

No. 709,758.

Patented Sept. 23, 1902.

A. EICHHORN.
RADIATOR.

(Application filed Apr. 13, 1901.)

(No Model.)

Fig. 2

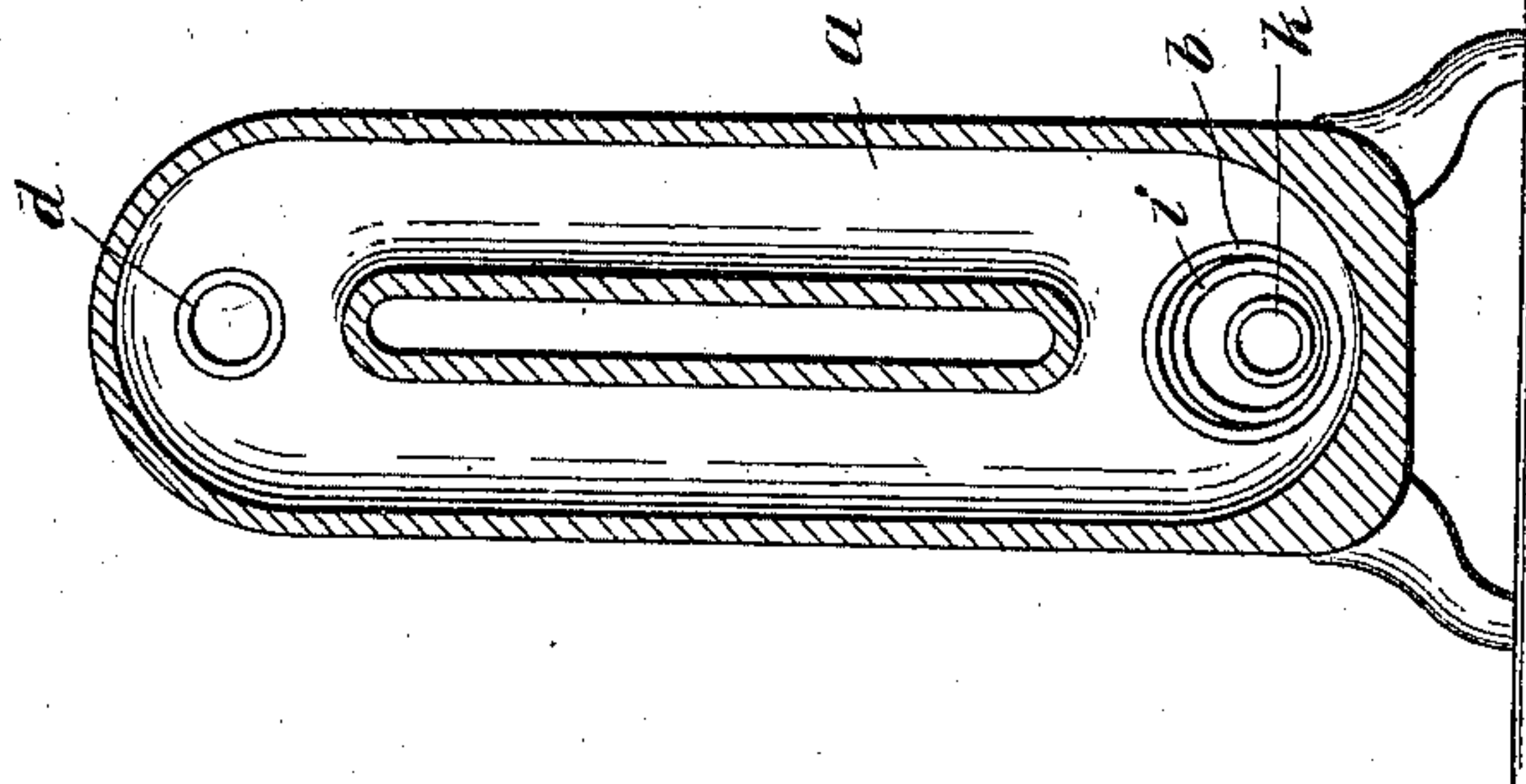
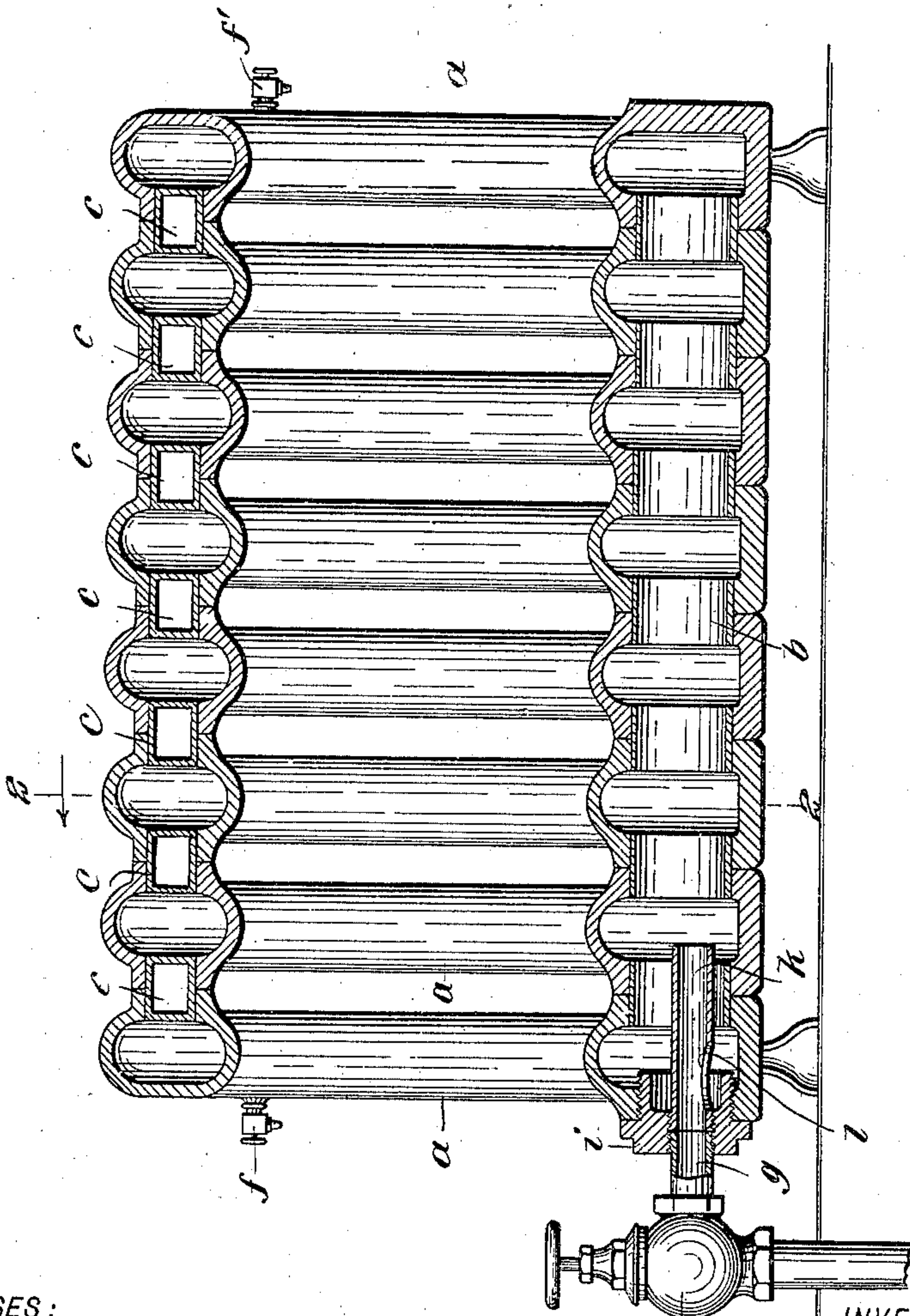


Fig. 1



WITNESSES:

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AUGUSTUS EICHHORN, OF ORANGE, NEW JERSEY.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 709,758, dated September 23, 1902.

Application filed April 13, 1901. Serial No. 55,657. (No model.)

To all whom it may concern:

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

The object of this invention is to provide a radiator having two divisions and so arranged that either may be heated independently at will. It is preferred to have one section of the radiator much larger than the other and in operation to keep the smaller section heated continuously, and then, if maximum heat is desired, to adjust the parts so that the larger section also may be heated. This end I attain by introducing the steam into the radiator through a pipe leading horizontally through the base of the radiator to a certain point intermediate the ends of the radiator, this point constituting the dividing-line between the two divisions of the radiator. Each end of the radiator is provided with an air-valve, and by the operation of either valve the air from the respective divisions of the radiators may be exhausted and steam allowed to take its place. When one of the air-valves is closed, the air will be confined in the division to which said valve is devoted, and this division of the radiator will then be kept cool, since no steam will be permitted to enter it against the volume of air therein. The steam-pipe is arranged so as not only to perform the functions above pointed out, but also to carry off the water of condensation. In connection with this arrangement it may also be observed that the air may be effectively expelled from the radiator, since two exits are provided, and thus the full heating capacity of the radiator may be brought quickly into play.

This specification is a description of one example of my invention, while the claims define the actual scope thereof.

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 both views.

Figure 1 is a longitudinal sectional view of the radiator, and Fig. 2 is a section on the line 2 2 of Fig. 1.

a indicates the loops or sections of the radiator. These loops are joined together to

form the whole radiator, and according to the form here illustrated the lower ends of the loops or sections are connected by couplings *b*, which are open to form a continuous passage extending longitudinally through the radiator at the bottom and communicating with all the sections thereof. The upper ends of the sections may be connected by open or closed thimbles, as desired. They are here shown as joined by thimbles or couplings *c*, which serve not only to connect together the two sections of the radiator with which they are connected, but also to close the communication between the upper portions of the sections. The end sections of the radiator are provided with air-cocks *f* and *f'*, respectively, as shown in the drawings.

g indicates the supply-pipe, which is controlled by a valve *h* and which is screwed into the thimble *i*. The thimble *i* is screwed into one of the end sections or loops *a* of the radiator. The connection between the pipe *g* and the thimble *i* is eccentric to the thimble, the pipe *g* being located at the lower part thereof, so as to lie as near the bottom of the radiator loops or sections as is possible.

k indicates a lead-pipe, (leads the steam,) which is fitted into the thimble *i* and abuts against the pipe *g* to form a continuation thereof. This pipe *k* may pass into the radiator for any distance desired. I have here shown it, however, as passing to the second loop or section *a*. Formed in the bottom of the pipe *k* is an opening *l*, which is located just inward of the thimble *i* and communicates with the passage in the bottom part of the radiator, this opening *l* serving to conduct off the water of condensation, leading it back into the steam-pipe *g*. The lead-pipe *k*, in connection with the cocks *f* and *f'*, divides the radiator into two sections. The comparative size of these sections may be any desired. As here shown, the section at the left is made up of one section—namely, the leftwardmost section—and the division at the right hand is made up of the remaining sections. By elongating the pipe *k* the left-hand division may be enlarged and the right-hand division correspondingly reduced, the point of division being determined by the point of the outlet of the pipe *k*, as hereinbefore mentioned.

In the operation of the radiator the steam

is led to the sections through the pipes *g* and *h*. Assuming that the operation has just been started, the sections of the radiator will of course be filled with volumes of air. If both of the cocks *f* and *f'* are closed, the air will prevent the steam from passing into the radiator-sections, and the whole of the radiator will thus be kept cold notwithstanding that the valve *h* may be open. If it be desired to heat the radiator-division at the left-hand side, the left-hand cock *f* should be opened. This allows the air to escape and the steam to fill the left-hand radiator-division. The air in the other division will, however, be retained, and this division will therefore be kept cold. By opening the right-hand cock both divisions of the radiator will be permitted to fill with steam, and the radiator will then be operated to its full capacity. The steam condensing in the radiator flows into the lower ends of the sections *a*, and the water of condensation passes out through the orifice *l* back through the supply-pipe in the well-known manner. The fact that the sections may have no communication with each other at the top of the radiator is not material, since the steam will readily work its way through the air and pass up one side of the section and down the other, (see Fig. 2,) thus effectually forcing out the air therein.

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

1. A radiator, comprising a number of radiator-sections joined together to have unrestrained intercommunication at their lower portions, a steam-lead pipe passing into one end of the radiator at the bottom thereof and projecting longitudinally along the radiator to a point intermediate the ends thereof, at which point the lead-pipe discharges the steam, said pipe coacting with the radiator-sections as explained, and an air-cock for each of said divisions of the radiator.

2. A radiator, comprising a number of radiator-sections joined together to have unrestrained intercommunication at their lower portions, a steam-lead pipe passing into one end of the radiator at the bottom thereof and projecting longitudinally along the radiator to a point intermediate the ends thereof, at

which point the lead-pipe discharges the steam, said pipe coacting with the radiator-sections as explained, and an air-cock for each of said divisions of the radiator, the said steam-lead pipe having an orifice in its bottom portion directly adjacent to the end of the radiator through which the lead-pipe passes, such orifice serving to conduct away the water of condensation.

3. In a radiator, the combination with the radiator-sections and an air-valve attached thereto, of a thimble fastened in one end of the radiator, said thimble having an eccentric orifice therein adjacent to the lower side of the thimble, and a steam-lead pipe fastened in the orifice of the thimble and projecting into the radiator and having a perforation in its lower side.

4. In a radiator, the combination with the radiator-sections and an air-valve attached thereto, of a thimble fastened in one end of the radiator, said thimble having an eccentric orifice therein adjacent to the lower side of the thimble, and a steam-lead pipe fastened in the orifice of the thimble and projecting into the radiator, and said lead-pipe having an orifice in its lower side directly adjacent to the thimble, whereby to carry off the water of condensation.

5. A radiator formed of a number of radiator-sections fastened together to have unrestrained intercommunication at their lower portions, a thimble fastened in one end of the radiator at the lower portion thereof, a steam-lead pipe fitted in an eccentric orifice in the thimble, said orifice being near the lower side thereof and the lead-pipe projecting into the radiator to a point intermediate its ends, at which point the steam is discharged, for the purpose specified, and the steam-lead pipe having an orifice in its under side directly adjacent to the thimble to carry off the water of condensation, and an air-valve for each of said divisions of the radiator.

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

AUGUSTUS EICHHORN.

Witnesses:

I. B. OWENS,

JNO. M. RITTER.