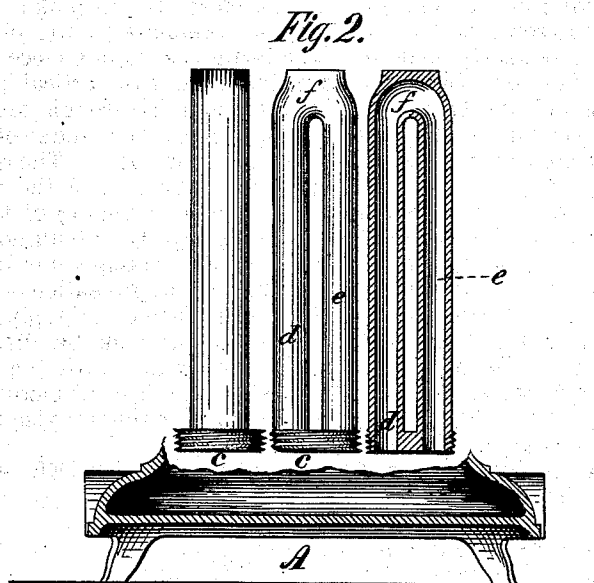
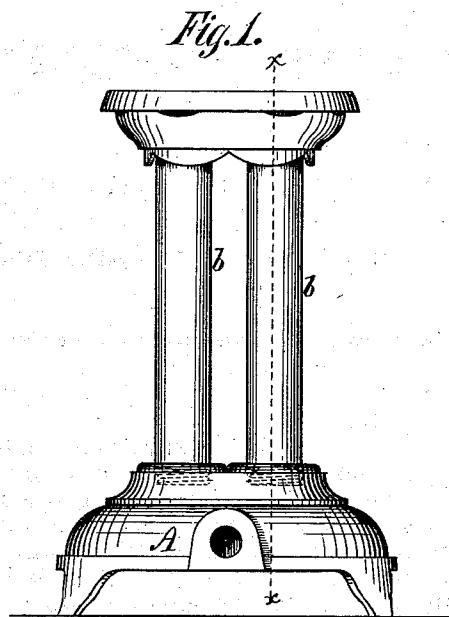


**A. A. GRIFFING.**  
**Steam-Radiators.**

No. 155,795.

Patented Oct. 13, 1874.



*Witnesses:*  
*E. H. Williams*  
*Edw. Payton*

*Inventor:*  
*A. A. Griffing*  
*Per Edw. C. Leimby*  
*Atty*

# UNITED STATES PATENT OFFICE.

ABNER A. GRIFFING, OF JERSEY CITY, NEW JERSEY.

## IMPROVEMENT IN STEAM-RADIATORS.

Specification forming part of Letters Patent No. **155,795**, dated October 13, 1874; application filed July 9, 1874.

*To all whom it may concern:*

Be it known that I, ABNER A. GRIFFING, of Jersey City, New Jersey, have invented certain Improvements in Steam-Radiators, of which the following is a specification:

My invention relates to steam-radiators for heating purposes; and consists of a return bend or U pipe, the legs of which are joined at their ends to a circular disk, which constitutes the plug for the opening in the radiator-base, to which the U pipe is connected.

Double pipes have been frequently made in one piece of metal heretofore, but they have always been joined to the radiator-base by a tubular neck, and the separation of the passages has been usually effected by a partition or diaphragm in the neck.

By my invention each leg of the return bend or U pipe has a direct and independent communication with the steam chest or base, so that there is no interference with the steam circulation by a conflict of currents, and no heating of the pipe in which the current is downward by radiation from a diaphragm or partition on the other side of which the current is upward.

It will be understood, of course, that the downward current is the more condensed steam, and the upward current the hotter steam.

By my invention the favorable conditions of the wrought-iron return-bend radiators are accurately reproduced in cast-iron.

The drawings embrace—Figure 1, an elevation of a system of my radiators attached to a base; and Fig. 2, a transverse vertical section on line *x x*, Fig. 1, through the base (shown partly broken away) and one of the U tubes, the other U tubes being shown in elevation on opposite sides.

The radiator-base or steam-chest A is tapped for each return bend or U pipe *b*, and the apertures closed by the plug *c*. The legs of each U pipe terminate in the plug, the plug and pipe being cast in one piece of metal. There are, therefore, two vertical passages, *d* and *e*, each extending through the plug, and thus having direct and independent connection with the steam-chest. These two passages coincide with the ends of the curved passage *f* at the upper extremity of the radiator, thus providing for the circulation of currents of steam up one passage and down the other.

I claim as my invention—

A return bend or U pipe, in combination with a circular disk, having two parallel apertures coinciding with the legs of the pipe, all cast in one piece of metal, substantially as shown, and for the purpose set forth.

ABNER A. GRIFFING.

Witnesses:

ASA FARR,  
E. H. WILLIAMS.