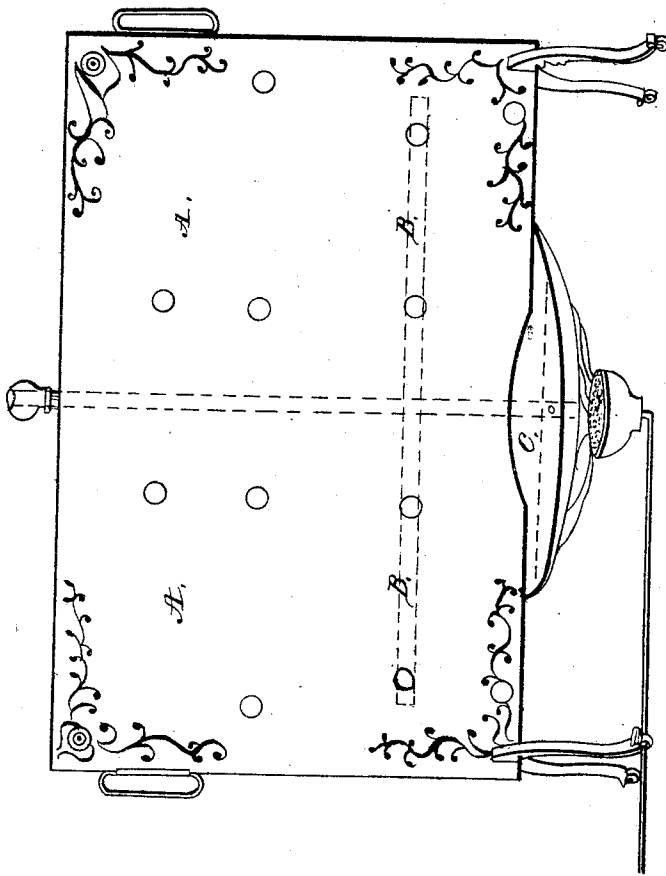


I. H. CHESTER.  
RADIATOR.

No. 17,666.

Patented June 30, 1857.



# UNITED STATES PATENT OFFICE.

I. H. CHESTER, OF CINCINNATI, OHIO.

## PORTABLE STEAM-RADIATOR FOR HEATING APARTMENTS.

Specification of Letters Patent No. 17,666, dated June 30, 1857.

*To all whom it may concern:*

Be it known that I, I. H. CHESTER, of Cincinnati, Hamilton county, Ohio, have invented a new and Improved Method of Heating Apartments by Means of a Portable Steam Heater or Radiator.

To enable others to understand, manufacture, and use my said invention, I hereby declare the following description of the same to be full and exact, reference being had to the accompanying drawings and letters of reference marked thereon.

The nature of my invention consists in constructing a steam heater or radiator A, of plates or sheets of metal, secured by rivets on small disks of metal of such thickness as shall form a suitable steam chamber between the sheets of metal. The bottom part of the radiator I form into a boiler or steam generator C, of such capacity as will contain about one gallon for every thirty feet of radiating surface. A few inches above the boiler I secure (by riveting) a deflector B, about half an inch wide and of same thickness as the disks upon which the sheets of the radiator are riveted. This deflector extends about three-fourths of the length of the radiator. Through the center of radiator vertically I introduce a pipe D, open at both ends, extending to the bottom of the boiler and projecting a short distance above the top of the radiator. This pipe is pierced with holes a short distance below the water line in the boiler, and answers a four-fold purpose: 1st, as a medium through which to supply the boiler with water; 2d, by acting as a safety tube through which the water and steam would be forced from the boiler if any considerable pressure of steam should be got up; 3d, by giving warning when the water is too low, by the escape of steam at the top through the perforations below the water line; 4th, by admitting air when heat is shut from the boiler, thus preventing a collapse. The edges of the sheets forming the radiator are bent at right angles inward and soldered on to each other, making a steam-tight joint. In each upper corner is an air cock for the escape of cold air when the heat is first applied. The radiator is then furnished with handles and mounted upon legs with casters, and is ready for operation.

Operation: The boiler is about one-third filled with water through the pipe D, and placed over a gauze gas burner, two or three inches from the floor. In a few minutes the water will boil. The steam, ascending in a straight column until striking the deflector, it is deflected to the right and left, thoroughly heating the lower corners, and passing around the ends of the deflectors, ascends to the steam-chamber above, and as the air cocks should be open, the cold air is expelled and the steam chamber from bottom to top completely filled with steam, which the inventor believes is never done in any form of radiator without the deflector, or considerable pressure of steam in the boiler. The steam, on ascending, condenses on the inner surfaces of the radiator, giving out its heat, and descends to the boiler to be reconverted into steam.

The boiler need not be replenished with water for months, and if a small amount of vapor did not escape with the cold air, the water would last indefinitely. The experience of the inventor, who has used no other means of heating his rooms for months, fully justifies him in saying that with four feet of gas an hour (on an average), an ordinary sized parlor or sitting room can be heated during the five coldest months in the year more healthfully and pleasantly than by any other method in use, as by no other means can the moisture necessary for the air be supplied so well and uniformly as by the burning gas.

I do not confine my claim to gas as the only means of heating the portable radiator, but intend to use any method of heating to secure the object as set forth in the above specification.

What I claim as my invention, and desire to secure by Letters Patent, is—

The portable radiator A, constructed with plain inner surfaces, the deflector B, boiler C, and tube D, all constructed and arranged substantially as, and for the purposes set forth.

I. H. CHESTER.

Witnesses:

A. B. McMANUS,  
A. J. DAY.