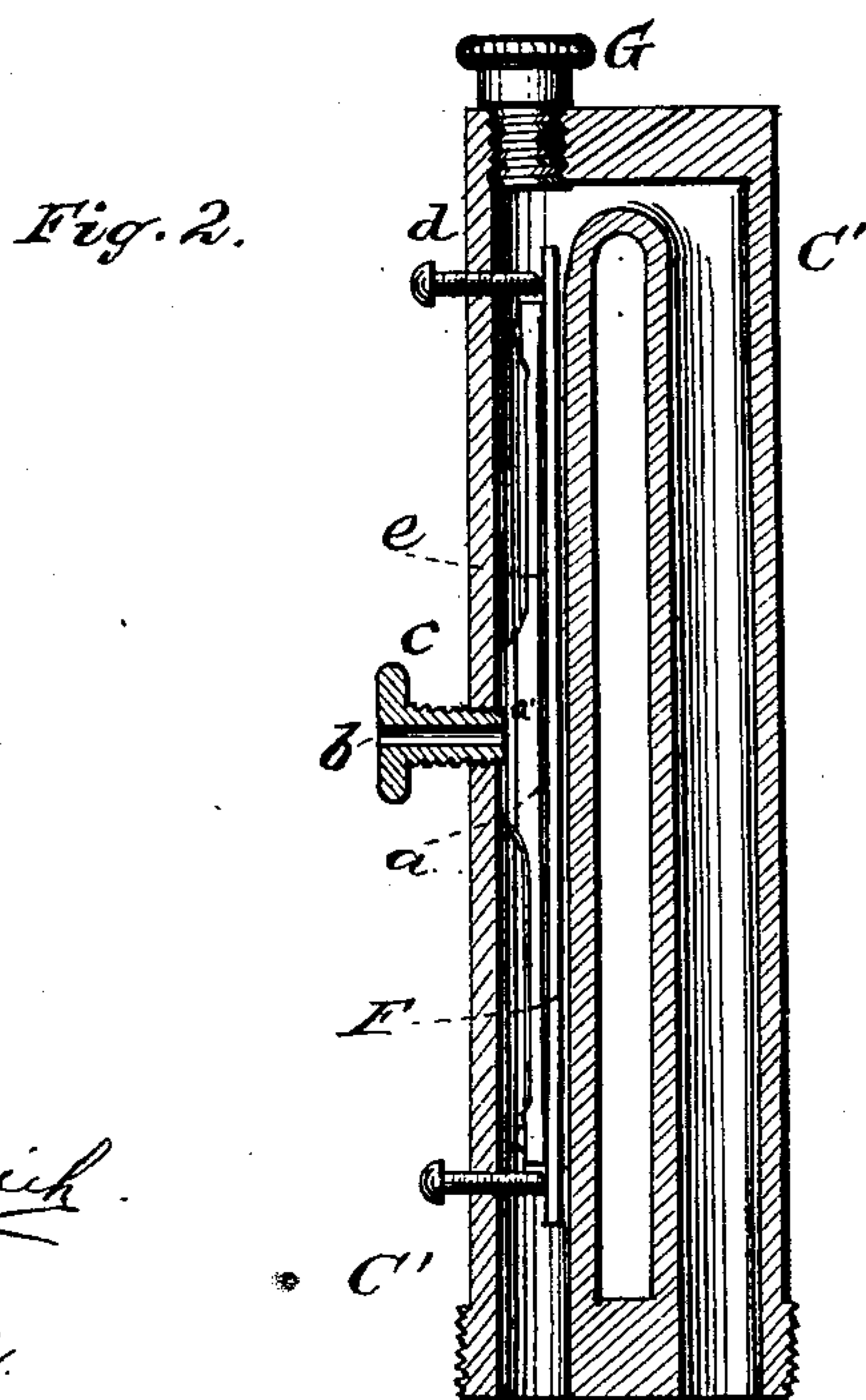
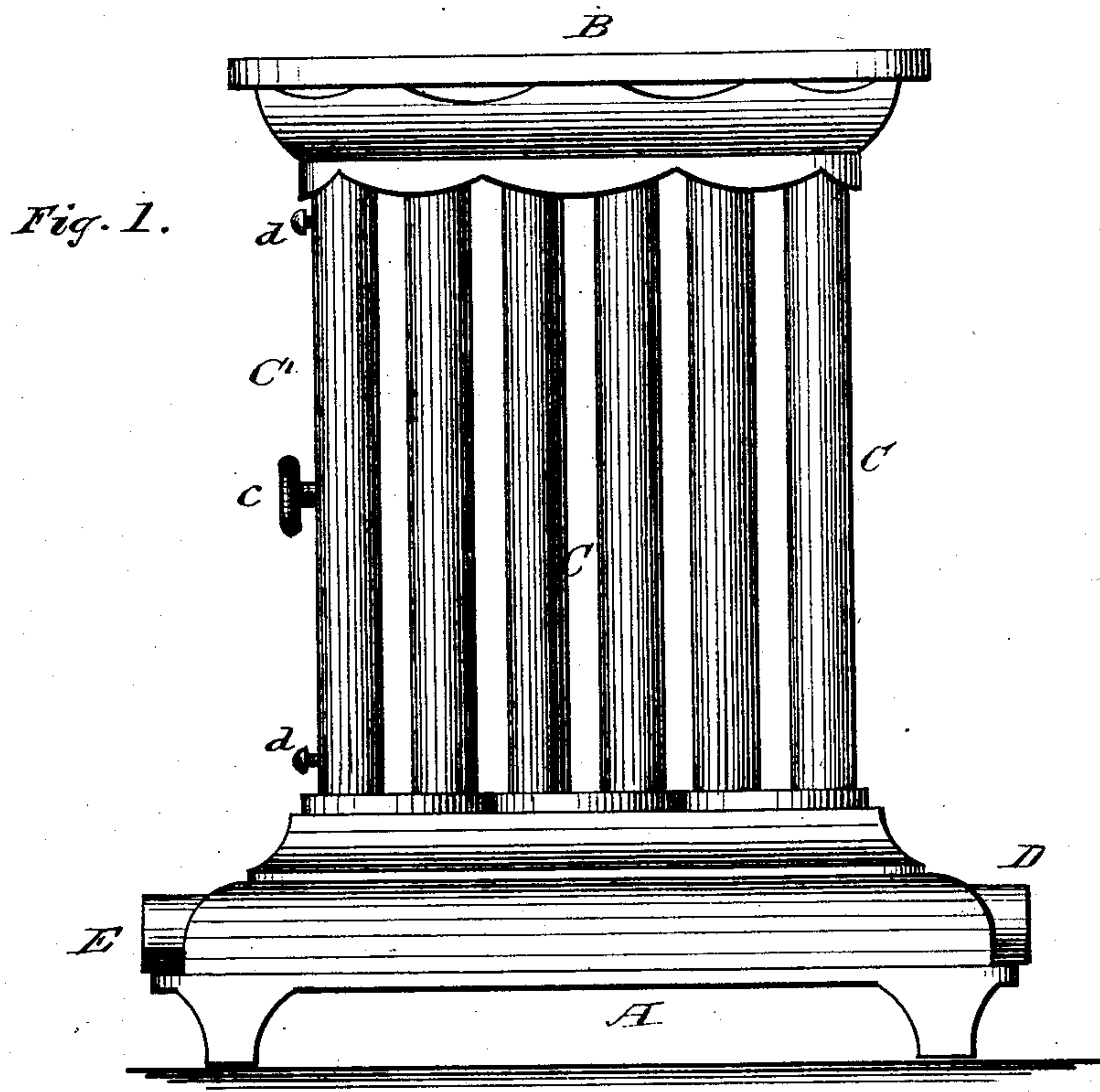


S. J. GEOGHEGAN.
Steam-Radiator.

No. 163,763.

Patented May 25, 1875.



WITNESSES:
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UNITED STATES PATENT OFFICE.

STEPHEN J. GEOGHEGAN, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM-RADIATORS.

Specification forming part of Letters Patent No. **163,763**, dated May 25, 1875; application filed May 14, 1875.

To all whom it may concern:

Be it known that I, STEPHEN J. GEOGHEGAN, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Steam-Radiators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains 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.

This invention relates to steam-radiators, having for its object to improve the same; and consists in providing the last pipe or return end of the radiator with an automatic air-valve, as will be hereinafter more fully set forth.

Heretofore, it has been common to put an opening in the waste-pipe on return end of the radiator to receive an extra pipe, in which the ordinary air-valve was placed.

This has proved to be inconvenient in use, as this extra pipe projects out beyond the radiator and requires an extra fitting, and many times cannot be used where the waste-pipe is required to project downward where there is but little space; and it is especially objectionable when a circular radiator is used to have an extra single pipe projecting upward, catching everything moving around it, and spoiling the symmetry of the radiator, and, further, it requires the expense of an extra pipe.

To overcome this difficulty an automatic air-valve is arranged in the last pipe on the return end of the radiator.

Referring to the annexed drawings, Figure 1 represents a side elevation of a radiator embodying this invention. Fig. 2 is a vertical section of the last pipe on return end of radiator, showing valve in place.

A represents the base, B the cap, and C the pipes, of a radiator, which may be square, rectangular, or circular, or any other form desired. The base is provided with an opening, D, at one end to admit the steam-pipe, and another opening, E, at the other end for the waste-pipe. The pipes C are shown as double

pipes, having two openings at the bottom and closed at the top, so that the steam has a free circulation up one side and down the other of each pipe.

The last pipe C', or the one farthest from the steam-opening D, is provided with an automatic air-valve, F, composed of two or more kinds of metals, the expansion of which is unequal, the outer one being provided with a seat, *a'*, which is arranged directly opposite the opening *b*, in which is fitted a screw-plug, *c*, having an orifice through the center. The valve is held in place by screws *d d*, one at or near each end of the valve passing through the pipe. The pipe is provided with a screw-plug, G, at the top, which, when removed, allows the insertion or withdrawal of the valve, when desired, by removing the screws *d d*.

When the steam is turned on the air in the radiator is forced out through the opening or orifice in the pipe opposite the valve seat; and as the air is forced out and the steam enters the pipe and heats and expands the metals of which the valve is composed, the part *e* of the valve, upon which the seat is formed, is forced out and closes the opening in the part *c*, and thus keeps it closed as long as the steam is on.

When the steam is turned off, the metal of which the valve is composed, contracts as it becomes cool, and the orifice is opened, so that any air that may accumulate in the radiator when not in use may be forced out as soon as the steam is again turned on.

Having thus fully described the invention, what is desired to secure by Letters Patent, is—

1. The pipe C' of a steam-radiator, in combination with a valve, *a*, substantially as and for the purpose specified.

2. The pipe C', having orifice and perforated screw-plug *c*, in combination with the valve *a* and screws *d d*, substantially as and for the purpose set forth.

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

STEPHEN J. GEOGHEGAN.

Witnesses:

I. J. GIFFORD,

J. LELAND WELLS.