G. P. YORK & W. H. WILSON.

Radiator.

No. 221,653. Patented Nov. 11, 1879.

Fig. 1.

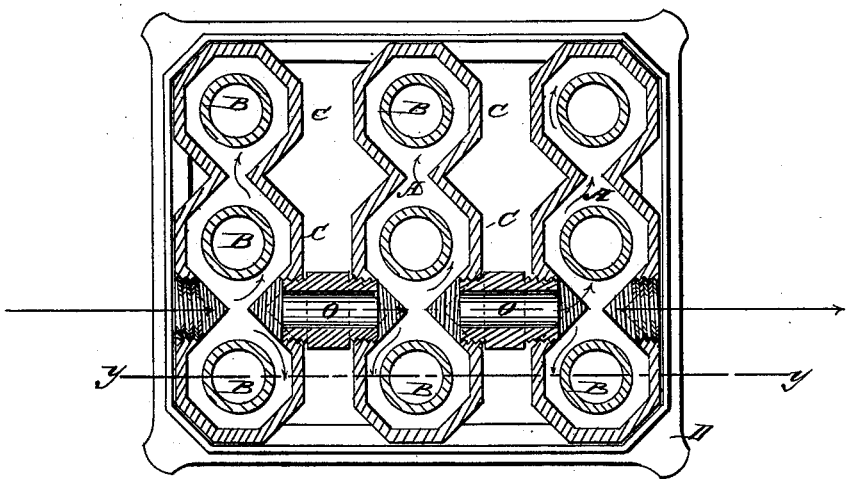


Fig. 2.

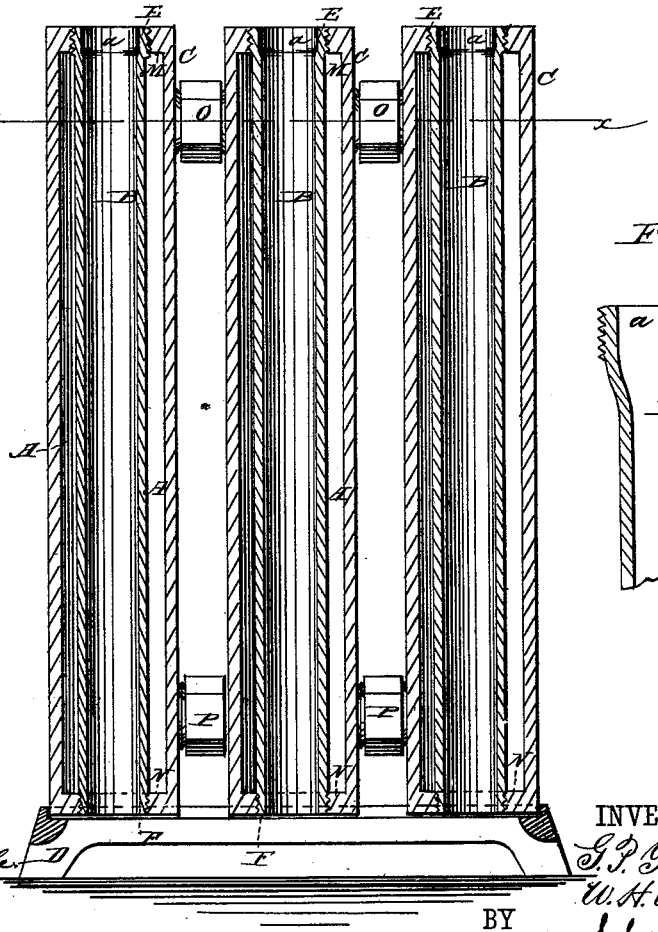
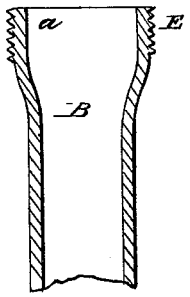


Fig. 3



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE P. YORK AND WILLIAM H. WILSON, OF WESTFIELD, NEW YORK; SAID WILSON ASSIGNOR TO SAID YORK.

IMPROVEMENT IN RADIATORS.

Specification forming part of Letters Patent No. **221,653**, dated November 11, 1879; application filed September 15, 1879.

To all whom it may concern:

Be it known that we, GEORGE P. YORK and WILLIAM H. WILSON, of Westfield, in the county of Chautauqua and State of New York, have invented a new and Improved Radiator, of which the following is a specification.

The object of this invention is to provide a radiator the sections of which have radiating-surfaces on their inner and outer sides.

The invention consists of a radiator formed of a number of radiating-sections, into which smaller tubes are inserted, so that the steam occupies the space between the inner tubes and outer sections, and the air can circulate through the inner tubes and around the outer sections, thus presenting a very great radiating-surface.

It further consists in the manner of fastening the inner tubes by cutting a thread on the lower end thereof, flaring out the upper end, and cutting a thread thereon, and then screwing these tubes into corresponding threaded openings in the outer sections.

In the accompanying drawings, Figure 1 is a horizontal cross-section of the radiator on the line *x x*. Fig. 2 is a horizontal cross-section on the line *y y*. Fig. 3 is a detail view of the upper end of one of the inner tubes.

Similar letters of reference indicate corresponding parts.

The radiator consists of a number of sections, C C, which are so formed that the steam that is admitted into one part can pass directly into the other parts. These sections are made of cast metal, and the radiator may consist of any number of them; but from two to eight are preferable.

Each division of the sections is provided with a bottom, N, and a top, M, which are furnished with threaded circular holes corresponding to the respective threaded ends of the inner tubes, B B, and into which these tubes are fastened.

A thread, F, is cut in the thickness of the metal on the lower end of B, and the upper end is swaged or spun so as to enlarge it about one-eighth of an inch, and a thread, E, is cut into this enlarged part *a*, as is shown in Figs. 2 and 3.

The tube B is passed through one of the upper openings of the section C, with the smaller end first, and then screwed down, and forms a close and tight joint.

A number of sections are joined by means of the right and left nipples O and P at the top and bottom, which form a connection between the different sections, and allow the steam to pass from one to the other.

A base, D, supporting the outer ends of the sections, is provided; but this base does not serve as a steam case and distributer, as in the ordinary radiator, but only serves as a support.

The steam passes into the space A between the inner tubes, B, and the outer sections, C C, and the air circulates through the inner tubes, B B, through the space between the adjoining sections, and around the outer surface of the same.

In the radiators that have been in use heretofore only the outer surface of the tube was a radiating-surface; whereas we obtain an inner and outer radiating-surface by constructing the sections as described, and, further, can obviate the use of a base-casting, into which the tubes are generally screwed, and which serves as steam-distributer. This base increases the weight and prevents free circulation of the air, and is difficult to keep clean.

We thus obtain greater results with a smaller number of tubes and sections, reduce the size, weight, and price of the radiator by constructing it as described.

The sections may be of any desired form or shape, and may be arranged vertically or horizontally, and in any desired form of the ground plan.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A radiator having independent sections C, each of which consists of an outer tube and several inner tubes, arranged as shown and described.

2. The inner tubes, B, having flared threaded upper end and threaded lower end, in combination with outer sections, C, threaded to correspond, as and for the purpose specified.

GEO. P. YORK.
WILLIAM H. WILSON.

Witnesses:
ERIC HALL,
WILLIAM A. USBORNE.