

(No Model.)

J. GORMLY.
RADIATOR.

No. 319,231.

Patented June 2, 1885.

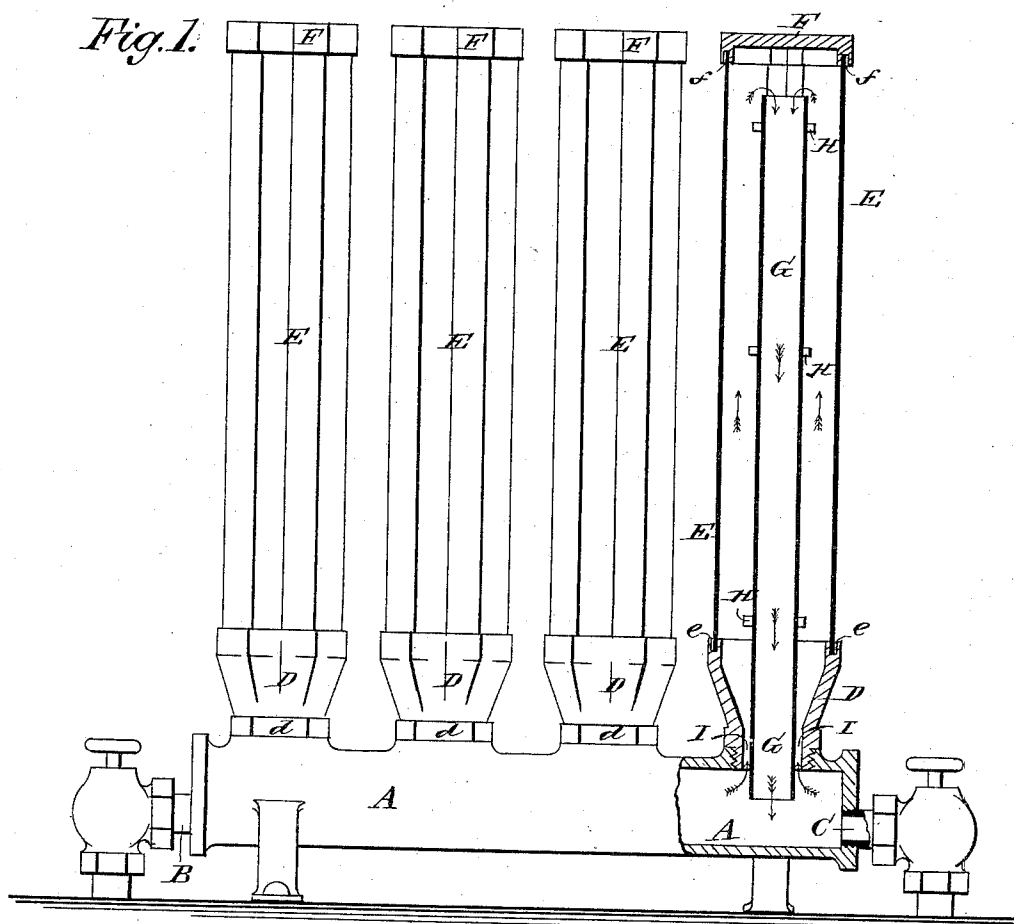
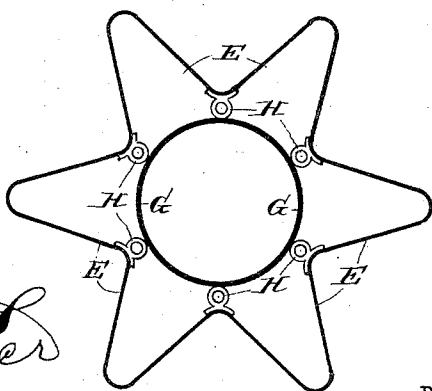


Fig. 2.



WITNESSES:

Wm. B. ...
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INVENTOR:

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UNITED STATES PATENT OFFICE.

JOHN GORMLY, OF PROVO CITY, UTAH TERRITORY.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 319,231, dated June 2, 1885.

Application filed December 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN GORMLY, of Provo City, in the county of Utah and Territory of Utah, have invented certain new and useful
5 Improvements in Radiators, of which the following is a full, clear, and exact description.

My invention relates to radiators for heating buildings, and has for its object to provide a simple, inexpensive, and efficient radiator
10 having a quick circulation of the heating agent, and providing a large heat-radiating surface in a small space.

The invention consists in a radiator made with tubes of sheet metal fitted with caps, and
15 to cast-metal connections fitted into a hollow base which has inlet and outlet pipes for passing the heating agent.

The invention consists, also, in particular constructions and combinations of parts of the
20 radiator, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate
25 corresponding parts in both the figures.

Figure 1 is a side elevation of a radiator embodying my invention, and with one of the
30 radiator-tubes and part of the base in section; and Fig. 2 is an enlarged cross-sectional view of one of the radiator-tubes.

The letter A indicates the hollow base of the radiator, and B C are respectively the
35 inlet and outlet pipes for the passage of the steam, hot water, or other heating medium to and from the radiator.

Along its top, at suitable intervals, the base A has orifices, which are suitably screw-threaded to receive the threaded lower ends of the
40 hollow tapering cast-metal connections, D, which have a flat-sided portion, *d*, to which a wrench may be applied for screwing or unscrewing the connections more conveniently.

The top surfaces or edges of the several connections D are shaped to conform to the cross-
45 sectional contour of the sheet-metal tubes or pipes E, which may be plain cylinders; but I prefer to give the tubes a corrugated and preferably the stellate form shown more clearly in Fig. 2; and to make tight and inexpensive
50 joints between the tubes E and connections D, I place the lower ends of the tubes into grooves *e*, formed in the tops of the connections D,

and secure the tubes in the grooves by brazing or soldering, or in any other approved way.

At the tops of the tubes E are fitted cast-
55 metal caps F, which have grooves *f*, into which the ends of the tubes pass, and are soldered or brazed to complete the joint.

G is a tube or pipe, which is open at both ends, and is held by suitable connecting-plates,
60 ribs, or braces, H, to the bases of the corrugations of the tube E, so that the tubes E G mutually brace or stay each other, the corrugated tube E being thereby retained in its original
65 shape, so as to stand more firmly against lateral pressure from any direction.

The tube G does not extend to the cap F, and extends below the bottom of the connection
70 D for a little distance into the hollow base A, as in Fig. 1.

When the steam is turned on to the radiator,
75 the steam will rise through the passages I, between the tubes G and the necks of the connections D and the walls of the outer tubes, E, and then return downward through the interior of the tubes G to the base, driving
80 the air that may have been in the tubes before it in the direction indicated by the arrows in Fig. 1, and the steam will continue to circulate through the tubes in this manner, the tubes G having the effect to quicken the
85 circulation through the outer tubes, E, to maintain their best heat-radiating action.

It will be seen that the thin metal of the tubes E causes them to be heated quickly by the
85 steam, and their corrugated form largely increases their effective radiating-surface for a given space occupied, and the sheet metal of the tube presents a smooth outer surface on
90 which dust will not easily lodge, and which may be ornamented in a great variety of neat and pleasing designs in lacquer, varnish, or other finish, as may be desired.

The tubes E G may each be formed from a single sheet of metal lapped and brazed or
95 soldered along the joint, and I propose to make the tubes E G and the caps F and base-connections D to gages and interchangeable, so that any-sized base A requiring one or more radiating-tubes may quickly be made
100 ready for delivery.

The parts of the radiator, especially the tubes, are light and strong, making it easy to transport them and put them in place.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A radiator constructed with a hollow base and one or more sheet-metal radiating-tubes attached to the base by detachable hollow cast-metal connections, and having caps at their upper ends, substantially as herein set forth.
2. A radiator constructed with a hollow base, A, and one or more sheet-metal tubes, E, attached to the base by removable cast-metal connections D, and having closed caps F, and said tubes E having a corrugated or stellate construction, substantially as herein set forth.
3. A radiator constructed with a hollow base, A, and one or more sheet-metal tubes, E, attached to the base by removable cast-metal connections, D, and having caps F, and with interior tubes, G, fitted in the tubes E, substantially as herein set forth.
4. A radiator constructed with a hollow base, A, and one or more sheet-metal radiating-tubes, E, attached to the base by removable cast-metal connections D, and having caps

F, said tubes E having a corrugated or stellate cross-sectional form, and being fitted with interior tubes, G, held to tubes E by braces H, and with their upper ends below the cap, and their lower ends projecting into the base A, substantially as herein set forth.

5. A radiator-tube constructed with a sheet-metal body portion, a removable cast-metal base-connection, D, a cast-metal cap, F, and an interior sheet-metal tube, G, substantially as herein set forth.

6. A radiator-tube constructed with sheet-metal body portion having a corrugated or stellate cross-sectional form, an interior sheet-metal tube, G, held to tube E by braces H, and a cast-metal base-connection, D, and cap F, having grooves *e f*, into which the ends of tube E are made fast, substantially as set forth.

JOHN GORMLY.

Witnesses:

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