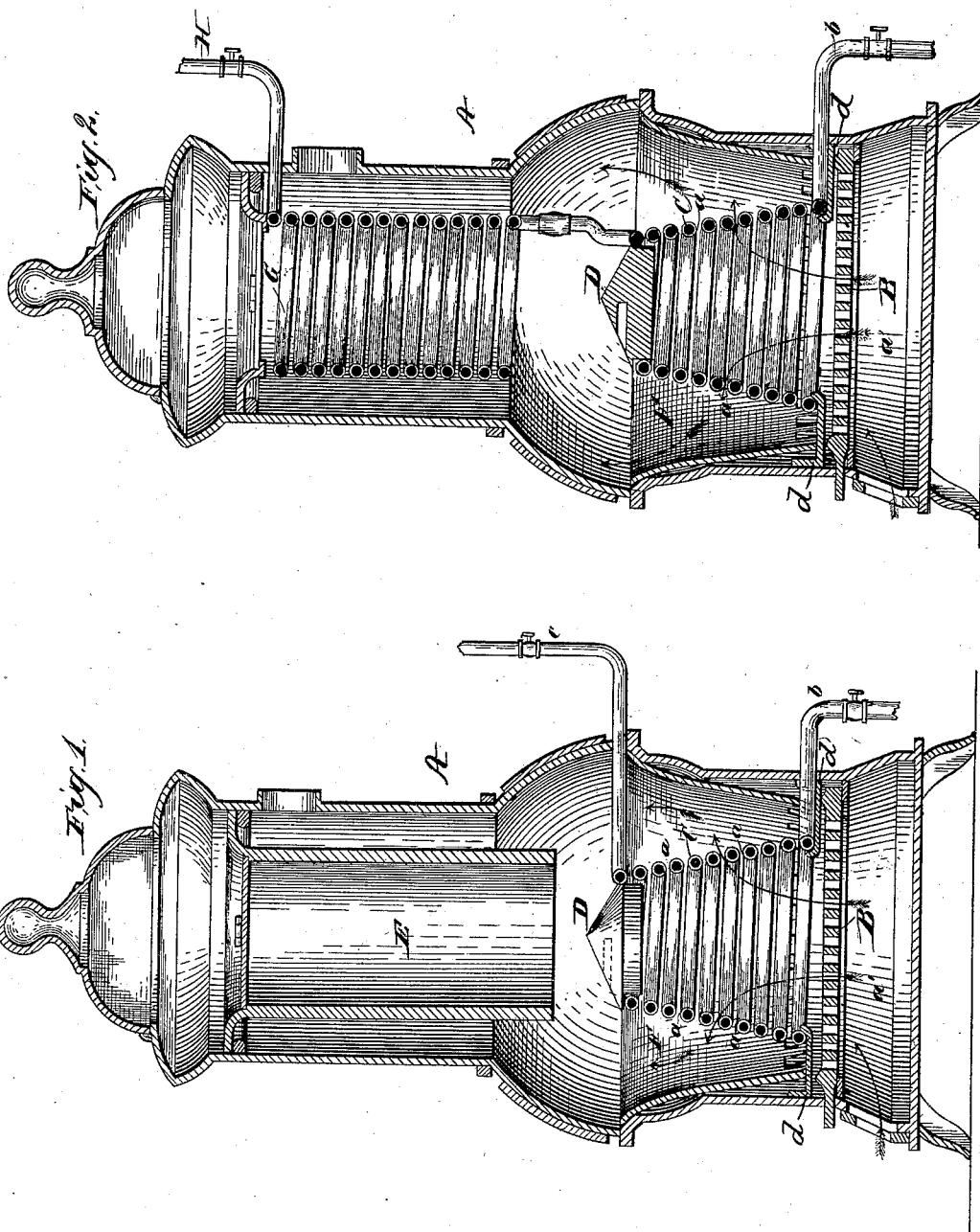


(No Model.)

J. B. BOSSLER.  
STEAM GENERATOR.

No. 382,863.

Patented May 15, 1888.



witnesses.

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Inventor:  
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By Johnston, Reinohl & Dyce  
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# UNITED STATES PATENT OFFICE.

JOSEPH B. BOSSLER, OF MIDDLETOWN, PENNSYLVANIA.

## STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 382,863, dated May 15, 1888.

Application filed February 13, 1888. Serial No. 263,806. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH B. BOSSLER, a citizen of the United States, residing at Middletown, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Generators; 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 steam-generators, and has for its object the construction of a cheap, simple, and effective device, whereby fuel can be economized and a heater used on one floor to heat apartments, utilized to generate steam to supply radiators on an upper floor or other steam-heating apparatus, or the steam may be used as a motor.

Under the present system of operating heating stoves and furnaces much of the heat of the fuel is wasted, which under my invention can be made to serve a useful purpose without in the least degree interfering with the primary object of the heater. It is my purpose to apply a steam-generating coil in the fuel-chamber of a stove or heater, embed it in the fuel, and generate steam, which may be superheated in the combustion-chamber of the stove or heater in a coil of pipe, which serves as a magazine through which the fuel is fed.

The invention will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 represents a vertical section of a stove or heater with a steam-generating coil in the fuel-chamber, and Fig. 2 is a similar view of same with a superheater in the upper part or combustion-chamber.

Reference being had to the drawings and the letters marked thereon, A represents a stove or heater of ordinary construction.

B is a rotary grate upon which the fuel rests, above which is supported upon brackets *d*, or equivalent means, a conical coiled steam-generator, C, which terminates about in the plane of the door of the furnace, and is provided at its upper end with a removable metallic cover, D, which has a conical upper surface for spreading fuel fed from a magazine, E.

When it is desired, the cover D may be re-

moved and fuel fed or thrown into the inner space or chamber formed by the coils through the furnace-door and the cover replaced. The cover D may be provided with perforations to allow air or heat from the chamber within the coils to pass up into the combustion-chamber above the fuel-chamber. In forming the coils space is left between them to form passages *a* for distributing air from the ash-pan *a'* through the grate and up through the chamber within the coils, where it is warmed before it enters the body of fuel. Around the coil is the annular fuel-chamber proper, F, which is also supplied with air through the grate. The entire mass or body of fuel rests upon the grate, and is thus permeated with air and a thorough and effective combustion of the fuel effected.

Water is supplied to the coil or generator C through pipe *b*, which communicates with the coil at its lower end, and the steam-generated is carried off to any desired place, and for any purpose, through pipe *c*, which communicates with the upper end of the structure. In some instances it will be found necessary to provide for a larger supply of steam and at a higher degree of temperature. To meet such a demand, an additional coil, G, is provided in the upper part or combustion-chamber, and is supported to perform the double function of a magazine for holding and feeding fuel and superheating the steam generated in the coil C. The superheated steam is then carried off through pipe H, as in the former construction.

The coiled generator C may be made of any diameter and height to suit different constructions of stoves and furnaces; but in every instance it should be supported above the grate at a sufficient height to allow the grate to be rotated freely, and to provide for the ready egress of air between the lower coil and the grate. Either construction of generator shown may be provided with a return-pipe leading from the upper to the lower part of the generator to provide for circulation of the water.

Having thus fully described my invention, what I claim is—

1. In a steam-generator, the combination of a conical coiled water-pipe supported above the grate, a rotary grate upon which the fuel rests, an annular fire-chamber, and an air-supplying chamber in the bottom of the furnace leading up into the chamber formed by the

coil and through the spaces between the coils into the fuel-chamber, substantially as described.

2. In a steam-generator, the combination of  
5 a conical coiled water-pipe with an opening at both ends, a cover for the upper opening, an inner and an annular fuel-chamber, a rotary grate, and air-feeding passages between the coils, substantially as described.

10 3. In a steam-generator, an inner and an annular fuel-chamber, a rotary grate, a conical coiled water-pipe supported above the grate, a metallic cover for the upper end of the coil provided with a conical top, and a magazine,  
15 all combined and operating substantially as described.

4. In a steam-generator, a conical coiled

water-pipe supported above a rotary grate and forming an annular fuel-chamber, in combination with a superheating-coil supported in  
20 the combustion-chamber, substantially as described.

5. In a steam-generator, a conical water-pipe forming an annular fuel-chamber, in combination with a superheating-coil arranged to perform the function of a magazine to discharge  
25 fuel into said fuel-chamber, substantially as described.

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

JOSEPH B. BOSSLER.

Witnesses:

DAVID SHIRK,

S. H. NEY.