

(No Model.)

C. C. WALWORTH.
Steam Radiator.

No. 230,368.

Patented July 20, 1880.

Fig:1.

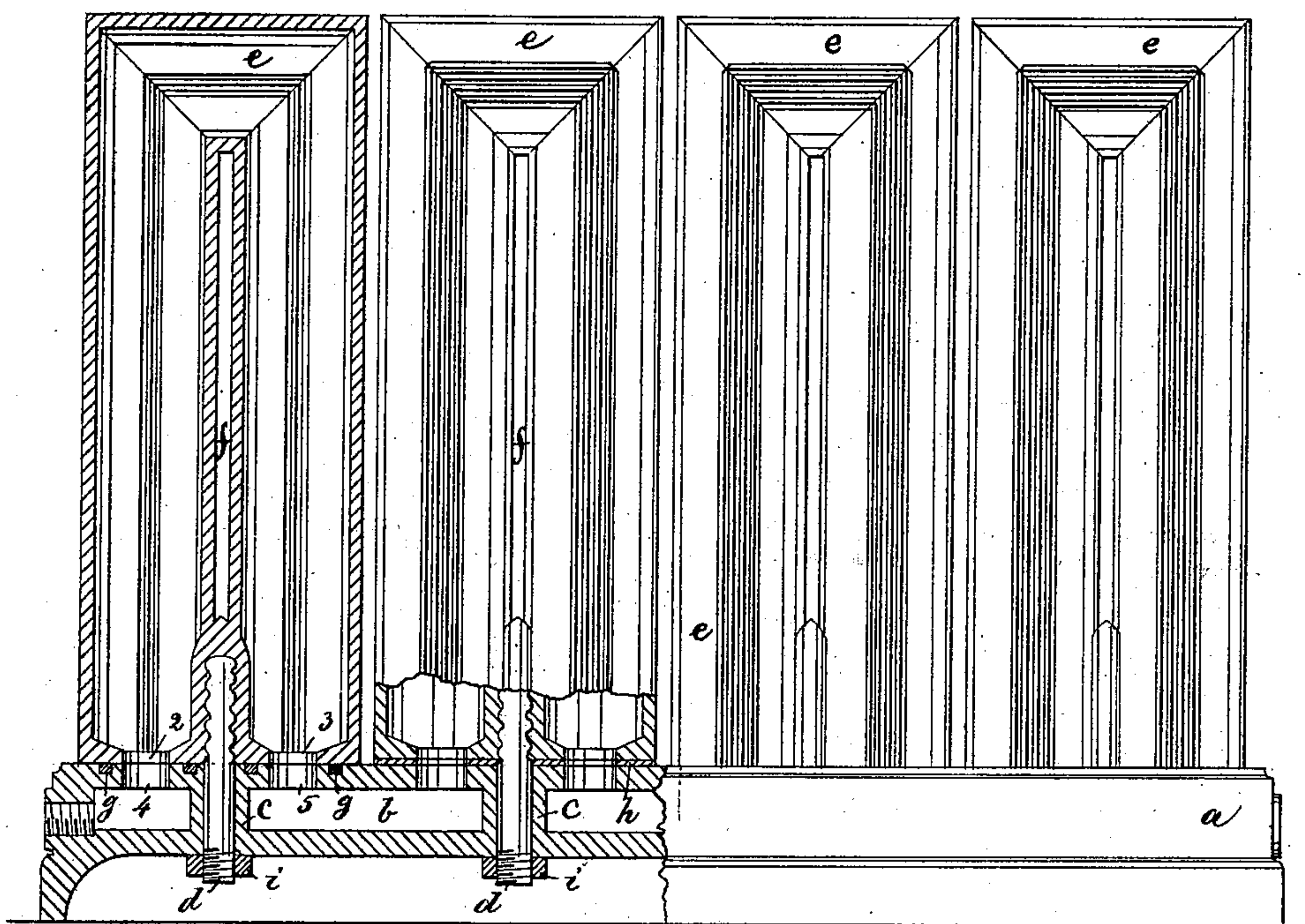


Fig:2.

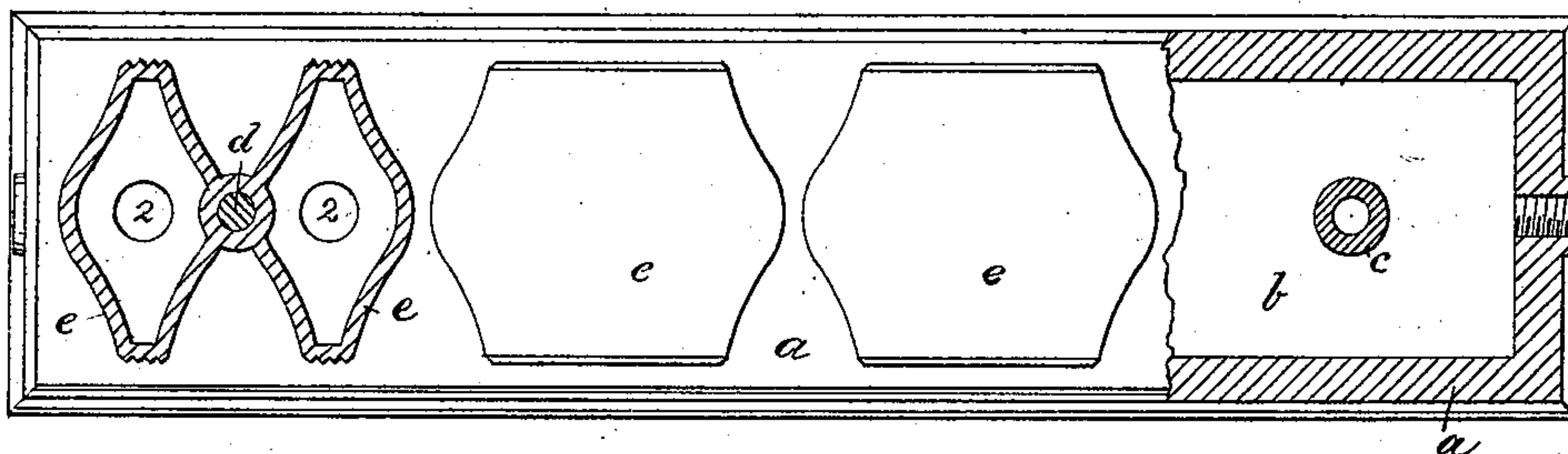


Fig:3.



Witnesses.

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UNITED STATES PATENT OFFICE.

CALEB C. WALWORTH, OF BOSTON, MASSACHUSETTS.

STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 230,368, dated July 20, 1880.

Application filed May 5, 1880. (No model.)

To all whom it may concern:

Be it known that I, CALEB C. WALWORTH, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Steam-Radiators, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to steam-radiators, and has for its object such a construction, as hereinafter described, of a radiator as to permit its joints to be made and secured in a cheap and durable manner.

My invention consists in a steam-radiator composed of a base and loop-pipes, provided each with a screw-rod between the two open end passages of the pipe, the rods being extended through closed sleeves in the base, where nuts are applied, the pipes—suitable packing having been placed between their open ends and the base upon which the ends of the pipes bear—being then drawn closely to the base by the said nuts to thus form steam-tight joints.

In steam-radiators heretofore made, wherein so-called "loop-pipes" have been employed, a single collar divided centrally to form a passage for the entrance and exit of steam has been screw-threaded to enter a screw-threaded opening in the base. Also, the base has been provided with openings to receive a collar, about which a soft-metal ring has been placed, so that the collar forced into the opening in the base has caused the soft-metal ring to act as a packing for the joint. In other cases the collar has been cast in a chill to be forced into an opening in the base; but all these plans are more expensive than the one herein described by me, and are no better.

I am also aware that the bolts for holding together the bottom and top plates of the radiator-base have been extended through sleeves connected with the upper plate of the base, the lower ends of the said sleeves resting against the lower plate, making a joint requiring packing to make it steam or water tight.

Figure 1 represents a side elevation, partly in section, of a steam-radiator containing my invention; Fig. 2, a plan and partial horizontal section of Fig. 1 on the dotted lines in Fig. 1, and Fig. 3 a detail.

The cast-metal base *a*, having steam-space *b*, and provided with the usual steam inlet and outlet, has cast with it, by means of coring, a number of sleeves, *c*, which strengthen the base and make steam-tight passages,

through which openings pass the screw-rods *d*, fixed to the loop-pipes *e*, having preferably an open space, *f*, between them. These screw-rods will preferably be united with the loop-pipes by casting. Each loop-pipe has at its lower end two separate steam-passages, 2 3, that coincide with passages 4 5 cast in the base near the passages through the sleeves *c*.

The screw-rods are connected with the loop-pipes between the openings 2 3. Between the flat surfaces at the lower end of the loop-pipe and the flat surface about the openings 4 5 of the base I have placed suitable packing, either prepared metal, as at *g*, or asbestos or other packing, as at *h*. In case metal is used, as I prefer, the top of the base will be grooved (see Figs. 1, 3) to receive the metal packing, composed more or less of lead, the said packing more than filling the said groove, so that when the nut *i* is applied to the screw-rod, to force the lower end of the loop-pipe closely against the said packing and the top of the base to form a steam-joint, the metal will spread a little.

The sleeves *c* greatly strengthen the base, and operate in an entirely different manner, it will be obvious, than would be the case if loose sleeves were interposed between the upper and lower plates of the base.

The edges of the loop-pipes are shown as cast with vertical grooves and ribs, to add to the effective radiating-surface.

I claim—

1. In a steam-radiator, the base and its solid sleeves, combined with the loop-pipes and their screw-rods connected therewith, and with means to draw or force the ends of the pipes against the base about the passages 4 5 therein, substantially as described.

2. In a steam-radiator, the cast-metal loop-pipe provided with two independent openings, 2 3, and having solid sleeves *c*, combined with a base provided with two corresponding openings, 4 5, a packing between them, and a screw-rod extended through the solid sleeve, and a nut to draw the end of the loop-pipe against the packing, between it and the base, sufficiently tight to make a steam-joint, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CALEB C. WALWORTH.

Witnesses:

G. W. GREGORY,
L. F. CONNOR.