

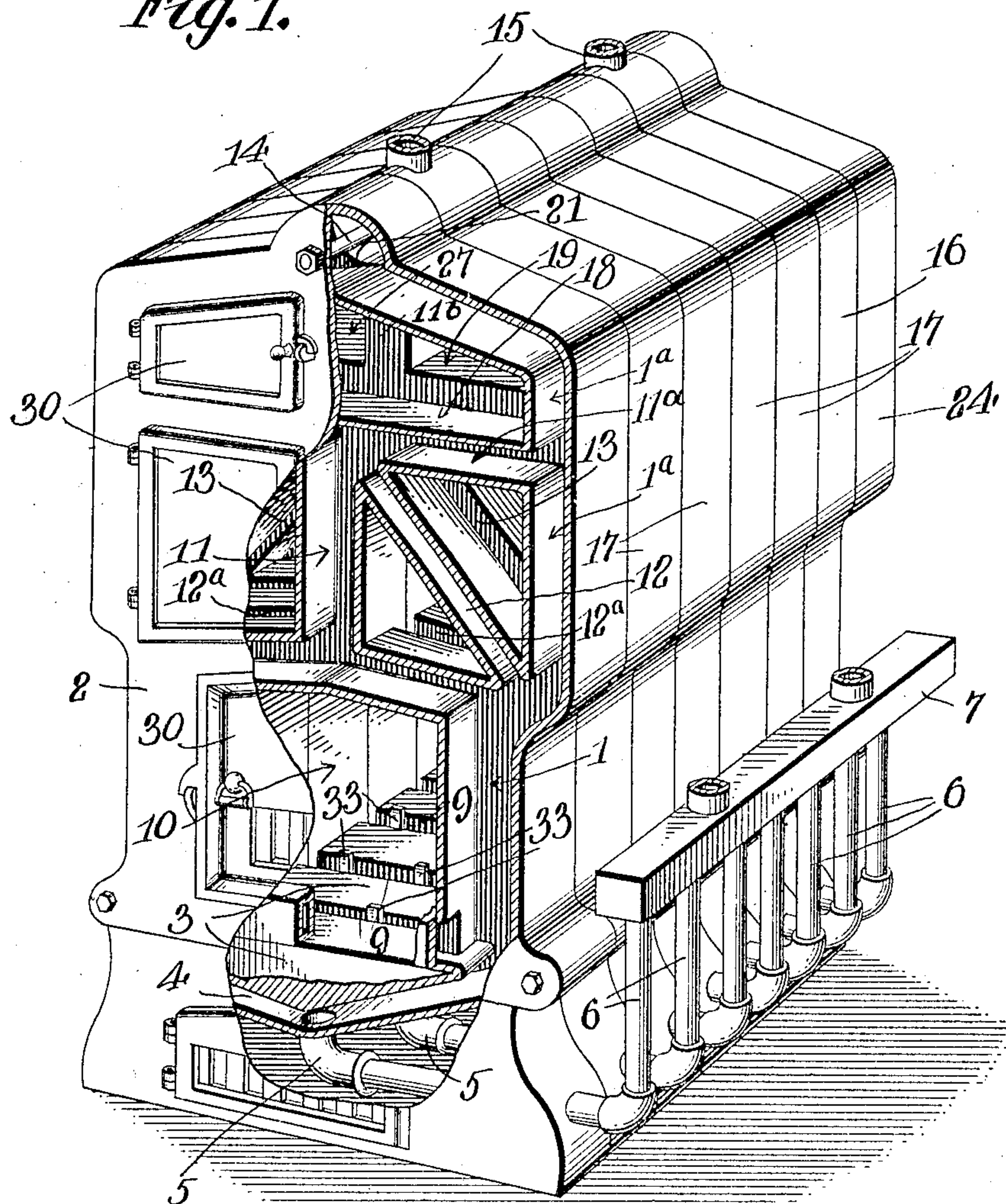
No. 871,927.

PATENTED NOV. 26, 1907.

J. GEDEON, JR.
HOT WATER HEATER.
APPLICATION FILED JUNE 19, 1907.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

C. E. Smith.

Geo. E. Tew.

John Gedeon Jr.
INVENTOR

BY *Wm. B. Swindle*

Attorney

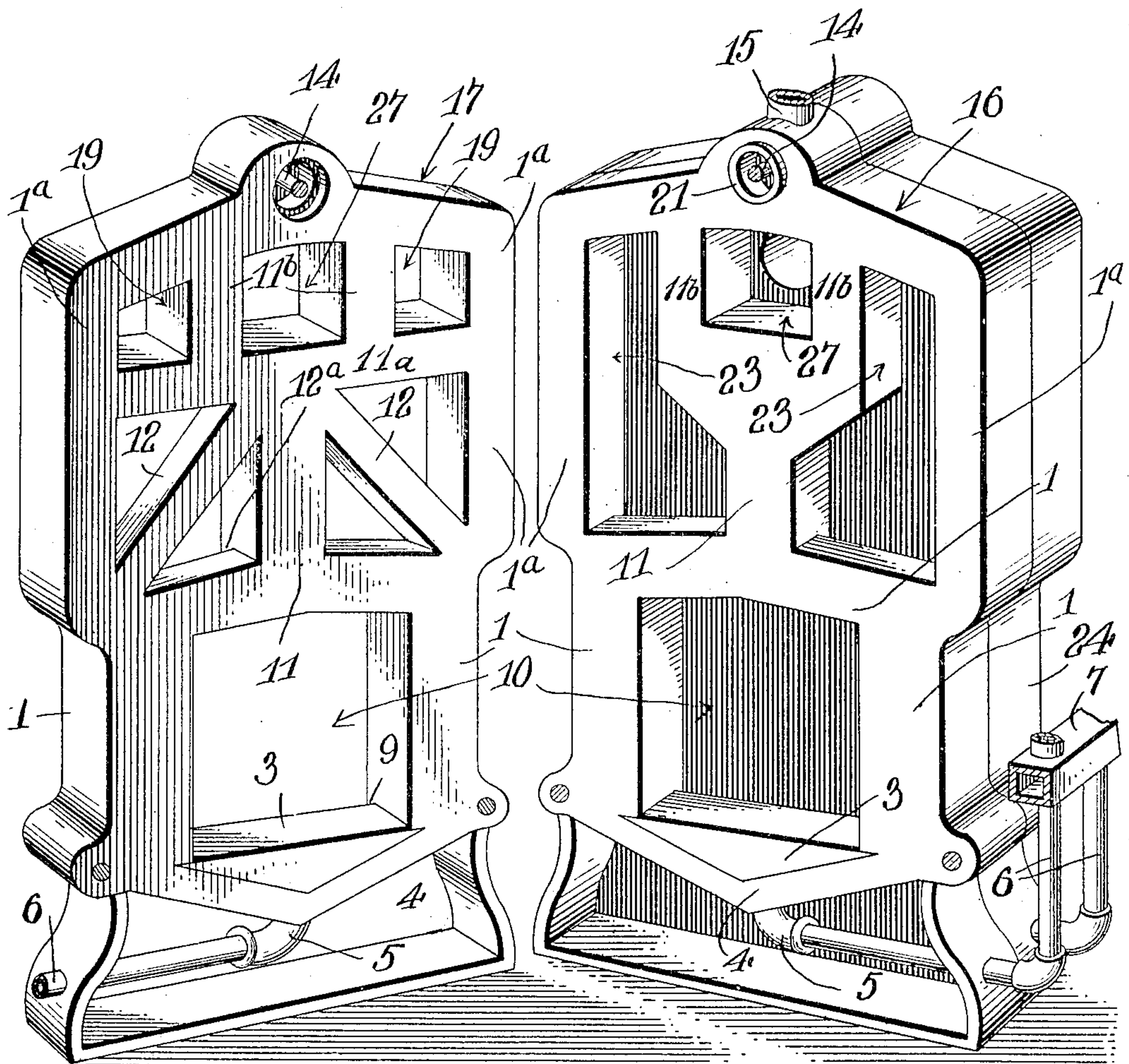
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Fig. 2.



WITNESSES:

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John Gedeon Jr.
INVENTOR

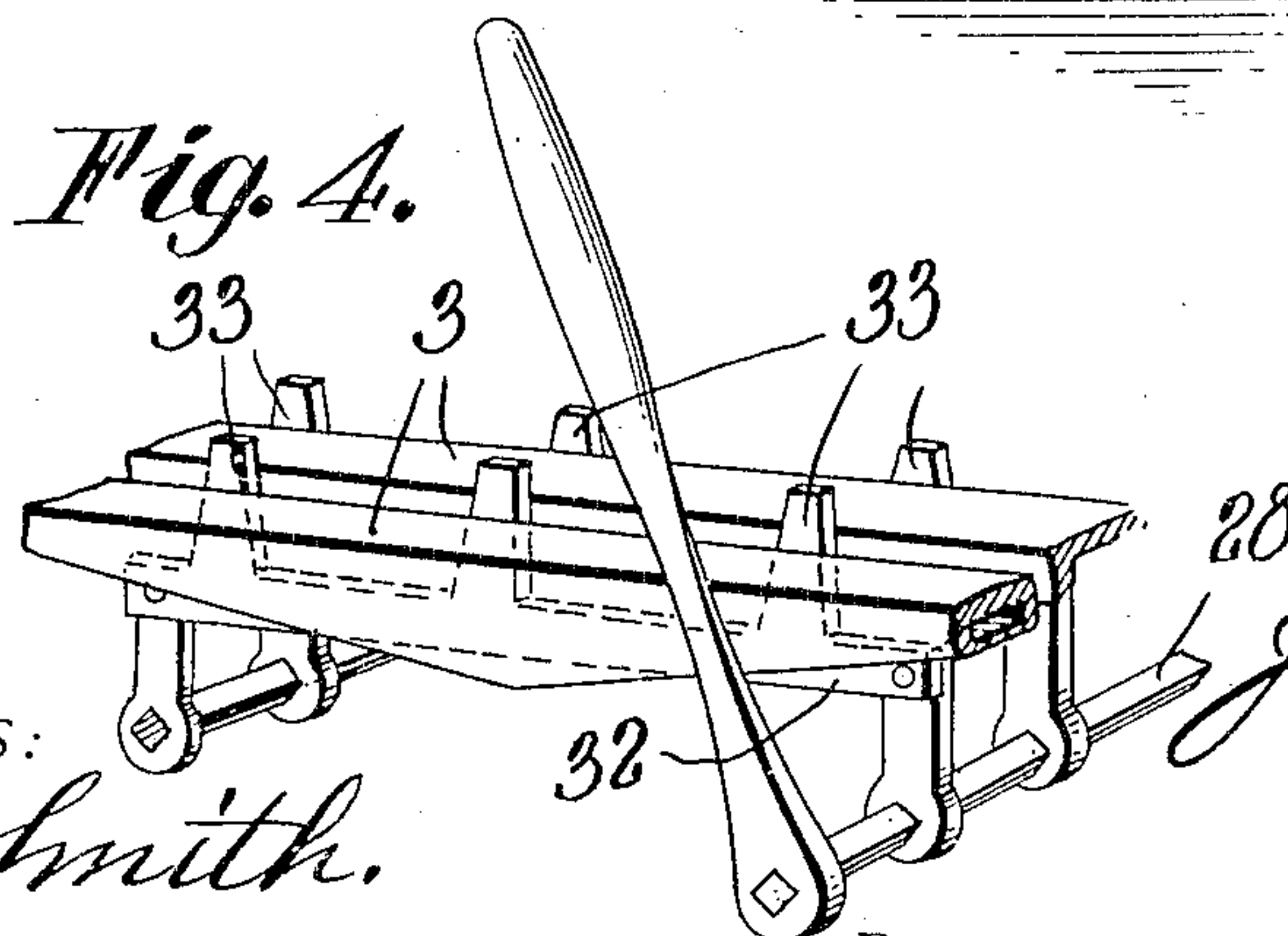
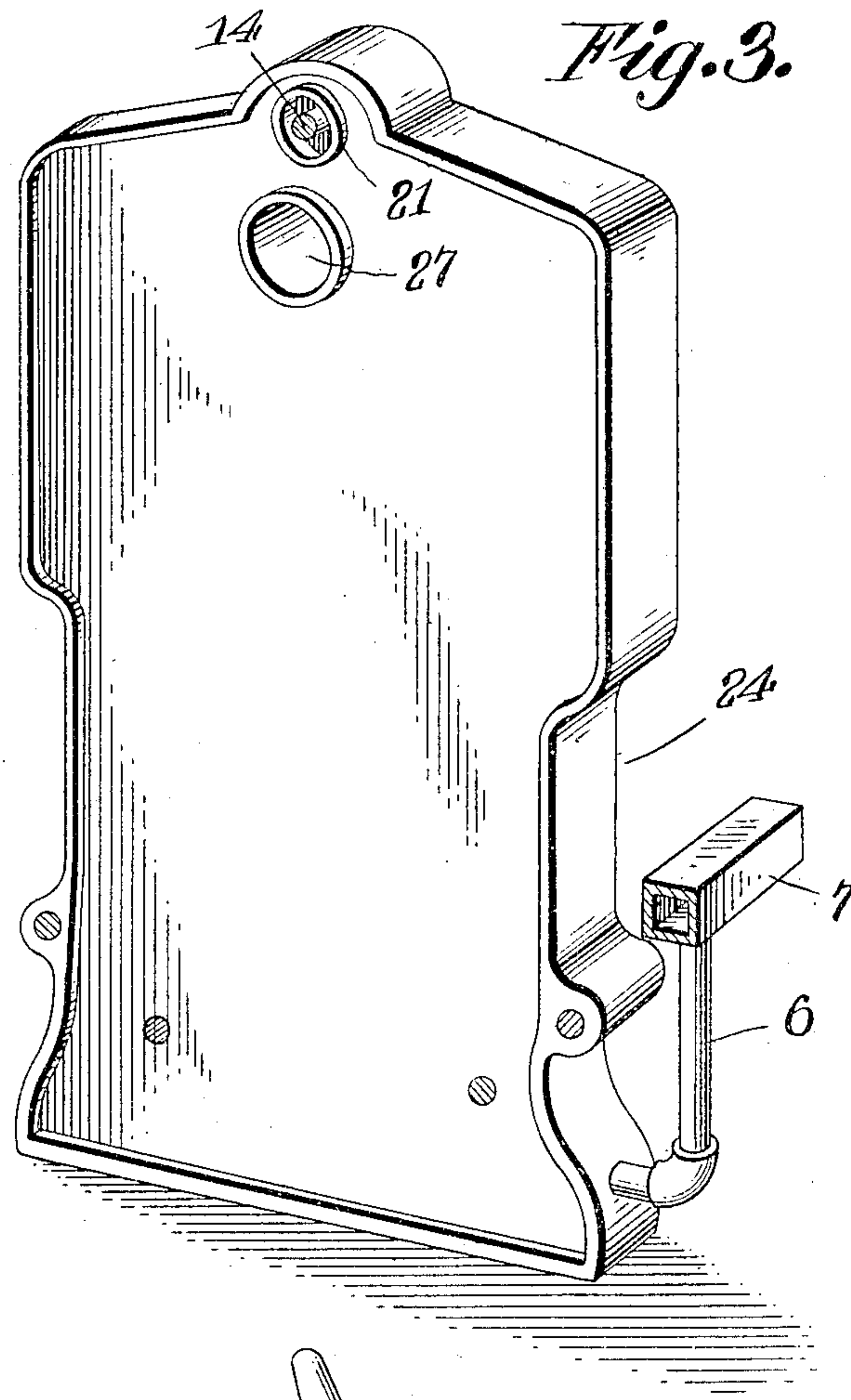
BY *Wm. B. Swaine*
Attorney

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3 SHEETS—SHEET 3.



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C. E. Smith.
Geo. E. Tew.

BY

John Gedeon Jr.
INVENTOR

Miller B. Swindle

Attorneys

UNITED STATES PATENT OFFICE.

JOHN GEDEON, JR., OF CLEVELAND, OHIO.

HOT-WATER HEATER.

No. 871,927.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed June 19, 1907. Serial No. 379,729.

To all whom it may concern:

Be it known that I, JOHN GEDEON, JR., a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Hot-Water Heaters, of which the following is a specification.

This invention relates to boilers or hot water heaters, and particularly to that class thereof used in connection with hot water heating systems.

The boiler is of the sectional type, being built of a series of sections of novel form and construction, as will more fully hereinafter appear.

In the accompanying drawings, Figure 1 is a perspective view of the boiler, partly in section. Fig. 2 is a perspective view showing the last two sections and one of the middle sections, sprung apart. Fig. 3 is a perspective view of the last or rear end section. Fig. 4 is a detail in perspective of part of the grate.

The boiler is built up of a series of vertical sections of which the front section is indicated at 2, the rear section at 24, and middle sections at 17, together with a section 16 which is somewhat modified in interior construction, and which is located next to the rear end section.

The water inlet manifold is indicated at 7, and it has pipes 6 leading therefrom to the respective sections. These pipes enter through the ash box in the bottom of the heater and connect at 5 to inclined passages 4 extending in opposite directions toward the sides of the sections and communicating with upright passages 1. These arch over the fire box 10 and join at the middle to form a central upright passage 11 which connects to substantially horizontal cross passages 11^a which also connect to the upright side passages 1^a. The cross passage 11^a leads upward through passages 11^b to the top of the section, connecting with the passages 1^a at the top, where the water spaces of the successive sections are connected by the nipples indicated at 21, forming a horizontal longitudinal passage extending from one end of the boiler to the other, and through which the clamping bolt 14 extends.

The front section 2 and the intermediate section 17 are also provided with diagonal or inclined water passages 12, leading from the top of the legs 1, upwardly and inwardly to the middle of the cross passages 11^a.

The grate bars 3 are formed integral with, or on top of, the water passages 4, or, in other words, said passages extend through the grate bar castings.

The passages 4, 11 and 12 are of less width than the outside width of the respective sections, so that spaces indicated at 9 are formed between the grate bar sections, and spaces indicated at 12^a and 13 are formed between the adjacent water passages. The cross passages 11^a, however, are closed or in contact with each other in the respective sections, so that no space is afforded therebetween.

The rear end section 24 is entirely plain or unbroken, as indicated in Fig. 5, to form the closed end of the furnace. The front section has suitable doors 30 leading to the smoke flues between the various passages.

The section 16, next to the end section 24, is slightly modified to form smoke conduits around or behind the cross passages 11^a. In said section there is an absence of said cross passages 11^a as well as the inclined passages 12, the middle passage 11 leading directly to the opposite side branches 11^b and thence to the top.

The grate bars, as stated, are formed integral with the boiler sections, and in order to shake the fire a shaker is provided consisting of bars 32 having teeth 33, which teeth project up through the spaces 9 between the grate bars. The bars 32 are connected to the rock shaft 28, by the operation of which the shaker may be moved back and forth to stir or shake the fire. The rock bars supporting the shaker are located in the ash box.

The course of the water is from the manifold 7 through the pipes 6 and passages 4 under the grate, and thence up beside the grate through the passages 1, 1^a, 11, 12, 11^a and 11^b to the top, and thence out to the circulating system through the openings 15, of which there may be as many as necessary.

The draft enters through the ash box and through the space between the grate bars 3. The fire will burn the whole length of the

grate, and may if necessary be made the whole length of the furnace, and from the combustion chamber the gases and products of combustion pass up through the spaces 5 12^a and thence rearwardly between or around the passages 11 and 12, to the next to the last section 16, in which they pass up through the space 23 into the two side flues 19, above the cross passages 11^a, thence 10 forwardly along said flues to the front section 2, from which they pass into the upper middle flue 18 and rearwardly therein and out the opening 27 to the chimney. The front section 2 is without the water pas- 15 sages 11^b, in order to allow the passage of the smoke from the flues 19 to the flue 18. The smoke and products of combustion thus have a tortuous or back and forth flow and come in contact with all parts of the boiler struc- 20 ture and with the passages therein containing the water to be heated.

The form and shape of the grate 3, or the location of the passages 4, together with the entrance of the water at the point 5, being 25 the lowest point of the water space of the boiler, prevents the thumping or noise incident to the sudden mixing of hot and cold water. Such heat as there is in the ash box is utilized in heating the water. The fire 30 box is surrounded on all sides by a wall of water passages. The sections have water passages fully large enough for the rapid circulation of water thereover, without obstruction.

35 The boiler is set up in a manner common to this class of boilers, by connecting together

the number of sections necessary to make a boiler of the required size or capacity.

I claim:

1. A vertical sectional boiler having an ash- 40 pit fire-box and also having sections each of which has a water passage extending around the top, bottom and sides of the fire box, the bottom parts of the various sections being spaced from each other and forming grate 45 bars and having individual water inlets, at the middle thereof, and water passages extending at an inclination upwardly from said inlets, in opposite directions.

2. A sectional boiler having a series of con- 50 nected sections each of which has an outer water passage extending completely around the section, upper and lower cross passages extending substantially horizontally from side to side, the lower cross passages being 55 spaced apart and located directly above the fire box, and the upper cross passages being close together, forming a horizontal partition above the fire box, a pair of vertical pas- 60 sages extending from the upper cross passages to the top and forming side and middle flues extending from front to rear, the side flues being connected to the middle flue at the front end and to the fire box at the 65 rear end.

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

JOHN GEDEON, JR.

Witnesses:

JOHN A. BOMMhardt,
EDITH D. COMER.