A. VAN HORN.

STEAM GENERATOR.

No. 188,990. Patented March 27, 1877.

Fig. 1.

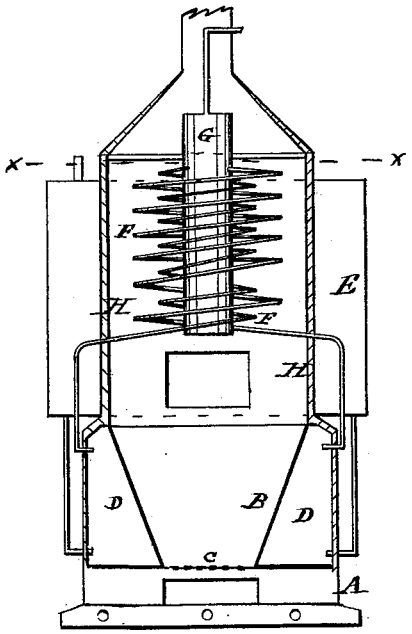
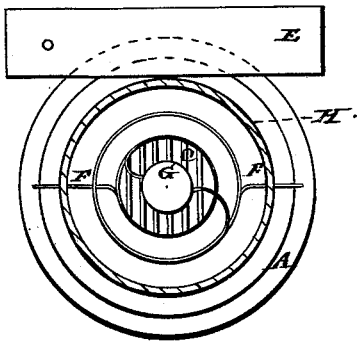


Fig. 2



Witnesses
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Andrew Van Horn.

Inventor
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UNITED STATES PATENT OFFICE.

ABNER VAN HORN, OF BROOKLYN, E. D., N. Y., ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO ANDREW VAN HORN AND HENRY BARAGWANATH, OF SAME PLACE.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. **188,990**, dated March 27, 1877; application filed February 3, 1877.

To all whom it may concern:

Be it known that I, ABNER VAN HORN, of Brooklyn, E. D., Kings county, and State of New York, have invented an Improved Steam-Generator, of which the following is a specification:

The nature of my invention consists in combining with the furnace above the fire-pot a steam-generator surrounded by one or more coils of pipes, connected at their lower ends to the water-jacket surrounding the fire-pot, and at their upper ends to the uper end of the steam-generator, whereby the wet steam is converted into dry steam before escaping from the generator to the building for heating purposes.

But to describe my invention more particularly, I will refer to the accompanying drawings, forming a part of this specification, the same letters of reference, wherever they occur, referring to like parts.

Figure 1 is a vertical cut-sectional view of the steam-generator. Fig. 2 is a plan view of the same, through the line *x x*, Fig. 1.

Letter A represents the base of the furnace, and B the fire-pot, and C the grate. The fire-pot is made of iron, with double-walled sides, so as to leave a space between them, as shown at D. This space is intended to be filled with water from the feed-water box E, or any other water-supply suitable for the purpose.

The object of this is, first, to absorb the heat escaping from the sides of the fire-pot; and, second, to prevent the burning out of the sides of the fire-pot, as would be the case if not thus protected. The water, thus heated by the fire-pot, is then carried up into two or more, or less number of, independent pipes, F F, coiled around a steam-generator, G, and at its upper end discharged therein. This steam-generator is made of iron, and of proportionate diameter and length to that of the walls of the furnace H above the fire-pot. By this arrangement the water in the pipes is subjected to the heat of the fire-pot, and thus affords a hot-water supply to them; secondly, the pipes being arranged within the furnace directly over the fire-pot, the water in them is quickly converted into steam, thus admitting of the use of a less amount of fuel than if not thus arranged and previously heated; and, thirdly, the wet steam thus generated in the coiled pipe or pipes, as may be the case, being discharged into the steam-generator surrounded by the coils of pipe, and directly above the fire and centrally of the furnace, is at once converted into high-pressure or dry steam. In this condition it will be obvious that it may be carried through heating-pipes and radiators to almost any distance, as there would be but little water to condense in proportion to the great amount of heat given out by the radiators.

Having now described my invention, I will proceed to set forth what I claim and desire to secure by Letters Patent of the United States:

1. In a steam heater, the combination of the steam-generator G with the coil or coils of pipe F, surrounding the same, substantially as described, and for the purposes set forth.

2. In a steam-heater, the combination of the water-supply box E, water-tight compartment D of the fire-pot B, coil or coils of pipe F, and steam-generator G, constructed and arranged substantially as described.

ABNER VAN HORN.

Witnesses:

CHARLES L. BARRITT,

ANDREW VAN HORN.