(No Model.)

C. R. NELSON.

RADIATOR.

No. 422,092. Patented Feb. 25, 1890.

Fig. 2.

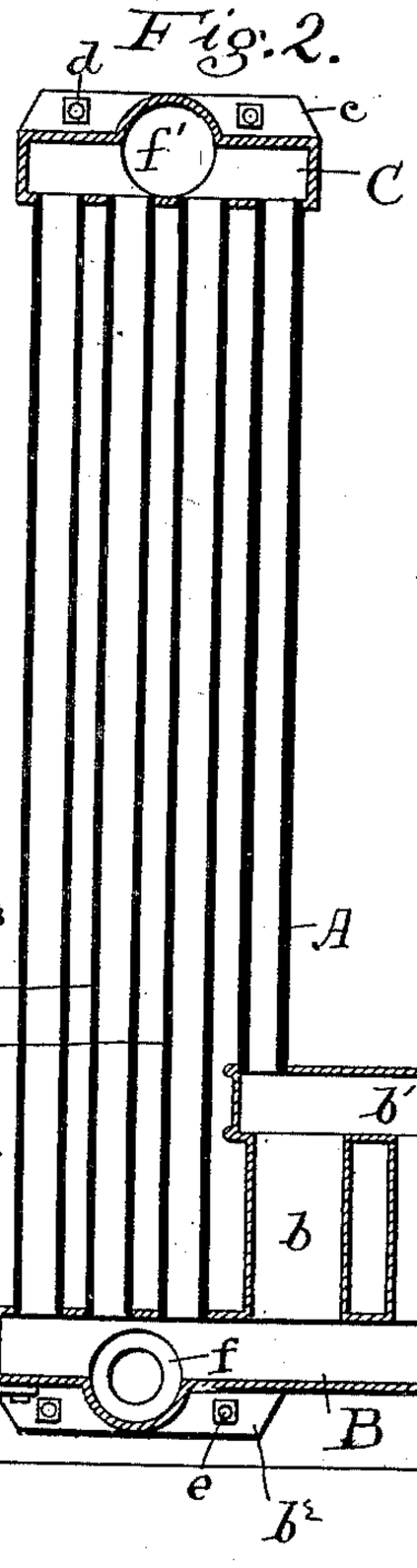


Fig. 1

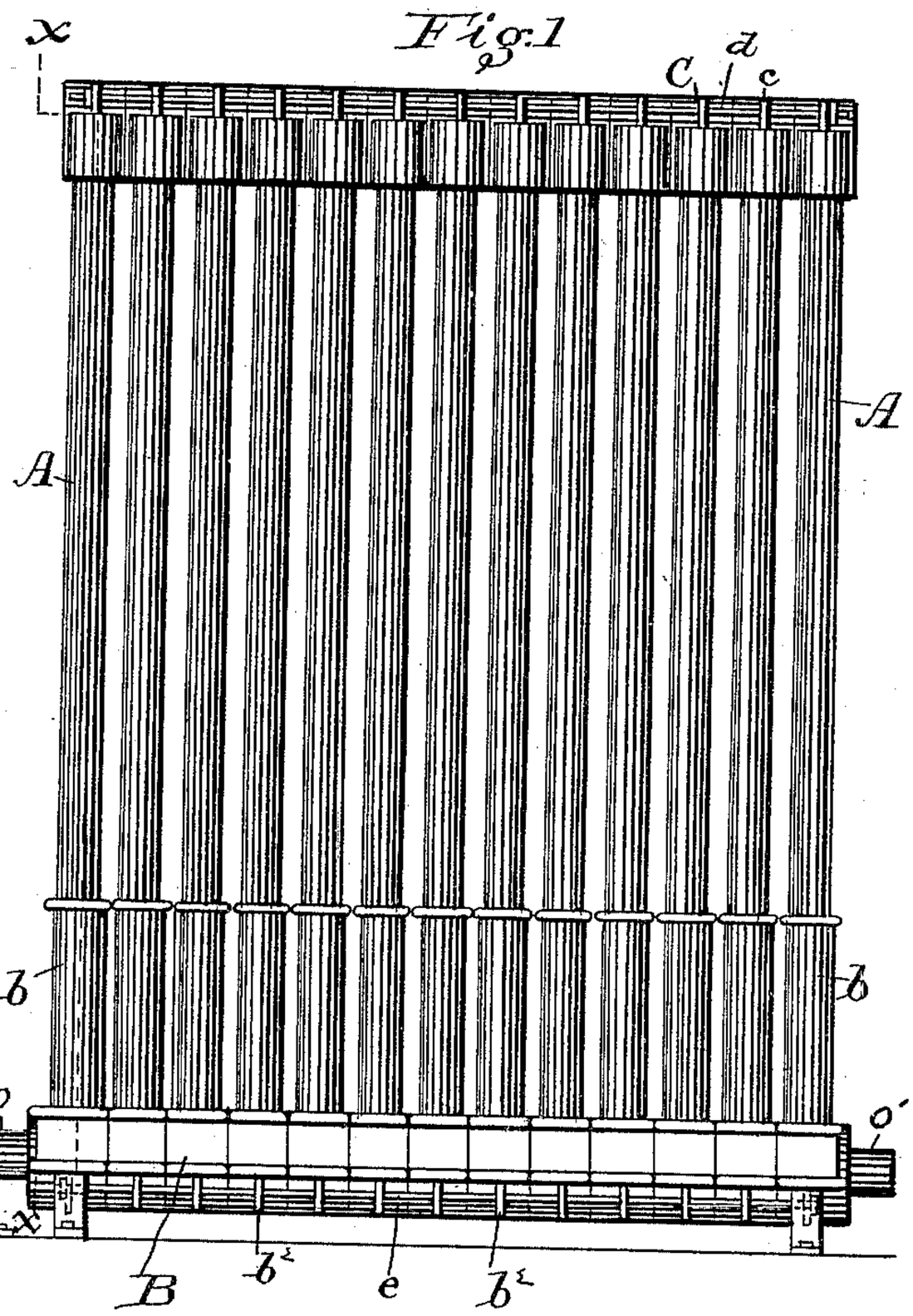
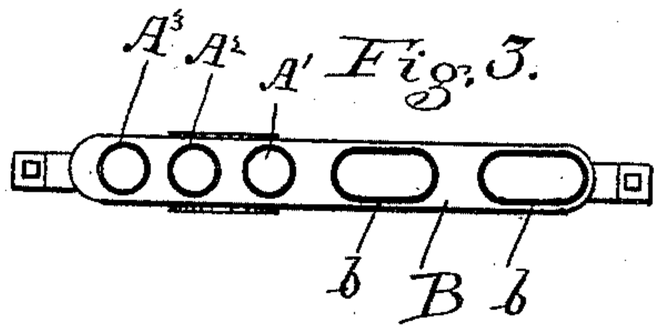


Fig. 3.



Witnesses:
Wm. W. Haggett.
N. D. Lane

Inventor
Charles R. Nelson
by S. M. Bate
his atty

UNITED STATES PATENT OFFICE.

CHARLES R. NELSON, OF PORTLAND, MAINE.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 422,092, dated February 25, 1890.

Application filed August 9, 1889. Serial No. 320,211. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. NELSON, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Radiators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to radiators for steam or hot-water heating; and the object of my invention is to provide a radiator which shall be mainly made up of wrought-iron pipe, and which shall have a forward-projecting base suitable to be used as a foot-rest. I accomplish this by means of my invention, which I have illustrated in the accompanying drawings, in which—

Figure 1 is a front view. Fig. 2 is a view on *x x* of Fig. 1, and Fig. 3 is a view on *x x* of Fig. 2.

The radiator is preferably made up of sections, which are placed side by side in the usual manner. Each section is composed of a hollow base B, having an opening *f* at each side, whereby the connection is made with the next section, and a vertical flange b^2 on the under side, through which pass the bolts *e*, which secure the sections together. Two short vertical pipes, as here shown oval in horizontal section, extend upward from the forward end of the base B, their tops being connected by means of a hollow head *b'*. As here illustrated, the base, the pipes *b*, and the hollow head are all made in one piece, preferably of cast-iron, and together they form the base of the radiator. Vertical tubes A', A^2, and A^3 extend upward from the rear or lower portion of the base B, and the vertical tube A connects with the rear end of the hollow head *b'*. A hollow head C, preferably of cast-iron, connects the upper ends of the four tubes A, A', A^2, and A^3. In each side of the head C is an opening *f'*, connecting it with the adjoining section. A flange *c* is formed on the top of the head C, and through this flange the bolts *d* pass to connect together the upper ends of the sections. These sections, which I have described, are bolted together side by side, so that the openings *f* and *f'* coincide, thus making a continuous opening at the top and bottom throughout the whole length of the radiator, which may be made of any required length. O and O' are the supply and return pipes, one or both of which may be connected with the top, if desired.

It will be seen that the series of hollow heads *b'*, placed closely side by side, form a foot-rest which extends along the entire length of the radiator.

A perfect independent circulation is secured in each section, which distributes the heat uniformly throughout the whole radiator.

In the case of hot water the circulation will be upward through the pipes A' and A^2 and the rearward pipe *b*, and down through the outer pipes A, A^3, and *b*.

That portion of the hollow base which forms the foot-rest, as well as other parts of the device, may be made otherwise than as here shown without departing from the spirit of my invention.

It is very desirable to get as much length of pipe as possible, and for this reason I drop the rear portion of the base, making it lower than the forward portion. The forward portion I make of the proper height for a foot-rest.

I claim—

1. The herein-described radiator, consisting of a hollow head and a hollow base having a rearward portion lower than the forward portion, and pipes connecting said hollow head with said hollow base, substantially as shown.

2. The herein-described radiator, consisting of a hollow head and a hollow base having a rearward portion lower than the forward portion, and pipes connecting said hollow head with the forward and rearward portion of said hollow base, substantially as shown.

3. A radiator made up of sections, each composed of a hollow head C, a hollow base having short vertical pipes extending upward from its forward end and united at their tops by a hollow head b', and vertical pipes uniting said hollow head C with said hollow base and rearward end of said hollow head b', substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES R. NELSON.

Witnesses:
S. W. BATES,
WM. M. HAGGETT.