

J. SHACKLETON.
Steam Radiator.

No. 164,600.

Patented June 15, 1875.

Fig. 1.

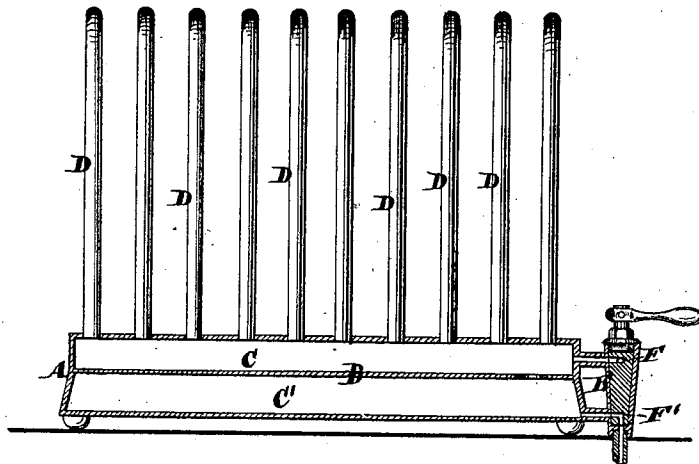
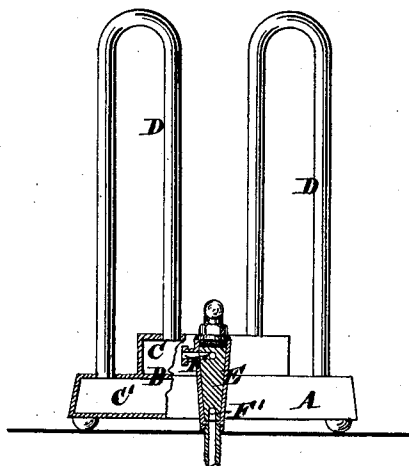


Fig. 2.



Witnesses.
Otto Hufeland.
Chas. Wahlen.

Inventor.
Joseph Shackleton
per
Van Santvoord & Hauff
Attys

UNITED STATES PATENT OFFICE.

JOSEPH SHACKLETON, OF RAHWAY, NEW JERSEY.

IMPROVEMENT IN STEAM-RADIATORS.

Specification forming part of Letters Patent No. **164,600**, dated June 15, 1875; application filed June 2, 1875.

To all whom it may concern:

Be it known that I, JOSEPH SHACKLETON, of Rahway, in the county of Union and State of New Jersey, have invented a new and Improved Steam-Radiator, which invention is fully described in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a longitudinal section. Fig. 2 is an end elevation, partly in section.

Similar letters indicate corresponding parts.

My invention consists in a radiator, the base of which is divided into an upper and lower chamber, communicating with each other by means of bent pipes, in such a manner that an effective circulation of steam is obtained, in addition to a large heating-surface. It consists, also, in the combination, with a radiator the base of which is divided into an upper and lower chamber, of a double, two-way cock, communicating with the upper and the lower chambers in such a manner that, if the cock is connected to a steam-pipe, and is turned to the proper position, both an inlet and outlet of steam take place to and from the radiator, and by this means a continuous circulation of steam is obtained, and the collection of water from the condensation of the steam is avoided.

In the drawing, the letter A designates the base of a steam-radiator divided, by a horizontal partition, B, into an upper chamber, C, and a lower chamber, C'. D designates a series of vertical pipes, which form an avenue of communication between the chambers C C'. These pipes are U-shaped; or may have any other form adapted to cause an upward and a downward circulation of steam. The pipes D extend from the top part of the chamber C to the top part of the chamber C'—that is to say, to the partition B; and, to admit of this arrangement, the upper chamber C has a less width than the lower chamber C', as shown in Fig. 2. Thus, if steam is let into the upper chamber C, it circulates through the same, and through the pipes D, to the lower chamber C', whence it discharges, as hereinafter described.

Any chosen number of pipes may be used, according to the amount of heating-surface desired.

The partition B, is, preferably, inclined, and is provided with an aperture, *a*, so that if any steam condenses in the upper chamber C it is allowed to escape to the lower chamber C'.

The letter E designates a double, two-way cock, whose ways F F' communicate, respectively, with the upper chamber C and with the lower chamber C'. This cock may be fastened to either of the sides of the base A, and by any suitable means. The ways F are designed for the inlet of steam to the chamber C, and the ways F' for its outlet from the chamber C'. To this end the ways are provided with means for forming a connection with a feed and a discharge pipe. The ways of the cock are so arranged relatively to each other and to the chambers C C', that when the cock is opened both an inlet and outlet of steam takes place to and from the radiator. It is obvious that by this arrangement a continuous circulation of steam is produced, whereby any products of condensation arising in any portion of the radiator are carried off.

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

1. The bent connecting-pipes D, in combination with the base A, divided into an upper and lower chamber, C C', for the inlet and outlet of steam, substantially as described.

2. In combination with the base A, divided into an upper and lower chamber, C C', as set forth, the double two-way cock E, communicating with the upper and lower chambers, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of May, 1875.

JOSEPH SHACKLETON.

Witnesses:

E. F. KASTENHUBER,
ROBT. E. MILLER.