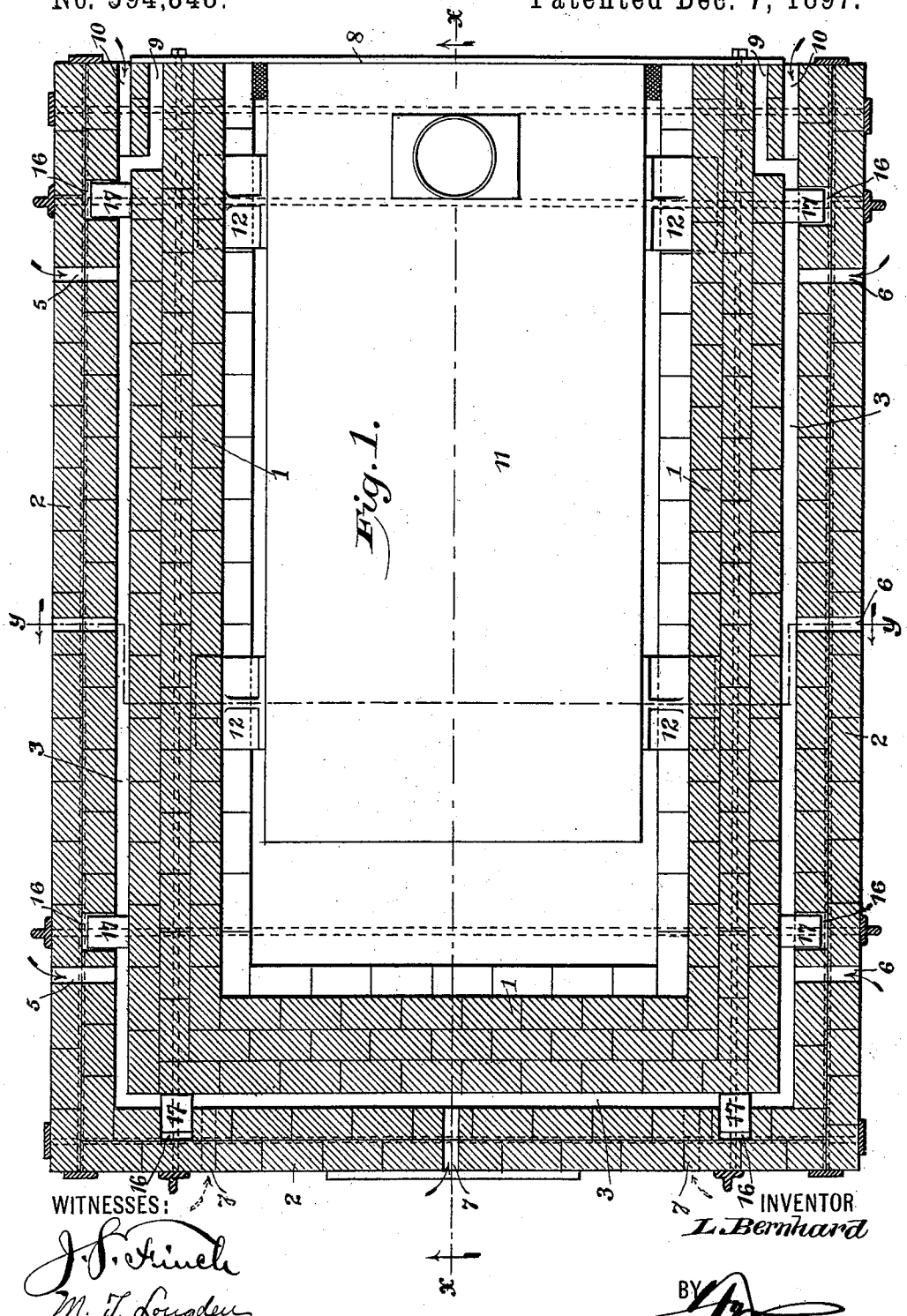
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L. BERNHARD.

BOILER SETTING.

No. 594,848. Patented Dec. 7, 1897.



WITNESSES:

J. S. Hinds

M. T. Longden

INVENTOR

L. Bernhard

BY

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

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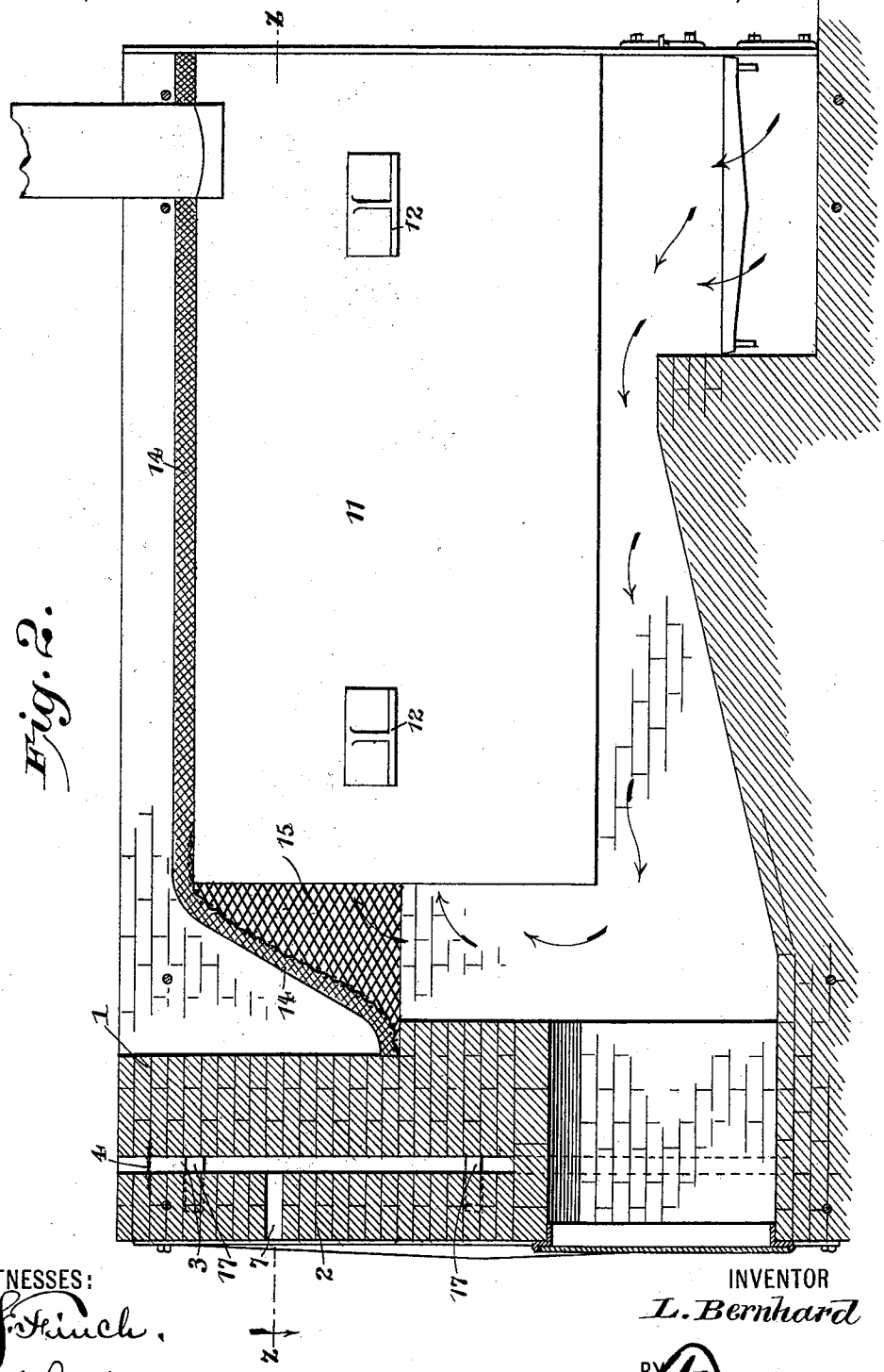


Fig. 2.

WITNESSES:

J. F. Finch.

M. T. Longden

INVENTOR

L. Bernhard

BY

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

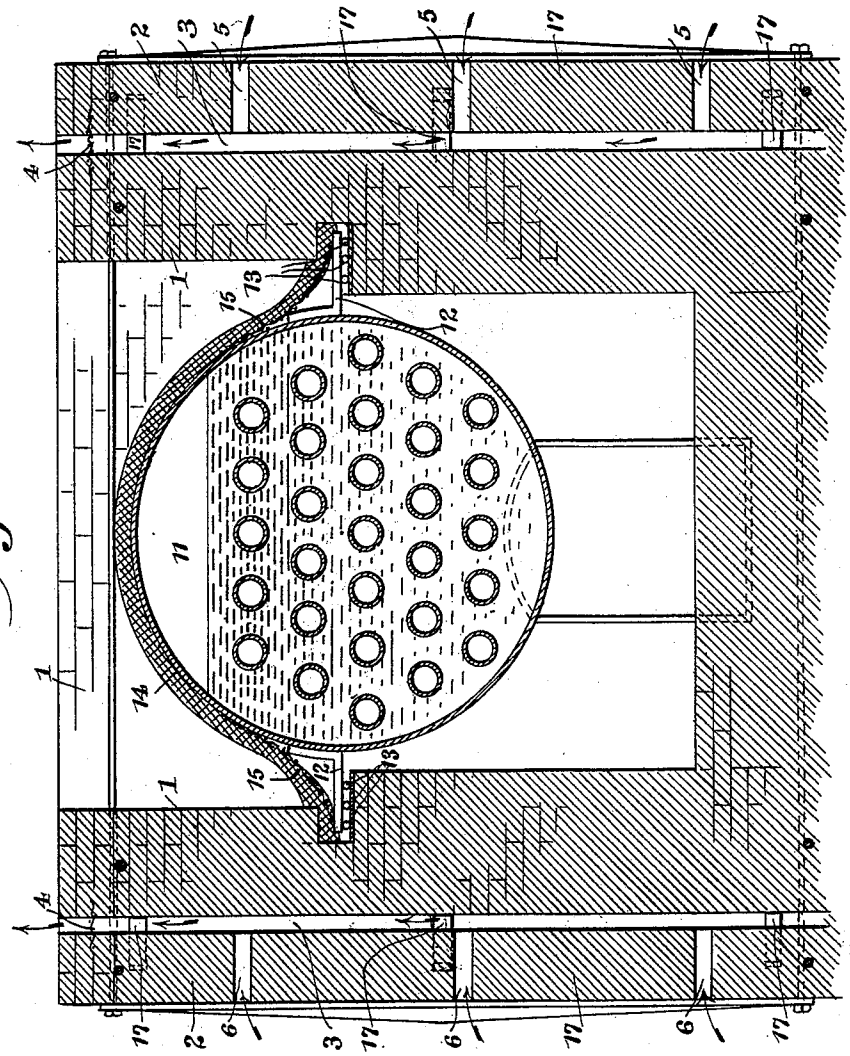
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Fig. 3.



WITNESSES:
J. F. Finch.
M. T. Longden.

INVENTOR
L. Bernhard
BY
ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LOUIS BERNHARD, OF BRIDGEPORT, CONNECTICUT.

BOILER-SETTING.

SPECIFICATION forming part of Letters Patent No. 594,848, dated December 7, 1897.

Application filed July 15, 1897. Serial No. 644,675. (No model.)

To all whom it may concern.

Be it known that I, LOUIS BERNHARD, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Boiler-Settings; and I do hereby 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 boiler-settings, and has for its object to prevent the crumbling or crushing of the setting from undue expansion, while at the same time the construction shall be economical and exceedingly strong and durable.

With these ends in view my invention consists in certain details of construction, such as will be hereinafter fully set forth, and then specifically be designated by the claims.

In the accompanying drawings, Figure 1 is a horizontal section taken at the line *z z* of Fig. 2; Fig. 2, a vertical section at the line *y y* of Fig. 1, and Fig. 3 a cross-section at the line *y y* of Fig. 1.

Similar numbers of reference denote like parts in the several figures of the drawings.

My improvement relates to that class of boiler-settings comprising a main or inner wall and an outer wall, with an air-space between these walls, the boiler being provided with the usual boiler-lugs, which rest upon suitable rollers on a ledge in the inner wall; but in my improvement I have taken especial pains to so set the boiler that not a particle of the brickwork is in contact therewith, so that the expansion of the boiler is perfectly free and unobstructed.

1 is the inner or main wall of the setting, 2 the outer wall, and 3 the air-space between these walls. This air-space extends between these walls at the sides and at the back, and it also extends from the bottom clear up through the top of the setting and opens into the outside air, wire-netting 4 being provided across this space at the top, so as to prevent foreign matter from dropping down into the same and clogging the space. Openings 5 6 extend through the outer wall at opposite sides of the setting and lead into the air-space, so that communication is afforded between the outside air and this space, whereby the latter is kept supplied with fresh cool air, and for the same purposes openings 7 are provided in the back of the outer wall.

The air-space extends right through the main and outer walls at the front of the setting and is closed by the front plate 8, this space being provided with a jog 9 at the front in order to bring the space within the limits covered by the plate 8. Openings 10 are provided in the front of the outer wall and extend into the air-space, so that fresh air is also supplied to said space at the front of the furnace. Thus it will readily be understood that this air-space completely encompasses the main wall, and that said space throughout its entire length opens into the outer air at the top, and that fresh cool air is constantly supplied to said space.

Heretofore the air-spaces have been provided around the main walls, but such spaces have been closed entirely at the top, except that one or more vents have been provided through which the air which has become heated is discharged. In such constructions but very little benefit is obtained from the air-spaces, whereas in my improvement fresh cool air is continuously surrounding the main walls, the air as fast as it is warmed ascending up through the top of the spaces.

The boiler 11 is provided with the usual side lugs 12, which rest upon rollers or balls 13, supported on the main wall, and the boiler has no contact whatever with such wall. The top of the boiler is covered with an envelop 14 of asbestos, a piece of wire-cloth being provided at the rear of the furnace to sustain the asbestos at the point where it is brought down beyond the extremity of the boiler.

The outside wall 2 is provided with pockets 16 on the inside which open into the air-space, there being preferably three tiers of these pockets, (see Fig. 3,) each tier extending in a horizontal plane. (See Fig. 1.) 17 are loose bricks within these pockets, the length of these bricks being slightly less than the distance between the end walls of the pockets and the main wall 1. As the main wall becomes heated it will expand, thereby forcing these loose bricks outwardly until they come in abutment with the end walls of the pock-

ets, and thereafter these bricks will remain in that position. It will thus be seen that after these bricks have been forced against the end walls of the pockets the entire strength of the main and outer walls is opposed to any further expansion, while at the same time the air-space tends to keep the walls cool. Thus I have obtained all the benefits which can arise from the provision of a very thick wall, while at the same time I obtain the good results arising from the provision of a properly constructed and located air-space. It will therefore be readily understood that the boiler is perfectly free to expand and contract, while at the same time there can be no danger of bulging and the consequent crumbling of the walls, owing to their expansion while in a heated state.

A single solid wall made very thick does not afford a proper boiler-setting, because when the wall has become heated through after days and weeks of constant use such wall will be thrown out of true by expansion to the extent that it must be torn down and rebuilt. Also, lighter walls with intermediate air-spaces, such as have been provided heretofore, are open to the same objections, because the main or inner wall cannot resist the action of the heat, owing to the fact that the air-space does not sufficiently cool the walls.

I do not wish to be understood as laying any claim whatever to double-walled boiler-settings with air-spaces between them; but

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

1. A boiler-setting comprising an inner or main wall upon which the boiler is freely supported, an outer wall, an air-space between the inner and outer walls and extended from the bottom up through the top thereof into the outside air, openings through the outer wall whereby fresh air is supplied to said space, pockets in the outer wall and opening into said space, and loose bricks resting within these pockets and of a length slightly less than the distance between the end walls of these pockets and the main wall, substantially as set forth.

2. A boiler-setting comprising double walls separated by an intermediate air-space, one of such walls being provided with pockets opening into such space and with loose bricks resting in said pockets and of a length slightly less than the distance between the end walls of said pockets and the opposite wall, substantially as set forth.

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

LOUIS BERNHARD.

Witnesses:
F. W. SMITH, Jr.,
M. T. LONGDEN.