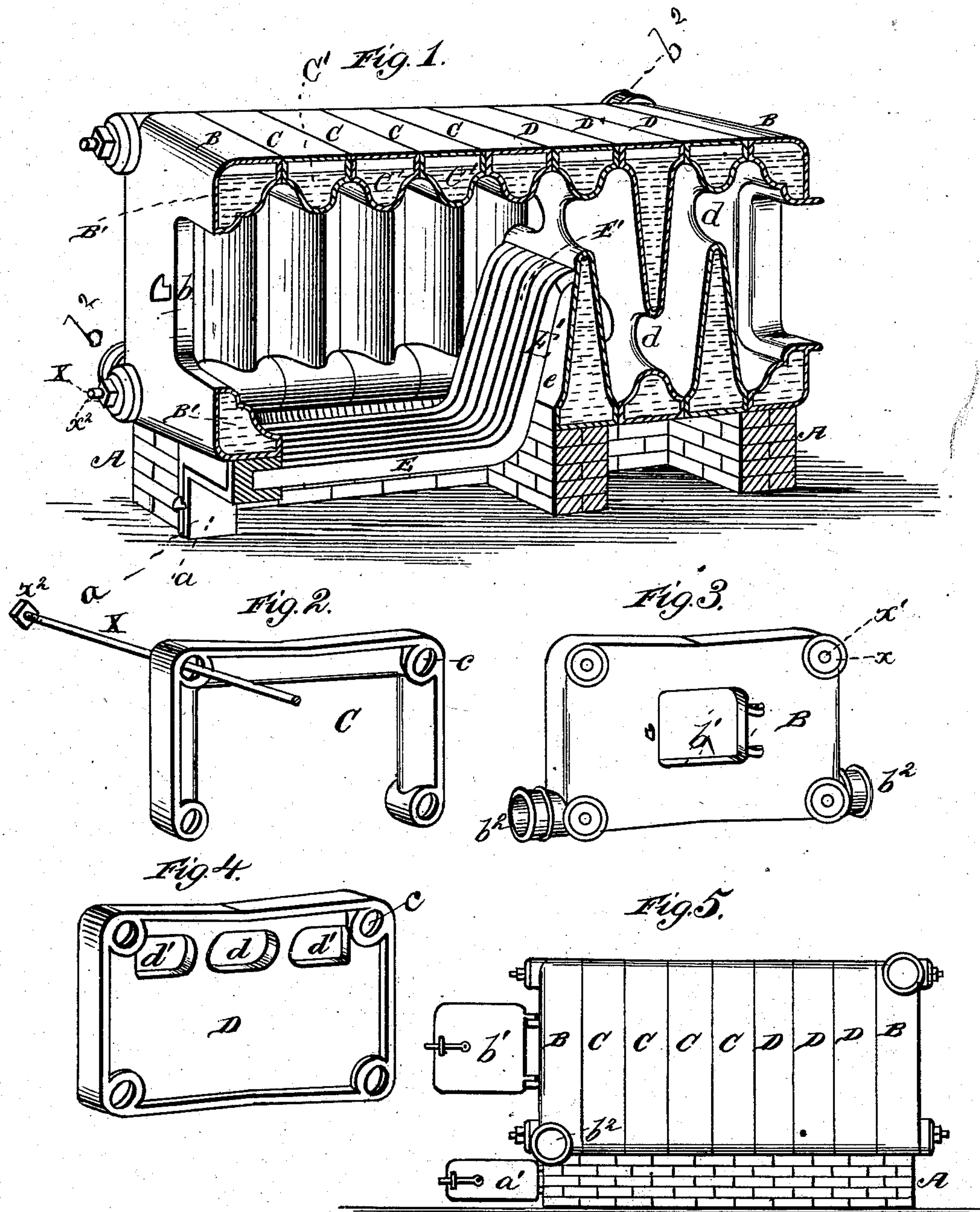


(No Model.)

J. D. CARMODY.  
Hot Water Generator.

No. 239,724.

Patented April 5, 1881.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JAMES D. CARMODY, OF EVANSVILLE, INDIANA.

## HOT-WATER GENERATOR.

SPECIFICATION forming part of Letters Patent No. 239,724, dated April 5, 1881.

Application filed July 26, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, J. D. CARMODY, a citizen of the United States, residing at Evansville, in the county of Vanderburg and State of Indiana, have invented certain new and useful Improvements in Hot-Water Generators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to the device which I denominate a "sectional extension water-heater," adapted for use and service in green-houses, laboratories, conservatories, baths, school-houses, residences, public buildings, and the like; and the novelty consists in the construction and arrangement of parts, as will be more fully hereinafter set forth in the claims.

The vessel is made in sections, each section having a water-chamber, the only communication from which is the water inlet or outlet, or the adjacent section, as will be explained. These sections are of different shapes internally; but their outlines agree, so that being secured together, they form a compact body. Each section has water communication with its fellow or with the outside, and the sections are secured together by a rod and nut, said rod passing through the water apertures, but being of sufficiently smaller diameter to allow the free passage of the water.

My water-heater, being made in sections, as will be explained in reference to the drawings, allows each user to build his heater of a size to agree with the service required.

To enable others skilled in the art make and use my invention, I will describe its construction and operation, and to this end I refer to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section in perspective. Fig. 2 is a view of the fire-box section in perspective. Fig. 3, one of the end sections in perspective. Fig. 4, one of the impacting or draft sections in perspective; and Fig. 5, a side elevation, showing the masonry and the several sections secured together by headed rod and nut, to form the complete heater.

Referring to the drawings, A represents the brick-work or masonry, and *a* the aperture for the ash-pit, governed by the draft-door *a'*.

B represents the front-end section, having feed-aperture *b*, controlled by door *b'*, nut-bearing *x*, and aperture *x'*, for the headed rod X and nut *x*<sup>2</sup>, as shown.

C represents the fire-box sections, having water-chambers C' and ports *c*.

D represents the impacting or draught sections, having apertures *d'* *d'*, and central aperture, *d*, as shown.

E represents the horizontal portion of the grate, and E' the inclined portion. Between the inclined portion E' of the grate and the first impacting-section is the draft-space *e*, as shown.

Having thus described the construction with reference to the drawings, I will proceed to describe the operation and advantages.

The section B, which forms the front or feed section, when reversed, with or without the door *b*, becomes the back or rear section. In either position the parts agree.

The sections C are so constructed as to make room for the fire-box; or, in other words, the sections C, in connection with the grate E, form the fire-box. Of course the length of the fire-box will be governed by the number of sections C used and the purpose sought to be subserved.

The sections D are the absorbing and impacting sections. As represented, the first one has the openings near the top and forms the back of the fire-box, against which the upper or inclined portions of the grate-bars rest. The succeeding sections D are reversed, so as to bring the ports below, thus impacting the flame, and torturing its course.

The advantages of this construction must be obvious. The space *e* supplies oxygen to the fuel at the back of the grate E. The sections are so constructed that any purchaser may build a heater to suit the occasion. The binding-rods only affect the end sections, and do not obstruct the flow of water, although operating in the ports.

What I claim as new is—

1. The water-heater herein described, formed in sections, said sections being adapted to be secured together and to form a combustion-



chamber and an impacting chamber, the end sections being interchangeable with each other by being vertically reversed, and the impacting sections being reversible vertically and interchangeable at will, as specified.

2. The sections B B', adapted to form the ends of a sectional water-heater, and to be connected with the other or intermediate sections by rod and nut, and to be vertically reversed, as described, and to serve as set forth.

3. The sections D D, adapted to be reversed vertically, and arranged with the openings in one section near the top and in the next section near the bottom of the furnace, and so on alternately, so as to give first a rising and then a falling course to the products of combustion, as specified.

4. The combination of the reversible end sections, B B, having seats  $x$ , and perforations  $x'$ , with the intermediate sections, and the connecting-rods  $x^2$  X, as specified.

5. In a sectional boiler, the vertically-reversible and interchangeable sections D D, each having apertures  $d' d d'$ , constructed and adapted to serve as set forth, one of the sections D forming a bridge-wall for the fire-box, as shown and described.

6. The combination of the grate E' with the impacting-sections D D, each having apertures  $d d' d'$  and ports  $e$ , constructed and arranged relatively to each other in the manner described, so as to form a draft-space,  $e$ , as shown, and for the purposes set forth.

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

JAMES D. CARMODY.

Witnesses:

MORRIS C. BAUM,

WM. A. GUDGEL.