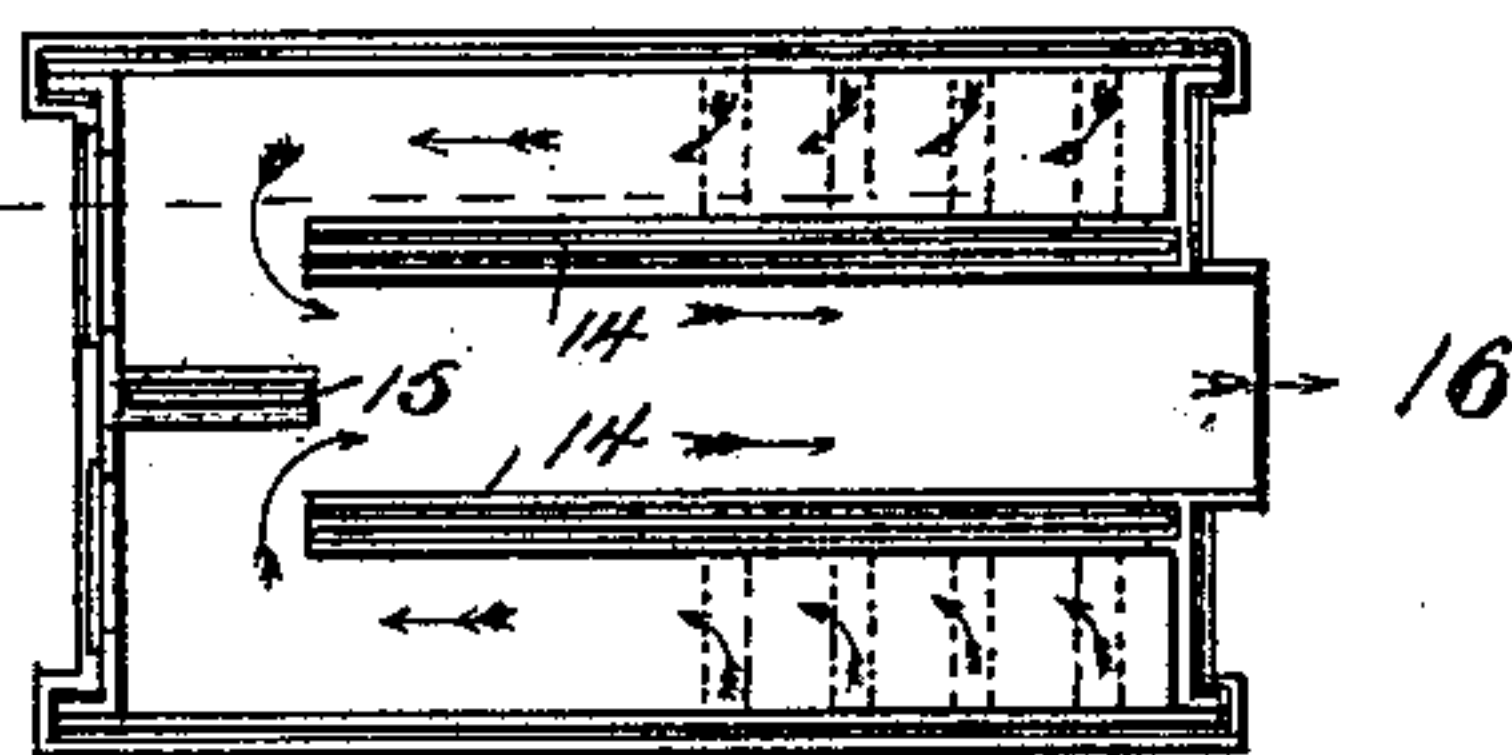
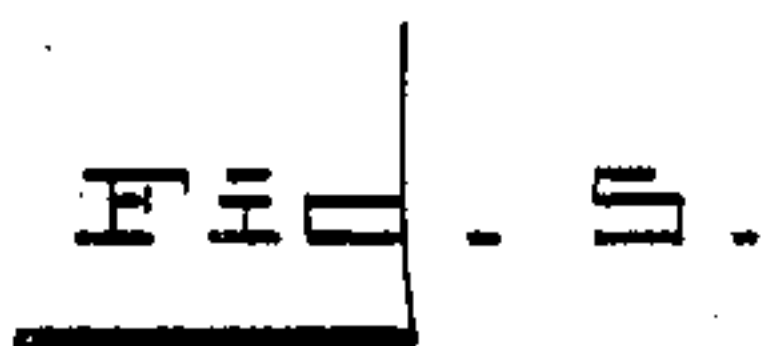
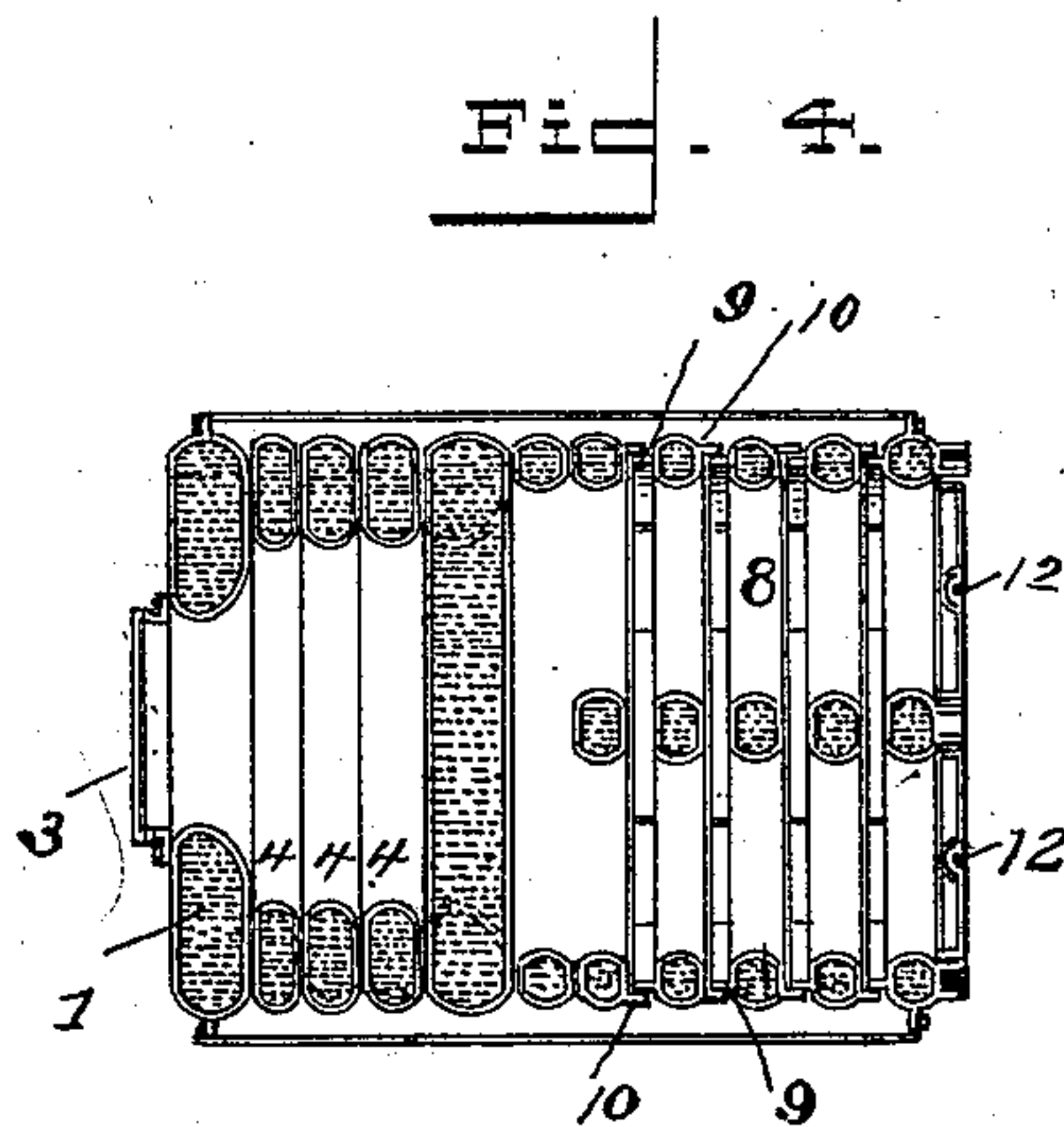
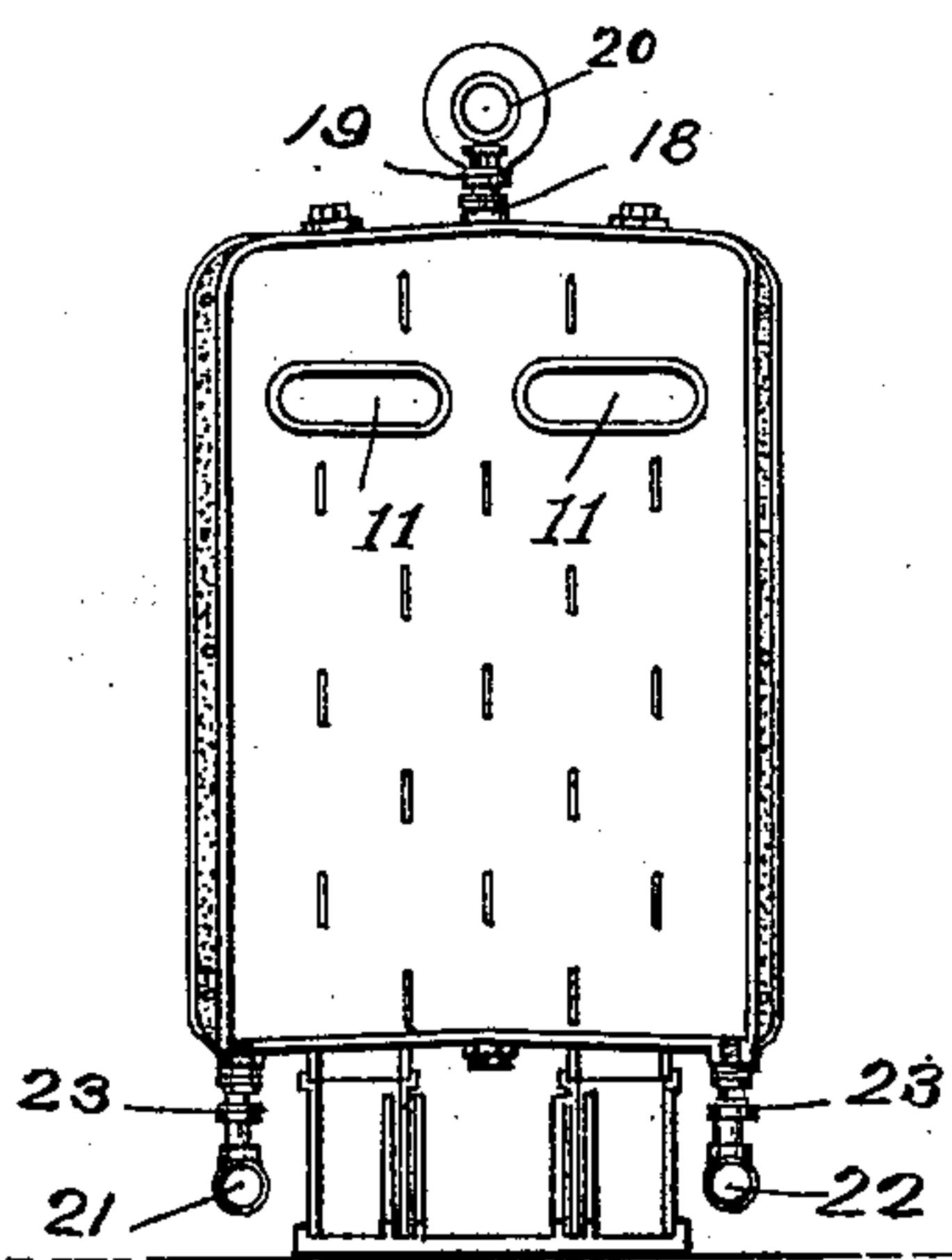
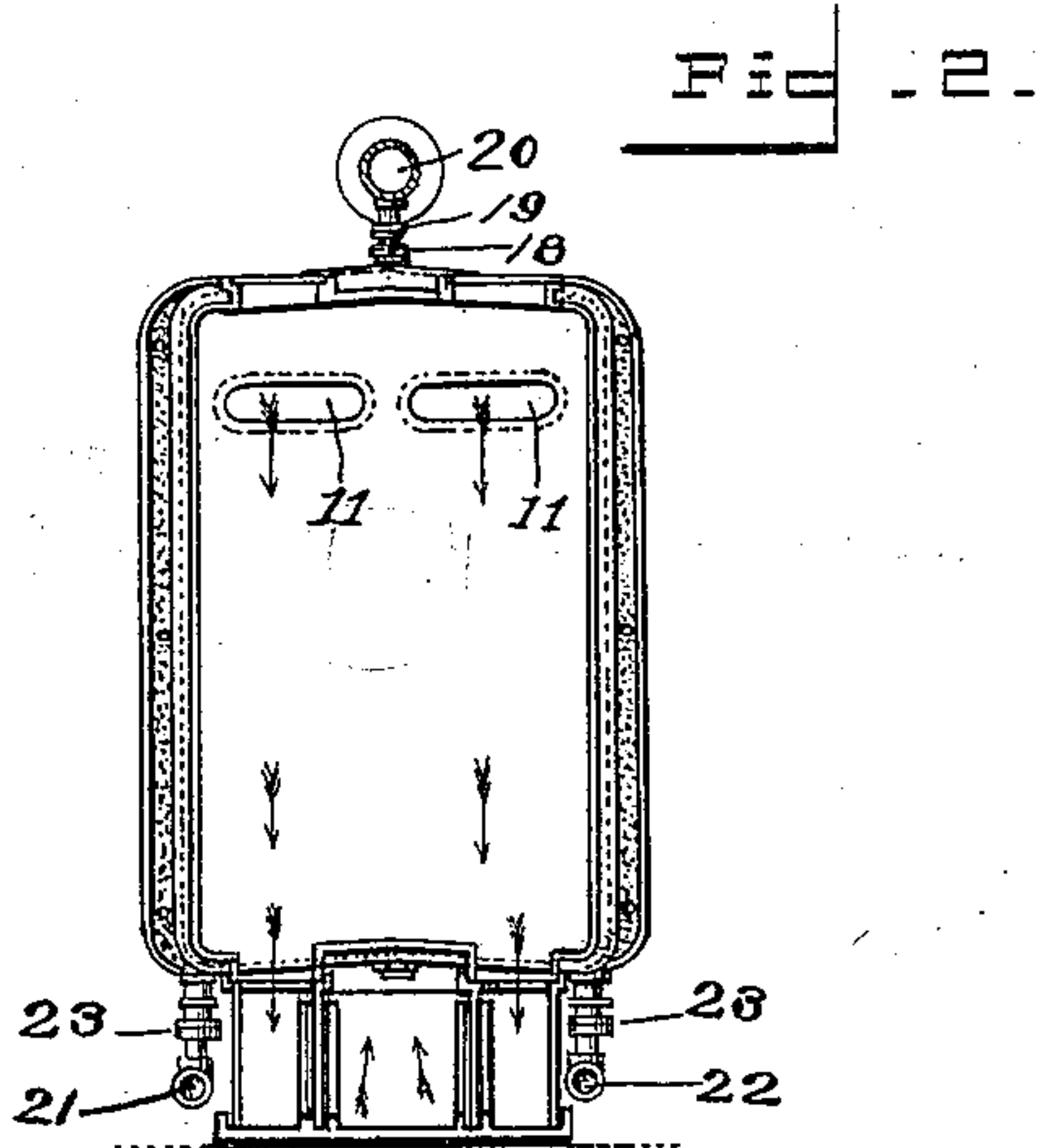
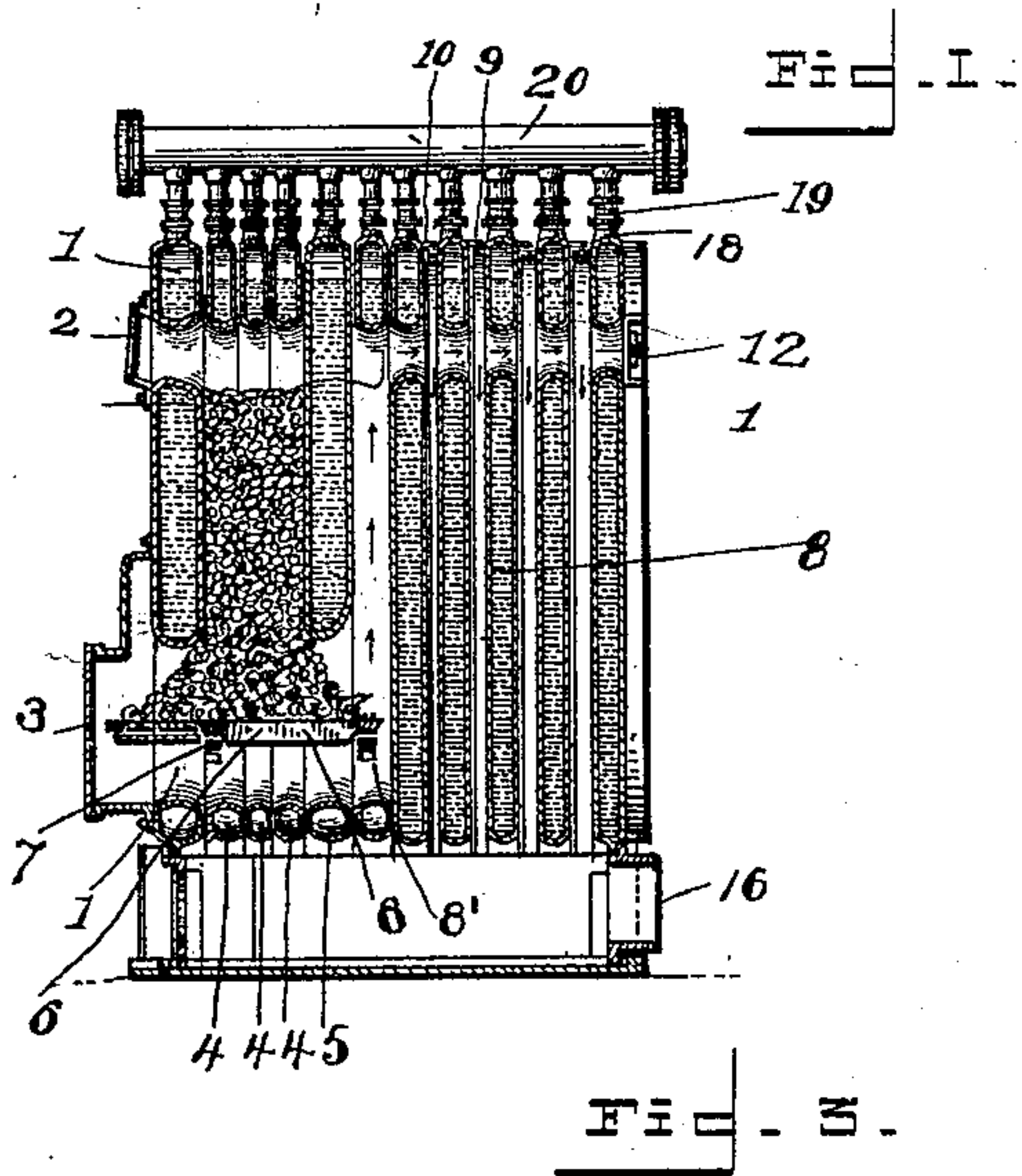


(No Model.)

L. CRUSIUS.  
STEAM BOILER.

No. 599,141.

Patented Feb. 15, 1898.



Witnesses:

Fenton S. Belt.

J. A. Billson.

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Attorneys



# UNITED STATES PATENT OFFICE.

LOUIS CRUSIUS, OF KAISERSLAUTERN, GERMANY.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 599,141, dated February 15, 1898.

Application filed August 17, 1897. Serial No. 648,539. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS CRUSIUS, a subject of the Emperor of Germany, residing at Kaiserslautern, Germany, have invented certain new and useful Improvements in Steam-Boilers; and I do 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.

My invention relates to improvements in sectional steam-generators; and the object is to simplify the construction and increase the efficiency of the same.

To these ends the invention consists in the construction, combination, and arrangement of the device, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same reference characters indicate the same parts of the invention.

Figure 1 is a longitudinal section of my improved steam-generator. Fig. 2 is a transverse section taken between two of the rear sections. Fig. 3 is a similar view taken through one of the rear sections. Fig. 4 is a horizontal section through the furnace. Fig. 5 is a similar view through the base.

This generator is built up of a series of vertical parallel sections, the number of which may be varied to correspond to the horsepower desired. The front section 1 is provided with the usual fuel-door 2 and the ash-pit door 3. The sections 1, 4, 4, 4, and 5 form the furnace proper, and 6 represents the grate-bars, which rest upon the transverse bars 7 7, supported by lugs 8 on the inner face of the furnace-sections, and it will be seen that by keeping the feed-door 2 closed, it being approximately air-tight, the entire draft is across the surface of the fuel on the grate-bars, and not through the body of the coal contained between the sections 1 and 5. This arrangement provides a very perfect form of magazine or self-feeding furnace, requiring little or no attention other than filling the magazine up and keeping the fire free and clear.

It will be observed that the sections heretofore described fit snugly together, there being no spaces between them, while the rear sections 8 8 are provided with overlapping flanges

9 10, which form a joint around the edges of the sections and at the same time provide a draft-space between the contiguous faces for the passage of the products of combustion, the course of which is indicated by the arrows.

11 11 represent lined draft-passages in the last-mentioned sections, and 12 represents a blind cap or plug fixed in the end section to deflect the draft downward between the sections and into the base-section 13, which is provided with vertical longitudinal division-walls 14 14 and a central division-wall 15 to form a tortuous passage for the products of combustion, as shown by the arrows in Fig. 5, and thence through the outlet 16, which is in direct communication with the chimney or smoke-stack. (Not shown.)

The upper end of each section is formed with a socket 18 to receive the union 19, which connects the section with the manifold 20, which forms a steam dome or drum from which the live steam is taken to supply the engine or otherwise utilized.

21 and 22 represent parallel horizontal manifolds connected by a series of vertical unions 23 23 to the outer edges of the bottoms of the sections, and through which the feed-water is supplied to the generator.

While I have described my invention as a steam-generator, it forms a perfect boiler for hot-water heating systems, as well as for any of the various applications of steam or hot-water circulation in the art.

Although I have specifically described the construction and relative arrangement of the several elements of my invention, I do not desire to be confined to the same, as such changes or modifications may be made as clearly fall within the scope of my invention without departing from the spirit thereof.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. A sectional steam-generator of the class described, comprising a series of vertical parallel sections, forming a fuel-reservoir closed at its upper end and open at its lower end, in combination with a separable base-section communicating with the draft-spaces between said vertical sections and provided with a horizontal tortuous passage for the products

of combustion, substantially as shown and described.

2. A sectional steam-generator or boiler, comprising a series of vertical parallel sections forming a fuel-reservoir, and the manifold 20, provided with a series of unions 19 independently and centrally connecting each parallel section with said manifold, and the feed-water pipes 21 22 independently con-

needed to said sections by the unions 23, substantially as shown and described.

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

LOUIS CRUSIUS.

Witnesses:

JACOB ADRIAN,

ROBERT ELSAESSER.