

No. 626,992.

Patented June 13, 1899.

F. EBERHART.
BAKER'S OVEN.

(Application filed June 20, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

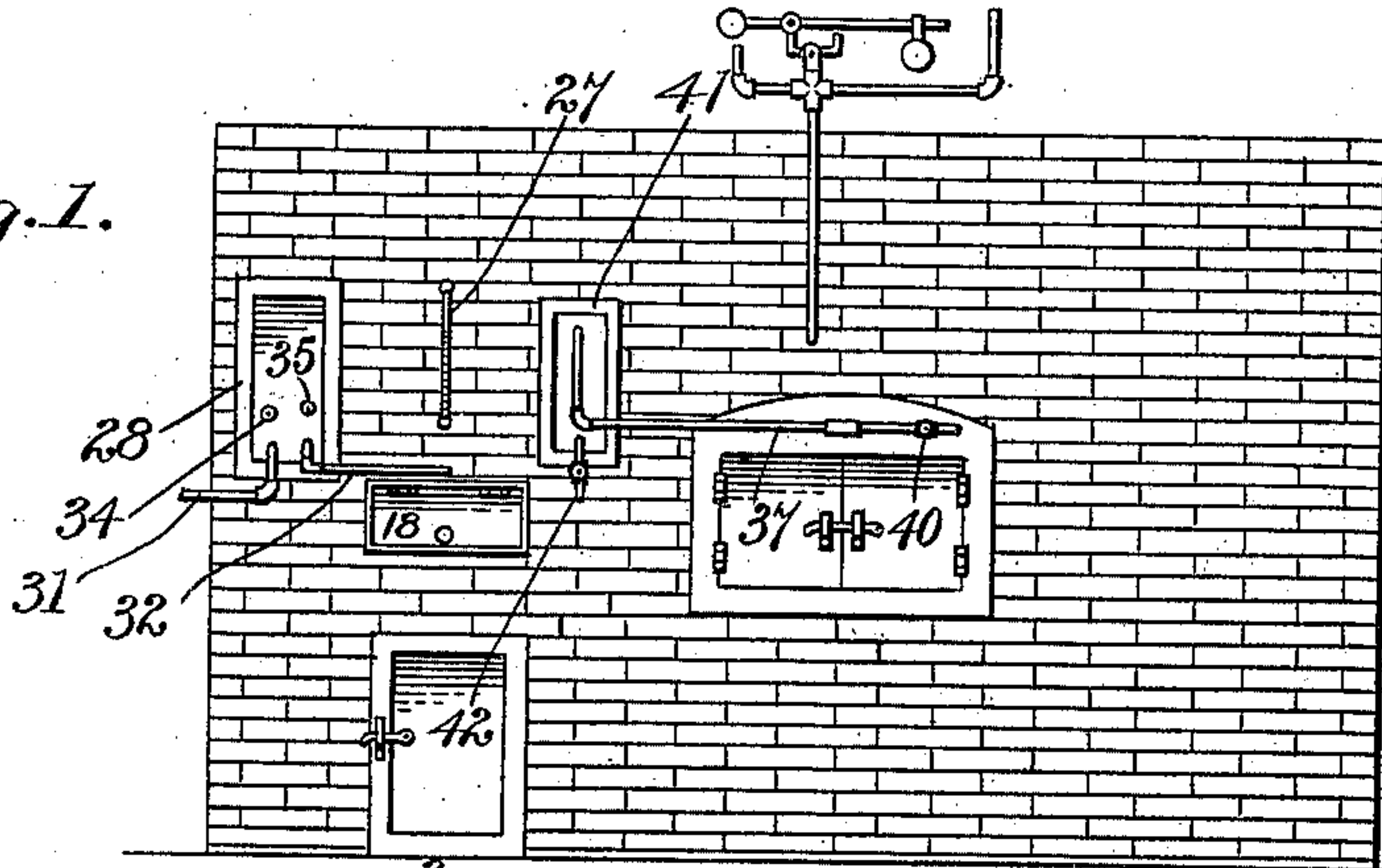


Fig. 2.

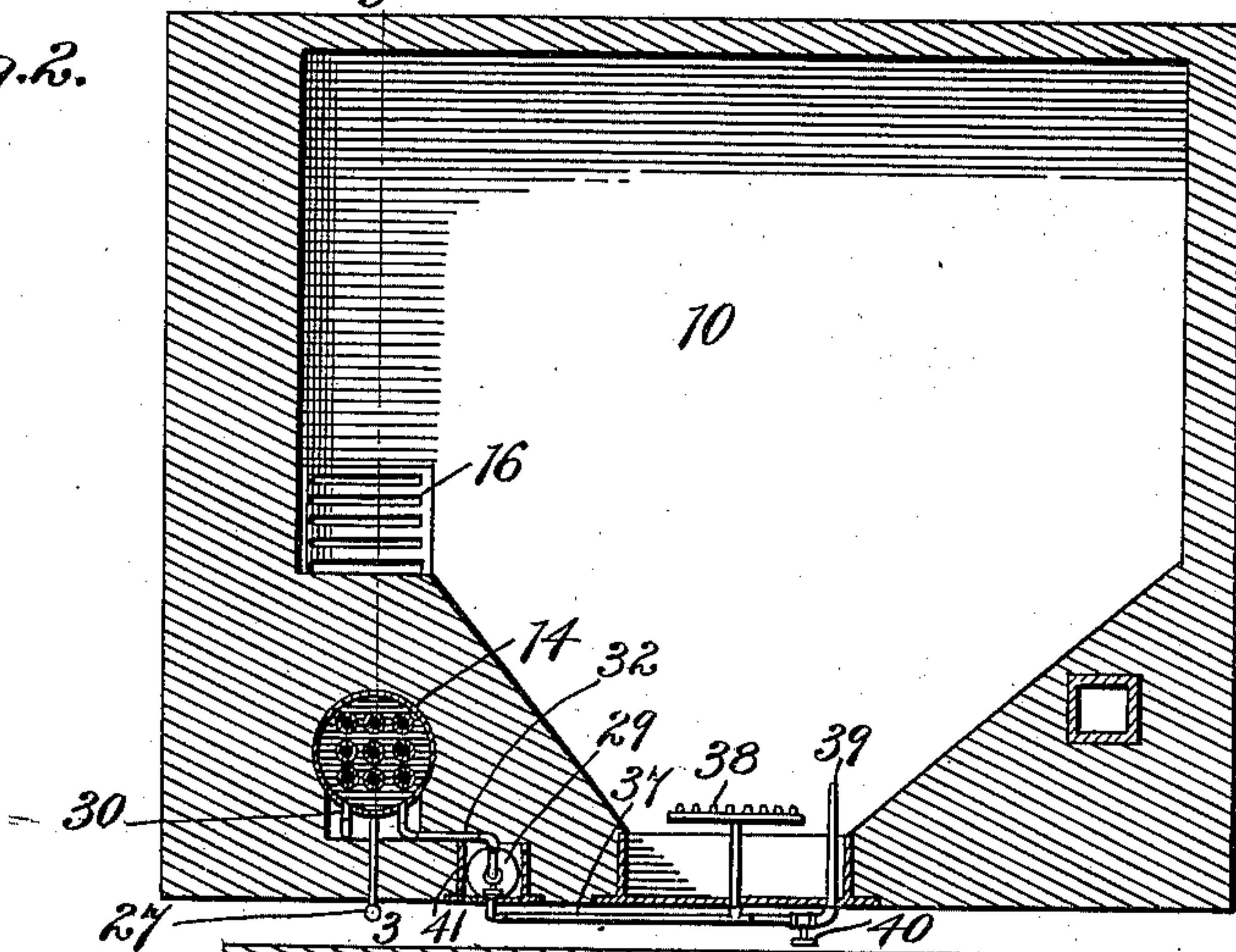
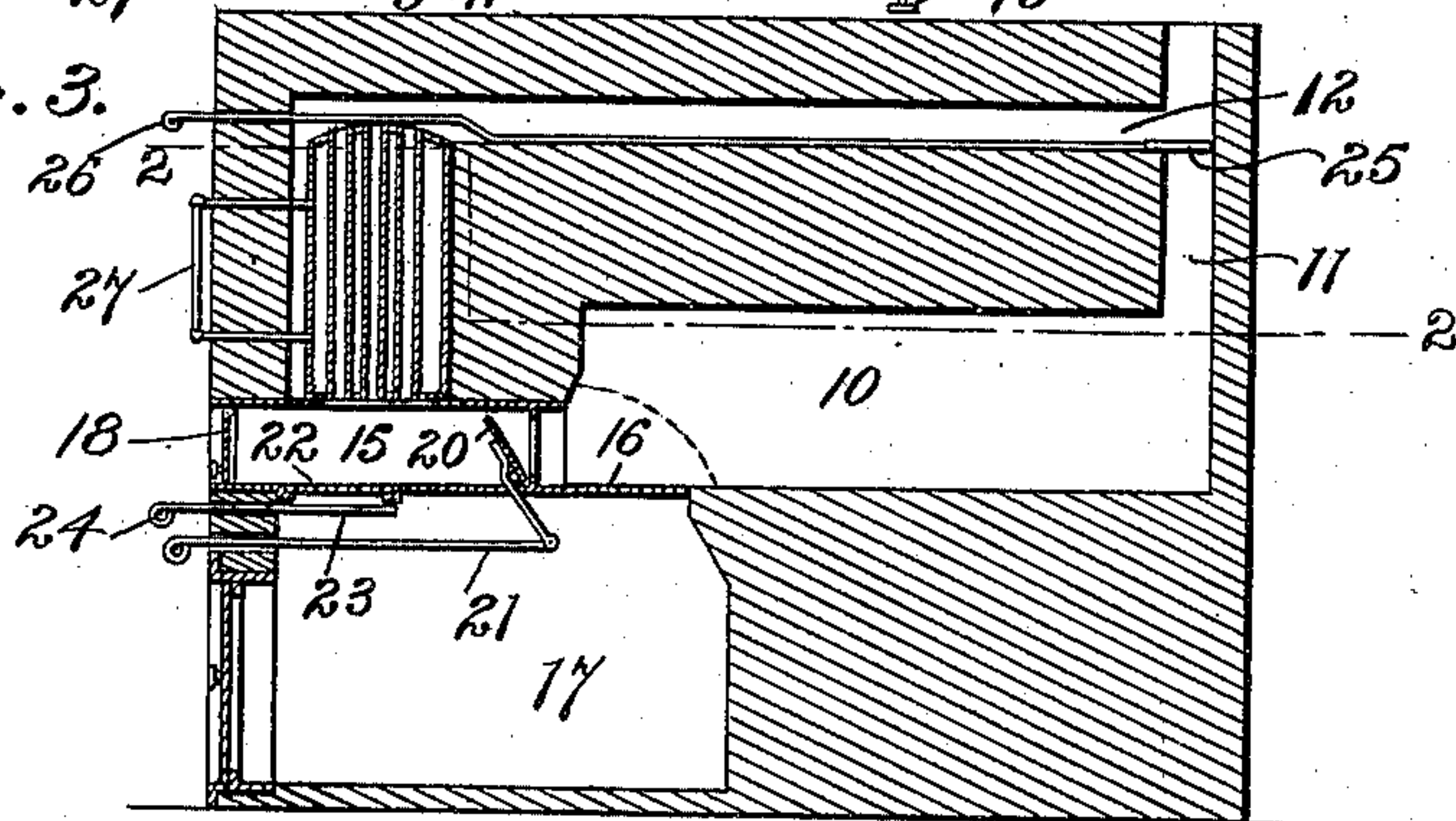


Fig. 3.



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Fig. 4.

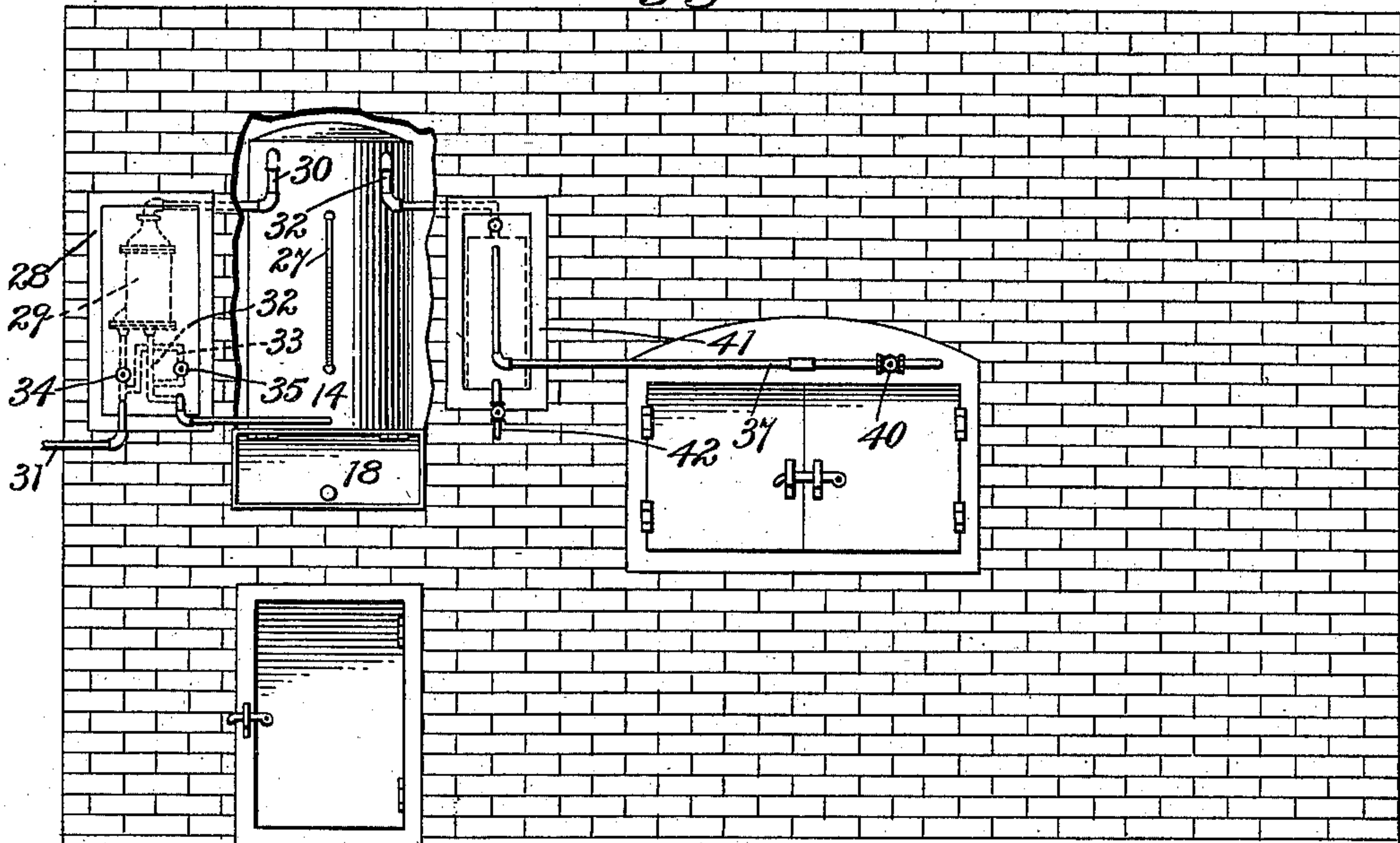


Fig. 5.

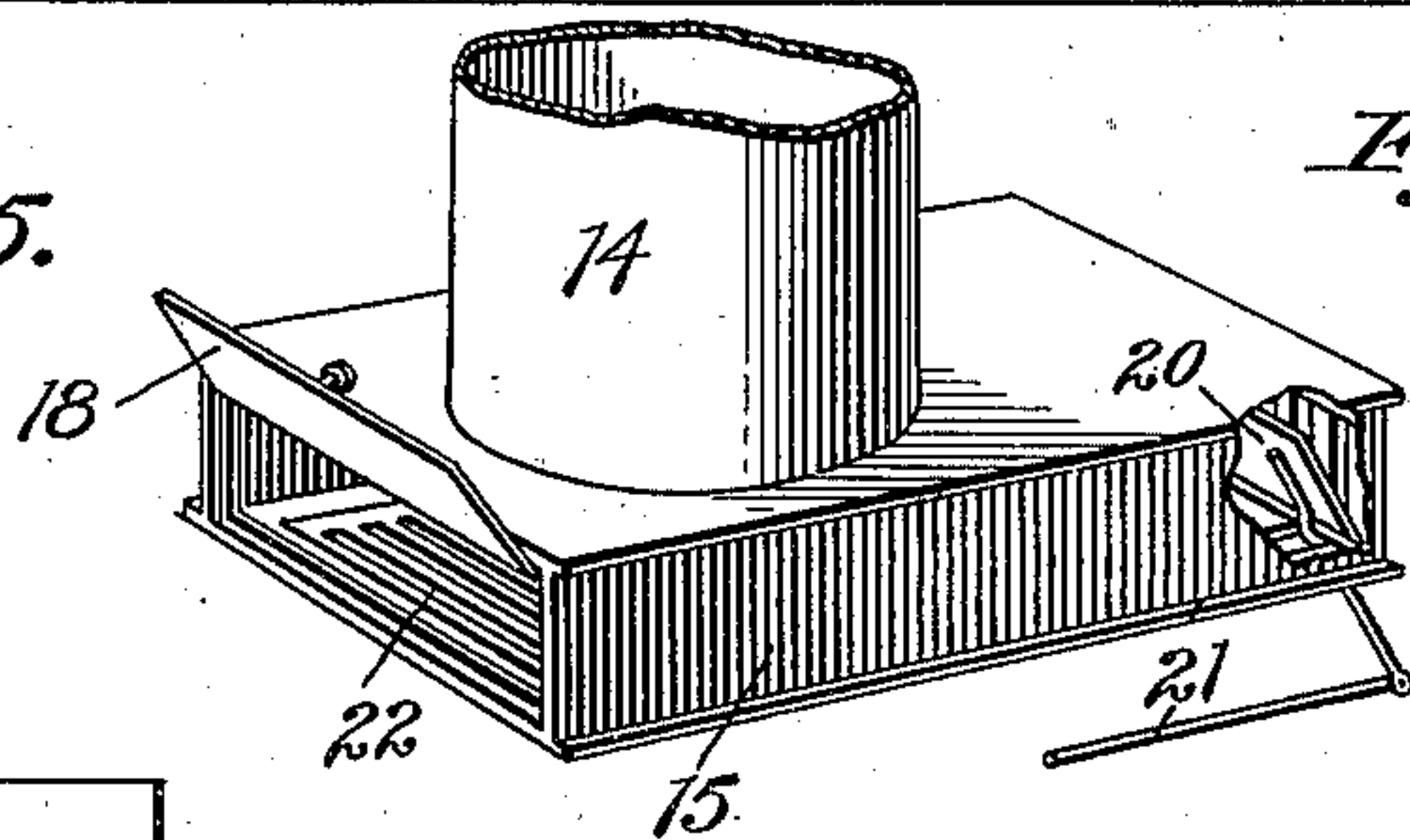


Fig. 6.

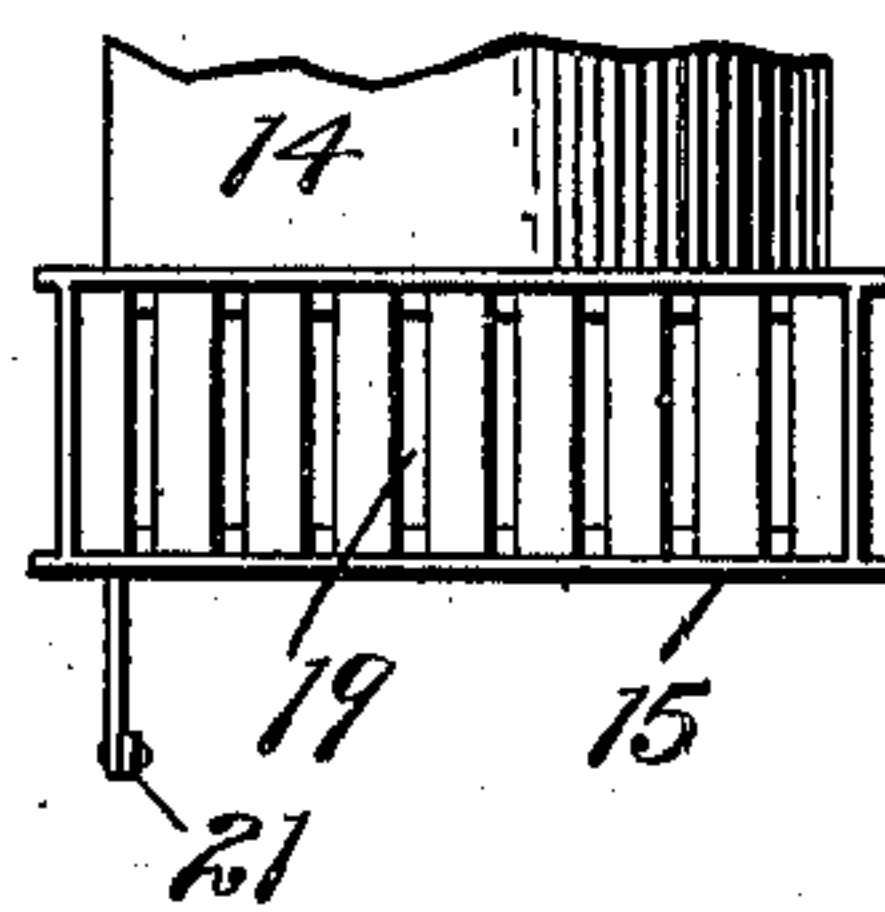


Fig. 7.

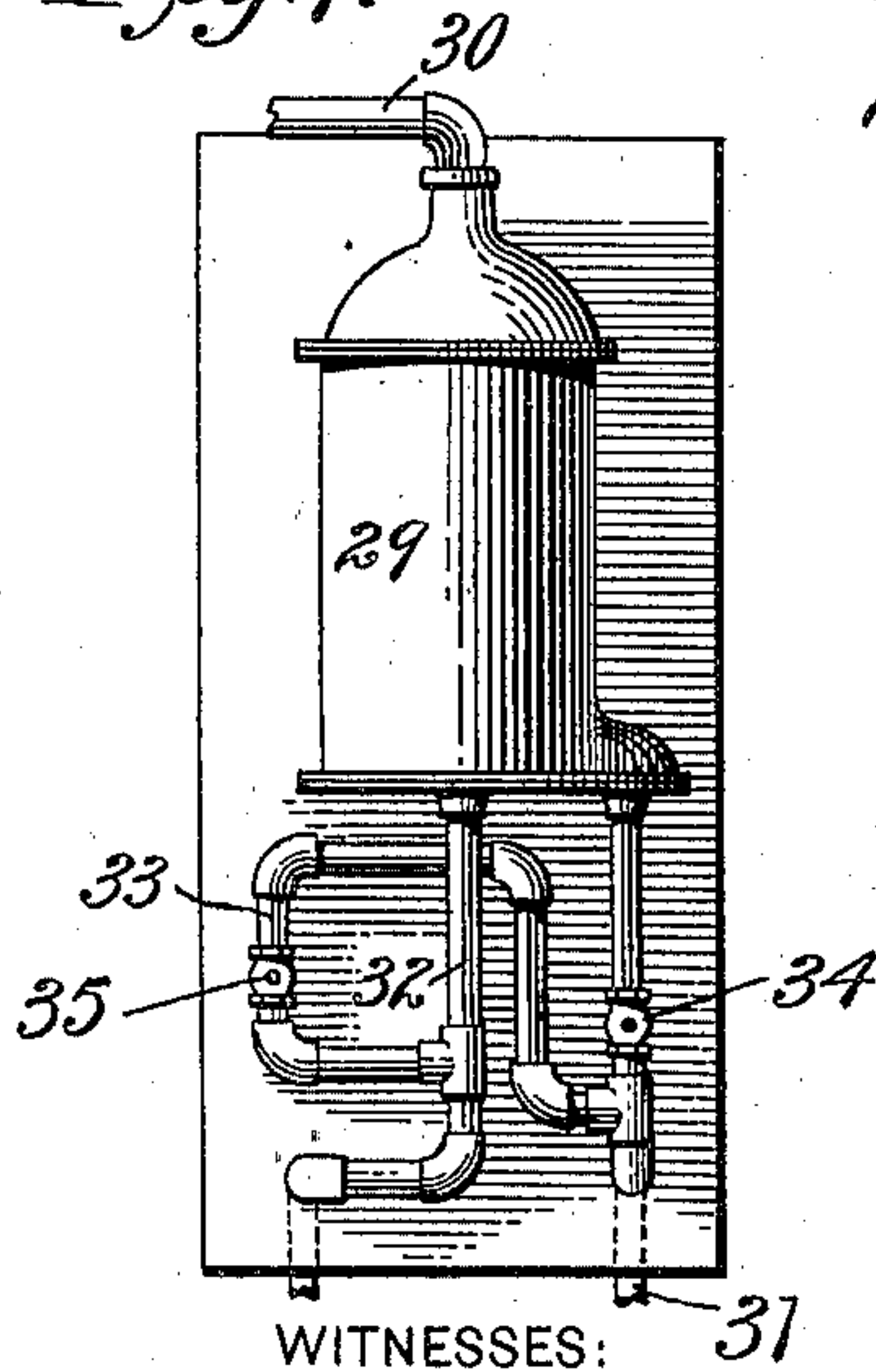
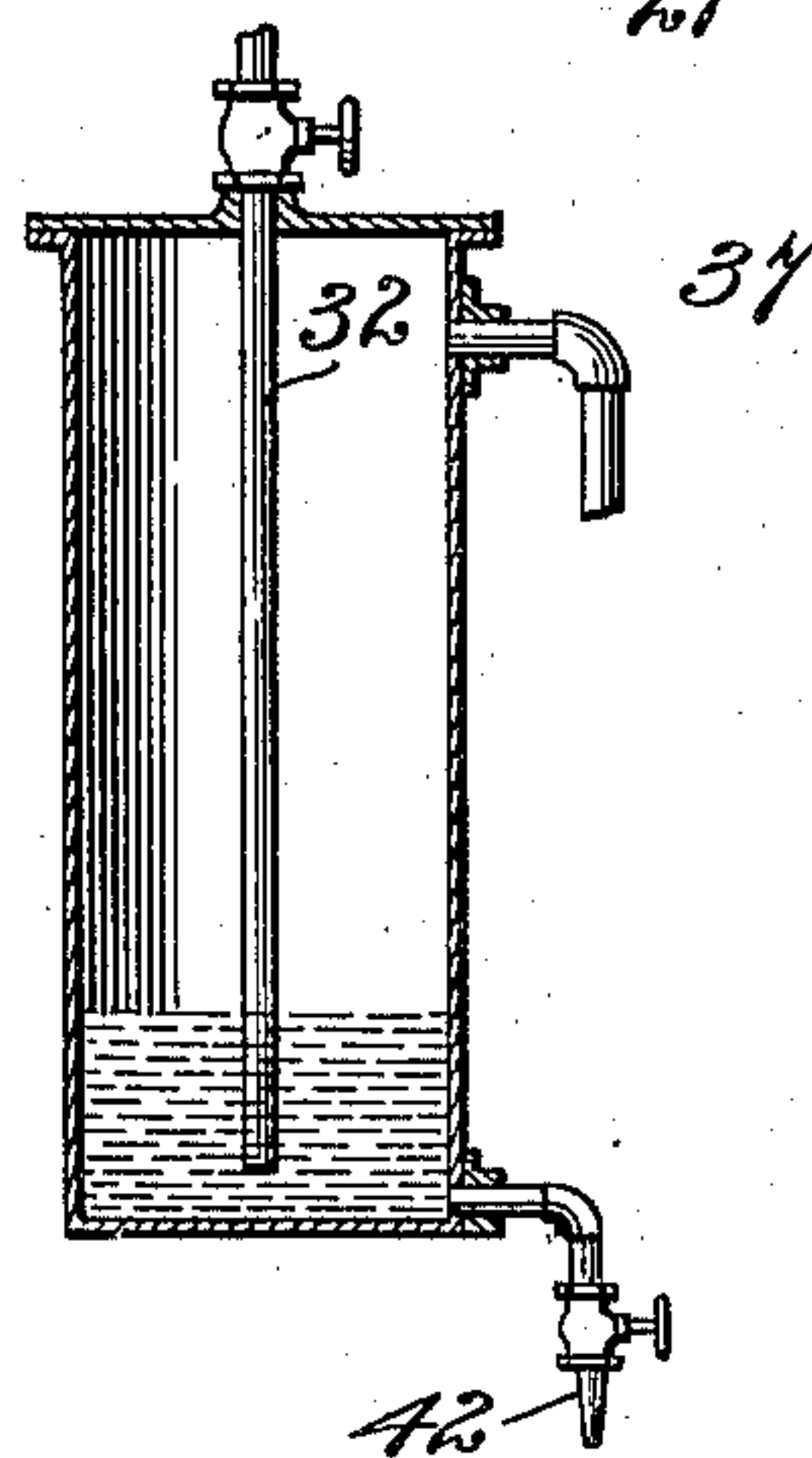


Fig. 8.



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UNITED STATES PATENT OFFICE.

FRANK EBERHART, OF NEW YORK, N. Y.

BAKER'S OVEN.

SPECIFICATION forming part of Letters Patent No. 626,992, dated June 13, 1899.

Application filed June 20, 1898. Serial No. 684,024. (No model.)

To all whom it may concern:

Be it known that I, FRANK EBERHART, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Bakers' Ovens, of which the following is a specification.

My invention relates to bakers' ovens, and especially to that class of bakers' ovens in which steam is admitted for the purpose of browning the bread, the object of the invention being to provide improved means whereby the boiler which supplies the steam may be heated by the fire maintained for heating the oven or, when desired, by a separate fire under the boiler, or by both fires.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, forming part thereof, in which—

Figure 1 is a view in front elevation of an oven provided with my improvements. Fig. 2 is a horizontal sectional view taken on a plane cutting through the baking-chamber on line 2 2, Fig. 3. Fig. 3 is a vertical sectional view on the plane indicated by the dotted line 3 3 of Fig. 2. Fig. 4 is a view in front elevation on an enlarged scale, part of the wall being broken away to expose the boiler, the connections with the feeder and separator being shown in dotted lines. Fig. 5 is a detail perspective view of the boiler fire-box, partly broken away, part of the shell of the boiler being shown attached thereto. Fig. 6 is a view of the same parts in rear elevation. Fig. 7 is a reverse or rear elevation of the feeder detached. Fig. 8 is a detail view, in sectional elevation, of the separator detached.

Like numerals of reference indicate the same parts in all the figures of the drawings.

Referring to the drawings by numerals, 10 indicates the baking-chamber, from the rear of which rises an upright or smoke flue 11, which is connected by a horizontal flue 12

with a vertical flue at the front, in which is located a boiler 14, having upright tubes, as shown. This boiler is mounted upon a fire-box 15, as shown in detail in Fig. 5, which will be built into the front wall in front of the grate 16 of the baking-chamber. This grate is over the rear portion of the ash-pit 17, and the direct draft therefor passes up from the ash-pit through the baking-chamber 10 and upright flue 11, this being the manner in which the baking-chamber will be heated.

The fire-box has a hinged door 18 at its front end, and its rear end 15 is composed of fire-brick set at a short distance from each other, forming spaces 19, which may be closed when desired by means of a damper 20, operated by a rod 21, extending through the front wall. In the bottom of the fire-box 18 is a grate 22 over the ash-pit, which may be closed against draft when desired by a sliding damper 23, operated from the front by means of a rod 24. A sliding damper 25, operated at the front by means of a rod 26, serves to close the upright flue 11 when desired.

Ordinarily when it is desired to generate steam in the boiler the dampers 23 and 25 are closed and the damper 20 opened, when the draft will pass from the ash-pit through the grate 16, (and the fire thereon,) the rear wall of the fire-box, the tubes of the boiler, and the horizontal flue 12 to the upright flue above damper 25, and the water in the boiler be heated from the fire on grate 16. When, however, it is desirable or necessary to provide heat for the boiler independent of the regular fire of the baking-chamber, fire is kindled on grate 22 of the fire-box. With both fires burning they may be independently used by closing dampers 20 and opening dampers 23 and 25, when the direct draft to the upright flue will supply the fire on grate 16 for heating the baking-chamber, and draft through grate 22 will cause the products of combustion from the fire thereon to pass through the boiler-tubes and horizontal flue to the upright flue. Should it be desirable at any time to use both fires to heat the boiler, the damper 25 will be closed and dampers 20 and 23 opened, when the products of combustion from the fire on grate 16 will pass through the rear wall of the fire-box and, mingling with those from

the fire on grate 22, will then pass through the boiler-tubes and horizontal flue to the upright flue 11.

Should it be necessary at any time to heat the boiler alone, there need be no fire on grate 16, and the fire on grate 22 may be utilized for heating the baking-chamber by closing the door of the ash-pit and opening all of the dampers, or the grate 16 may be covered and the ash-pit door left open.

By means of the construction thus far described it will be seen that the oven may be heated without heating the boiler, the oven and boiler may both be heated by the usual fire for heating the oven, both fires may be utilized for heating the boiler, the boiler may be heated by its own fire only, or the boiler-fire may be utilized for heating the oven. Fuel is fed to the grate 16 through the double door of the baking-chamber with a long-handled shovel.

27 indicates the usual glass gage, located in front of the oven and connected with the boiler by pipes passing through the front wall.

28 indicates a metal frame set in the wall of the oven to receive the feeder 29, the feeder being illustrated in detail in dotted lines in Fig. 4 and in full lines in Fig. 7. A pipe from the steam-space of the boiler leads into the top of the feeder, and a pipe 31 from the water-main or other supply leads into the bottom of the feeder. The water in the feeder is thus heated and is ejected from the feeder through a pipe 32. Should the feeder be out of order, a by-pass pipe 33 leads the water from pipe 31 direct into pipe 32, suitable valves 34 35 being provided to cut the water off from the feeder and by-pass, as may be desired.

The water from pipe 32 passes into the upper end of the separator 36, said pipe terminating near the bottom of the separator, as shown in Fig. 8. A pipe 37 from the upper part of the separator leads into the baking-chamber, either through spraying-nozzles 38 or a larger nozzle 39, a valve 40 being provided to cut off the latter when desired. The separator is set in a metal frame 41, built into the wall, and is provided with a blow-off or drain pipe 42. The steam entering the separator through pipe 32 is always mixed with a certain percentage of water, which drops to the bottom of the separator, and the dry steam passes through nozzles 38 into the baking-chamber to aid in the proper baking of the bread.

In building new ovens the boiler and fire-box will be built in as the wall is built, as will be also the frames for containing the feeder

and separator; but it will be readily seen that very little change will be necessary to apply the fire-box and boiler separator and feeder to ovens already in use. These parts (especially the fire-box) will thus become articles of commerce to be sold to owners of ovens to be placed in position therein without the necessity of rebuilding.

While the exact construction of the various parts embodied in my invention has been illustrated and described, it is obvious that many slight changes might be made therein without departing from the spirit and scope of the invention.

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

1. A baker's oven provided with a baking-chamber, a grate therein, a direct flue, a damper therein, an indirect flue, a boiler set in the indirect flue, a fire-box below the boiler with a slatted back in the fire-box communicating with the baking-chamber, a damper for closing said communication, a grate in the fire-box, and a damper for cutting off the draft from said grate, substantially as described.

2. The feeder herein described provided with a pipe communicating between its upper end and the steam-space of the boiler, a pipe communicating between its lower end and the water-space of the boiler, pipe leading from the water-supply, a by-pass pipe for cutting out the feeder, and suitable valves, substantially as described.

3. In a baker's oven, the combination with the baking-chamber, of a steam-pipe, spraying-nozzles thereon in the baking-chamber, a nozzle at the extremity of the pipe discharging into the baking-chamber, and a valve in the pipe beyond the spraying-nozzles, substantially as described.

4. The fire-box herein described, provided with an opening in the top over which a boiler may be placed, a front door, a rear grated wall, a grate in the bottom, a damper for closing the grated rear wall, and a damper for shutting off draft from the grate; said dampers being adapted to be used alternately or together, substantially as shown.

5. A baker's oven provided with a baking-chamber, a separate furnace under it, a direct flue, an indirect flue communicating with the furnace and the direct flue, a boiler set in the indirect flue and a fire-box under the boiler, substantially as described.

FRANK EBERHART.

Witnesses:

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JACOB DREHER.