

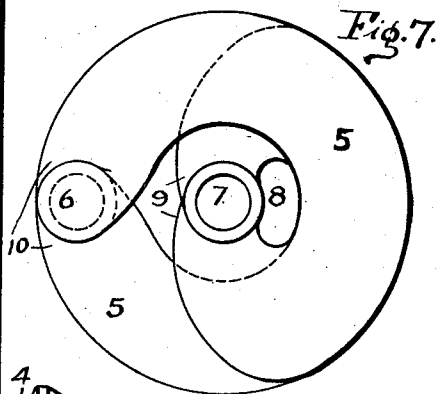
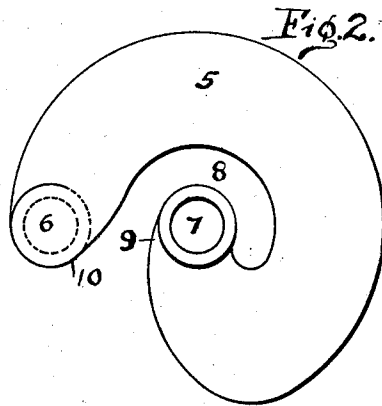
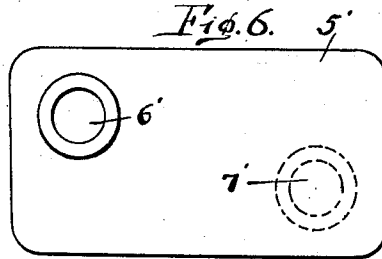
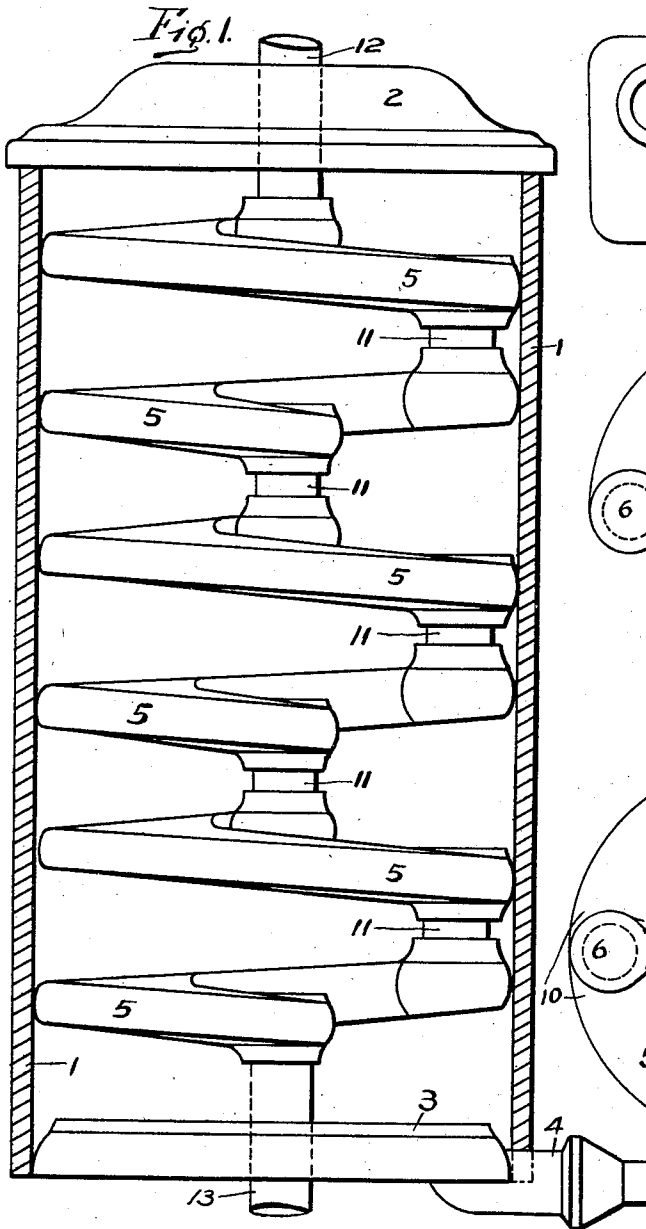
A. J. GOHMANN.
HOT WATER HEATER.

APPLICATION FILED JULY 15, 1910. RENEWED MAR. 25, 1912.

1,025,084.

Patented Apr. 30, 1912.

2 SHEETS—SHEET 1.



Inventor

Arthur J. Gohmann

By *Mason Finnick Lawrence.*

Attorneys

Witnesses
Marie S. Meem,
J. Gerdone Jr.

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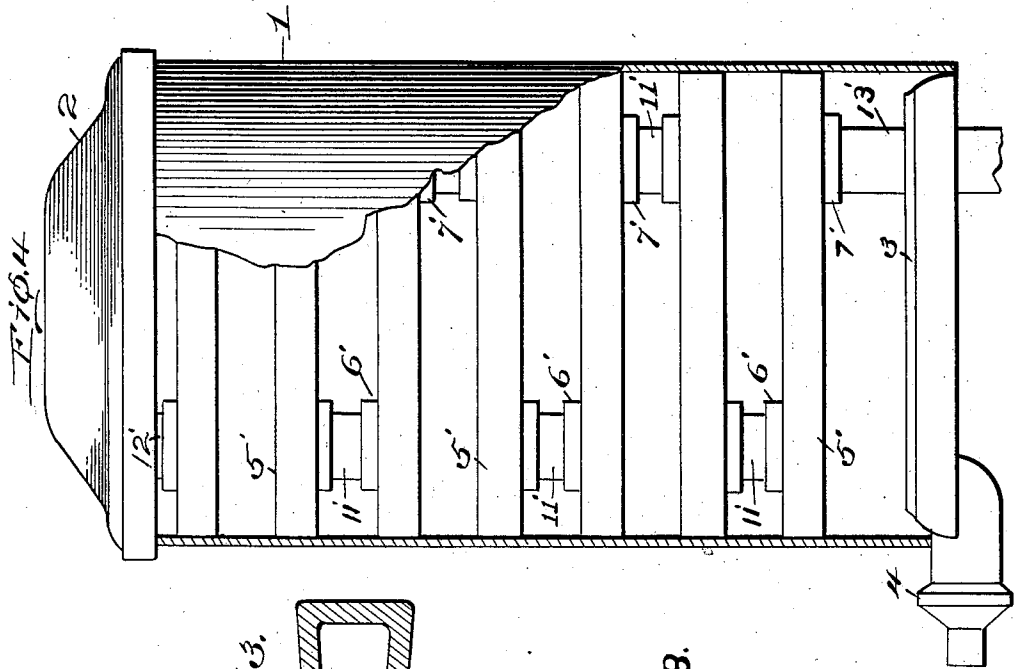
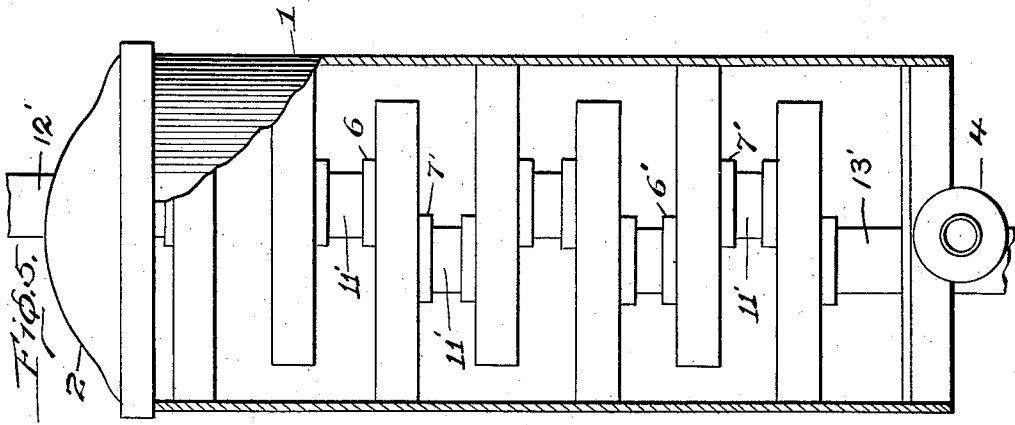
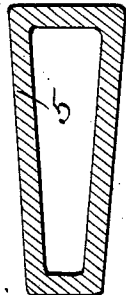
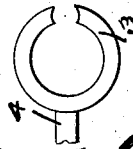


Fig. 3.



Witnesses
Marie S. Meem.
F. J. Jordon Jr.

Fig. 8.



Inventors

Arthur J. Gohmann
By Mason Smith Lawrence,
Attorneys

UNITED STATES PATENT OFFICE.

ARTHUR J. GOHMANN, OF NEW ALBANY, INDIANA, ASSIGNOR TO ANCHOR STOVE & RANGE COMPANY, OF NEW ALBANY, INDIANA.

HOT-WATER HEATER.

1,025,084.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed July 15, 1910, Serial No. 572,177. Renewed March 25, 1912. Serial No. 686,130.

To all whom it may concern:

Be it known that I, ARTHUR J. GOHMANN, a citizen of the United States, residing at New Albany, in the county of Floyd and State of Indiana, have invented certain new and useful Improvements in Hot-Water Heaters; 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.

This invention relates to water heaters, and the object of the invention is to form the several sections of the heater and so arrange them with reference to each other that a given quantity of fuel will produce a maximum heating effect.

A further object of the invention is to form the individual sections of the heater in such a way that they can be inverted and used interchangeably so that they may all be cast from one pattern, and at the same time have a slight rise, so that all of the sections taken together will form a continuous and circuitous rise to the water which is made to flow through the heater.

A further object of the invention, is to so form each section, that water flowing through the section will travel substantially around the major portion of the circumference of a circle before leaving the section.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims, may be resorted to without departing from the spirit of or sacrificing any of the advantages of the invention.

In the accompanying drawings, forming a part of this application, Figure 1, is a view of the device in vertical section. Fig. 2, is a top plan view of one of the sections of the heater. Fig. 3, is a section taken through the heating section shown in Fig. 2. Fig. 4, is a modification, partly in section and partly in side elevation. Fig. 5, is a view of the form shown in Fig. 4, the view being taken at right angles to the view shown in such figure. Fig. 6, is a top plan view of one of the sections of the form

shown in Fig. 4. Fig. 7, shows two sections of the preferred form in their relation to each other. Fig. 8, is a plan view of the burner.

Referring to the drawings by numerals, 1, indicates the casing of the heater, 2, the cover, and 3, the burner arranged in the lower portion of the device and provided with a suitable connection 4. The several sections through which the water passes are formed as shown in Figs. 1 and 2, these sections being substantially scroll-shaped. The sections are cast with one end higher than the other, the body connecting the ends being formed to give a gradual rise to the flow of the water in the section from one opening to the other. The individual section is designated by the numeral 5, and the inlet and outlet openings are designated by the numerals 6 and 7. The opening 6, is arranged near the outer portion of the section, and opening 7, is located in the center, the individual sections having one opening on each side thereof.

The outer sides of sections 5 are curved, the curve constituting approximately two-thirds of a circle. A scroll-shaped opening extends through the section from top to bottom as at 8, constituting a uniform opening for about half the diameter of a circle and then widening out rapidly to enlarge the opening through which heat from the burner is forced to pass between ends 9 and 10 of the section, to be baffled by the section immediately above in each case. The sections are all cast from the same pattern, and when assembled are reversed as shown in Fig. 7, so that a sufficient space may be provided between the sections as well as at the center and sides for the passage of the products of combustion through the heater. This construction represents an important feature of my invention. The sections are connected together by short couplings, 11. An outlet pipe, 12, is connected to the top section, and an inlet pipe, 13, to the bottom section, as shown in Figs. 1, 4 and 5.

In the modification shown in Figs. 4, 5 and 6, a section 5', substantially rectangular in horizontal section is employed, the adjoining sections being arranged with reference to each other, so that the heated air will pass around one side of a given section, and the opposite side of the next section. In this form the openings 6', and 7', are ar-

ranged as shown in Fig. 6, each section being cast from the same pattern. The sections are connected by short couplings, as shown at 11', in Figs. 4 and 5.

- 5 The inlets and outlets to the heater as shown in Figs. 4 and 5, are designated by the numerals 12' and 13'.

It will be observed that in my device each section acts as a baffle plate (see Figs. 5
10 and 7) and an extensive heating surface is provided by combining the sections as shown. The water passing through the heater is caused to flow in many directions, but in the individual sections in the pre-
15 ferred form, it comes into contact with curved walls only, and is thus not unduly retarded.

What I claim is:

- 20 1. In a water heater, a plurality of scroll-shaped sections, adjoining sections being reversely arranged.

2. In a water heater, a plurality of scroll-shaped sections, each provided with an opening near its central portion and with a
25 corresponding opening on the opposite side, near its outer edge, and a burner located beneath the sections.

3. In a water heater, a plurality of scroll-shaped sections and a burner arranged be-
30 neath the sections.

4. In a water heater, a plurality of scroll-shaped sections, a burner and a casing surrounding said sections and burner.

5. In a water heater, a plurality of scroll-shaped sections, thinner at their outer edges
35 than at their inner edges and a burner located beneath the sections.

6. In a water heater, a plurality of sections arranged substantially horizontally,
40 the outer edges of the sections being scroll-shaped, and adjoining sections being reversely arranged.

7. In a water heater, a plurality of sections similarly formed but reversely ar-
45 ranged with reference to each other, a portion of each section projecting beyond the edge of the adjoining section, whereby each section acts as a baffle plate, means for connecting the central portion of a given sec-
50 tion with the central portion of a second

section, and means for connecting the outer portion of the section last mentioned with the outer portion of a section on the side thereof opposite to that on which said second section is located.

8. In a water heater, a plurality of scroll-shaped sections arranged substantially horizontally, the upper and lower walls being inclined with reference to each other, said sections being provided with openings lo-
60 cated on opposite sides and arranged respectively near the central portion of the sections and near their outer edge, and means for connecting the sections, a portion of each section overlapping a portion of the adjoining section, the sections being re-
65 versely arranged.

9. In a water heater, a plurality of scroll-shaped sections, one end of each section being higher than the other end and the ends
70 of said sections being connected by an inclined body portion.

10. In a water heater, a plurality of scroll-shaped sections, one end of each section being higher than the other end, the
75 ends of said sections being connected by an inclined body portion, means for connecting the individual sections and a burner located beneath the sections.

11. In a water heater, a plurality of in-
80 clined scroll-shaped sections, means for connecting the sections together, the adjoining sections being reversely arranged, and a burner located beneath said sections.

12. In a water heater, a plurality of in-
85 clined sections similarly formed but reversely arranged, means for connecting the central portion of a given section with the central portion of a second section, and means for connecting the outer portion of
90 the section first mentioned with the outer portion of a section on the side thereof opposite to that on which said second section is located.

In testimony whereof I affix my signature 95
in presence of two witnesses.

ARTHUR J. GOHMANN.

Witnesses:

WALTER G. TERSTEGGE,
L. S. SWIFT.