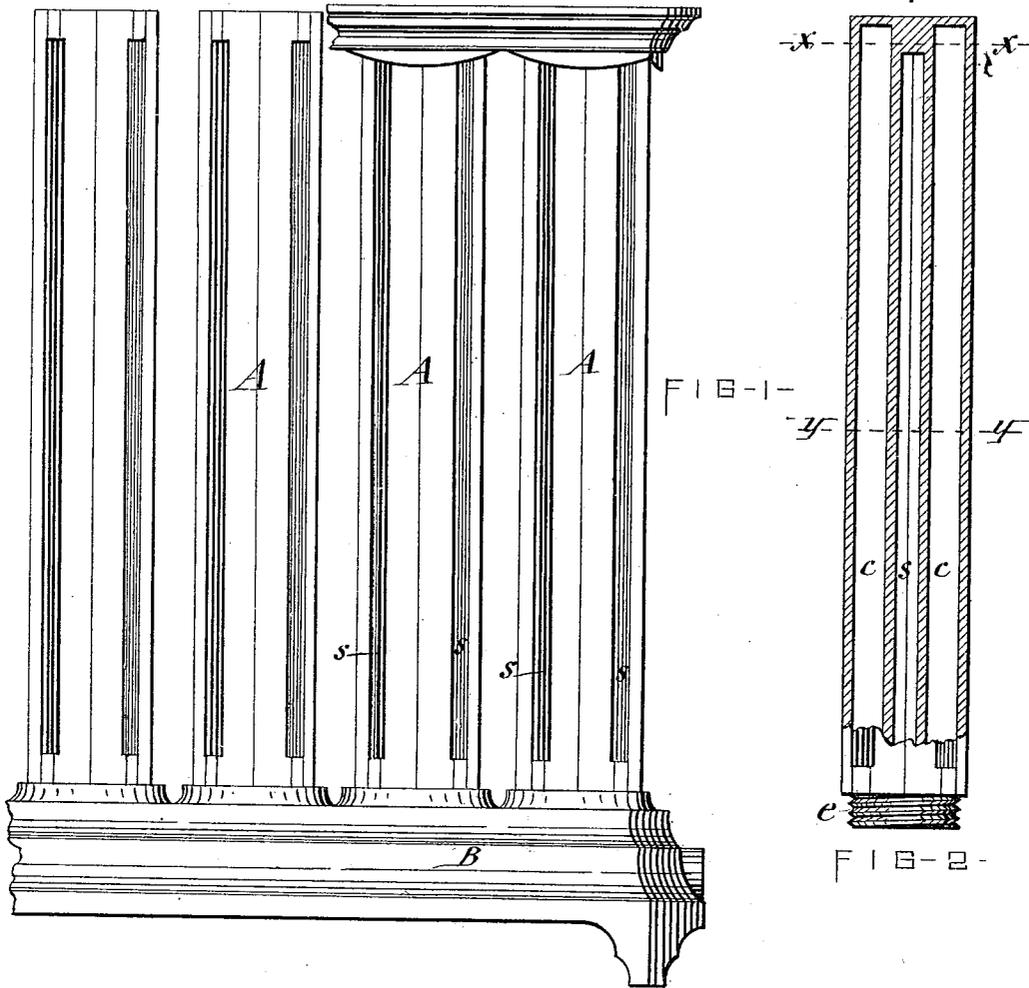


(No Model.)

J. KEEFE.
STEAM RADIATOR TUBE.

No. 273,740.

Patented Mar. 13, 1883.



WITNESSES —
Wm C. Raymond
Franklin K. Smith

INVENTOR —
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per [Signature], [Signature] & [Signature]
his Attorneys

UNITED STATES PATENT OFFICE.

JOHN KEEFE, OF OSWEGO, NEW YORK.

STEAM-RADIATOR TUBE.

SPECIFICATION forming part of Letters Patent No. 273,740, dated March 13, 1883.

Application filed December 6, 1882. (No model.)

To all whom it may concern :

Be it known that I, JOHN KEEFE, of Oswego, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Steam-Radiator Tubes; of which the following, taking in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to that class of radiator-tubes in which a number of vertical steam-channels are extended from a single tubular attaching end, through which said channels receive steam.

The object of my invention is to obtain in such radiator-tubes greater radiating-surface; and to that end it consists in the peculiar construction hereinafter described, and specifically set forth in the claim.

The invention is fully illustrated in the annexed drawings, wherein Figure 1 is an elevation of a sufficient portion of a radiator to illustrate the form of my improved radiator-tube and its connection with the usual base. Fig. 2 is partly an elevation and a longitudinal section of the radiator-tube. Fig. 3 is a plan view of the attaching end of said tube; and Figs. 4 and 5 are horizontal transverse sections of the same, respectively, on lines *x x* and *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts.

A represents my improved steam-radiator tube, sometimes called "radiator-loop." This tube I form at the base with the usual single hollow or tubular attaching end, *e*, which is screw-threaded and fastened in a correspondingly-screw-threaded hole in the base B of the radiator. From this open end of the tube A, toward the upper or free end thereof, are extended four separate longitudinal steam-channels, *c c c c*, which at the free end of the tube

A are united in pairs, as illustrated in Fig. 4 of the drawings, thus obtaining two complete circuits for the steam through a single tube, each of said circuits carrying the steam from the base to the free end of the tube and back to the base. In order to derive the full benefit of this arrangement of conducting steam through the tube A, I provide the latter with longitudinal slots *s*, which extend transversely through the intermediate solid portions between the channels *c c*, said slots intersecting each other in the center of the tube, as shown in Fig. 5 of the drawings, and forming greatly-increased heating-surfaces, which cause the heat to radiate in different directions from the tube.

I do not claim, broadly, a radiator-tube having a series of steam-channels in connection with a single attaching end, as I am aware the same is not new; but

What I do claim as my invention is—

The improved radiator-tube provided with the single hollow attaching end *e*, four longitudinal steam-channels, *c c c c*, extended from the said attaching end to the free end of the tube and united in pairs at the latter, and two longitudinal slots, *s s*, extended diametrically through the tube, separating the channels *c c* intermediately of their length, the whole constructed substantially in the manner described and shown, for the purpose set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 24th day of November, 1882.

JOHN KEEFE. [L. S.]

Witnesses:

FREDERICK H. GIBBS,
WILLIAM C. RAYMOND.