

(No Model.)

E. E. GOLD.
Radiator.

No. 231,485.

Patented Aug. 24, 1880.

FIG. 1.

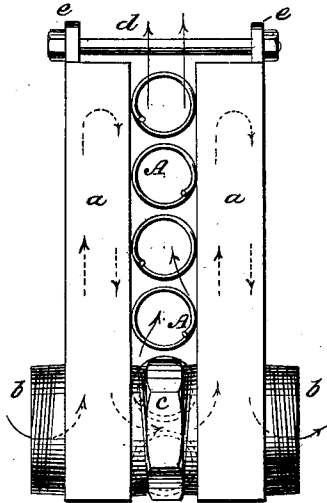


FIG. 2.

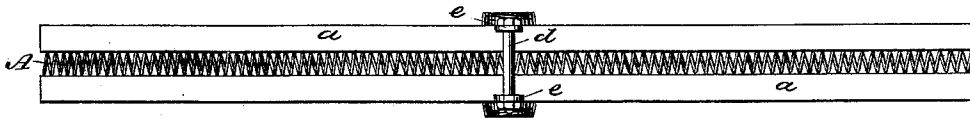
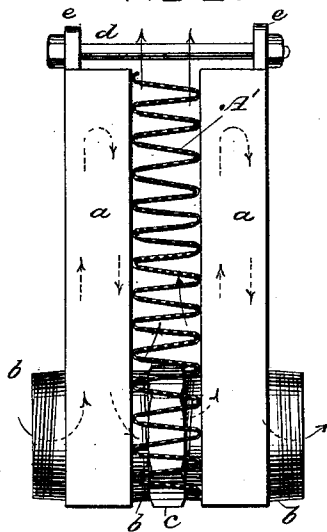


FIG. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWARD E. GOLD, OF NEW YORK, N. Y.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 231,485, dated August 24, 1880.

Application filed May 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. GOLD, of New York city, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

My invention applies more especially to steam-radiators, but is also applicable to radiators heated by other fluids; and it relates more especially to that kind of steam-radiator composed of a series of broad flat-sided sections coupled together in a group, with air-circulating spaces between each pair, the group being generally inclosed in a suitable case provided with an inlet for cold fresh air and an outlet for the warm air, connected to heat-conducting flues leading to the several apartments of the house, whereby the hot air is delivered thereto.

The object of my invention is to greatly increase the heating-surface in the spaces between the adjacent sections through which the air passes; and it may be stated to consist in a convoluted wire texture arranged in the space between two adjacent sections and in contact therewith, the convolutions being arranged in overlying rows and in horizontal position, or at right angles to the direction of the air passage or currents between the sections.

The drawings annexed illustrate portions of a radiator of the especial kind referred to embodying my invention.

Figure 1 shows an end view of two coupled sections thereof with the wire texture between the same, and Fig. 2 is a plan view thereof. Fig. 3 is a view similar to Fig. 1, showing a modification.

As illustrated, *a a* indicate the hollow sections of the radiator, which, as represented, are preferably of the usual broad flat-sided form.

b b are tubular necks near one edge of the sections, by which the sections are coupled together, and through which the steam is admitted from one to the other, as indicated by arrows. These necks are threaded, respectively, with right and left screws, and are joined by a nut or thimble, *c*, correspondingly threaded, as will be easily understood. The opposite edges of the sections are joined by a bolt, *d*, passing through lugs *e*, formed in the sections, the head of the bolt resting against one lug

and the nut resting against the other lug, so that the sections may be drawn together by turning the nut. The sections, as will be observed, are separated a sufficient distance to leave a space between them about equal to the thickness of one section, which space affords free passage for the air to be heated between the heated faces of the sections. Now, according to my invention, I arrange in these air-spaces the wire texture *A A*, Figs. 1 and 2, which is preferably composed of a series of wire spirals wound like ordinary loose spiral springs, each spring being of a diameter equal to the space between the sections. These springs are arranged in closely-overlying parallel rows and in horizontal position or at right angles to the direction of the flow of the air between the sections, and the springs lie in direct contact with the opposite faces of the sections, and are tightly clamped between the same by means of the bolt *d*, as will be readily understood from Figs. 1 and 2. These springs thus form an extended wire texture, traversing in all directions the air-space between the sections, and, being in contact with the heated faces of the sections, become heated by direct conduction therefrom.

The wire texture being thus heated exposes an immensely-extended heating-surface to the air flowing between the sections, and while the wires offer little or no resistance to the flow of the air, they divide the air-current into numerous small currents, and cause these currents to be repeatedly heated and reheated during their passage through the texture and between the sections, so that the air becomes thoroughly and quickly heated thereby, no matter how rapid its passage may be.

I prefer that the spiral springs or coils of the wire texture be alternately right and left handed, to get a better and more extended traverse of the wires across the air-space, as shown in Figs. 1 and 2.

In lieu of a series of spiral coils, as shown in Figs. 1 and 2, a web of wire-cloth may be used, corrugated with zigzag corrugations or convolutions, as shown in Fig. 3, the corrugations or convolutions being arranged parallel to each other in horizontal position, or at right angles to the flow of air through the air-space, same as in the first case.

I am aware that a spiral spring has been heretofore arranged in the air-space between

two round radiator-sections in a vertical position or parallel to the flow of air, and not in the manner of my invention, where a series of wire coils or convolutions are arranged one
5 above the other in horizontal position or at right angles to the flow of air, which not only presents a greatly-extended heating-surface in the air-space, but presents the wires in the most favorable position to heat the moving
10 air-current, and, moreover, causes this air-current to make repeated contacts with successive coils, hence giving a very rapid and thorough heating effect, which is not the case with the former device.

15 I am also aware that metal spirals have been used in various ways for increasing the air-heating surface of heaters, and that wire-cloth has been so used in the air-jackets of stoves; but I am not aware that either spirals
20 or wire-cloth have been employed as shown in my invention—viz., arranged in distinct horizontal overlying rows in the air-space between two adjacent sections of a radiator, and in contact with the heating sides of each, which
25 construction forms a new and important improvement in radiators, as already described.

What I claim as my invention is—

1. The combination, with two or more adjacent sections of a radiator, of a wire texture
30 formed with a series of coils or convolutions arranged in overlying rows in the air-space between the said radiator-sections, in contact with the sides thereof and at right angles to the direction of the air-flow between the same,
35 substantially as and for the purpose herein shown and described.

2. The combination, with a radiator composed of two or more grouped and adjacent sections, of a series of wire spirals or coils arranged in the air-space between two adjacent
40 sections in overlying rows at right angles to the direction of the air-flow between such sections and in contact with the hot sides thereof, substantially as herein shown and described.

3. The combination, with the radiator-sections *a a* and a wire texture arranged between
45 the same, of a clamping device, *d*, connecting the two sections and serving to tighten or clamp the same into close contact with the wire texture, substantially as herein set forth.
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EDWARD E. GOLD.

Witnesses:

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CHAS. M. HIGGINS.