

No. 716,987.

Patented Dec. 30, 1902.

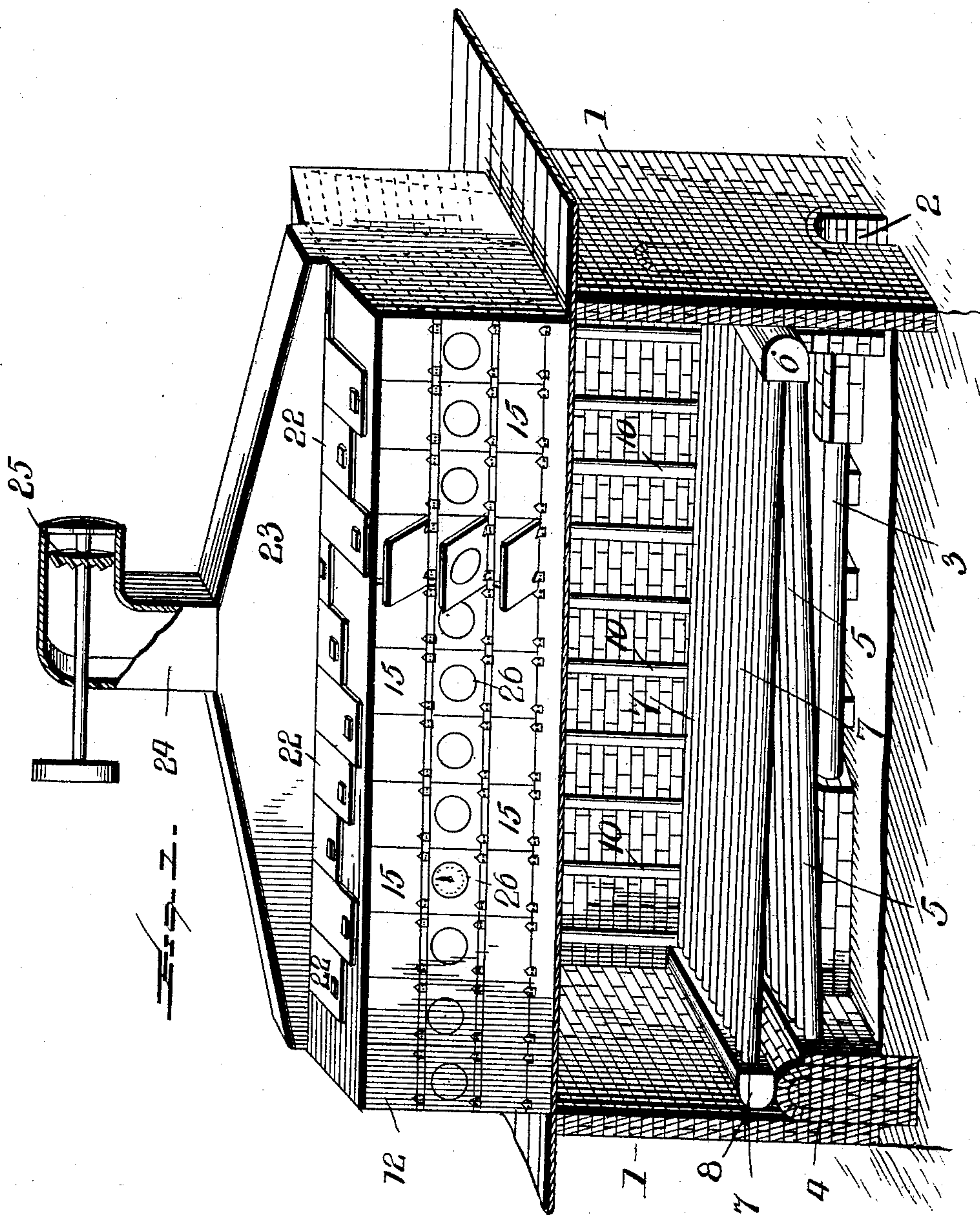
S. S. COOK & J. F. MASCHKE.

EVAPORATOR.

(Application filed Mar. 14, 1902.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

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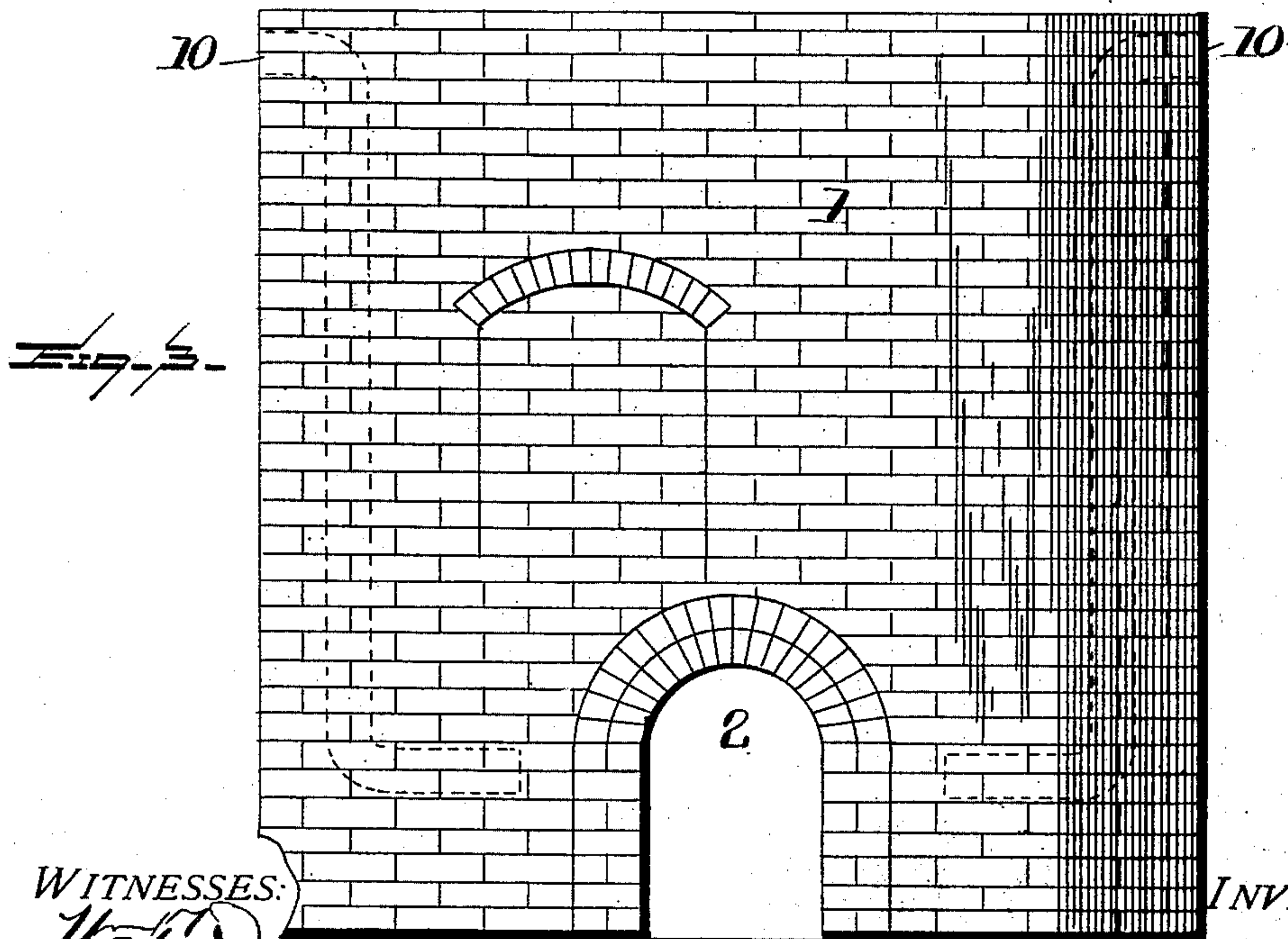
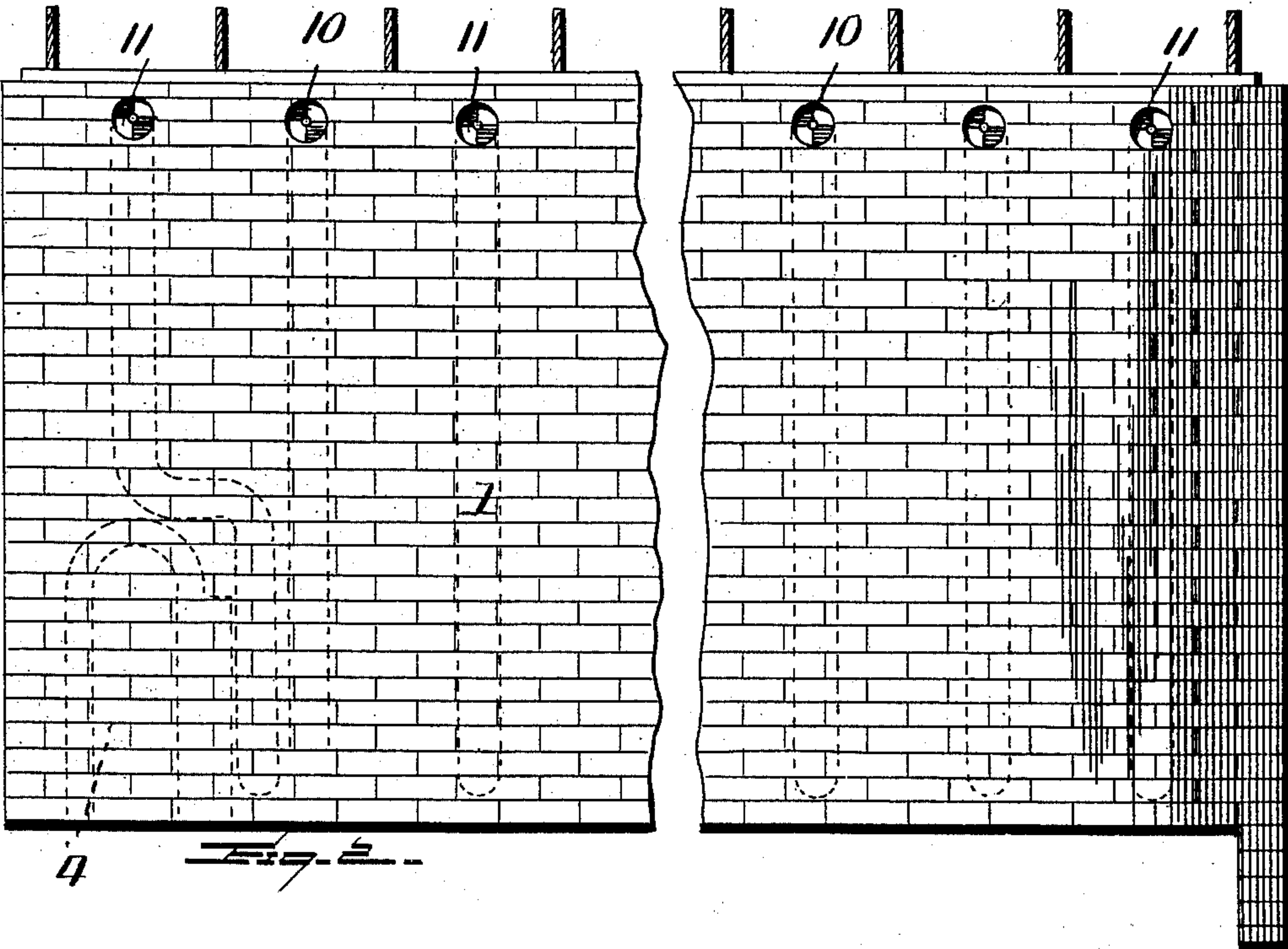
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4 Sheets—Sheet 2.



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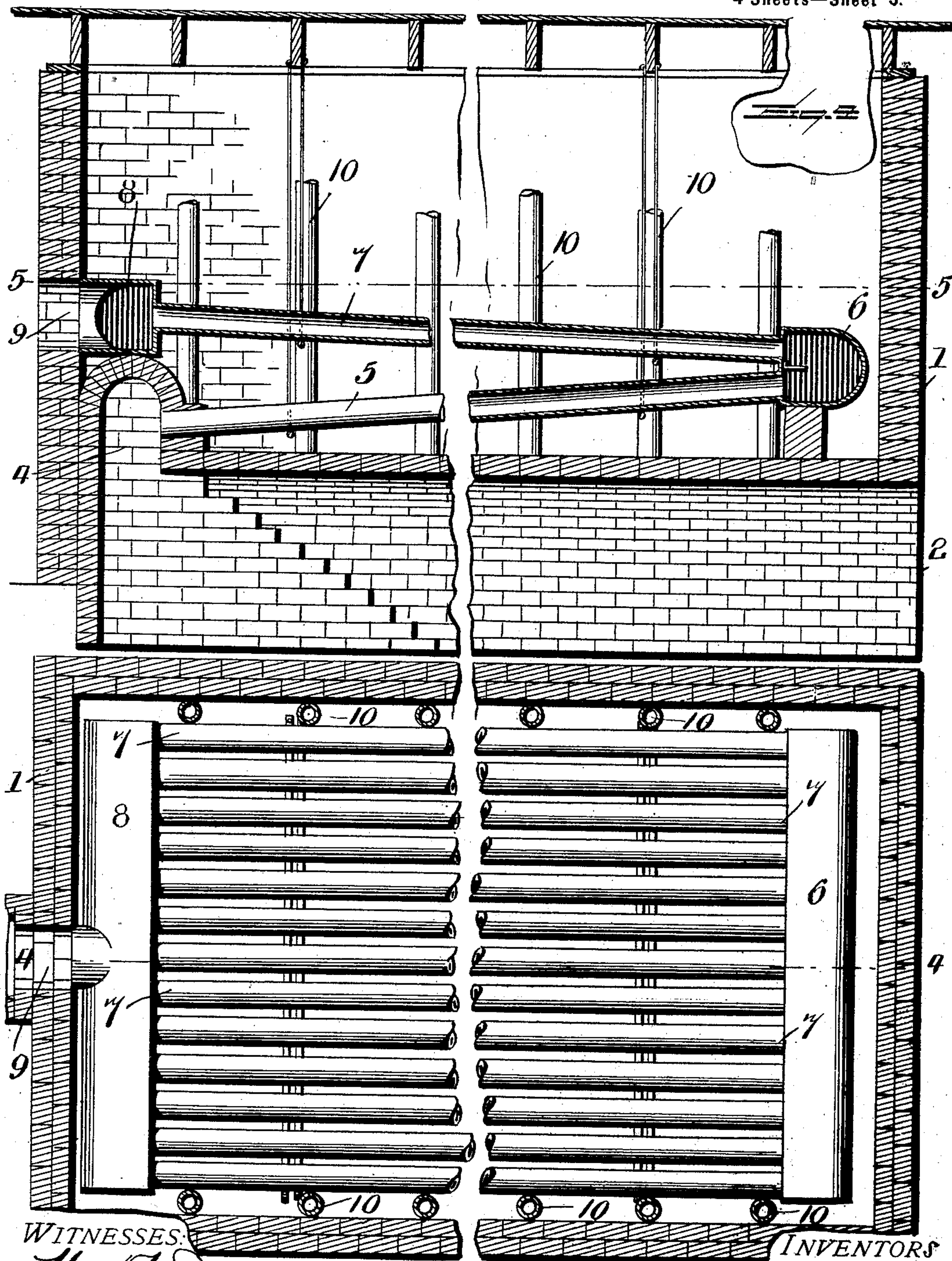
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4 Sheets—Sheet 3.



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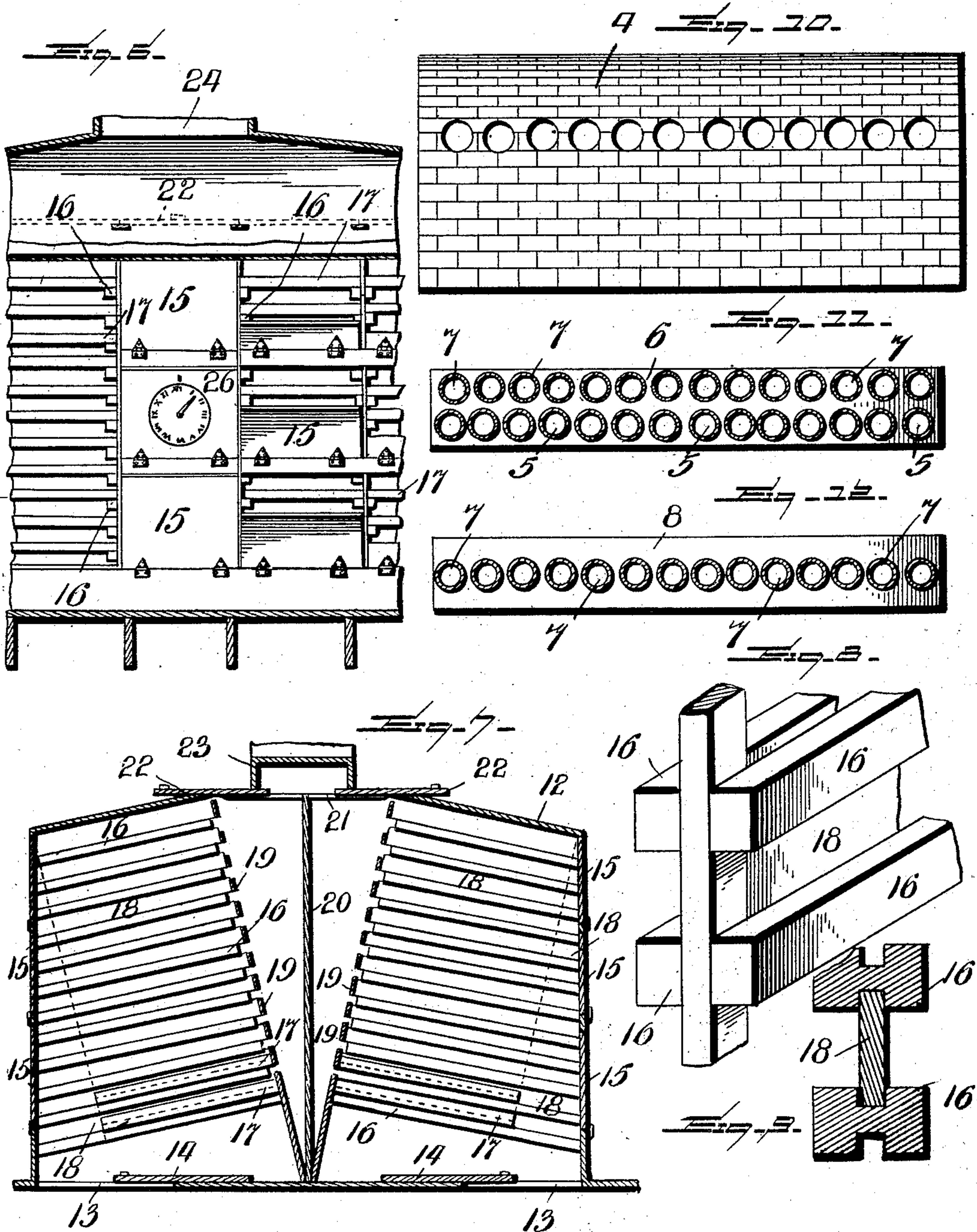
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(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

SEYMOUR S. COOK AND JOHN F. MASCHKE, OF VANCOUVER, WASHINGTON.

EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 716,987, dated December 30, 1902.

Application filed March 14, 1902. Serial No. 98,264. (No model.)

To all whom it may concern:

Be it known that we, SEYMOUR S. COOK and JOHN F. MASCHKE, citizens of the United States, residing at Vancouver, in the county of Clarke and State of Washington, have invented a new and useful Device for Curing and Evaporating Fruits and Vegetables, to be known as "Cook's Cyclone Evaporator," of which the following is a specification.

10 This invention has relation to fruit-curing evaporators; and it consists in the novel construction and arrangement of its parts, as hereinafter described.

The object of this invention is to provide a
15 fruit-curing evaporator in which air heated in a suitable furnace is caused to come in contact with the fruit, which is located on suitable trays made of open material, such as perforated metal or wire-netting. A kiln is
20 provided in which the trays are arranged in tiers, each tier being located in a compartment. The heated air passes upward from the furnace through suitable openings into the kiln, then over and under the fruit lo-
25 cated on the trays, and then out at the top through a suitable outlet, where a revolving fan is so arranged as to exhaust the air from the kiln and create a draft over the fruit.

In the accompanying drawings, Figure 1 is
30 a perspective view of the invention, showing the air-heating furnace in section. Fig. 2 is a side elevation of the air-heating furnace. Fig. 3 is a front end elevation of the air-heating furnace. Fig. 4 is a longitudinal sectional view of the air-heating furnace, cut on
35 the line 4 4 of Fig. 5. Fig. 5 is a horizontal sectional view of the air-heating furnace, cut on the line 5 5 of Fig. 4. Fig. 6 is a sectional view of the middle portion of the kiln with the parts removed. Fig. 7 is a transverse sectional view of the kiln. Fig. 8 is a perspec-
40 tive view of a portion of the partition used in the kiln. Fig. 9 is a transverse sectional view showing the construction of the partition used in the kiln. Fig. 10 is a side elevation of the
45 dummy chimney used in the furnace. Fig. 11 is a side elevation of a drum used in the furnace. Fig. 12 is a side elevation of another drum used in the furnace.

50 The furnace consists of the walls 1 1. The fire-box 2 is located in the end wall and is connected by the metallic flue or pipe 3 with

the dummy chimney 4, which is located at the back furnace-wall, said dummy chimney extending transversely across the furnace. The
55 pipes 5 5 at their ends enter the said dummy chimney 4 and at their opposite ends enter the drum 6. Said drum 6 also extends transversely across the end of the furnace. The pipes 7 7 enter at one end the interior of the
60 drum 6 and at their opposite ends the drum 8. Said drum 8 also extends transversely across the interior of the furnace. Through the opening 9 the drum 8 is connected with a suitable stack. (Not shown in the draw-
65 ings.) As indicated in Figs. 2 and 3, the side walls of the furnace are provided with the air-passages 10, said passages having suitable dampers 11 and extending from an elevated point down in the interior of the furnace and
70 terminating under the pipes 5 in a horizontal manner, as indicated by the dotted lines in Fig. 3. The kiln 12 is located over the furnace. The said kiln is made of two halves placed with their backs together, the said
75 halves being constructed alike. Each half is divided into a number of compartments, and as all of the said compartments are similar in construction a description of one will suffice for all. Each compartment is pro-
80 vided in its bottom with an opening 13, a damper 14, adapted to close said opening, and a series of doors 15, located in the front of the compartment. The guides 16, adapted to carry the fruit-trays 17, are inclined down at
85 an angle toward the doors 15. The said guides 16 are grooved in their upper and lower faces and support the panels 18, which form the partition between the compart-
90 ments. The cross-strips 19 are located at the back of the guide 16, the said strips extending in a line at right angles to the longitudinal axis of the guides 16 and at an acute angle to the back of the partition 20, as
95 shown in Fig. 7. By reference to the said figure it will be seen that the space between the edges of the strips 19 gradually increases from the bottom to the top, the object of which will be hereinafter explained. The top of each compartment is provided with an
100 opening 21, which in turn is adapted to be opened or closed by a damper 22. A hood 23 covers all of the openings 21, said hood being provided in its top with an outlet 24, in

which is located a revolving fan 25. Any suitable means may be employed for revolving the fan.

The operation of the invention is as follows:

5 A fire is built in the fire-box 2. The heat and smoke pass through the pipe 3 to the dummy chimney 4, where they are distributed along the rear end of the furnace. The heat then passes through the pipes 5 to the drum 6, then
10 through the pipes 7 to the drum 8, and out through the opening 9 to the stack. At the same time the fan 25 is revolving and cold air is drawn from an elevated point down through the flues 10 into the furnace and un-
15 der the said pipes 5 and 7. The air coming in contact with the said pipes is heated and is then drawn up through the openings 13 into the kiln. The heated air then passes over and under the fruit supported on the
20 trays 17, absorbing the moisture from the same, and passes through the spaces between the strips 19, up through the openings 21 into the hood 23, and out through the outlet 24.

It will be seen that by manipulating the
25 dampers 22 and the dampers 13 the heated air may be drawn through any particular compartment or any series of compartments, and this may be done while the process of drying is in operation and also while the
30 kiln is drying the fruit in the other compartments. The dampers 14 in any particular compartment may be closed over the opening 13 of the said compartment, and thus the said compartment may be opened and
35 the fruit taken or placed therein without interfering with the operation upon the fruit in the other compartments. The object in having the spaces between the strips 19 in-
40 crease in size from the bottom to the top is to compel the warm air to pass as much as possible through the fruit and to make the evaporation from the fruit uniform in each compartment. Each compartment is pro-
45 vided with a time-dial 26, which may be set to indicate the time that the fruit contained in that compartment should be removed. This avoids confusion and also avoids the necessity of opening the compartments to ascertain the condition of the fruit, which is
50 objectionable, for the reason that it permits the escape of heat and prolongs the time for evaporating the moisture from the fruit.

Having described our invention, what we

claim as new, and desire to secure by Letters Patent, is—

1. An evaporator consisting of a kiln 55 mounted on a furnace, said furnace having a fire-box, a dummy chimney connected with said fire-box and adapted to distribute prod- 60 ucts of combustion, a series of pipes connecting said dummy chimney with a distributing-drum, a series of pipes connecting said distributing-drum with a second drum, said second drum adapted to be connected with a stack, a means for introducing air from an 65 elevated point under the pipes of the furnace and a means located on the kiln for drawing said heated air through the kiln.

2. In an evaporating-kiln, a compartment having in its bottom an air-inlet and in its 70 top an air-outlet, dampers adapted to open and close said air inlet and outlet, downwardly-inclined guides adapted to support trays, transverse strips located at the back of said guides, said strips having between 75 them spaces the said spaces increasing in size from the bottom up.

3. In an evaporating-kiln, a compartment having in its bottom, an air-inlet and in its 80 top an air-outlet, dampers to open and close said air inlet and outlet, downwardly - inclined guides located in the compartment and adapted to support trays, transversely- 85 extending strips located at the back of the guides, said strips having between them spaces, said spaces increasing in size from the bottom up, said strips extending at right angles to the longitudinal axes of the guides.

4. In an evaporating-kiln, a series of com- 90 partments, each having an air-inlet and air-outlet, partitions formed between said compartments, said partitions consisting of pieces recessed in their upper and lower sides, the edges of the said pieces forming guides adapt- 95 ed to receive trays and panels inserted in the said recesses.

In testimony whereof we have hereunto affixed our names to this specification, in presence of two subscribing witnesses, this 8th day of March, 1902.

SEYMOUR S. COOK.
JOHN F. MASCHKE.

Witnesses:

J. P. THOMAS,
H. W. ARNOLD.