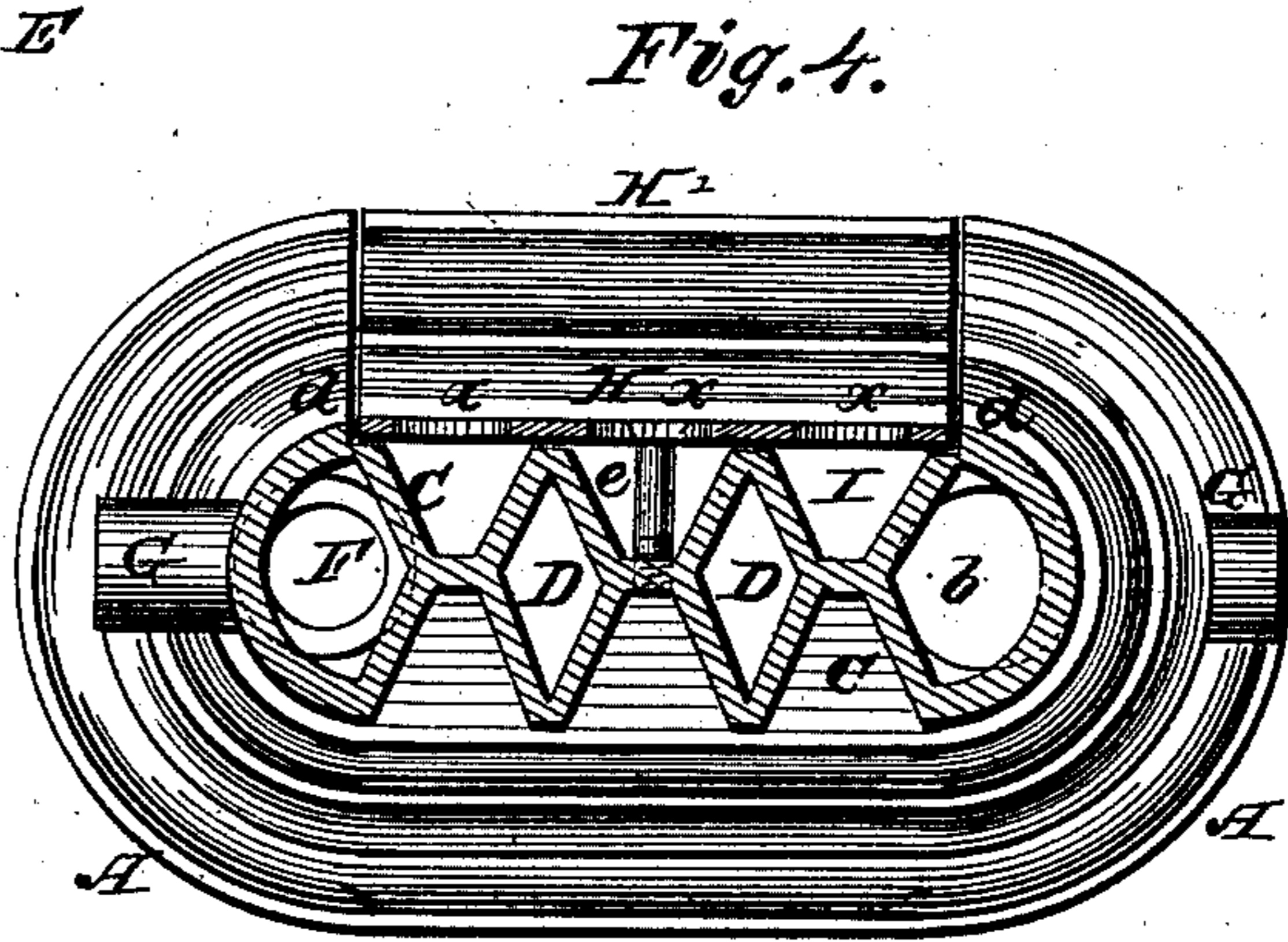
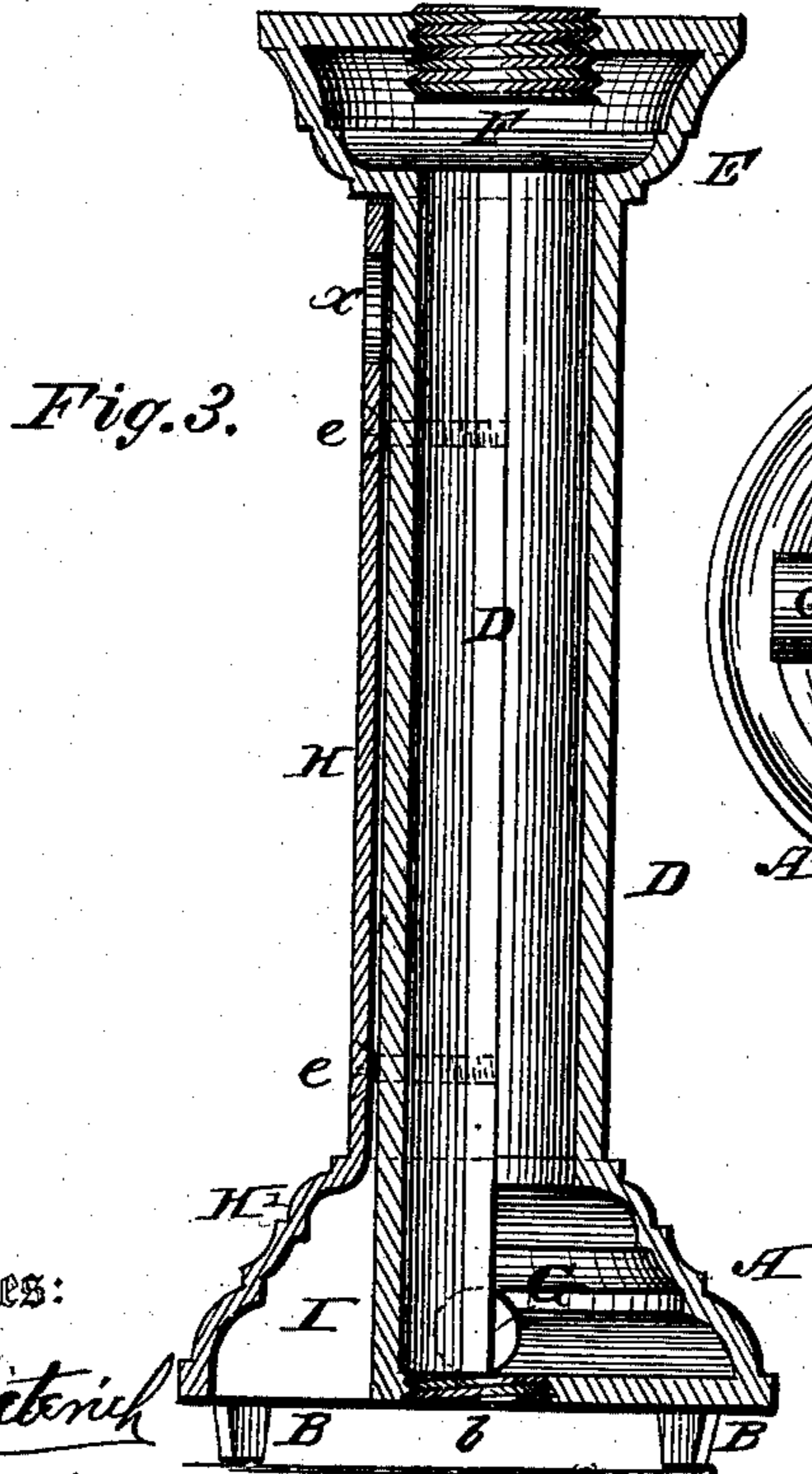
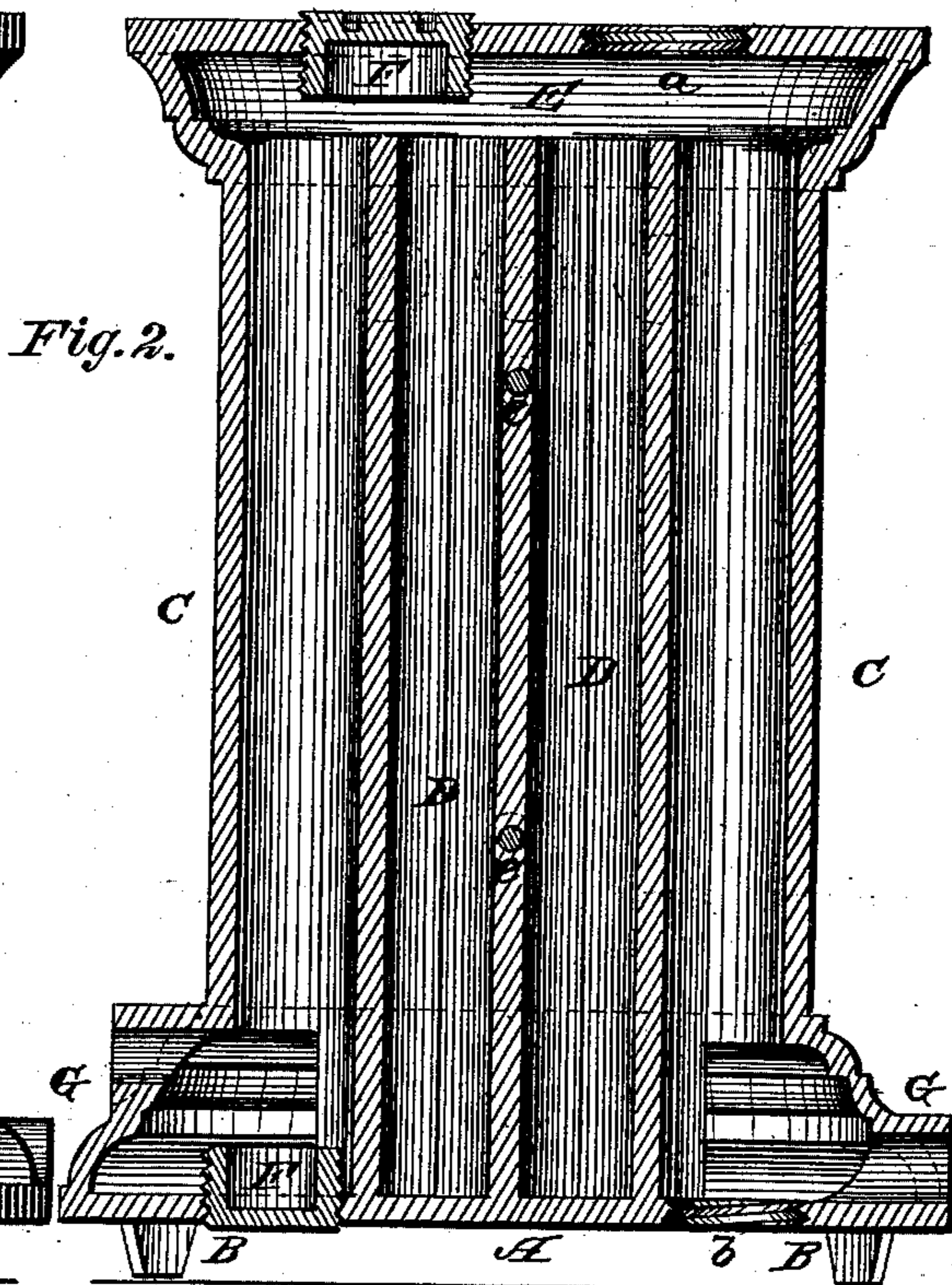
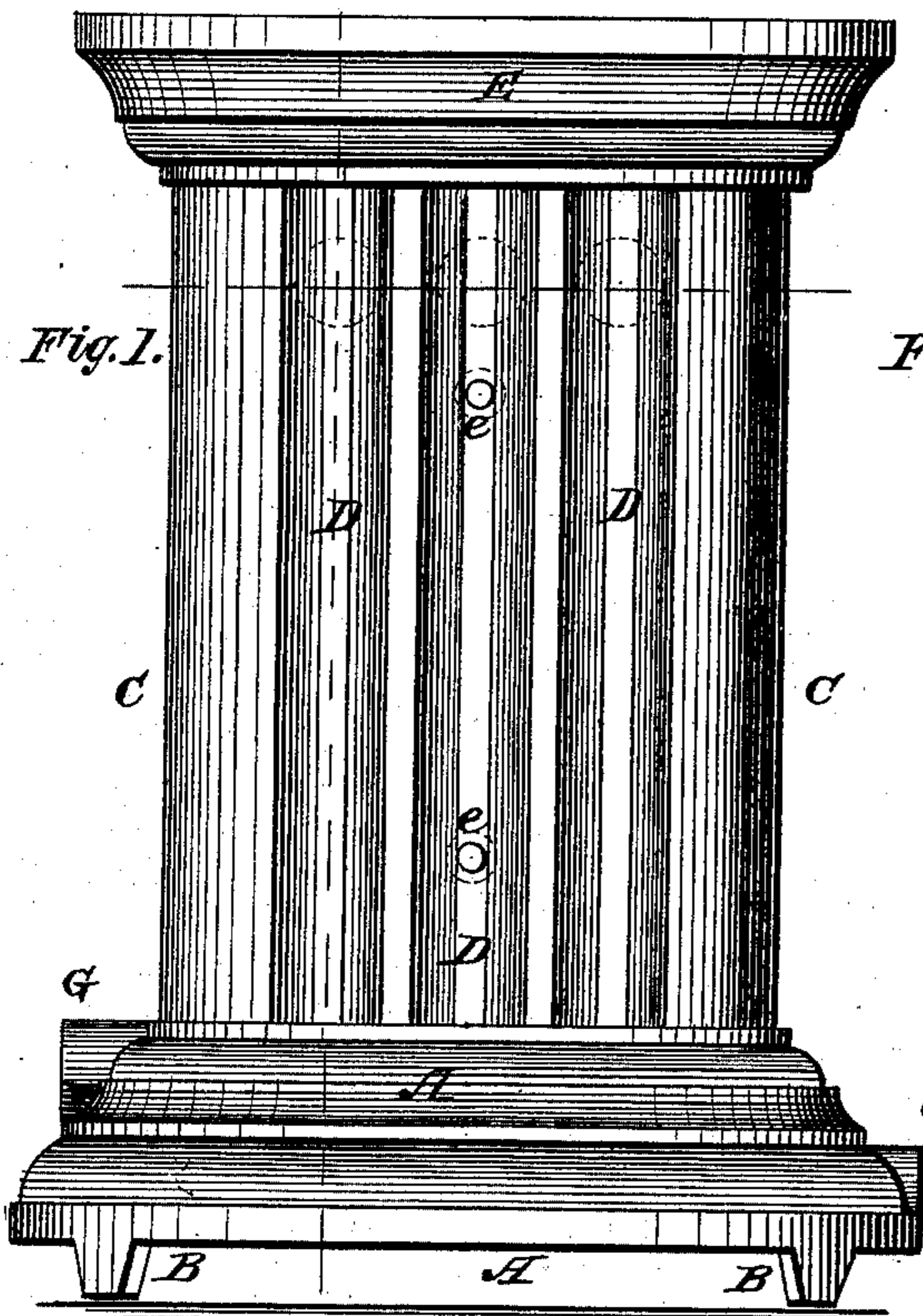


W. M. FULLER.  
Steam-Radiator.

No. 216,389.

Patented June 10, 1879.



Witnesses:  
*J. C. Dietrich*  
*Mont. H. Duffy*

Inventor  
*Willard M. Fuller.*  
Per *C. H. Watson & Co* Attorneys.

# UNITED STATES PATENT OFFICE.

WILLARD M. FULLER, OF NEW YORK, N. Y., ASSIGNOR TO EDWARD BARR,  
OF SAME PLACE.

## IMPROVEMENT IN STEAM-RADIATORS.

Specification forming part of Letters Patent No. **216,389**, dated June 10, 1879; application filed  
March 22, 1879.

### *To all whom it may concern:*

Be it known that I, WILLARD M. FULLER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Radiators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 steam-radiators; and it consists in the peculiar construction of the same, as will be hereinafter more fully set forth, and pointed out in the claims.

In the annexed drawings, Figure 1 is a front elevation of my improved radiator. Fig. 2 is a longitudinal vertical section, Fig. 3 a transverse vertical section, and Fig. 4 a horizontal section, of the same.

A represents the base of the radiator, supported upon legs B B. This base extends along the front and around both sides or ends, but leaving an opening at the back. The base is cast hollow, and has vertical columns C C and D D rising from it, said columns being surmounted by a hollow chamber, E.

The outer sides of the end columns C C are preferably made round, while their inner sides, as well as the intermediate columns, D, are made angular, as shown, to produce an enlarged heating-surface.

The various columns extend far enough down to have their lower ends level with the bottom of the base, and said columns are cast hollow to form steam-chambers.

For the purpose of removing the cores after casting the radiator, there are openings *a* in the top of the chamber E, corresponding to the intermediate columns, D, and similar openings at *b*, in the bottom of the base A, corresponding to the side columns C C. These openings are tapped and closed by means of screw-plugs F, as shown.

In the sides of the base A are openings G G for inlet and exit of steam.

The back of the radiator thus constructed is closed by means of a cast plate, H, fitting under the top chamber, E, on shoulders *d d* upon the side columns C, and the lower end of said plate is formed with a foot, H', corresponding in configuration with the base A. This plate is fastened by means of bolts *e e*, passing into the web between the center columns of the body of the radiator.

The plate H, with the body of the radiator, forms an air-chamber, I, open at the bottom, the air entering at the bottom and becoming heated as it passes upward, and then escapes into the room through a series of holes, *x x*, in the upper end of the plate.

The radiator, it will be seen, is thus made in two parts only, one part forming the entire steam-apartment, and the hot-air chamber being formed by simply adding and securing the other part. There are no joints to become leaky.

All the columns are of course closed at their lower ends, and their upper ends open into the chamber E.

The steam passes in at one side of the base and out at the other, filling in the meantime all the hollow parts of the radiator.

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

1. In a steam-radiator, the open-back base A, columns C D, and top chamber, E, all cast in one piece, substantially as and for the purposes herein set forth.

2. The combination of the plate H H' with the open-back base A, columns C D, and chamber E, to form a steam-radiator with hot-air chamber I, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLARD M. FULLER.

Witnesses:

EDWARD BARR,  
ROBT. K. STORY.