(No Model.)

W. J. BOWERMAN.

COMBINED STEAM AND HOT WATER HEATER.

No. 343,431. Patented June 8, 1886.

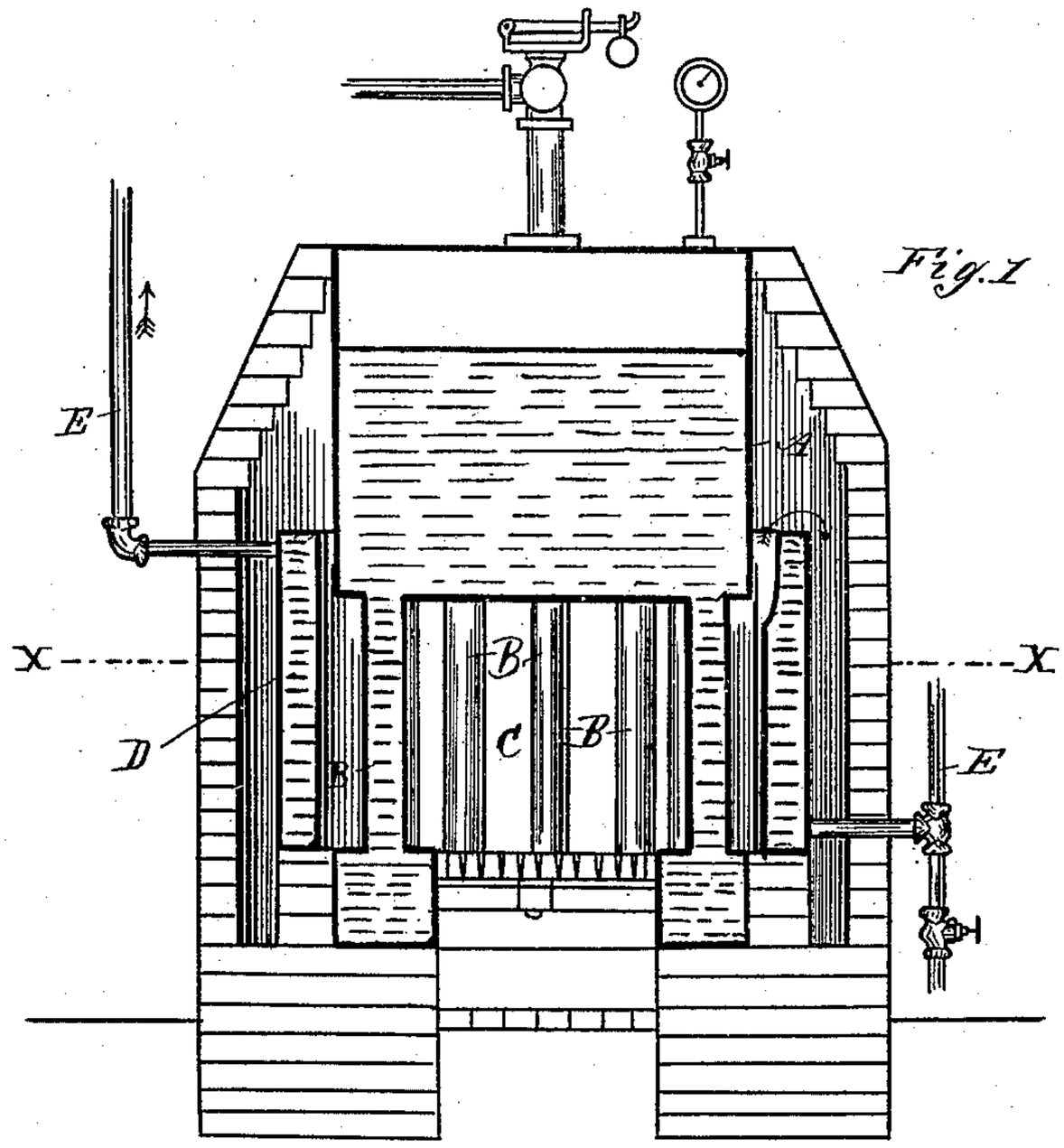


Fig. 1

Fig. 2

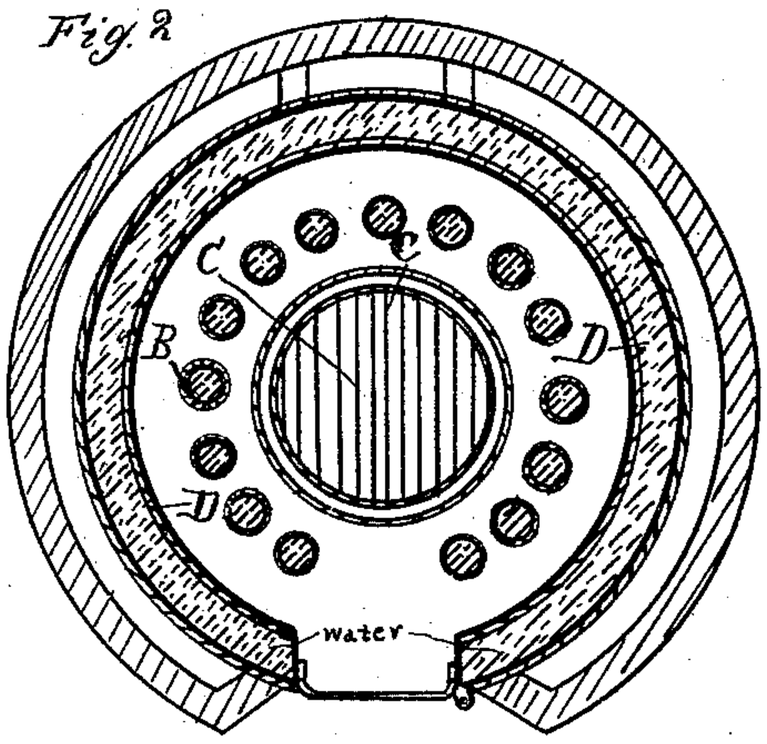


Fig. 3

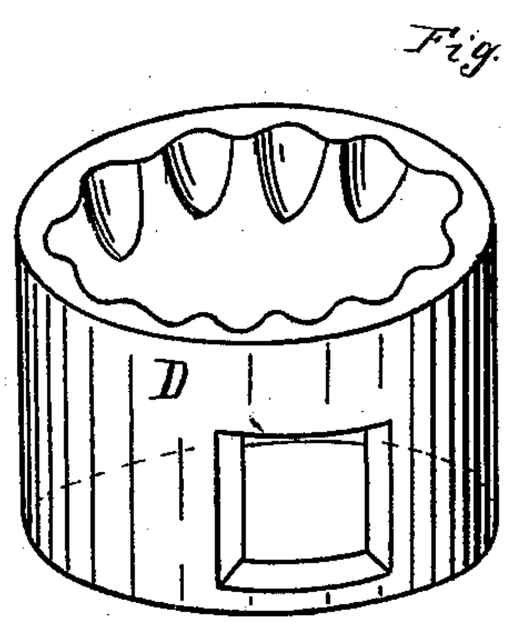
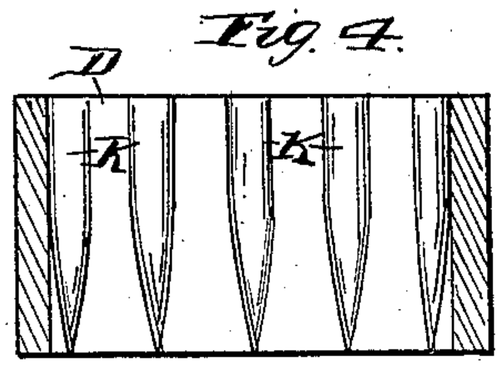


Fig. 4.



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WILLIAM J. BOWERMAN, OF DETROIT, MICHIGAN.

COMBINED STEAM AND HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 343,431, dated June 8, 1886.

Application filed April 29, 1885. Serial No. 163,815. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BOWERMAN, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Combined Steam and Hot-Water Heaters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a new and useful improvement in steam-heaters; and the invention consists in the peculiar arrangement and construction of an attachment to said heaters, by means of which an independent system of heating by hot-water may be combined with the steam-heating system.

It is the object of my invention, in providing the steam-heaters used for heating dwellings with a hot-water circulation, to furnish either additional heating facilities for heating conservatories by hot water, or to furnish hot water for use in bath-rooms, &c. All these objects I intend to accomplish by providing the steam-heater with an attachment which is independent from the steam-heater, but which is so combined with it that it may utilize a large part of the waste heat without interfering with the efficiency of the steam-heater, and its construction will adapt it to be used in connection with most or all of the different styles of upright boilers generally used for steam-heating purposes in dwelling-houses, and it may be connected, disconnected, or removed from a steam-heater without materially disturbing the same.

In the drawings which accompany this specification, Figure 1 is a vertical central section showing my hot-water-circulating attachment applied to a steam-heater of the usual vertical type of steam-boiler. Fig. 2 is a horizontal section on line *x x* in Fig. 1. Fig. 3 is a detached perspective view of the hot-water attachment. Fig. 4 is a central vertical section of a hot-water boiler corrugated upon the inside for its entire length.

A is a steam-heater of the general type in use for heating residences and other private dwellings, and wherein the boiler is a so-called "upright" one. The heater shown in the drawings consists of two sections connected by a series of vertical pipes, B, circularly arranged around the combustion-chamber C, and provided with open spaces between the pipes through which the gases of combustion escape to the outside. This kind of boiler I consider especially adapted for use in connection with my attachment, as it renders the latter especially efficient.

D is a ring-shaped hot-water boiler of a diameter a little larger than the diameter of the steam-heater, so that it may be readily slipped on or off the same. This hot-water heater I place around the lower section of the steam-heater, where it will get the most heat from proximity to the combustion-chamber, supporting it in any suitable way as the circumstances permit. To provide for the exit of smoke I either make this boiler short enough to allow the smoke to pass over the top, or I make it corrugated upon the inside either the whole height, as shown at K in Fig. 4, or only near the top, as shown in Fig. 3. To this hot-water boiler I connect in the usual manner a system of hot-water-circulating pipes, E, provided with safety-valve and fill-opening, and when used for furnishing hot water to bath-rooms, &c., I connect it also with the service-pipe.

I am aware of the Patents Nos. 308,855, 311,021, and 311,533, and make no claim to the constructions shown therein as forming part of my invention.

I deem it important that the hot-water boiler D be arranged entirely independent of the steam-heater, and that the pipe-connections with said boiler be outside of and independent of the heater, for by this arrangement the boiler may be connected, disconnected, or removed without materially disturbing the heaters.

What I claim as my invention is—

1. In a device for the purposes described, an upright cylindrical steam-heater, combined with an annular hot-water boiler surrounding said heater, in proximity to the combustion-chamber, but entirely independent of said heater, and provided with a series of hot-water-circulating pipes arranged outside of and independent of the steam-heater, whereby the said hot-water boiler may be removed without disturbing the steam-heater, as set forth.

2. In a device for the purposes specified, the combination, with a steam-heater, A, of the annular hot-water boiler D, entirely independent of said heater but encompassing the lower section of the same in proximity to the combustion-chamber, and provided on its inner surface with corrugations for the exit of the smoke, substantially as herein shown and described.

WILLIAM J. BOWERMAN.

Witnesses:
H. S. SPRAGUE,
CHARLES J. HUNT.