

D. E. & F. C. SOMES.

Steam Heater.

No. 108,531.

Patented Oct. 18, 1870.

Fig. 1.

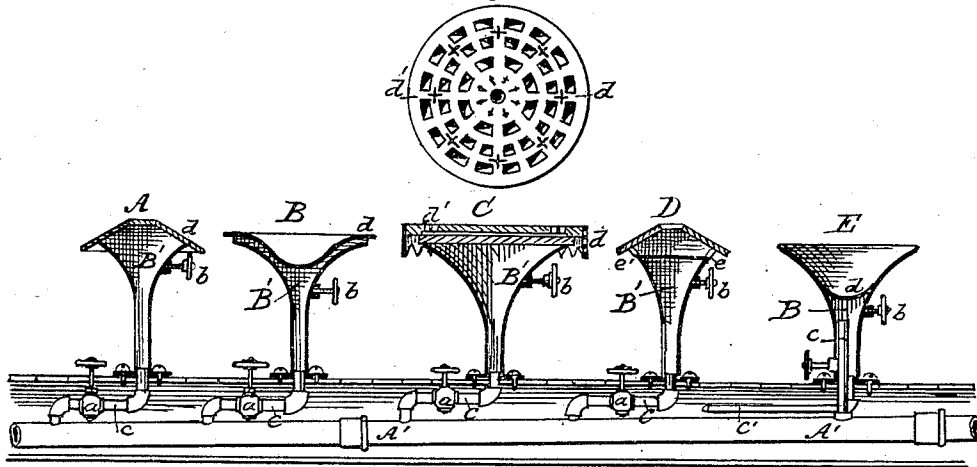


Fig. 2.

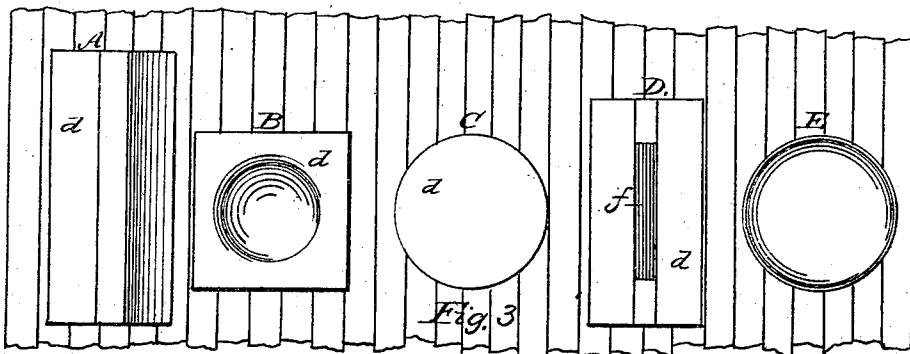


Fig. 3.

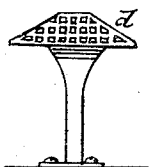


Fig. 4.

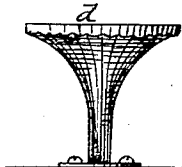


Fig. 5.

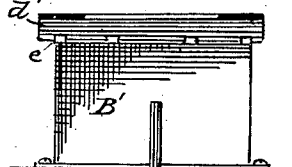


Fig. 6.

Witnesses:
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 Edw. F. Brown

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 D. E. Somes
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2 Sheets—Sheet 2.

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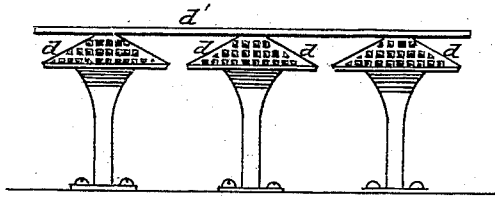


Fig. 7.

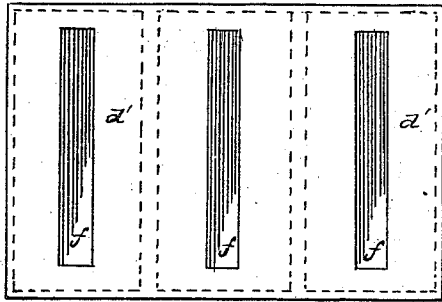


Fig. 8.

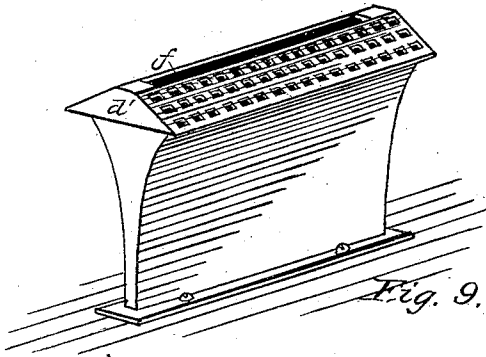


Fig. 9.

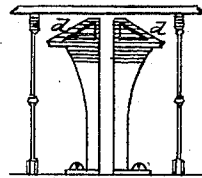


Fig. 10.

Witnesses:
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United States Patent Office.

DANIEL E. SOMES AND FRANK C. SOMES, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 108,531, dated October 18, 1870.

IMPROVEMENT IN STEAM-HEATERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that we, DANIEL E. SOMES and FRANK C. SOMES, of Washington, in the county of Washington and in the District of Columbia, have invented a new and useful Improvement in Steam-Heaters or Radiators; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents a top view of our improved radiator, C, fig. 2.

Figure 2, central vertical sections of several forms of radiators.

Figure 3, plans or top views of radiators, shown in fig. 2.

Figure 4, an end elevation of A.

Figure 5, elevation of C.

Figure 6, longitudinal section of B.

Figure 7, end elevation of three radiators grouped.

Figure 8, top view of fig. 7.

Figure 9, a perspective view of radiator D, fig. 2.

Figure 10, an end elevation of a double heater or radiator.

In all the figures, the same letters of reference indicate similar parts.

The object of our invention is to provide a heater for apartments, halls, &c., which shall rapidly impart warmth to the air of the compartment in which it is placed, produce an equable and healthful temperature therein, and, at the same time, afford an ornament attractive and pleasing to the eye, the cost of which shall be comparatively small; and, to these ends,

It consists in a metallic steam-chamber, constructed in any suitable form consistent with the principle of its sides flaring toward its top, either with or without flutings, said steam-chamber, or a number of them, to be placed in the apartment to be heated, and used as a radiator-attachment to a steam-generator; also, in providing such heaters with certain tables or covers hereinafter described, and in other improvements, as will more fully appear by the following specification and claims.

To enable those skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A in the drawing represents a heater or radiator, rectangular in its horizontal cross-section, the sides and top *d* of which are made of bronze, brass, iron, galvanized or bronzed iron, or other suitable material, forming a steam-chamber, B, gradually enlarged toward its top, into which the steam is admitted from the main distributing-pipe A through the connecting-pipe *e*, by means of the valve *a*. It is also provided

with an escape-valve, *b*, through which the air may be discharged on the admission of the steam.

B represents a heater, in the form of an inverted bell, provided with a top plate, *d*, which is depressed in the center, forming a bowl to receive water for the hydration of the air in the apartment to be warmed, or for any other purpose to which it may be adapted.

C represents a radiator, similar to the form B, except that it has a flat top, which is surmounted by a tablet or disk, *d'*, the thickened edge of which rests upon the top *d* of the steam-chamber, leaving an air-space between it and said top. This disk may be reticulated, as shown in fig. 1, or not. From the edge of this tablet or disk an ornamental open-work border projects downward any required distance, and surrounds the heater, to protect the dresses of ladies from coming in contact therewith, and to enhance its appearance, without obstructing the current of heated air. This form is shown with flutings, whereby the heating-surface is greatly increased without imposing obstacles to the air current, but affording channels for its passage enlarging toward their mouths, through which it is more rapidly discharged. Any of the other forms may be cast with flutings.

D represents a heater, similar to A, except that the top plate *d* of the steam-chamber is flat, and the heater is surmounted by a cover or roof, *d'*, supported, a few inches above the steam-chamber, by blocks *e* of wood, or other non-heat-conducting substance, to prevent undue heating of the same. This roof slopes from near its center downward, and projects over said chamber, between which and said roof the air rises and escapes through the opening *f*.

E shows a similar radiator to that designated by B, except that the top *d* of the steam-chamber is cast or joined to the sides of the heater near its center. This heater also shows a discharge or return-pipe, *c'*, to conduct the condensed vapor back to the generator to be reconverted into steam, or it may connect with and supply other radiators with the heating-fluid, thus dispensing with separate connections for each radiator with the main supply-pipe. This arrangement of pipes may, of course, be applied to the other forms, or the condensed steam may return through the main supply-pipe.

In the form A the projecting ends of the top *d* are open for the passage of the warmed air.

In fig. 7 three radiators are shown in a group, with a single cover or table, as shown in fig. 8. Any of the forms shown may be thus grouped.

In fig. 10 the double radiator is provided with a cover or table, supported independently by means of rods attached to the floor direct. These radiators

may be made in the form of an inverted cone. They are designed to be cast in one piece, but may be made in several pieces, and bolted or otherwise fastened together. They are provided with flanges at the bottom, through which they are secured to the floor by means of screws or bolts, and to afford greater strength may be provided with stays or partitions, cast or inserted in them.

It is important to have rapid currents of air against the steam-chamber, as well as a large volume, in order to have a room quickly and uniformly warmed, and, to secure these, we must have large radiating-surface, a body of steam sufficiently large to resist the condensing-powers, in a great measure, of the cold air coming in contact with the surface of the radiator, and no projections or other abrupt obstructions should be allowed on said surface to retard the ascending current of hot air. It will be seen that our invention secures these advantages.

It is well known that heated air rises, producing an upward current.

As our radiator flares from the bottom outward toward its top, it contains more steam than pipes or small sectional chambers, and presents a heating-surface, against which the air continually impinges without retardation in its ascent, said air acquiring greater velocity as it rises, and encounters increased heat and heating-surface.

What we claim, and desire to secure by Letters Patent, is—

1. A heater or radiator, consisting of a steam-chamber, gradually enlarged, or enlarging from the bottom toward its top, and presenting an outer surface, against which the air continually impinges, increasing in pressure or velocity, and encountering increased heat and heating-surface in its ascent.

2. The radiator C, with a tablet or disk, *d'*, having a border projecting downward from its outer edge, as and for the purpose set forth.

3. Our improved radiator, when provided with a roof or cover, *d'*, having an opening, *f*, as shown at D fig. 2.

4. The combination of a radiator with a cover or roof, *d'*, when the latter is supported on the former, by means of wood or other non-heat-conducting material, substantially as described.

5. The radiator E, provided with the supply-pipe *e*, extending into and opening near its center, and the discharge or return-pipe *e'*, as shown in fig. 2.

6. A steam-heater or radiator, having its top plate or cover depressed, so as to form a bowl, substantially as and for the purpose set forth.

7. A double radiator, constructed and arranged as shown in fig. 10.

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Witnesses:

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EDM. F. BROWN.