(No Model.) 2 Sheets—Sheet 1.

T. C. JOY.

STEAM OR HOT WATER RADIATOR.

No. 456,895. Patented July 28, 1891.

Fig 1.

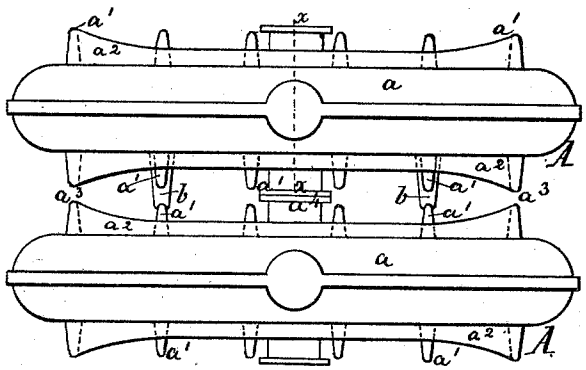


Fig 2.

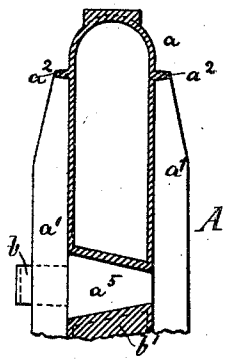


Fig 3.

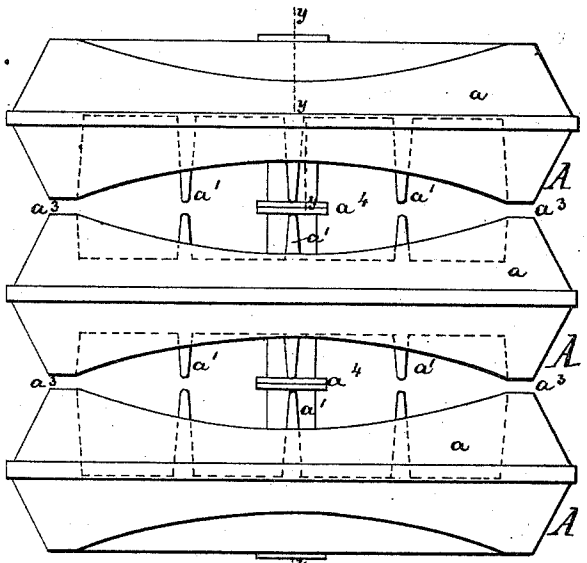


Fig 4.

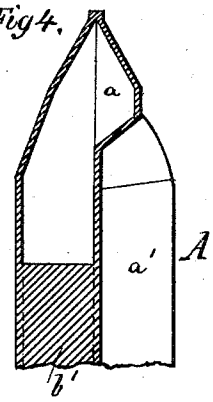


Fig 5.

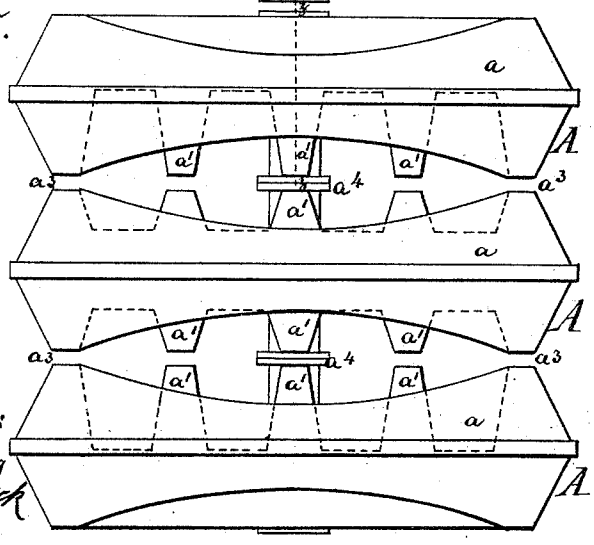
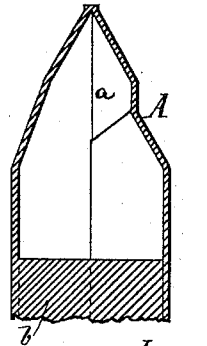


Fig 6.



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(No Model.) 2 Sheets—Sheet 2.

T. C. JOY.

STEAM OR HOT WATER RADIATOR.

No. 456,895. Patented July 28, 1891.

Fig 3*.

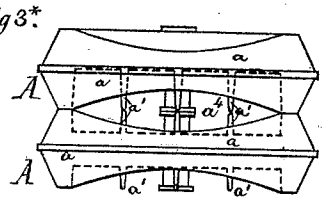


Fig 7.

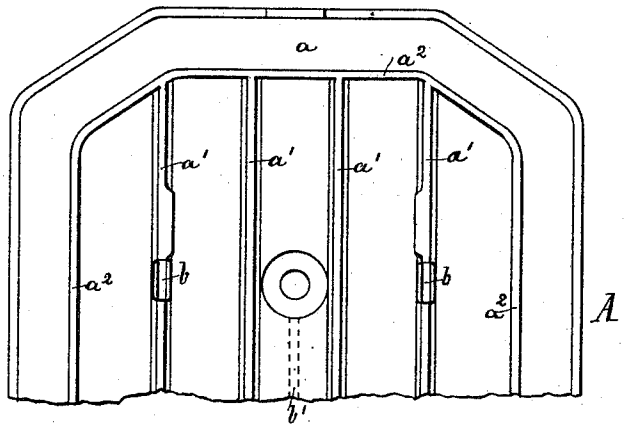


Fig 8.

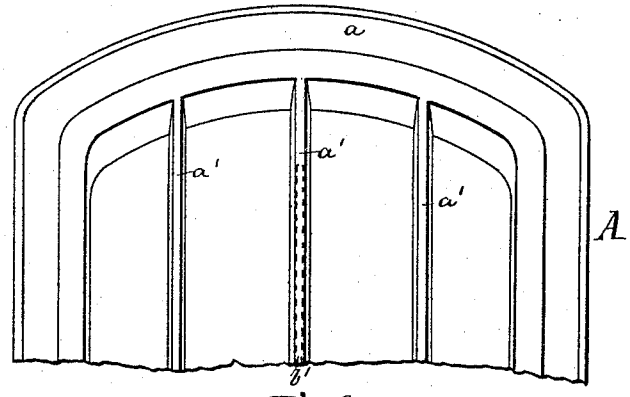
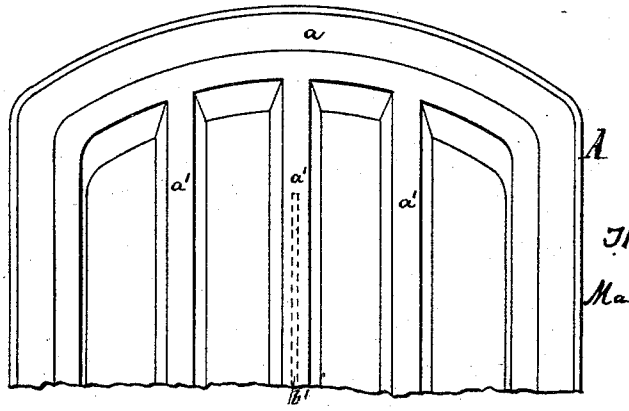


Fig 9.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THADDEUS C. JOY, OF TITUSVILLE, PENNSYLVANIA, ASSIGNOR TO T. C. JOY & CO., OF SAME PLACE.

STEAM OR HOT-WATER RADIATOR.

SPECIFICATION forming part of Letters Patent No. 456,895, dated July 28, 1891.

Application filed September 25, 1890. Serial No. 366,109. (No model.)

To all whom it may concern:

Be it known that I, THADDEUS C. JOY, a citizen of the United States, residing at Titusville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Steam or Hot-Water Radiators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in a steam or hot-water radiator comprising communicating radiator-sections constructed, respectively, with a hollow rim of approximately arching form at its upper end and straight from the base of the sections to the points where the arch and straight portions unite, and the arch portion of a section or lateral rib-like projection thereof being gradually narrowed from the respective ends of the sections to the middle thereof, whereby when two sections are set contiguous to one another in the usual manner, with or without vertical spaces between the edges of their rims or said rims and intermediate ribs, when such ribs are provided, a large circulation hot-air chamber or spaces are provided between the broad surfaces of the sections, and a passage of a form resembling a double convex lens in cross-section or other equivalent form is secured at the top of the radiator for the escape of hot air rapidly and freely from between each of the respective pairs of sections, and thus, while great utility is secured by freely discharging and distributing the air at the top of the radiator-section, a very tasteful and symmetrical radiator, which does not require a perforated distributing-cap, is produced, which is an object the trade has long been seeking to accomplish, and still not have the radiator distasteful to the observer for want of a seeming artistic finish.

In the accompanying drawings, Figure 1 is a top view of two radiator-sections connected constructed on my improved plan. Fig. 2 is a transverse section of one of the sections in the line $x\,x$ of Figs. 1. Figs. 3 and 3* are plan views illustrating my invention in two slightly-different forms and arrangements, Fig. 3* showing the sections closely adjoining. Fig. 4 is a vertical transverse section of a portion of one of the sections in the line $y\,y$, Fig. 3. Fig. 5 is another illustration of my invention in plan view. Fig. 6 is a vertical section of the same in the line $z\,z$ of Fig. 5. Fig. 7 is a face view of a radiator-section such as is shown in Figs. 1 and 2. Fig. 8 is a face view of the construction shown in Figs. 3 and 4, and Fig. 9 is a face view of the construction shown in Figs. 5 and 6.

The letter A in the drawings designates a radiator-section, which is hollow and has its main or body portion of a flattened form, and is provided with a hollow rim a, of preferably arch form, at the top of the radiator, semi-cylindrical or prismatic shape in cross-section. Between the vertical portions of said rim vertical ribs a', either solid, as in Figs. 1, 2, 3, 3*, 4, 7, and 8, or hollow, as shown in Figs. 5, 6, and 9, are preferably provided, said ribs being constructed either on both sides of the radiator-section or only on one side, the latter construction being preferably adopted on the end sections of a row of sections constituting a radiator in order to give a nicer finish and strength to the radiator. When the inner surfaces are provided with ribs, an increased air-heating surface is thereby secured and a series of air channel-ways formed; but while this is important my invention is not necessarily confined to having such intermediate ribs. The rims a of the end sections are placed flush with the outer wall of the flat portion of the end section of the construction shown in Figs. 3, 4, and 5, and by this arrangement the intermediate ribs a' of these sections can be made deeper and with a larger radiating-surface than is the case when the ribs are arranged on both sides of the section. The upper arch portion of the rim a may be polygonal, as seen in Fig. 7, or of a curved arched form, as seen in Figs. 8 and 9. The rim a may be of uniform shape all around, as in Fig. 1, or it may be enlarged vertically and gradually reduced in width toward the center, as shown in Figs. 3 and 5. In the first of these illustrations I provide the basis of the rim, where it adjoins the flat main body of the radiator-section, with a continuous lateral rib a^2, which at its top is gradually re-

duced in width from each end of the section toward the middle thereof. One of these ribs may be on each side of the section, as represented, and they may be solid or hollow. Radiators composed of sections such as described may have the sections so spaced when set up for use that long vertical uniform induction and eduction passages a^3, joined by upper flaring transverse hot-air passages a^4, will be formed, the latter passages approximating very closely the outline of a double convex lens or such a lens slightly flattened on its front and rear sides. These upper flaring passages a^4 afford a free exit to the heated air and prevent hanging of the same between the sections, and while this is so an increased heating capacity is secured and a symmetrical appearance presented.

The sections described may be constructed to adjoin one another, as in Fig. 3*, and, when not constructed to adjoin, spacing-lugs b, as seen in Figs. 1 and 2, may be provided for keeping the contiguous sections at proper distances apart, and so that vertical spaces between the rim or rims and ribs shall be formed. Tubular holes for bolts, as at a^5, may also be provided. The inner chambers of the said sections may be subdivided by means of partition-walls b', or they may be constructed in any other of the usual modes of making steam and hot-water circulating chambers or radiators.

For the purposes of symmetry the upper portion of the ribs a' are tapered off either on a bevel or a curve line, as illustrated. The most advantageous construction of the sections is shown in Figs. 3, 3*, and 4, such construction affording the largest amount of air-heating surface at the ends of the sections; but the principle of the invention is substantially the same in all of the illustrations.

From the foregoing specification, in connection with the accompanying drawings, it will be seen that the rim extends from the bottom of the radiator on both sides of a section and entirely over the top thereof, and that the construction is such that the intermediate ribs or corrugations are inclosed on both sides or ends of the sections, while at the top a passage the full length or width of the section for the free escape of the heated air is afforded between adjoining sections, while at the same time a symmetrical finish is secured from the sections themselves and all necessity for a top-finishing cap is avoided.

What I claim as my invention is—

1. A radiator-section A, composed of a flat hollow main body and a surrounding hollow rim, said rim extending up from the bottom of the section at both ends and over the top of the same and forming end ribs or flanges for the air-circulating chamber or channel-ways, substantially as described.

2. A radiator-section A, composed of a flat hollow main body and a surrounding enlarged hollow rim, said rim extending up from the bottom of the section at both ends and over the top of the same and forming end ribs or flanges for the air-circulating chamber or channel-ways and the top portion of the rim being reduced in width toward its center, substantially as described.

3. A steam or hot-water radiator comprising sections A, adjoining or set apart from one another, each section having a hollow rim, said rim extending up from the bottom of the section at both ends and over the top of the same and forming end ribs or flanges for the air-circulating chamber or channel-ways, the top portion of said rim being of arch form and reduced in width intermediate its side portions, substantially as described.

4. A radiator composed of hollow vertical ribbed sections, the ribs of which, either solid or hollow, forming a series of air channel-ways extending from the bottom to near the top thereof and the vertical and arching top portions of the rims of the sections forming vertical flanges for the air-circulating chambers or spaces, and also long air-escape spaces or passages, as a^4, between the sections at the top of the radiator, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

THADDEUS C. JOY.

Witnesses:
C. C. JOY,
JOSEPH T. CHASE.