J. REYNOLDS.

Radiator.

No. 162,100. Patented April 13, 1875.

FIG. 1.

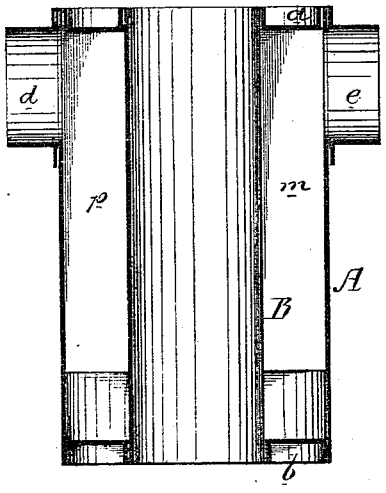


FIG. 2.

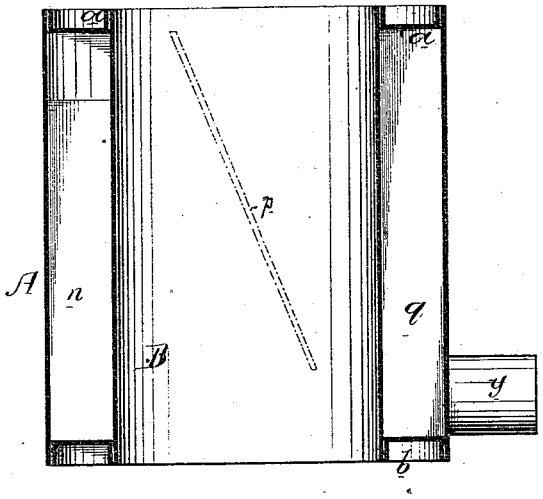
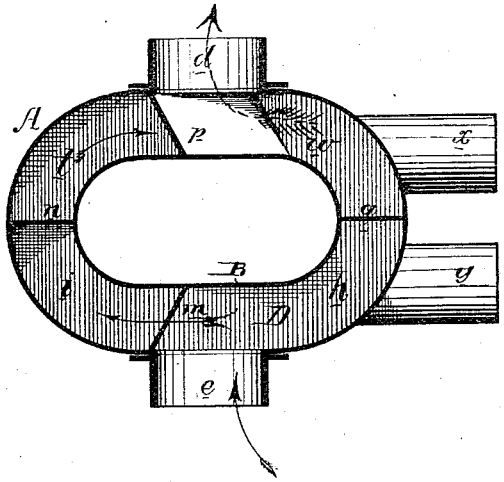


FIG. 3.



Witnesses, Harry Smith
Thomas M Shrain

Jesse Reynolds
by his attys.
Howson and Sons.

UNITED STATES PATENT OFFICE.

JESSE REYNOLDS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN RADIATORS.

Specification forming part of Letters Patent No. **162,100**, dated April 13, 1875; application filed April 9, 1874.

To all whom it may concern:

Be it known that I, JESSE REYNOLDS, of Philadelphia, Pennsylvania, have invented certain Improvements in Radiators, of which the following is a specification:

My invention relates to improvements in the radiator for which Letters Patent were granted to William Steffe and myself on the 11th of August, 1868, reissued May 30, 1871; and the object of my invention is to obtain a much larger supply of heated air in proportion to the size and cost of the radiator than by that described in the said patent—an object which I attain by constructing the radiator in the manner illustrated in the vertical sections, Figures 1 and 2, and sectional plan, Fig. 3, of the accompanying drawing.

The radiator consists of the outer casing A and inner casing B, the space D between the two casings being closed above by the plate *a*, and below by a similar plate, *b*, and the whole being made, by preference, of sheet-iron plates properly riveted together.

I prefer to make the two casings of the form represented in Fig. 3—that is, flattened on the opposite sides, and rounded at the opposite edges—this conformation insuring economy both in construction and material, and an effective heating-surface of greater extent, proportionate to the size of the radiator and weight of material employed, than a radiator of a square or oblong sectional form. At the same time the flattened sides are the most convenient for the attachment to the outer casing of the tubular branches *d* and *e*, the latter being connected to the outlet-branch of an adjoining heater, and the former communicating with the chimney.

The space between the two casings is separated into four compartments by partitions *m* and *n*, *p* and *q*, the partitions *m* and *p* extending to the top, but not to the bottom, of the space, while the partition *n* extends to the bottom, but not to the top, and the partition *q* from top to bottom, so that the products of combustion entering the branch *e* will first fill the compartment *h*, then pass beneath the partition *m* into the compartment *i*, then over the partition *n* into the compartment *t;* thence below the partition *p* into the compartment *w*, and thence through the outlet-branch *d* to the chimney.

The partitions *m* and *p* are inclined, as shown in Figs. 2 and 3, so that the products of combustion may be dispersed in the compartment *h* before they escape below the partition *m*, and so that they may be similarly dispersed within the compartment *w* before they escape at the outlet-branch *d*. The walls of these compartments are thus heated to the same extent as those of the compartments *t* and *h*.

Two tubes, *x* and *y*, furnished at their outer ends with detachable covers, are secured to the outer casing in the position shown in Fig. 3, so that a suitable instrument may be introduced into the tube *x*, and beneath the partition *p*, for cleansing away the soot, &c., which may accumulate at the bottom of the compartments *t* and *w*, the tube *y* serving a like purpose as regards the cleansing of the compartments *h* and *i*. Between the radiator and a brick wall which surrounds the same, and which is not shown in the drawing, there is a space for the passage of air, which, being brought into intimate contact with the outer casing, receives a high degree of heat before it is distributed to the several rooms of a building. In the meantime another volume of air passes through the inner casing B and becomes thoroughly heated before it joins the other volume.

I claim as my invention—

The combination, in a radiator, of an inner casing, B, open at both ends, an outer casing, A, forming, with the inner casing, a chamber for the passage of the products of combustion, an inlet-pipe, *e*, and outlet-pipe *d*, and a series of partitions arranged between the casings, to direct the gases in a circuitous course from the inlet to the outlet, all as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JESSE REYNOLDS.

Witnesses:

WM. A. STEEL,

HARRY SMITH.