

No. 768,856.

PATENTED AUG. 30, 1904.

G. W. JOHNSON.
STEAM RADIATOR.

APPLICATION FILED APR. 18, 1903.

NO MODEL.

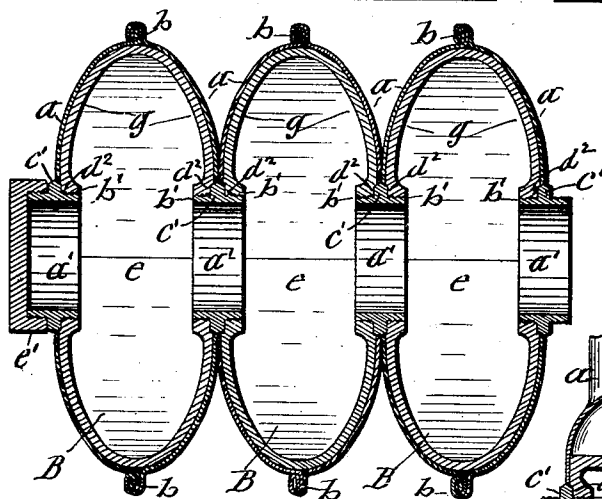
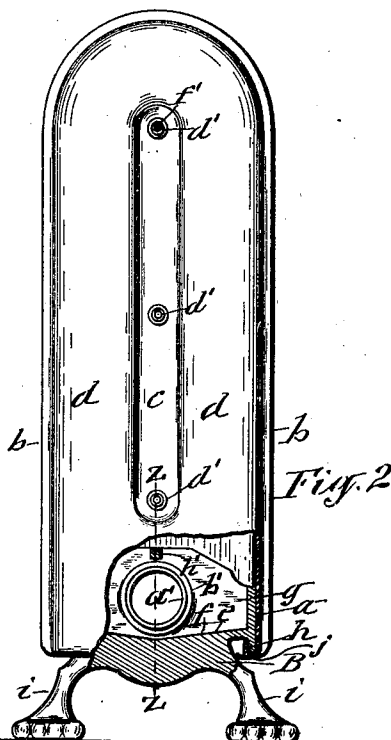
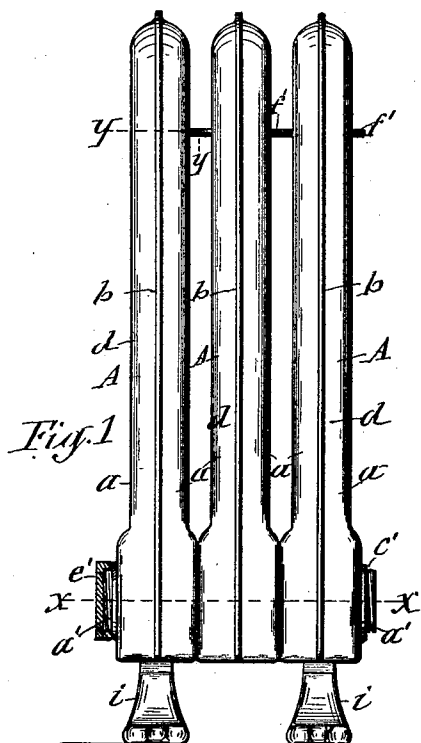


Fig. 3

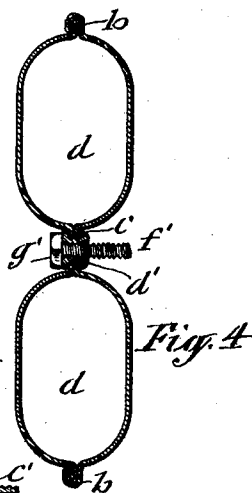


Fig. 4

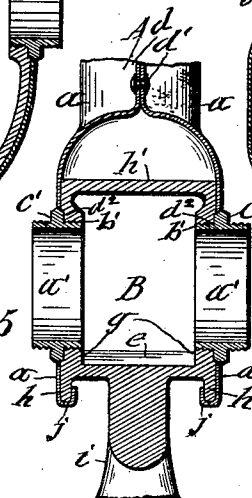


Fig. 5

WITNESSES:

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STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 768,856, dated August 30, 1904.

Application filed April 18, 1903. Serial No. 163,198. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. JOHNSON, a citizen of the United States, and a resident of Geneva, in the county of Ontario, in the State of New York, have invented new and useful Improvements in Steam-Radiators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of steam-radiators which are composed of vertical tubular sections through which the steam circulates.

The object of the invention is to reduce to a minimum the weight of the radiator and the cost of manufacture and at the same time increase its efficiency; and to that end the invention consists in the improved construction of the radiator-sections and their connections, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of a radiator embodying my improvements. Fig. 2 is a side view of one of the radiator-sections, the lower portion being broken away to better illustrate the base. Figs. 3 and 4 are enlarged transverse sections on lines X X and Y Y, respectively, in Fig. 1; and Fig. 5 is an enlarged vertical section on line Z Z in Fig. 2.

Similar letters of reference indicate corresponding parts.

The radiator is formed of a plurality of sections, each of which is composed of a column A and its base B. The column A is formed of two sheet-metal plates *a a*, which are shaped concavo-convex and disposed with their concave sides facing each other and united at their side and top edges by a double-lock joint *b*, as more clearly shown in Figs. 3 and 4 of the drawings, the bottom of the column being left open for the insertion of the base. Said plates are preferably provided with a central vertical depression *c*, extending the greater part of their lengths to produce two vertical tubes *d d* at opposite sides of the depression for the circulation of the steam, said plates being also united at said depressions by means of rivets *d' d'*, the uppermost rivet being

formed tubular and screw-threaded internally for the purpose hereinafter described.

The base B consists of a metal casting formed with an imperforate transverse plate *e*, from which extend suitable supporting-feet *i i*. Said imperforate plate constitutes the bottom of a pocket formed by a vertical wall *g*, projecting from the edges of the plate. The under side of the plate *e* has depending from it a flange *h* for the purpose hereinafter explained. The bottom portion of the column tightly embraces the wall *g* of the base B and is fastened directly to the base by clenching the bottom edges of the plates *a a* onto the flange *h*, thus forming a single endless joint, as clearly shown at *j* in Figs. 2 and 5 of the drawings.

In order to protect the interior of the sheet-metal column from corrosion, I prefer to line the same with enamel or other suitable material which will effectually fill the joint of the two plates *a a*, and thus insure the prevention of leakage.

The sections A A of the radiator are connected by means of short tubes *a' a'*, which are screw-threaded externally and engage screw-threaded openings *b' b'* in the side portions of the walls *g* of the bases B B. The said tubes are formed intermediate their ends with external collars *c' c'*, which are seated in annular rabbets *d''*, formed in the outer faces of the wall *g*. By means of the tubes *a' a'* the radiator-sections communicate with each other, as shown in Fig. 3 of the drawings. Said rabbets allow the lower portions of the sections to be brought contiguously side by side, thereby adding to the rigidity of the construction and producing a more compact and neat appearing radiator.

While I do prefer to use the screw-threaded tubes aforesaid, yet I do not limit myself specifically to such coupling, inasmuch as other species of couplings heretofore employed may be used.

The end tubes *a'* of the radiator are closed by means of suitable caps *e'*.

f' is a stay-rod which is screw-threaded from end to end and passes through the afore-said tubular rivets *d'* of the columns and

serves to sustain the successive radiator-sections in their required positions and their upper portions together, one end of which rod is formed with a head g' , and the opposite end is provided with a nut. (Not shown.)

In order to prevent the wall g of the base B from crushing incident to connecting the sections, I prefer to cast said base with a cross-bar h' , connecting opposite sides of the wall.

It will be seen that the radiator can be either enlarged or made smaller, as may be desired, by adding more sections or removing the sections by simply removing the cap e' and the stay-rod f' and substituting a stay-rod of the required length.

What I claim as my invention is—

1. The combination of a plurality of radiator-columns, each composed of concavo-convex sheet-metal plates disposed with their concave sides facing each other and united at their edges and formed with compressed central portions, a tubular rivet tying said compressed portions together and screw-threaded internally, and a rod extending through the tubular rivets of the successive columns and having its entire length screw-threaded and engaging the interiors of said rivets as set forth.

2. A steam-radiator composed of a plurality of sections, each consisting of a cast-metal base formed with a wall around its top, a depending flange under said wall, oppositely-disposed openings in said wall and circumferential rabbets adjacent to the openings, tubular couplings secured in said openings and provided with collars seated in the rabbets, the sheet-metal column composed of reversely-disposed concavo-convex plates united at their side and top edges and embracing the wall of the base and both of said plates clenched onto the aforesaid flange and forming a single endless joint thereat, said plates formed with openings cor-

responding to the diameters of the aforesaid collars, the plates formed with vertical compressions extending part way the height of the central portions, a tubular rivet tying the compressed portions together and screw-threaded internally, a rod passing through the tubular rivets of the successive columns and screw-threaded throughout its length and engaging the interiors of said rivets as set forth.

3. In combination with a plurality of columns, bases, to which said columns are attached, said bases having integral walls extending entirely around the same, and cross-bars formed integral with said walls, the walls and cross-bars of said bases being received in said columns and short tubes extending through said base-walls and columns.

4. In a radiator of the type set forth, a column formed of two sections having their edges united, said sections having their lower portions formed with oppositely-disposed openings, a base comprising a plate formed on its under face with a depending flange onto which the bottom edges of said sections are clenched, and the upper face of said plate being provided with an integral wall snugly engaging the inner faces of said sections, said wall being formed with openings registering with the openings of said sections.

5. A radiator comprising a plurality of columns formed with openings, bases provided with walls projecting into said columns, the walls of said bases being formed with threaded openings registering with the openings of said columns, and short externally-threaded tubes projecting through the contiguous sides of said columns, and engaging the threaded openings of said base-walls.

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Witnesses:

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