(No Model.)

# D. L. ADAMS.

## RADIATOR.

No. 544,875. Patented Aug. 20, 1895.

FIG. 1.

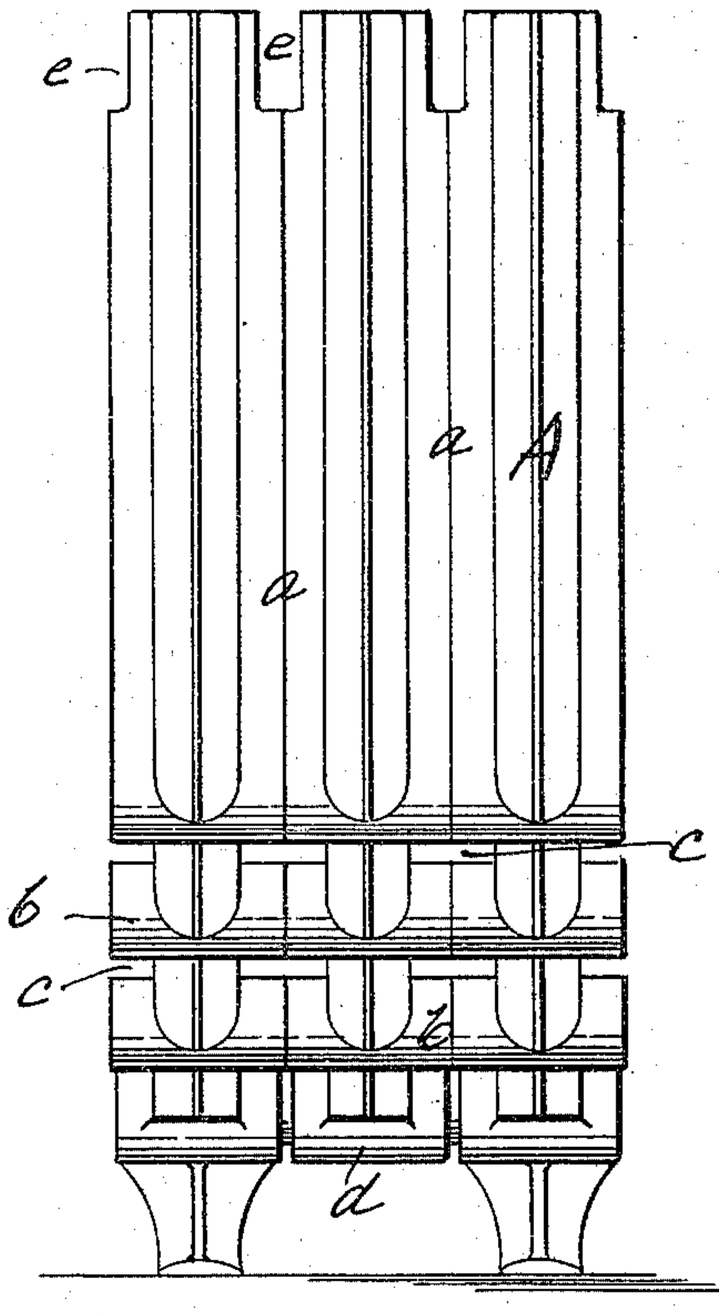



FIG. 2.

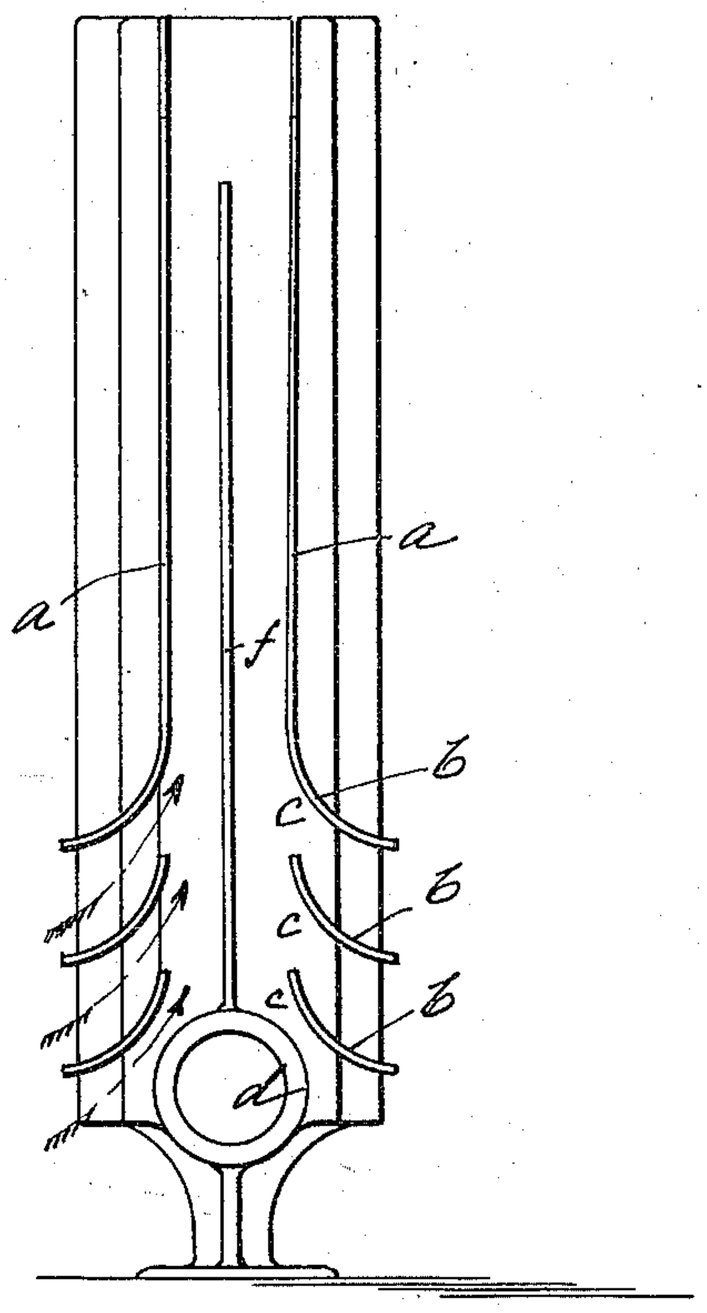
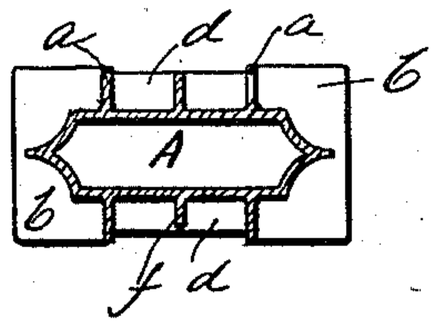



FIG. 3.




Witnesses
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By Attorney

# UNITED STATES PATENT OFFICE.

DANIEL L. ADAMS, OF READING, PENNSYLVANIA.

## RADIATOR.

SPECIFICATION forming part of Letters Patent No. 544,875, dated August 20, 1895.

Application filed August 18, 1894. Renewed July 16, 1895. Serial No. 556,163. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL L. ADAMS, a citizen of the United States, residing at Reading, county of Berks, State of Pennsylvania, have invented certain Improvements in Radiators, of which the following is a specification.

My invention relates to that class of radiators which are formed of a series of hollow sections arranged side by side with an intervening space for the circulation of air in contact with the radiating-surface.

The object of my improvements is to provide for the easy admission and rapid circulation of air in this intervening space, the invention being especially advantageous in the case of narrow radiators where the connecting bosses and sleeves largely reduce the available space for air admission at the bottom of the radiator. My improved construction allows an ample supply of air to be admitted, regardless of the narrowness of the radiator, and at the same time provides for so blending the comparatively-cold inflowing air with the partially-heated air already in contact with the radiator as to facilitate the normal upward flow, and thus more effectually utilize the heating-surface.

The invention is fully described in connection with the accompanying drawings, in which—

Figure 1 is an elevation showing a front or edge view of a three-section radiator. Fig. 2 is a side elevation of one of the sections. Fig. 3 is a sectional view taken on the line *x x* of Fig. 2.

A represents the rear hollow portion of a radiator-section through which the steam or hot water circulates, the several sections which form a radiator being connected through the bosses *d d* in any ordinary manner. Upon the meeting faces of each of these sections are provided projecting ribs *a a*, which extend lengthwise of the section near either edge, and a central partition-rib *f*, which ribs form, in connection with those of the adjoining section, air-spaces or passage-ways, such as are commonly provided in radiators of this class to facilitate the heating of the surrounding air, which is intended to enter the said passage-ways at the lower portion of the radiator and escape at a higher temperature above.

In order to allow for a sufficient supply of air to properly utilize the heating-surface provided in these passage-ways, it has been heretofore proposed to increase the width of the lower portion of the radiator, so as to increase the bottom space available for the admission of air in front and rear of the connecting-bosses *d*. It is frequently desirable, however, to keep the radiators as narrow as practicable, so as to take up but little floor-space, and, moreover, the close proximity of the base of the radiator to the floor, and the abrupt change in the direction of the flow from horizontal to vertically upward, is apt to materially reduce the actual supply of air even where the bottom opening is considerably increased in area by thus spreading the lower portion of the radiator. To overcome these difficulties and furnish a free and ample supply of pure air to the lower portion of a radiator, however narrow, I provide for a side admission instead of a bottom admission of air by means of openings *c c* in the wall which is formed by the ribs *a a*, the said ribs being curved downward and outward over each of these openings, so as to form flaring roofs *b b*, which guide the cool outside air naturally into the upward current produced by the heating of the previously-admitted air in the passage-ways between the ribs. By providing a series of openings at front and rear, one above another, the air admitted at the lower openings and heated by contact with the radiator, so as to cause it to naturally rise upward, produces a moderate suction, which assists the free entrance of additional air through the curved inlets above, thus insuring an easy and rapid circulation of air, such as will fully utilize the heating-surface provided. The number and area of the openings *c c* may be varied to correspond with varying sizes of passage-ways, and suitable outlets *e* at the top of the radiator are provided for the escape of the heated air.

Having thus fully described my invention, I do not desire to limit myself to the exact construction shown; but

What I claim is—

1. A radiator composed of hollow sections

which are connected by bosses or collars near the base thereof and provided with vertical ribs *a a* on the meeting faces to form air passages between the sections, the lower portions of said ribs being turned outward above the bosses substantially to the edges of the sections so as to leave free side inlets to said passages, substantially as and for the purpose set forth.

2. A radiator composed of hollow sections which are connected by bosses or collars near the base thereof and provided with ribs on the meeting faces to form air passages between the sections, said ribs being each divided into separate sections with openings between them, and the lower portion of each section being turned outward substantially to the side edges of the radiator so as to leave a series of free side inlets to said passages arranged one above another, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL L. ADAMS.

Witnesses:
W. G. STEWART,
ADAM L. OTTERBEIN.