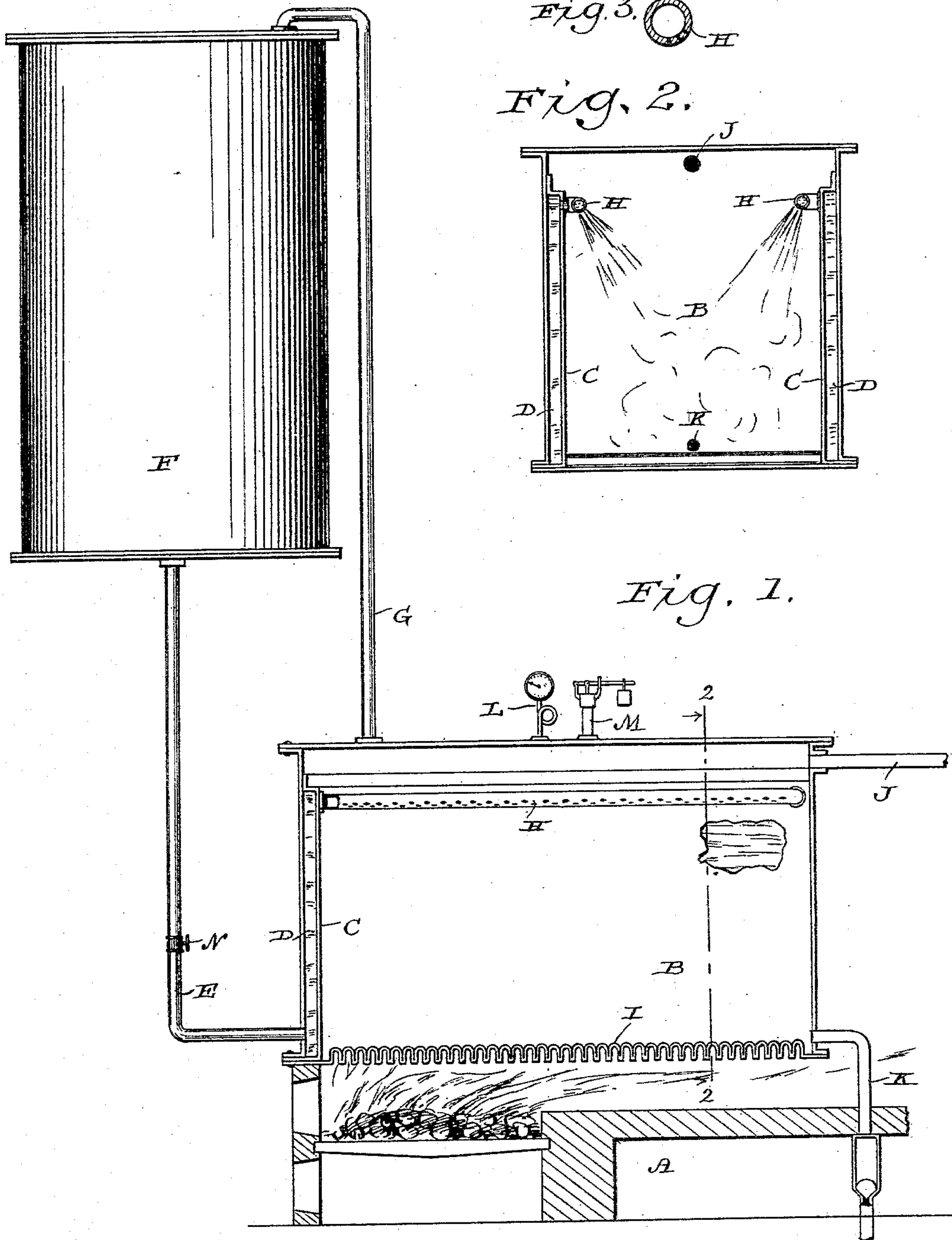


(No Model.)

H. P. OSBOURNE.
STEAM GENERATOR.

No. 412,037.

Patented Oct. 1, 1889.



Witnesses
Geo. V. Young.
N. E. Olphand

Fig. 4.

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UNITED STATES PATENT OFFICE.

HOSEA P. OSBOURNE, OF MILWAUKEE, WISCONSIN.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 412,037, dated October 1, 1889.

Application filed March 29, 1889. Serial No. 305,237. (No model.)

To all whom it may concern:

Be it known that I, HOSEA P. OSBOURNE, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Steam-Generators; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to steam-generators; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a portion of my device partly in elevation and partly in vertical longitudinal section; Fig. 2, a vertical transverse section on line 2 2 of Fig. 1; Fig. 3, a transverse section of a spray-pipe that constitutes part of my device, and Fig. 4 a detail sectional view of a portion of the bottom of the generating-chamber.

Referring by letter to the drawings, A represents a furnace, and B a generating-chamber supported above the furnace. The generating-chamber B is provided with a lining C around three of its sides, and this lining and adjacent walls of said chamber form a water-space D, connected by a pipe E with a reservoir F, as illustrated in Fig. 1, and a pipe G connects said generating-chamber and reservoir.

Connected with the water-space D are perforated longitudinal pipes H, that discharge into the generating-chamber B, the bottom I of this generating-chamber being preferably corrugated, for the purpose to be hereinafter described.

A steam-pipe J leads from the generating-chamber B, and a valved waste-pipe K is also connected to said generating-chamber, the latter being preferably provided with a steam-gage L and safety-valve M, as shown in Fig. 1.

In the operation of my invention a valve N in the pipe E is opened and the water from the reservoir F flows into the water-space D and sprays out through the perforated pipes H into the generating-chamber B, to be converted into steam, this conversion being very rapid owing to the intense heat within said generating-chamber. By having the bottom of the generating-chamber corrugated a

greater heating-surface is presented to any of the water that may find its way thereto, and the corrugations are such that narrow spaces are left for the water and materially wider spaces presented to the fire, whereby the conversion of said water into steam is more rapidly effected. It will also be observed that the water-space is materially less in area than the generating-chamber, and consequently the water is rapidly heated before it sprays into said chamber, thereby facilitating the operation of converting said water into steam. The steam finds its way out through the pipe J to the point of utilization, and also through the pipe G to increase the pressure within the reservoir, and thereby equalize the steam-pressure on the water that flows through the feed-pipe E.

Should any water accumulate in the generating-chamber it will find its way out through the valved pipe K shown in Fig. 1.

By the construction above described I provide a very simple device for the purpose of generating steam, and steam thus generated is very dry, because a comparatively small volume of water is first heated and then distributed into a heating-chamber in the form of spray, where it is rapidly converted into steam, and such water as may not be thus converted falls into the narrow spaces of the corrugated bottom of said chamber in opposition to such an area of heating-surface that steam is the immediate result.

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

1. A steam-generator comprising a furnace, a generating-chamber supported above the furnace and provided with a water-space, perforated pipes connected to the water-space and arranged in the generating-chamber, a reservoir also connected to said water-space, and a steam-delivery pipe connected to the generating-chamber, substantially as set forth.

2. A steam-generator comprising a furnace, a generating-chamber supported above the furnace and provided with a water-space and corrugated bottom, perforated pipes connected to the water-space and arranged in the generating-chamber, a feed-water supply also connected to said water-space, and a

steam-delivery pipe connected to the generating-chamber, substantially as set forth.

3. A steam-generator comprising a furnace, a generating-chamber supported above the furnace and provided with a water-space of limited area, a feed-water supply connected with the water-space, distributor-pipes also connected with said water-space and arranged within the generating-chamber, a corrugated bottom for said generating-chamber constructed to present narrow water-spaces and materially wider fire-spaces, and a steam-delivery pipe, substantially as set forth.

4. A steam-generator comprising a furnace, a generating-chamber supported above the furnace and provided with a water-space, perforated pipes connected to the water-space and arranged in the generating-chamber, a feed-water supply also connected to the said water-space, a steam-delivery pipe, and a valved waste-pipe connected to the generating-chamber, substantially as set forth.

5. A steam-generator comprising a furnace, a generating-chamber supported above the furnace and provided with a water-space, per-

forated pipes connected to the water-space and arranged in the generating-chamber, a feed-water supply also connected to the water-space, a steam-pipe connecting said feed-water supply and generating-chamber, and a steam-delivery pipe also connected to said generating-chamber, substantially as set forth.

6. A steam-generator comprising a furnace, a generating-chamber supported above the furnace, a lining secured within the generating-chamber to form a water-space, a feed-water supply connected to the water-space, perforated pipes also connected to said water-space and arranged within the generating-chamber, and a steam-delivery pipe also connected to said generating-chamber, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

HOSEA P. OSBOURNE.

Witnesses:

N. E. OLIPHANT,
WILLIAM KLUG.