

(No Model.)

E. GURNEY, C. LEVEY & C. W. PENISTON.  
RADIATOR.

No. 418,011.

Patented Dec. 24, 1889.

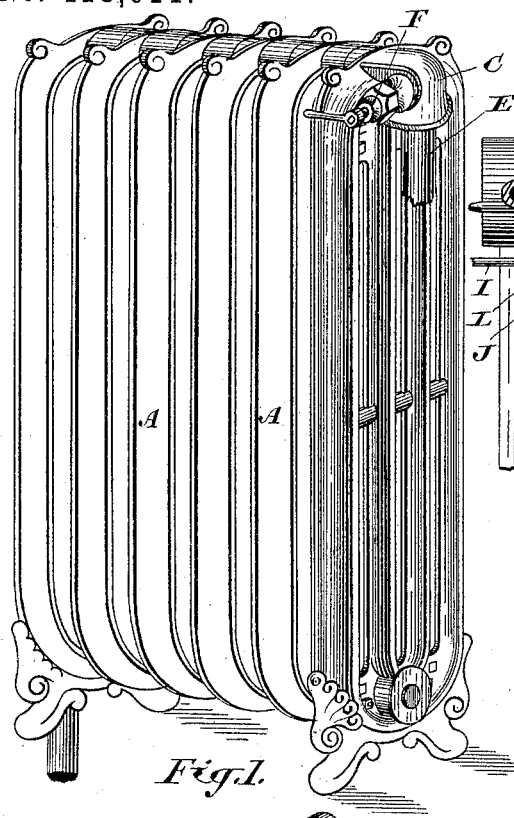


Fig. 1.

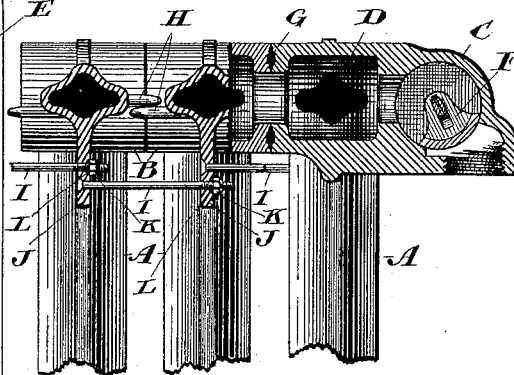


Fig. 2.

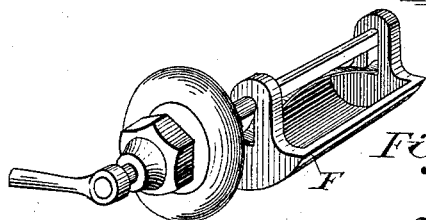


Fig. 3.

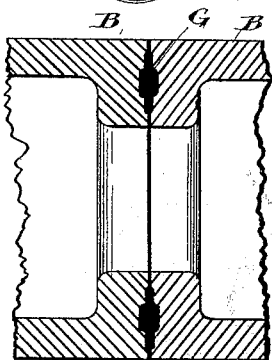


Fig. 4.

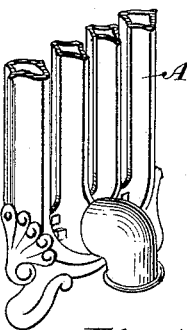


Fig. 5.

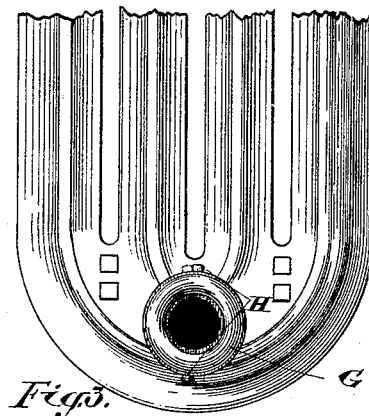
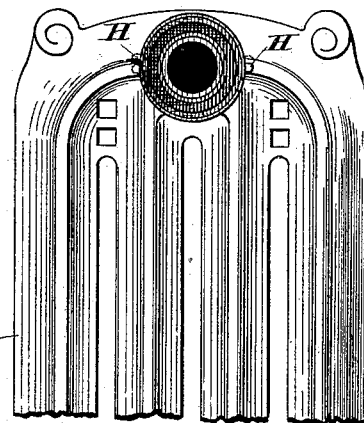


Fig. 7.

Witnesses.  
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# UNITED STATES PATENT OFFICE.

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TO SAID GURNEY.

## RADIATOR.

SPECIFICATION forming part of Letters Patent No. 418,011, dated December 24, 1889.

Application filed January 30, 1889. Serial No. 298,131. (No model.)

*To all whom it may concern:*

Be it known that we, EDWARD GURNEY, manufacturer, CHARLES LEVEY, engineer, and CHARLES WILLIAM PENISTON, engineer, all of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have jointly invented a certain new and useful Improvement in Radiators, of which the following is a specification.

10 The object of the invention is to produce a neat and easily-regulated radiator, so constructed that it may be readily and properly put together by any unskilled man of ordinary intelligence; and it consists, essentially, 15 of a series of loops, each loop having projections formed on its face at the top and bottom of the said loop, and each projection having a peculiarly-formed angular annular recess made in its face to receive a compressible ring, the projections on one loop being 20 designed to fit against the corresponding projections on the loop next to it, fingers being formed on the projections to guide them into position, each pair of loops being held together 25 by bolts, the outer loop of each radiator having an elbow formed integral with the said loop and communicating with the chamber connecting the vertical legs of the said loop, a rolling valve being located within the elbow and arranged so that it may be employed 30 to cut off communication between the loop and the pipe whence the steam or hot water is received.

Figure 1 is a perspective view of our improved radiator. Fig. 2 is a sectional view 35 through the outer loop and the two immediately next to it. Fig. 3 is an enlarged face view of a loop, the upper portion showing the recess in the projection, while the lower portion shows the compressible ring in the said 40 recess. Fig. 4 is a detail showing the elbow for the return-pipe. Fig. 5 is a detail of the cut-off valve. Fig. 6 is an enlarged sectional detail, showing the joint between the two loops. 45 In the drawings like letters of reference indicate corresponding parts in the different figures.

A represents the loops, on each of which are formed the projections B. The outer 50 loop at one end of the radiator has an elbow C, cast integral with the said loop, and each

elbow is designed, as indicated in Fig. 2, to communicate with the chamber D, which forms a connection between the vertical legs of the loop. When this elbow is designed to 55 form a connection between the supply-pipe E and the radiator, we insert a rolling valve F, which is designed to cut off connection between the said supply-pipe and the radiator. 60

In the face of each of the projections B we cut an angular annular recess, shaped as shown in Fig. 6, so that when the compressible ring G is inserted in the said recess and is compressed between the two loops to be 65 jointed together the edges of the angular annular recess embed themselves in the compressible ring, thereby effectually constituting a steam and water tight joint. A pair of fingers H extend beyond each projection B 70 to form guides to direct the said projections properly together, the fingers on the upper projections being on either side, while the fingers on the lower projections are on the top and bottom, or vice versa, so that one set 75 of fingers shall form vertical guides, while the other pair shall constitute horizontal guides, the fingers on one projection being designed to overlap the fingers on the projection next to it, as indicated in Fig. 2, and 80 thus make certain of proper joints being formed when the bolts I are tightened. The head of each of these bolts, it will be noticed, is countersunk into the web J of the loop against which it fits, and the countersink, as 85 well as the head, is shaped so that the bolt whose head is fitted into it cannot revolve. A nut K is screwed onto each bolt I, and a washer L is placed below each nut.

Owing to the arrangement of the fingers 90 described, the loops when bolted together form a perfectly rigid structure, and as the bolts cannot revolve, each bolt being held by its head, as described, or the nuts revolve, as they are held by the spring of the washers 95 beneath them, the loops thus held together are rigid and immovable.

What we claim as our invention is—

1. As an improved article of manufacture, a radiator-loop comprising in a single element 100 the vertical legs communicating with each other through a chamber D, and an elbow

having communication with said chamber, and a valve-chamber at right angles to its communication with the chamber D, and a threaded portion parallel with the legs, substantially as herein shown and described.

5 2. The combination, with the loops formed with projections B, and bolts for securing said loops together, of the fingers H, arranged parallel with said projections and extended  
10 beyond the same, substantially as shown and described.

3. The combination, with the two loops formed with projections B and with webs J

and fingers H, extended beyond said projections, the fingers at one end of the loop being arranged at substantially right angles to those at the other end of the loop, of the bolts connecting said ribs, substantially as shown and described.

Toronto, January 18, 1889.

EDWARD GURNEY.

CHAS. LEVEY.

CHARLES WILLIAM PENISTON.

In presence of—

CHARLES A. BALDWIN,

CHAS. H. RICHES.