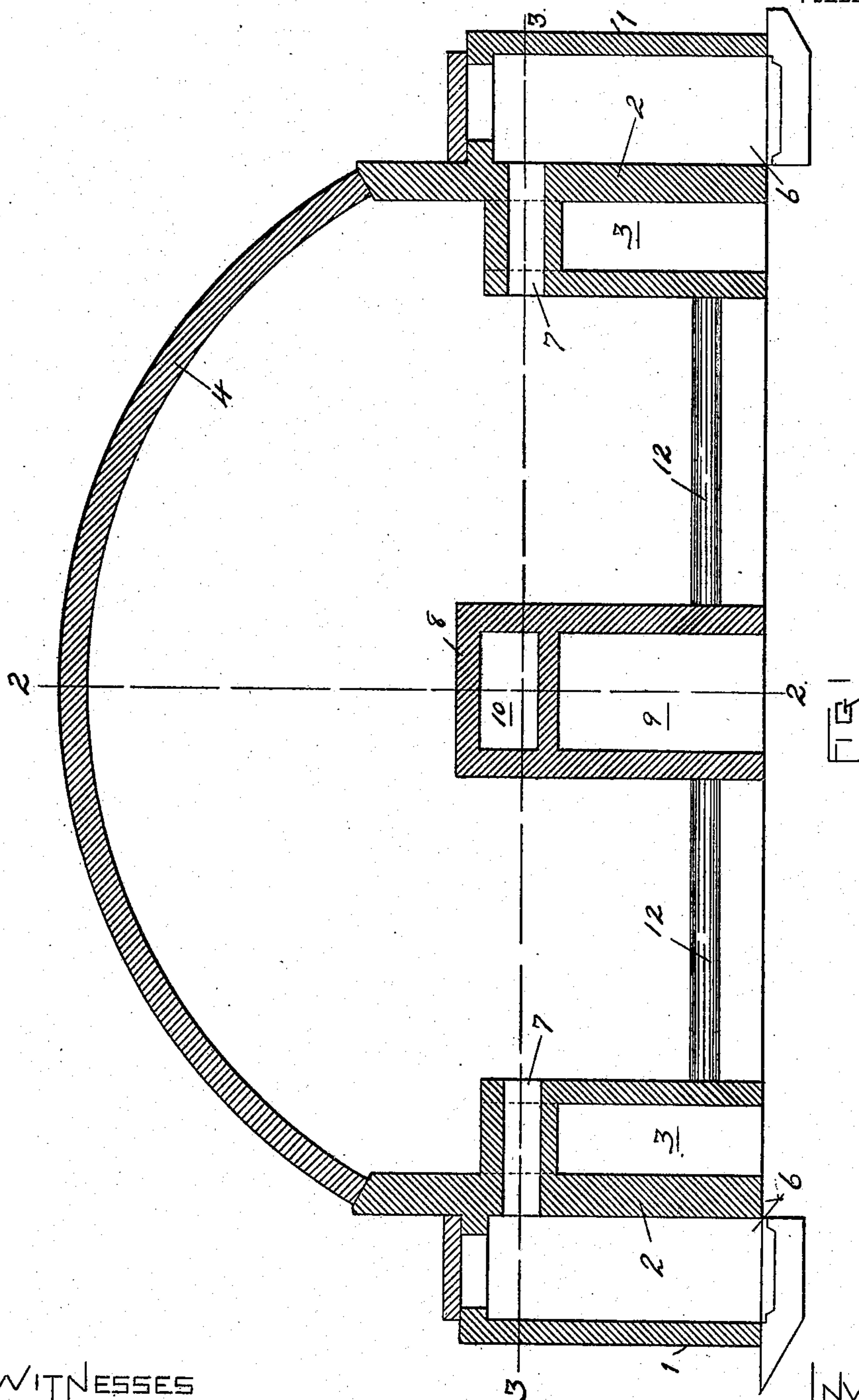


930,507.

A. VEGHTE.
ANNEALING OVEN.
APPLICATION FILED APR. 9, 1906.

Patented Aug. 10, 1909.

7 SHEETS—SHEET 1.



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7 SHEETS—SHEET 2.

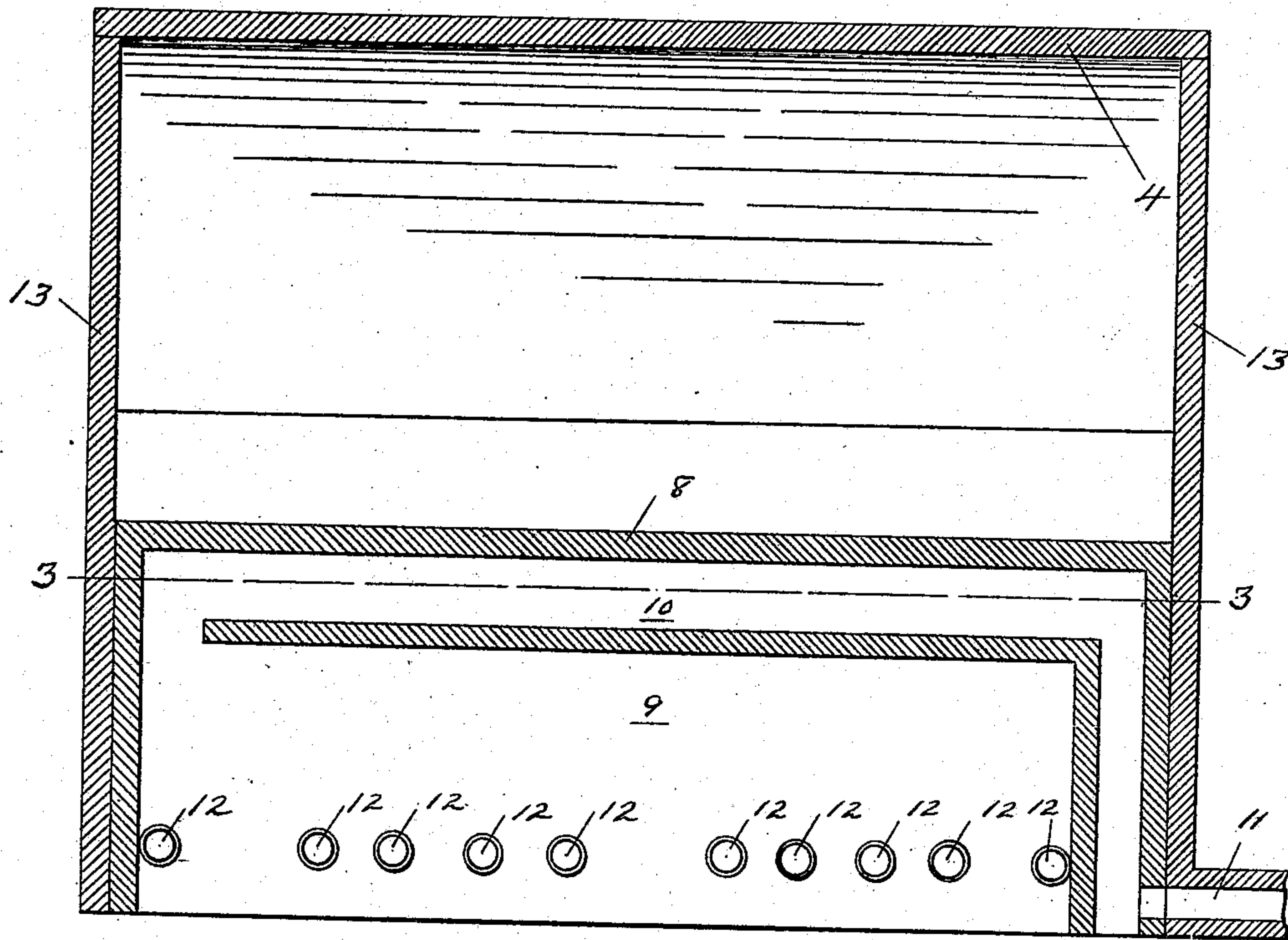


FIG. 2

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7 SHEETS—SHEET 3.

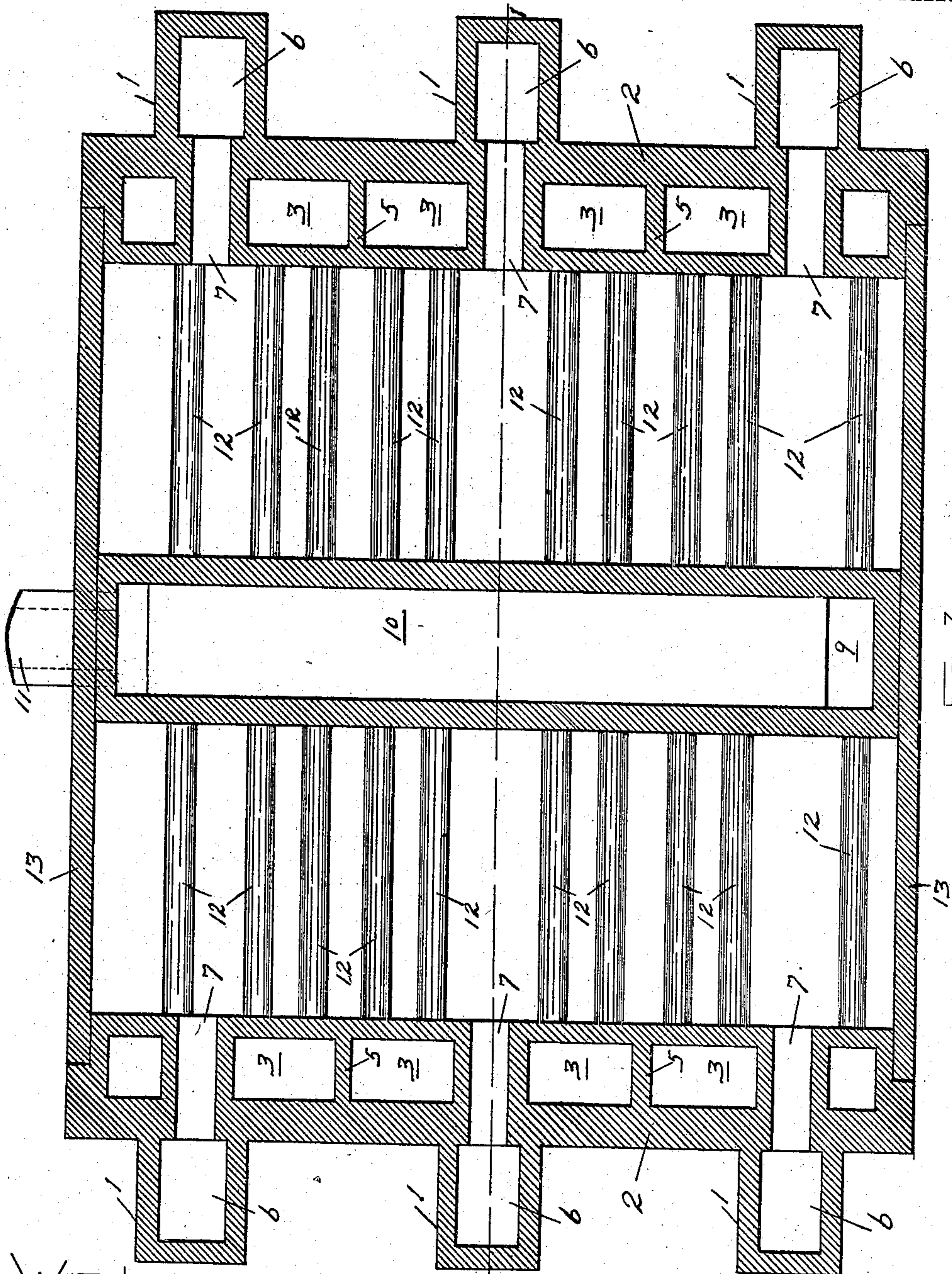


FIG. 3

WITNESSES

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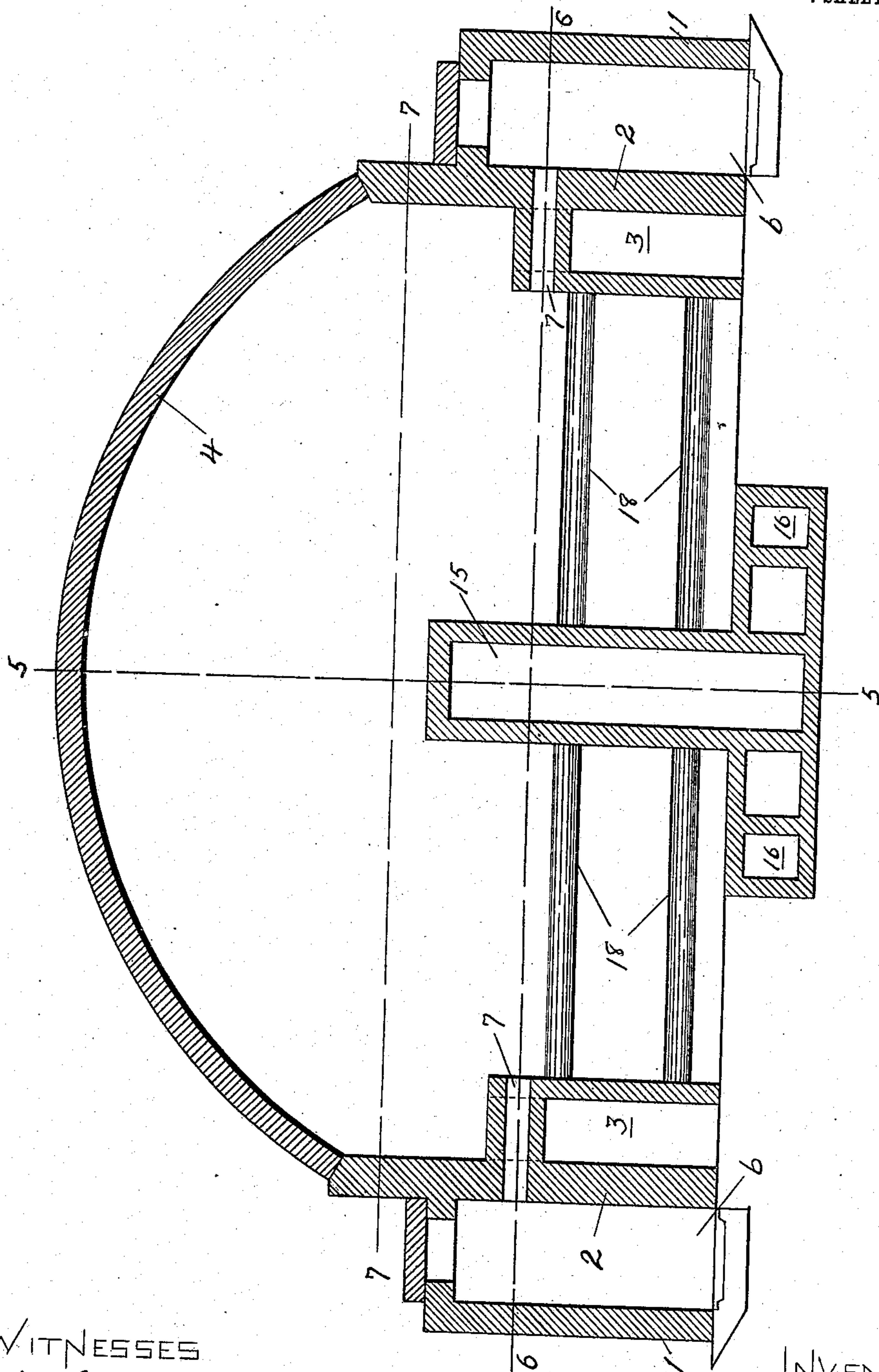


FIG. 4.

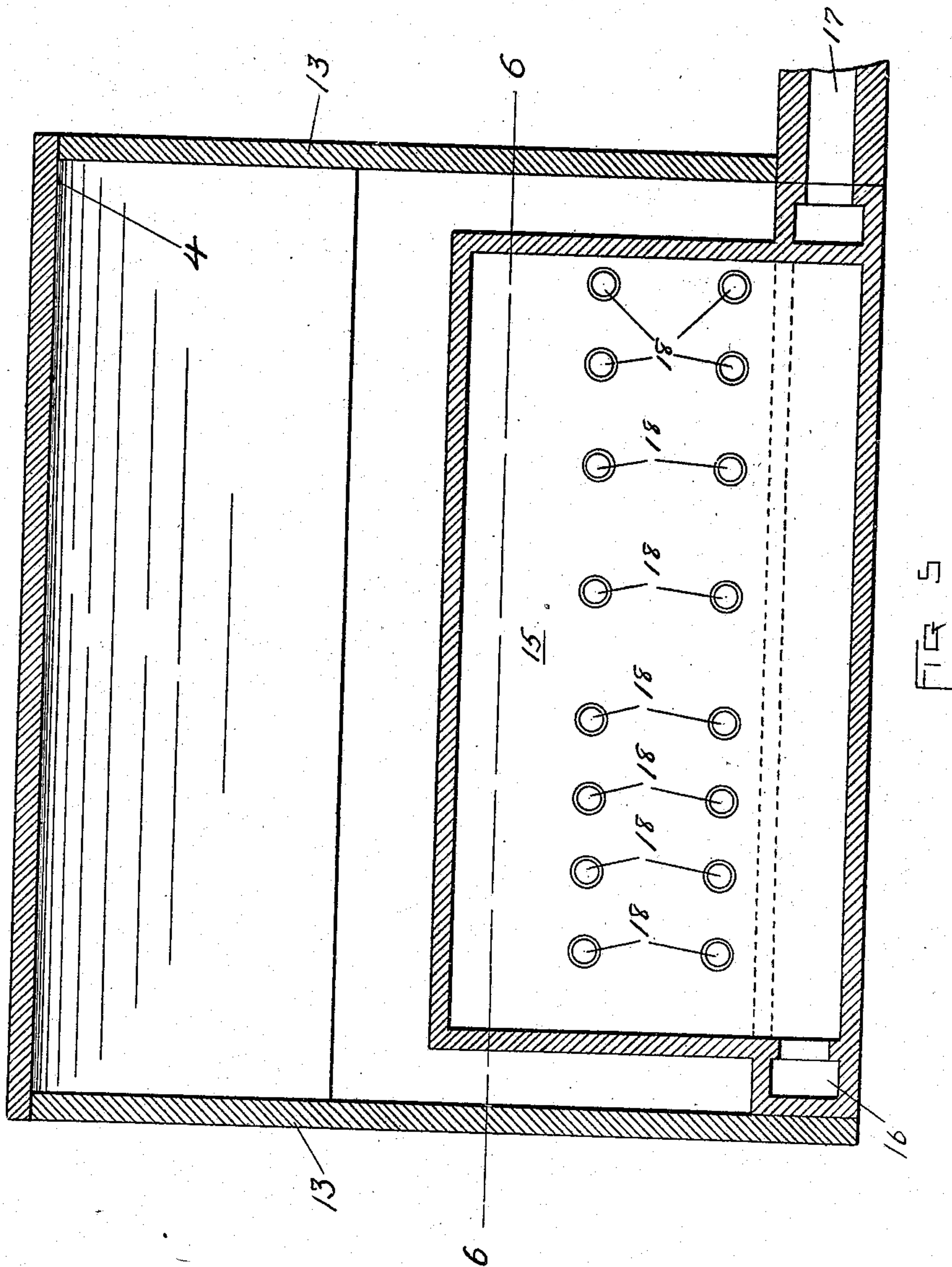
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7 SHEETS—SHEET 5.



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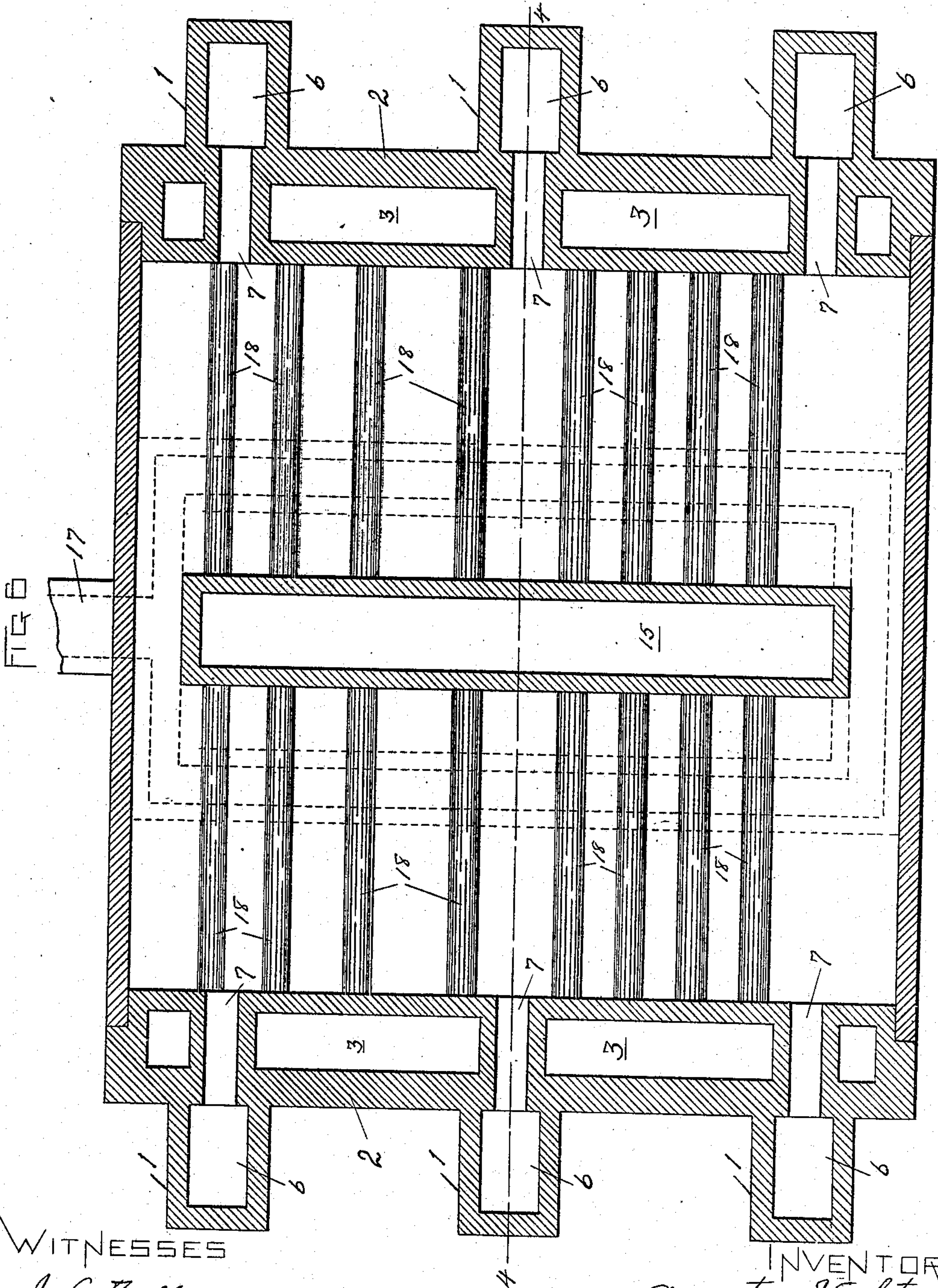
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7 SHEETS—SHEET 6.



WITNESSES
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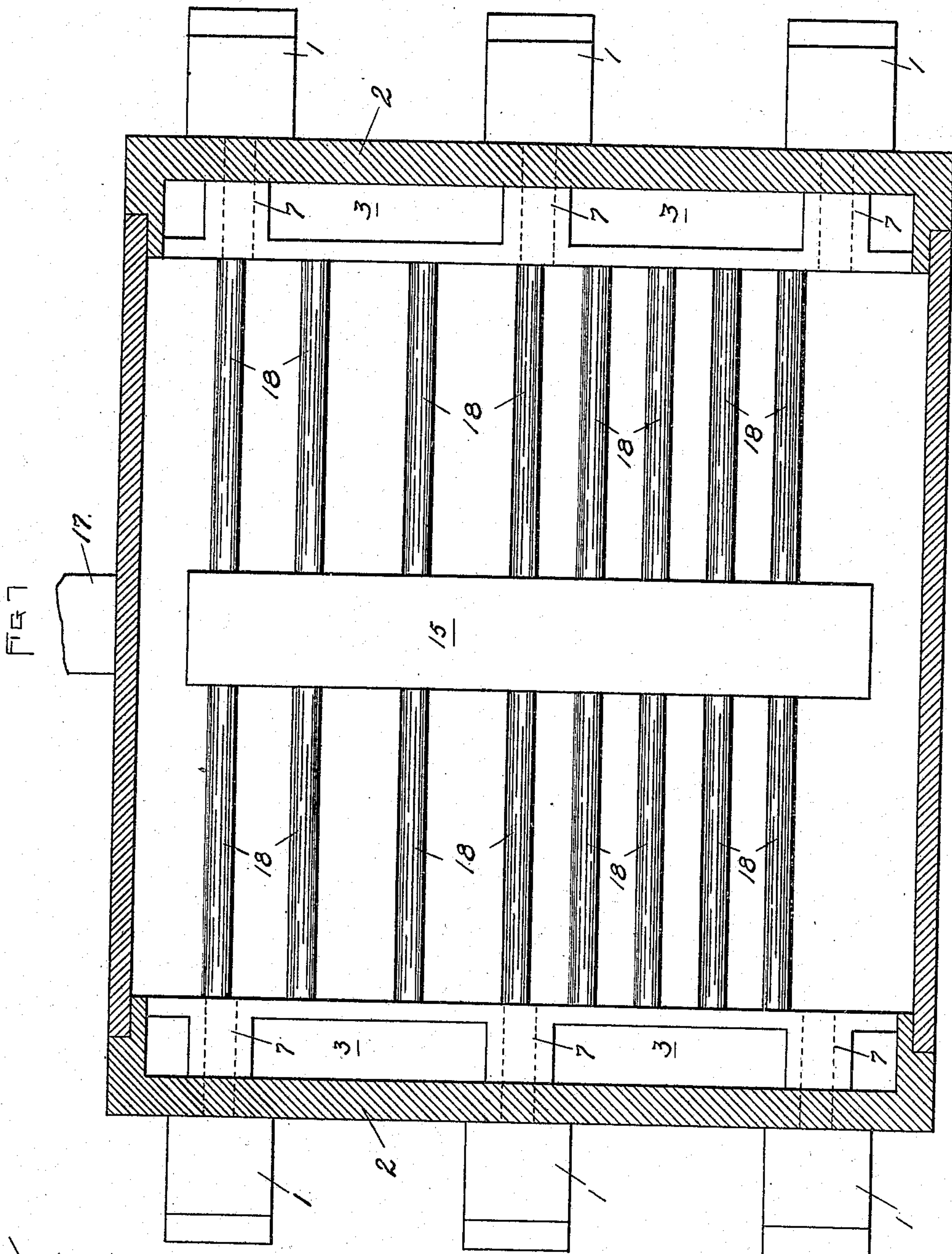
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930,507.

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7 SHEETS—SHEET 7.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

AUGUSTUS VEGHTE, OF ALBANY, NEW YORK, ASSIGNOR TO TROY MALLEABLE IRON CO.,
OF TROY, NEW YORK, A CORPORATION OF NEW YORK.

ANNEALING-OVEN.

No. 930,507.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed April 9, 1906. Serial No. 310,613.

To all whom it may concern:

Be it known that I, AUGUSTUS VEGHTE, a citizen of the United States, residing at Albany, county of Albany, and State of New York, have invented certain new and useful Improvements in Annealing-Ovens, of which the following is a specification.

The invention relates to such improvements and consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the reference characters marked thereon, which form a part of this specification.

Similar characters refer to similar parts in the several figures therein.

Figure 1 of the drawings is a vertical cross-section of my improved oven. Fig. 2 is a central, vertical, longitudinal section of the same taken on the broken line 2—2 in Fig. 1. Fig. 3 is a horizontal section of the same taken on the broken lines 3—3 in Figs. 1 and 2. Fig. 4 is a view similar to Fig. 1, showing another form of oven embodying my invention. Fig. 5 is a central, vertical, longitudinal section of the same taken on the broken line 5—5 in Fig. 4. Fig. 6 is a vertical section of the same taken on the broken line 6—6 in Figs. 4 and 5. Fig. 7 is a vertical section of the same taken on the broken line 7—7 in Fig. 4.

This invention relates to improvements in malleableizing and annealing ovens of the class adapted to receive directly the articles to be annealed or made malleable, dispensing with the use of saggars or other separate receptacles for the articles.

The principal object of the invention is to provide an oven particularly adapted for receiving such articles to be annealed or made malleable, and to economically use the heat admitted to the oven.

Referring to Figs. 1, 2, and 3 of the drawings wherein I have shown one form of oven embodying my invention, 1—1, represents a series of separate furnaces arranged at intervals along opposite sides of the oven adjacent to the several side walls 2—2 which are made hollow, each of said hollow walls forming a substantially continuous flue, 3, extending throughout the length of the side of the oven, and vertically from the floor of the oven, upwardly any desired distance, said flue being open at its upper end to the

dome, 4, of the oven chamber. The hollow side wall is braced at intervals by cross pieces 5.

At a point opposite the fire-box, 6, of each furnace, 1, I project a horizontal flue, 7, from the fire-box through said side wall, opening into the oven chamber, permitting the gaseous products of combustion to pass from the fire-box into the oven. Extending longitudinally of the middle of the oven, parallel with the side walls, is a hollow bridge-wall, 8, containing a main flue, 9, and an outlet flue, 10, the latter extending along the top of the bridge-wall from one end thereof, where it communicates with the main flue, 9, to the other end thereof, where it extends downwardly and communicates with a flue, 11, leading exteriorly of the oven to the stack, not shown.

A plurality of horizontal flues, 12, extend across the space between each side-wall, and the bridge-wall, connecting the respective side wall flues, 3, with the main flue, 9, in the bridge-wall. The flues, 12, are preferably made removable so as to adapt them to be built into the mass of castings, etc., as the oven is filled or charged, and to be removed with the charge after the malleableizing or annealing operation is completed. They may, however, be permanent flues if desired, and may be made of fire-clay or metal as desired. If the flues, 12, are made permanent, then the contents of the oven will be packed around them in inserting the charge.

In the operation of the oven, the space between the bridge wall and respective side walls is filled with a mass of castings and suitable cementing or binding material, packed around the flues, 12, to a point, adjacent to the side walls, just below the level of the horizontal flues 7. If desired, the contents of the oven may be rounded up along the middle portion thereof, to entirely cover the bridge-wall 8. The oven having been thus charged, is closed at its ends by means of doors or barriers, 13, after which the heated gases are permitted to pass from the fire-boxes of the furnaces through the flues, 7, into the oven chamber. The gases thus introduced at one side of the furnace pass across the furnace over the bridge-wall, 8, and downwardly through the flue, 3, in the opposite side wall of the furnace, whence they pass through the flues, 12, to the main flue, 9, in the bridge-wall, and thence

through the escape flue, 10, to the stack flue 11.

Any desired number of furnaces, and horizontal flues, 7, and, 12, may be employed.

5 In Figs. 4, 5, and 6, I have shown another form of furnace embodying my invention, the construction being substantially the same as above described, so far as concerns the series of furnaces, 1, side-wall-flues, 3, and
10 horizontal flues, 7. The bridge-wall, however, differs from that above described in that it extends below the level of the floor of the furnace, and contains but a single flue, 15, which communicates with an outlet
15 flue, 16, which divides and extends in two branches beneath the floor of the oven to the opposite end thereof, where said branches unite connecting with the flue, 17, leading to the stack, not shown. Horizontal flues, 18,
20 corresponding with the horizontal flues, 12, in the construction first above described, connect the respective side-wall-flues, 3, with the bridge-wall-flue, 15, two rows of said horizontal flues, 18, being shown. The oven
25 is charged in the manner above described and the heated gases enter through the flues, 7, at one side of the oven, and pass to the other side, where they descend through the flue, 3, in the side wall opposite that at
30 which they entered. The gases then pass from the respective flues, 3, through the horizontal flues, 18, into the bridge-wall-flue, 15, whence they pass through the escape flue, 16, to the stack-flue 17.

35 What I claim as new and desire to secure by Letters Patent is—

1. In an annealing oven, the combination with side walls each containing a flue open at its upper end to the dome of the oven; of
40 a furnace on each side of said oven; a flue leading from each of said furnaces interiorly of the oven at a point near the upper end of the neighboring side-wall-flue; a bridge-wall provided with a flue extending along
45 the oven between said side walls; flue-connections between the respective side-wall-flues and bridge-wall-flue; and a flue leading from said bridge-wall-flue to the stack.

2. In an annealing oven, the combination
50 with a side wall having an outlet flue therein, open at its upper end to the dome of the

oven; of a furnace located exteriorly of said side-wall; and a flue leading from said furnace through said side-wall-flue and opening interiorly of the oven.

3. In an annealing oven, the combination with the arched dome or roof; of the opposite side walls, each provided with a flue, open at its upper end to the dome; a furnace on each side of the oven; and a flue
60 leading from each of said furnaces interiorly of the oven at a point near the upper end of the neighboring side-wall-flue.

4. In an annealing oven, the combination with the opposite side walls provided each
65 with an inlet flue and an outlet flue, open to the dome of the oven; of a hollow bridge-wall extending along the middle of the oven between said side walls; and means for transmitting currents of heated gases
70 through the respective side-wall-flues and hollow bridge-wall.

5. In an annealing oven, the combination with the opposite side walls, each provided with a flue; of a hollow bridge-wall extend-
75 ing along the oven between said side walls and provided with a main flue and an outlet flue communicating with the main flue; and flue-connections between the main bridge-wall-flue and the respective side-wall-flues
80 passing through the furnace chamber.

6. In an annealing oven, the combination with the opposite side walls, each provided with a flue open at its upper end to the dome of the oven; a furnace on each side of the
85 oven; and a flue leading from each furnace through the neighboring side-wall-flue and open to the dome near the open upper end of said side-wall-flue; of a bridge-wall extending along the oven between said side
90 walls and provided with a flue; flue-connections extending through the furnace chamber between said bridge-wall-flue and respective side-wall-flues; and an outlet flue leading from said bridge-wall-flue.

In testimony whereof, I have hereunto set my hand this 5th day of April, 1906.

AUGUSTUS VEGHTE.

Witnesses:

FRANK C. CURTIS,
E. M. O'REILLY.