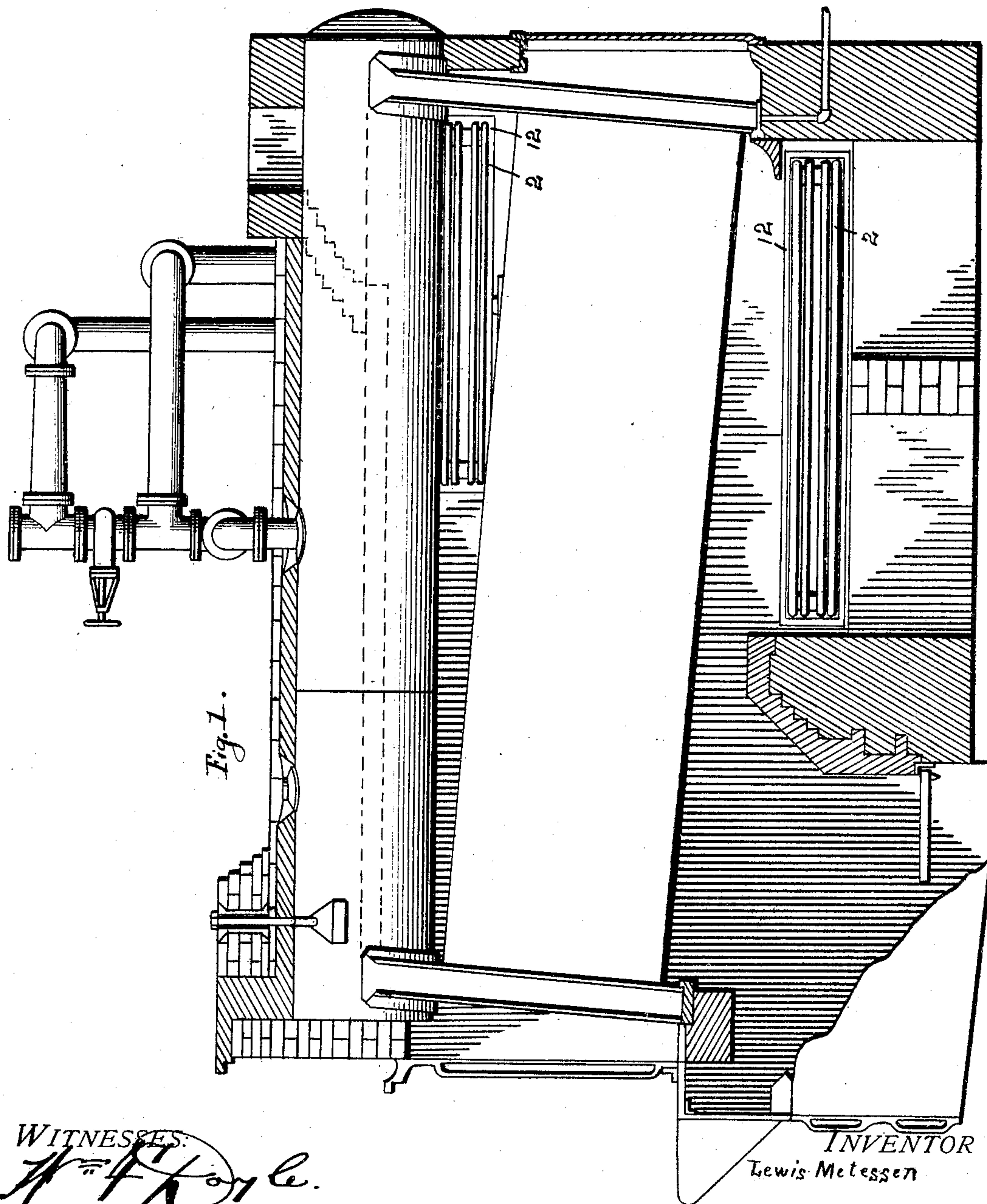


No. 793,532.

PATENTED JUNE 27, 1905.

L. METESSER.
STEAM SUPERHEATER.
APPLICATION FILED DEC. 3, 1904.

3 SHEETS—SHEET 1.



WITNESSES:

H. F. H. Co.
C. H. Fesler.

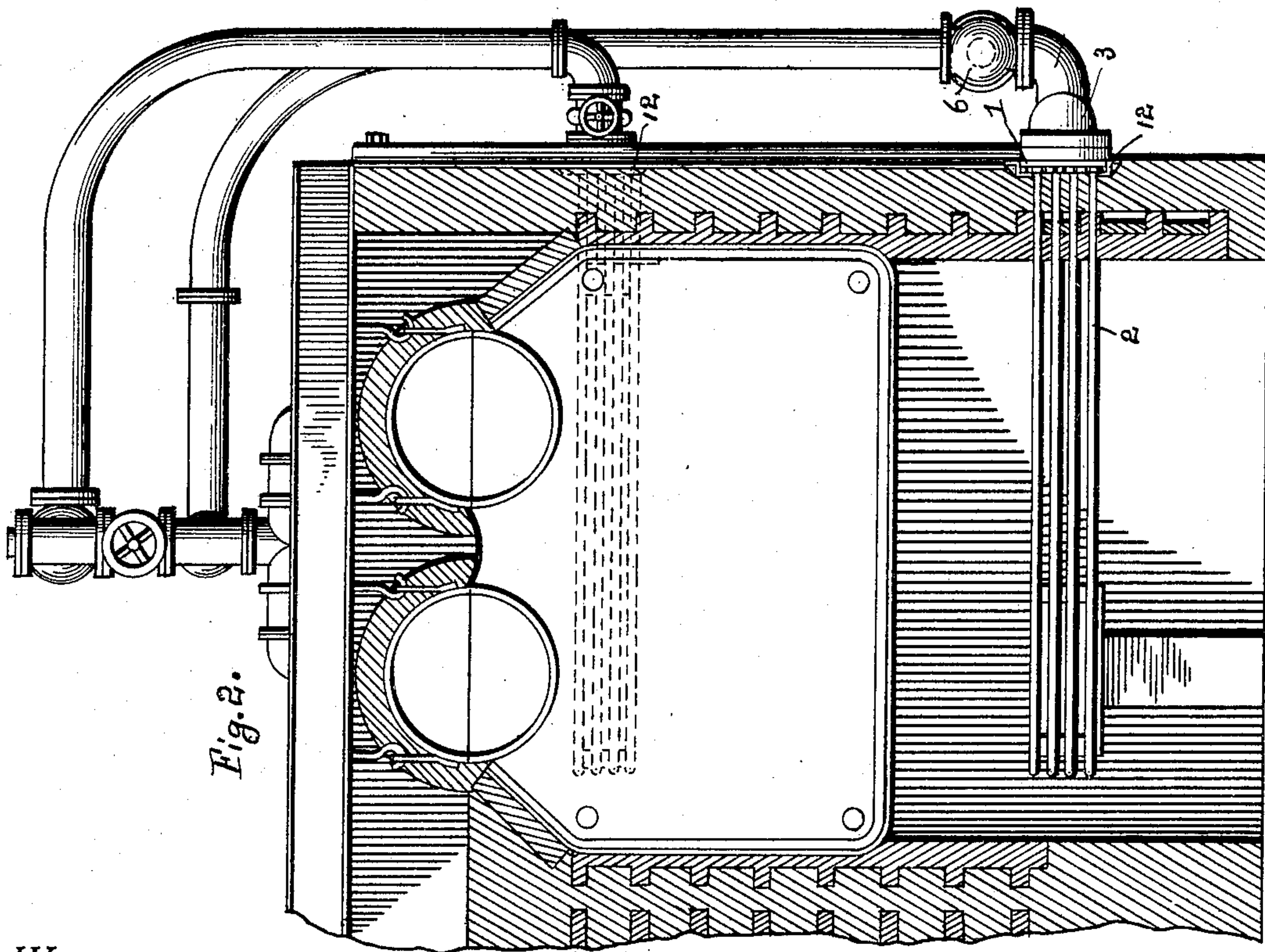
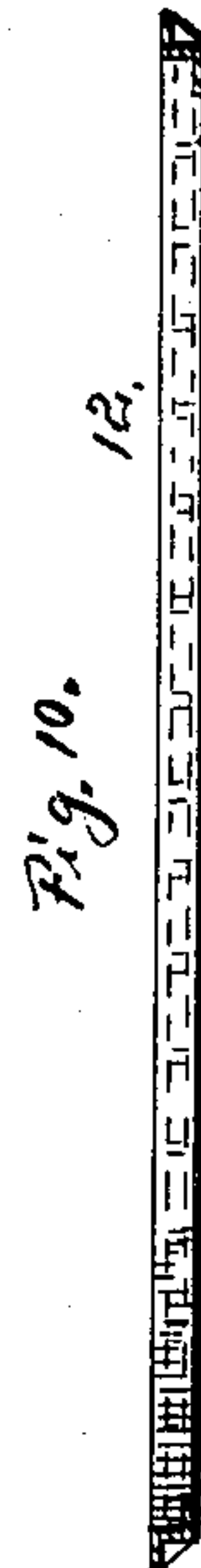
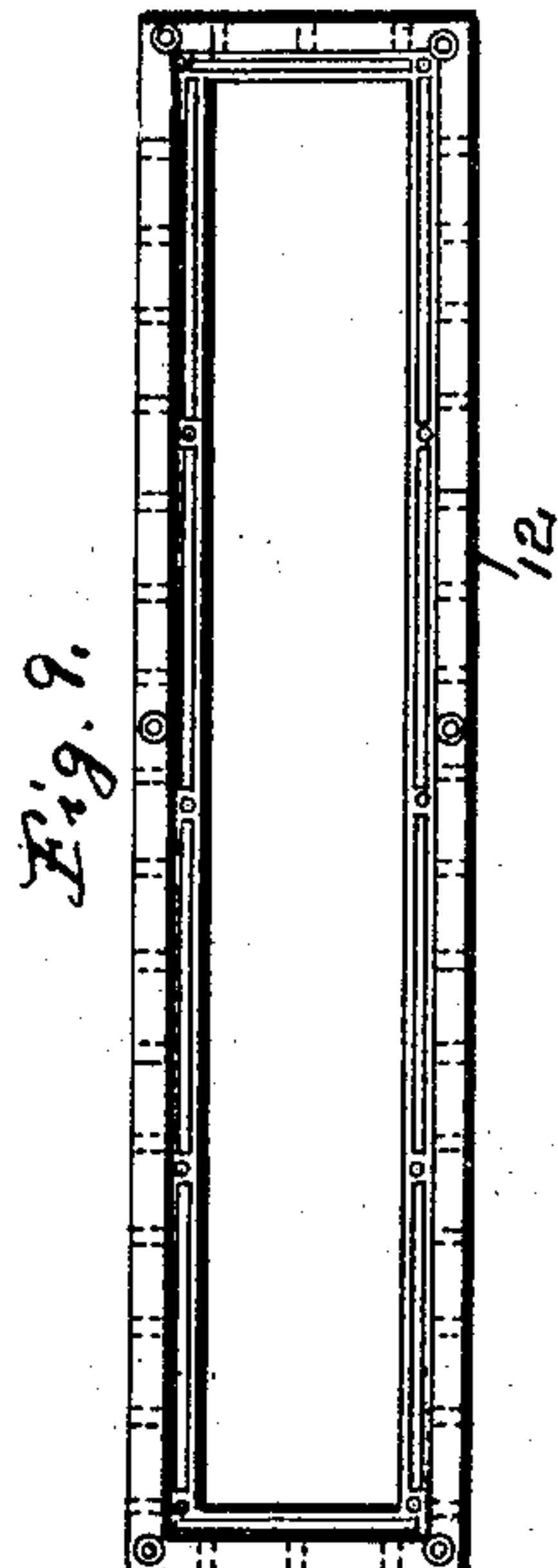
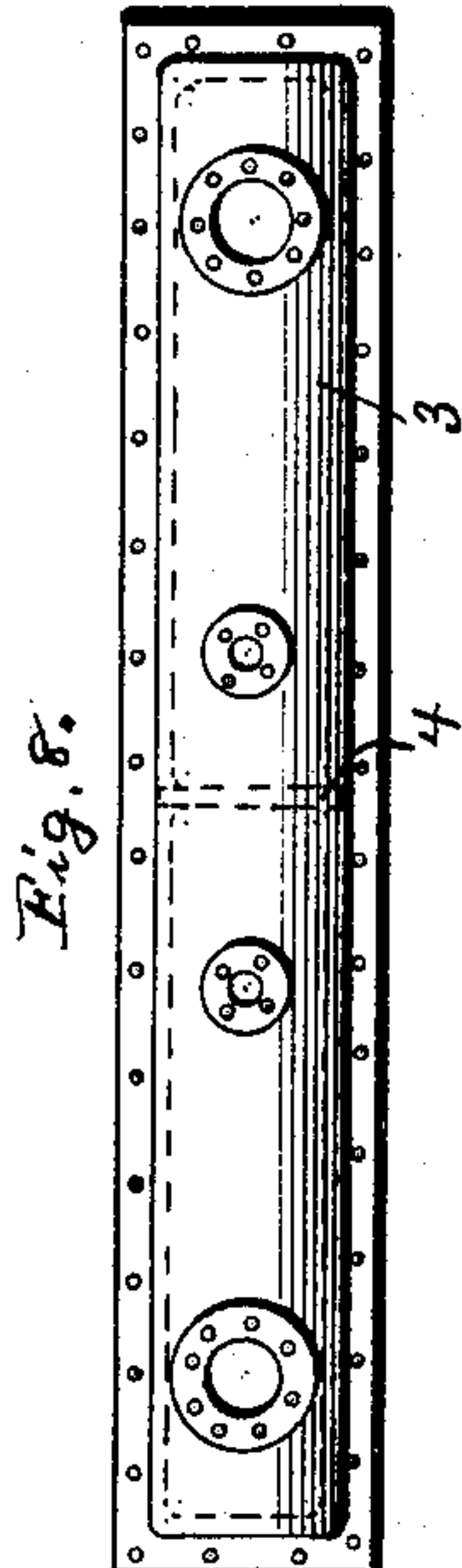
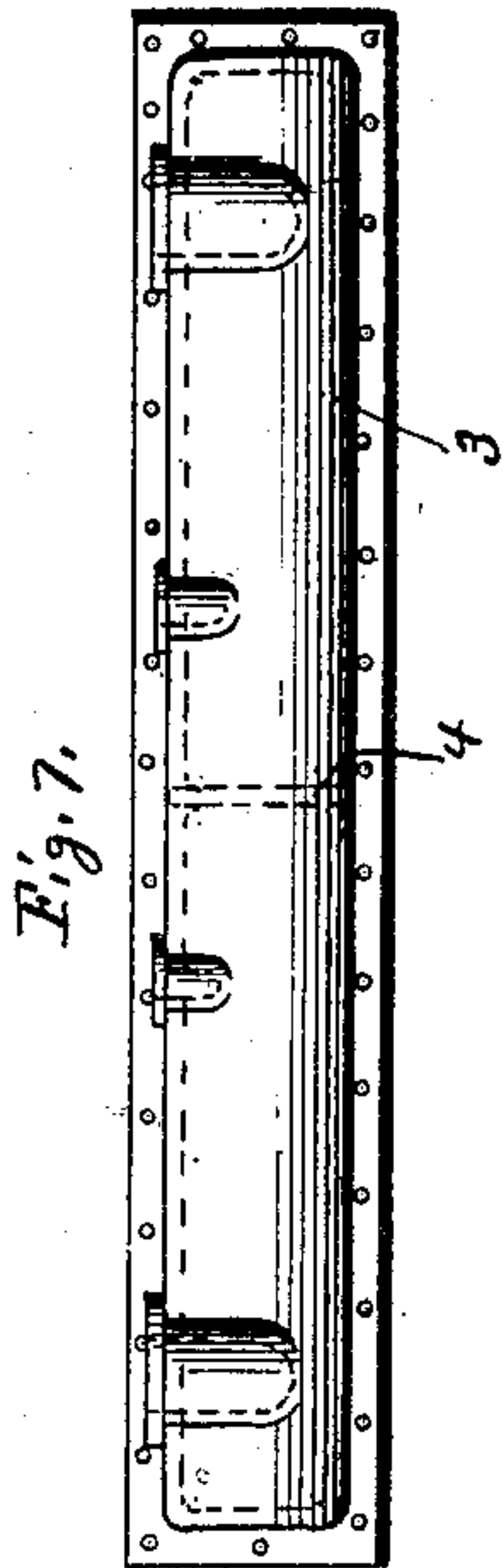
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3 SHEETS—SHEET 2.



WITNESSES:
M. F. Key
C. H. Lesler

INVENTOR
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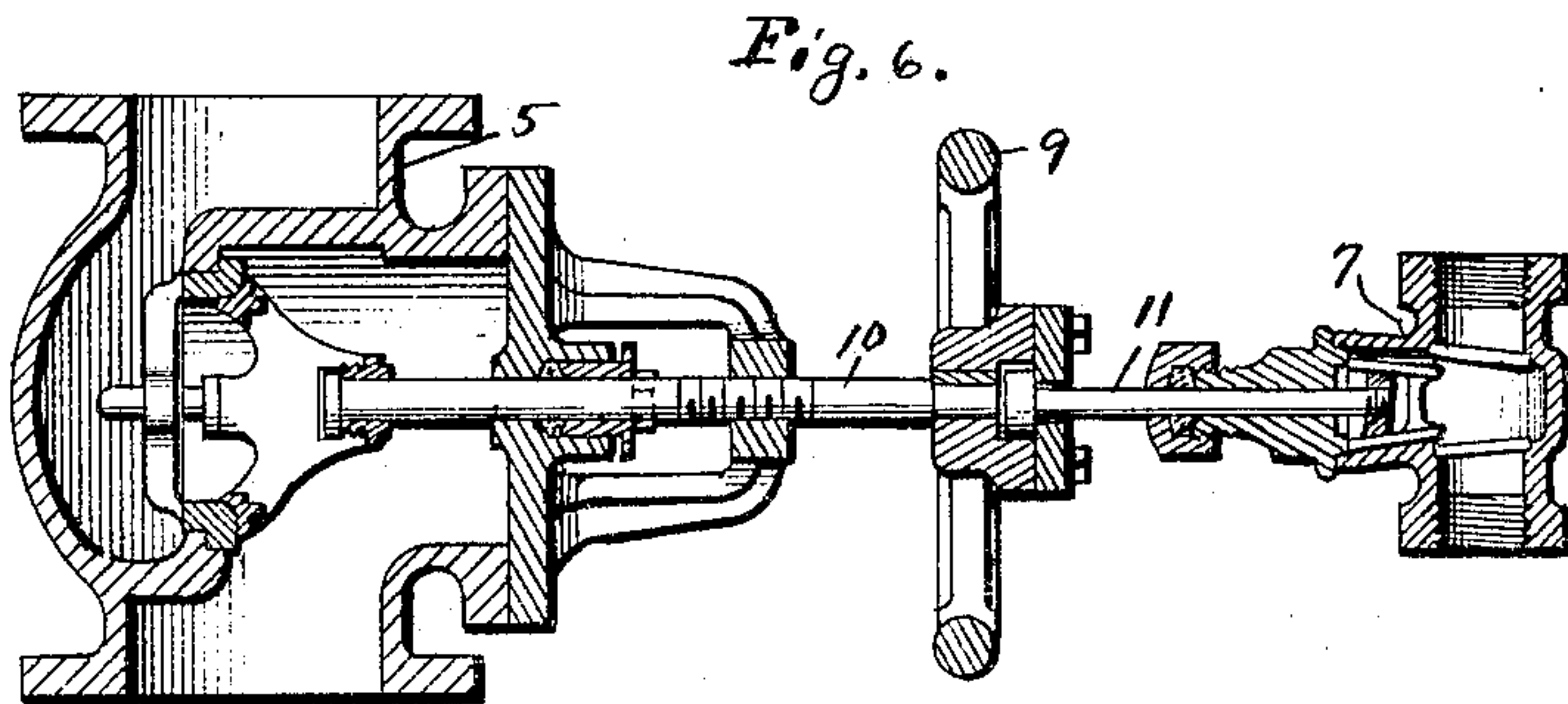
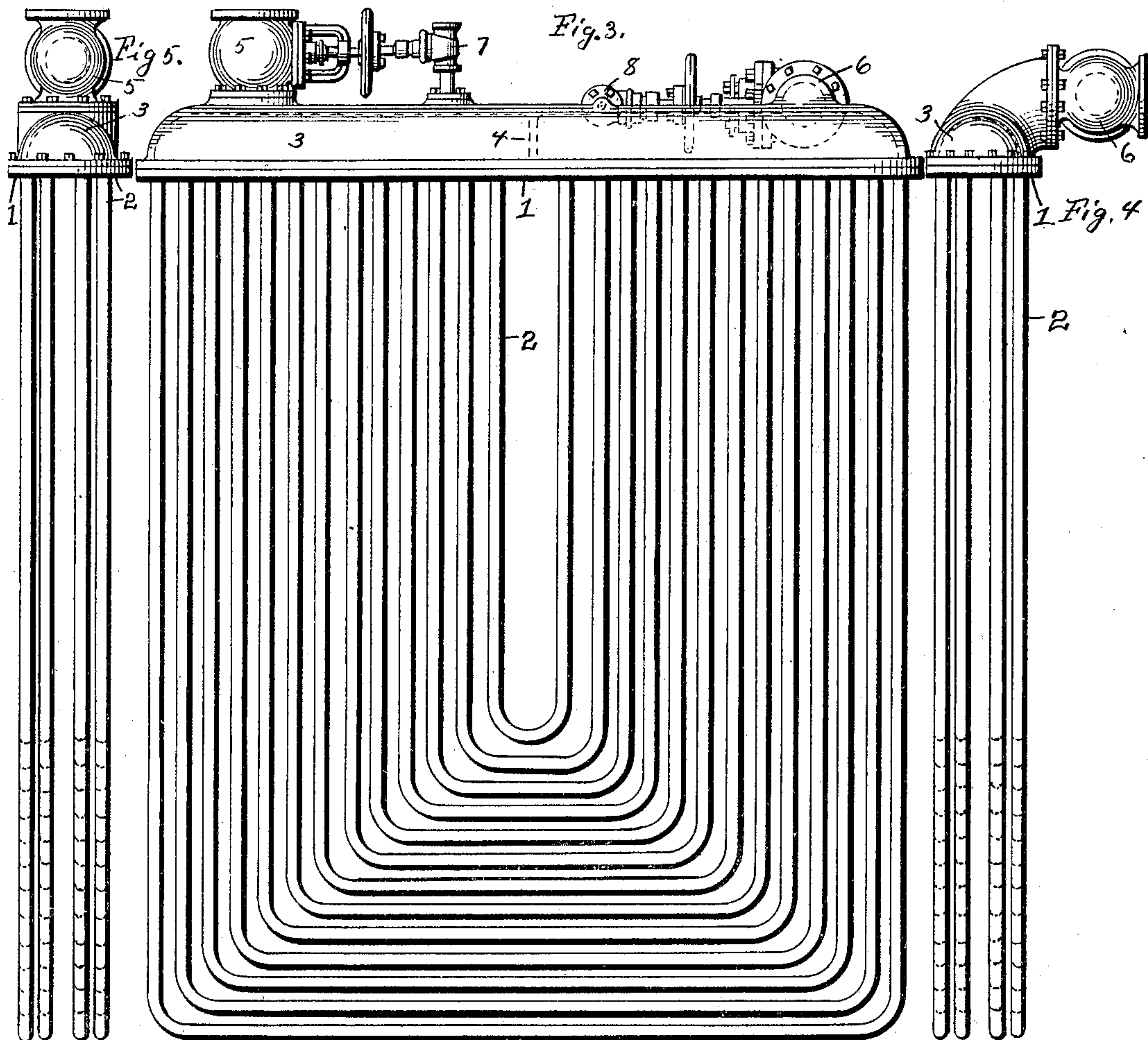
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3 SHEETS—SHEET 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LEWIS METESSER, OF NEW ORLEANS, LOUISIANA.

STEAM-SUPERHEATER.

SPECIFICATION forming part of Letters Patent No. 793,532, dated June 27, 1905.

Application filed December 3, 1904. Serial No. 235,323.

To all whom it may concern:

Be it known that I, LEWIS METESSER, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Steam-Superheaters, of which the following is a specification.

This invention has relation to steam-superheaters; and it consists in the novel construction and arrangement of its parts, as hereinafter shown and described.

The object of the invention is to provide a heater adapted to be used for either or both superheating steam or for heating feed-water before the latter is introduced into the boiler.

The heaters are made in unit form and may be located either separately or several combined within the walls of the boiler-furnace at suitable and convenient places or in specially-constructed furnaces if to be used removed from where the steam is generated or feed-water needed. Each unit or combination of several units is provided with valves for the introduction of steam and water and also with valves similar to permit the exit of steam and water. The valves are so arranged that when the steam-valve of each set or pair is opened the water-valve of the same set or pair is closed, and vice versa. Thus it is impossible to have the heater without steam or water, and thus burning out is prevented. The water connection with the units when used as steam-superheaters are especially advantageous during the time that the furnace is being started for the reason that the units may be filled with water, and thus prevent burning.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a furnace, showing the positions of units located therein. Fig. 2 is a transverse sectional view of a furnace, showing the positions of the units located therein. Fig. 3 is a side elevation of one of the units. Fig. 4 is an end elevation of one of the units, showing the valves extending at an angle thereto. Fig. 5 is an end elevation of one of the units, showing the valves extending in vertical alinement with the same. Fig. 6 is a vertical sectional view of the valves used on the units. Fig. 7 is a top plan view

of a crown-sheet having valve connections which extend at an angle thereto. Fig. 8 is a top plan view of a crown-sheet having valve connections which extend vertically in relation thereto. Fig. 9 is a top plan view of a plate inserted into the furnace-wall for receiving the unit. Fig. 10 is a side elevation of the plate as shown in Fig. 9.

Each unit consists of either a wrought or cast metal tube-sheet 1, suitably perforated, and in said perforations are secured (preferably by means of expanding) the ends of the U-shaped wrought-metal pipes 2. The crown-sheet 3, of either wrought or cast metal, is bolted at its edges to the tube-sheet 1 and is provided at its middle with a transversely-extending partition 4. This partition separates the ends of the U-shaped pipes 2 and causes the water or steam to circulate through the pipes. The steam-inlet valve 5 is located upon the top or side of the crown-sheet 3, as is also the steam-outlet valve 6. Water-inlet valve 7 is similarly located upon the crown-sheet 3, as is also the water-outlet valve 8. The valves 5 and 7 are located on one side of the partition 4, while the valves 6 and 8 are located upon the opposite side of the same.

Fig. 6 shows a detail sectional construction of the steam and water valves and the means for controlling the same. The wheel 9 is attached to the stem 10 of the valve that is located in the steam-valve casing 5, while the stem 11 is fixed to the water-valve and connected to wheel 9. Consequently as the said wheel 9 is turned the stem 10 is reciprocated and the valve opened or closed, and the stem 11 is correspondingly moved, so that in working position one of the valves is at all times open. The type or construction of the said valves may be varied or changed without departing from the spirit of my invention. The units may be located in the furnace in any suitable positions, such as indicated in Figs. 1 and 2 of the drawings, or they may be located in other positions, if so desired. They may be connected in series or located independently, and their steam and water outlets and inlets may extend in alinement with the longitudinal axes of the units or at an angle to the same, as conditions may require. The

plate 12 is located in the wall of the furnace for the purpose of receiving the units.

Having described my invention, what I claim as new, and desire to secure by Letters
5 Patent, is—

1. A superheater consisting of a tube-sheet, tubes attached at their ends to said sheet, a crown-sheet attached to said tube-sheet, a transverse partition separating the ends of the
10 tubes, steam and water entrances and exits located on said crown-sheet on opposite sides of the partition, and valves controlling said steam and water entrances and exits.

2. A superheater consisting of a tube-sheet,
15 tubes attached at their ends to said tube-sheet,

a crown-sheet attached to said tube-sheet, a transverse partition separating the ends of the tubes, steam and water entrances and exits, located on said crown-sheet on opposite sides of the partition, valves controlling said steam and water entrances and exits, and a means for operating said valves whereby one is closed as the other is opened, and vice versa.

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

LEWIS METESSER.

Witnesses:

H. E. PRATT,
JAMES H. CROZIER.