

EDWARD CAULFIELD.
Improvement in Steam Heaters.

No. 118,432.

Patented Aug. 29, 1871.

Fig. 1.

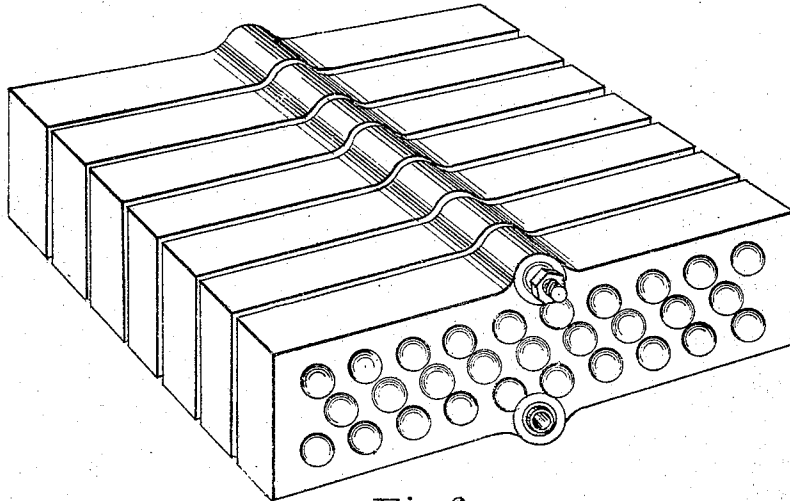


Fig. 2.

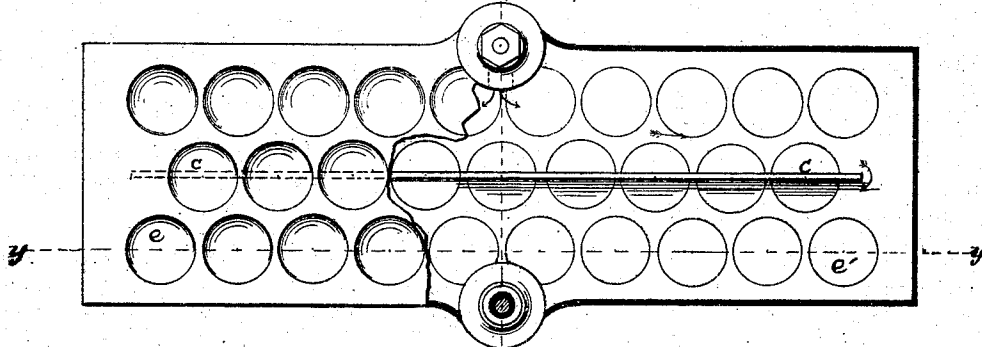


Fig. 3.

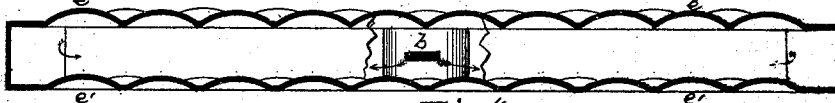
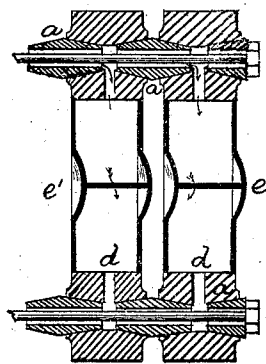


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWARD CAULFIELD, OF OSWEGO, NEW YORK.

IMPROVEMENT IN STEAM-HEATERS.

Specification forming part of Letters Patent No. 118,432, dated August 29, 1871.

To all whom it may concern:

Be it known that I, EDWARD CAULFIELD, of Oswego, New York, have invented certain new and useful Improvements in Steam-Radiators for Heating Buildings, of which the following is a full and clear description, reference being had to the accompanying drawing and the letters of reference marked thereon.

Figure 1 is a perspective view of a number of the radiators fastened together. Fig. 2 is a side view of one section, having a part broken out to show the interior. Fig. 3 is a horizontal section through the line *y y*, Fig. 2. Fig. 4 is a cross-section through the line *x x*, Fig. 2, and showing also the openings for the admission of steam.

The object of my invention is to secure a greater radiating surface, a better circulation of steam through the chambers, more rapid heating, and a more perfect mode of joining together the different sections or chambers.

This improved mode of connection consists in the use of hollow-cone joints *a a*, Fig. 4, made of brass or other suitable metal instead of rubber packing and like devices now in use. This cone-joint is double where it connects two radiators and single at the outer sections. It is made large enough to admit an iron bolt provided with head and screw-nut to fasten the radiators together and allow a free passage for the steam and water. The steam is admitted on the top of the center, and passes into the chambers of the radiator through the inlet shown at *b*, Fig. 3. It then passes toward both ends over an unbroken partition, *c*, Fig. 2, which stops short of each end of the chamber, driving the air before it and under to the outlet *d*, Fig. 4, connecting with the pipes for escape of water or condensed steam. The

joints of the water-outlet are also connected, like the steam-passage, by hollow cone-joints having a bolt through them. The sides or surfaces of my radiators are made with convex protuberances *e* and corresponding concavities *e'* in the opposite side, instead of solid ribs or tips.

The plates being of uniform thickness, the whole apparatus is equally and rapidly heated, with greater economy of steam than by other modes now in use. It is also simpler in construction, lighter, using less metal, and can be manufactured at less cost.

I am aware that radiators are now made with connecting-bolts and openings for the entrance and escape of steam and water, and also with partitions of various kinds to direct the passage of the steam through the chambers. I do not claim the use of any of these parts as peculiar to my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The hollow-cone joints as a means of connecting the sections of radiators together, substantially as shown and described and for the purposes set forth.

2. The hollow section of a radiator whose parallel surface-plates have concavo-convex protuberances, the protuberances being placed opposite to the concavities, as described, and for the purposes indicated.

In testimony that I claim the above I have hereunto subscribed my name in presence of two witnesses.

EDWARD CAULFIELD.

Witnesses:

C. T. RICHARDSON,
EDWARD PABST.