

(No Model.)

2 Sheets—Sheet 1.

A. EICHHORN.
STEAM RADIATOR.

No. 569,040.

Patented Oct. 6, 1896.

Fig. 1.

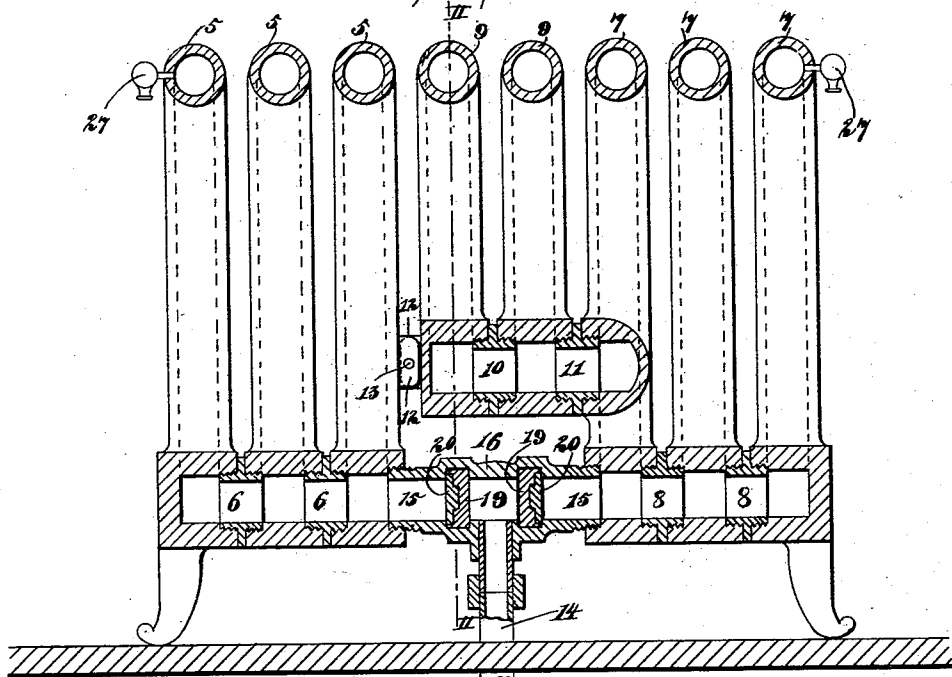
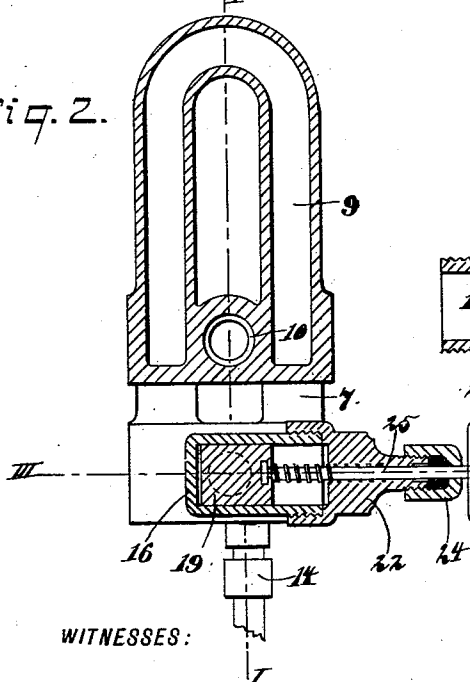


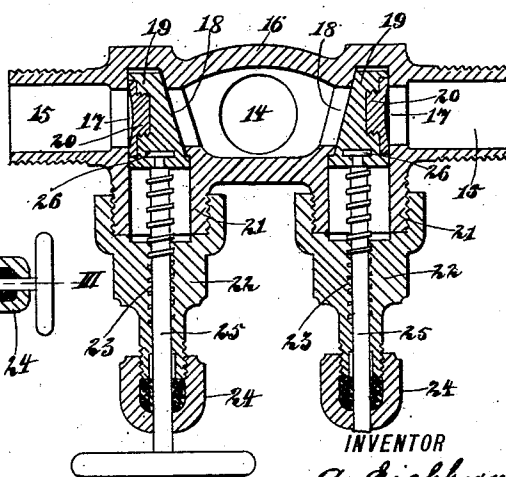
Fig. 2.



WITNESSES:

Henry A. C. Kelley.
Isaac B. Wenz.

Fig. 3.



INVENTOR

A. Eichhorn.

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ATTORNEYS.

(No Model.)

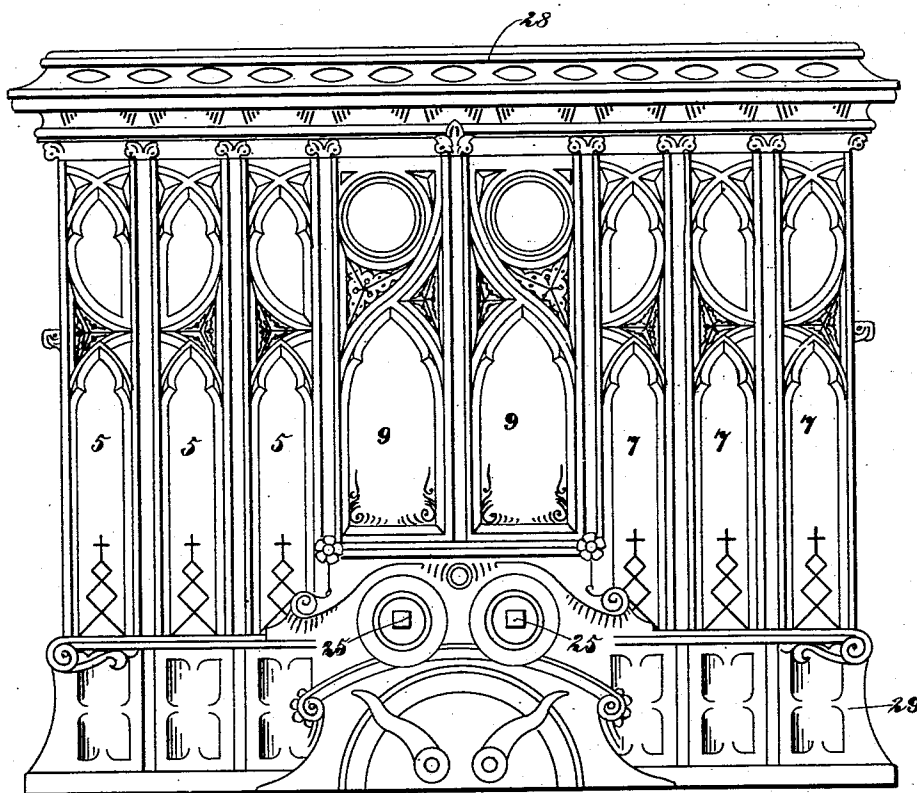
2 Sheets—Sheet 2.

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Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

AUGUSTUS EICHHORN, OF ORANGE, NEW JERSEY.

STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 569,040, dated October 6, 1896.

Application filed April 30, 1896. Serial No. 589,690. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS EICHHORN, of Orange, in the county of Essex and State of New Jersey, have invented a new and Improved Steam-Radiator, of which the following is a full, clear, and exact description.

The object of this invention is to provide a single-inlet steam-radiator which will be capable of adjustment to different degrees of radiation, and which will also be capable of having the inlet-pipe centrally arranged, so that the beauty and symmetrical appearance of the radiator will be very much increased. I attain this end by means of a series of loops arranged so as to form two separate sections, the loops of one section being of the same form and size and the inner loops of the other section being shorter than the outer loops, so as to form a space at the lower central portion of the radiator in which is arranged a three-way valve communicating with each section and with the steam-feed and capable of independently controlling the inlet of steam to the sections of the radiator.

The invention will be fully described hereinafter and finally defined in the claim.

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

Figure 1 is a sectional view of my invention on the line I I of Fig. 2. Fig. 2 is a sectional view on the line II II of Fig. 1. Fig. 3 is a sectional view on the line III III of Fig. 2, and Fig. 4 is a front elevation of a radiator constructed after the manner of my invention and illustrating the ornamentation to which it is susceptible.

In a radiator constructed after the manner of my invention a series of loops 5 are provided at the left of the radiator and joined to each other at their lower ends by means of the thimbles 6. Three loops 7 at the right of the radiator and similar to the loops 5 are joined to each other at their lower ends by the thimbles 8, and two loops 9, terminating above the lower ends of the loops 5 and 7, are joined to each other by a thimble 10 and to the left-hand loop 7 by a thimble 11. The loops 9 and 5 have no communication with each other and are exteriorly connected by means of lugs 12, held by a bolt or pin 13.

The short loops 9 form a space at the cen-

tral lower portion of the radiator, and in this space a three-way valve commanding the steam-feed pipe 14 is arranged, the valve having two longitudinally and oppositely projecting thimbles 15 respectively screw-threaded in the inner end loops 5 and 9. By these means the valve is connected with the two sections of the radiator. The valve comprises a casing 16, at each side of which a seat 17 is formed, the seats 17 respectively coöperating with seats 18, and also respectively commanding the thimbles 15.

Sliding on the seats 17 and 18 are the respective gates or plugs 19, each of which is provided with a removable wear-plate 20, respectively adapted to bear against the valve-seats 17, and the disposition of the seats 18 is diagonal with relation to the seats 17, so that the wedge-shaped form of the plugs 19 will cause the plugs to firmly and securely engage each seat, thus forming a double-seat valve, the main pressure of which is between the wear-plates 20 and the seats 17.

Projecting forwardly from the casing 16 are two externally-threaded bosses 21, said bosses being transversely alined with the plugs 19 and respectively having the caps 22 screwed over them, each cap comprising an internally-threaded portion 23 and a gland-box 24, in which suitable packing is arranged for the valve-stems 25, which pass through the caps 22 and are screw-threaded to coöperate with the internally-threaded portions 23 of the caps, each stem having a head 26, by which they are respectively revolvably connected with the plugs 19. The connection between the heads 26 and the plugs 19 may be effected by any suitable means, it being preferred to form in the plugs under-cut slots, through which the heads may laterally slide.

The bosses 21 are adapted to form cavities in which the plugs 19 may move when in an opened position. It will be seen that the operation of the valves is effected by turning the stems 25, whereupon the threads of the stems operate in the threaded portions 23 of the caps 22 to move the blocks 19 to an opened or closed position, permitting the steam to pass from the pipe 14 to either side, according to the manipulation of the valve, and filling the appropriate compartments of the radiator.

The valve shown and described is that

which I prefer to use, but it is evident that the broad principle of my invention is not limited to the specific construction of this valve. It is also preferred to connect the adjacent loops 5 and 9 by the lugs 12 and pin 13, but it will be understood that this may be done as well by various other means. The loops may be of any preferred form and may be connected both at their upper and lower ends or exclusively at their lower ends, as may be desired. The end loop of each section of the radiator is provided with an automatic air-exit valve 27, by which the incoming steam is permitted to force outward the air within the loops and which automatically close upon being influenced by the heat of the steam.

In the operation of the invention the steam on passing through the pipe 14 enters the casing 16, and by the operation of the spindles 25 the steam may be admitted to or excluded from either of the two sections forming the radiator. Supposing, therefore, that the steam is allowed to enter the section composed by the three loops 5, it will be seen that these loops will operate to radiate a degree of heat controlled by the size of the loops. If the valve is operated to throw the loops 7 and 9 in communication with the pipe 14, it will be seen that the capacity of the radiator will be increased more than double that of the loops 5 and the radiator will operate to its fullest capacity. Should, however, the loops 5 be cut out of communication with the pipe 14, the capacity of the radiator will be reduced, but its capacity will still be greater than that characteristic of the loops 5. It is understood that the water of condensation returns to the boiler by way of the pipe 14.

Fig. 4 shows the high degree of ornamentation to which my invention is susceptible, as well as the symmetric character of the radiator. In this view it will be seen that the loops are ornamented in a style of Gothic tracery and provided with an appropriate top plate 28, while the space at the bottom

of the loops is covered by a plate 29, which may also be ornamented. In this view the stems 25 of the valves alone appear, the other portions being hidden, and it will be seen that the radiator thus arranged is neat and symmetric in appearance.

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

A radiator having a series of loops, the loops being divided into two sections, one of which sections has loops of uniform length, said loops having communication with each other at their lower ends and the lower portion of the innermost loop of the first section having an opening in its side, the remaining or second section of loops having a part of the loops of the same length as the loops of the first section, the loops of such part being in communication with each other at their lower ends and the innermost loop having an opening in its side and approximately horizontally aligned with the opening in the innermost loop of the first section, the second section having an additional loop in communication with the innermost loop of the first-named loops of the second section, said additional loop being shorter at its lower end than the remaining loops to form a space enclosed by the outermost lines of the radiator, a valve-casing having two horizontal and oppositely-projecting outlet-thimbles, said thimbles respectively communicating with the openings in the inner sides of the aforesaid innermost loops, the valve-casing also having an inlet-orifice and the valve-casing being received within the space left by the shortened loop of the radiator and valve-gates respectively for the outlet members of the valve-casing, the gates being capable of independently controlling the sections of the radiator, substantially as described.

AUGUSTUS EICHHORN.

Witnesses:

ISAAC B. OWENS,
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