(No Model.)

J. ENGELHART.

HOT WATER GENERATOR.

No. 536,197. Patented Mar. 26, 1895.

Fig. 1.

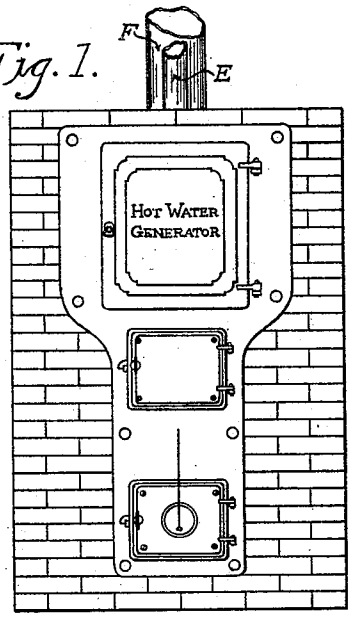
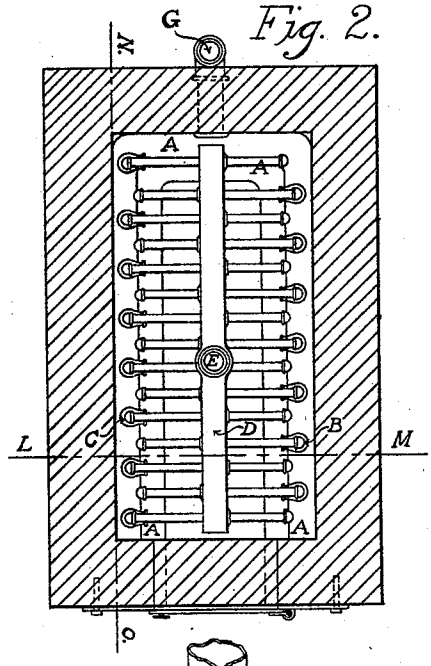


Fig. 2.



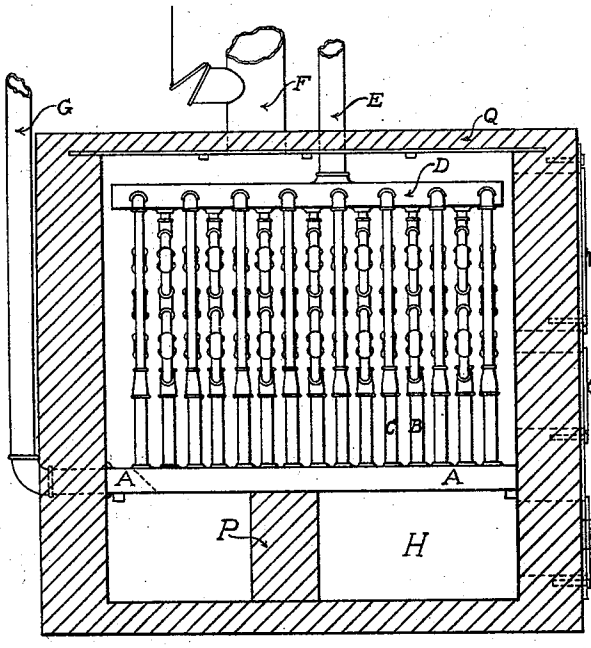


Fig. 3.

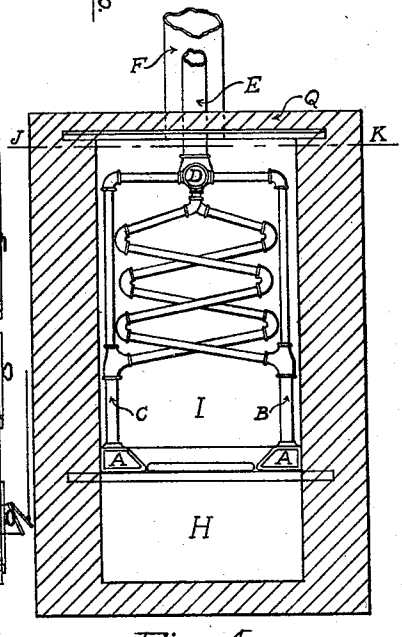


Fig. 4.

Witnesses

Ernest C. Housel.

John T. Donahue

John Engelhart Inventor

UNITED STATES PATENT OFFICE.

JOHN ENGELHART, OF AKRON, OHIO.

HOT-WATER GENERATOR.

SPECIFICATION forming part of Letters Patent No. 536,197, dated March 26, 1895.

Application filed March 13, 1894. Serial No. 503,445. (No model.)

To all whom it may concern:

Be it known that I, JOHN ENGELHART, a citizen of the United States, residing at Akron, in the county of Summit, State of Ohio, have invented a new and useful Hot-Water Generator for Heating Purposes, of which the following is a specification.

My invention has relation to hot water generators for heating purposes, and among the objects in view is to provide a simple, inexpensive and efficient generator adapted to quickly and with economy heat water, and to provide for a continuous flow of hot water through the pipes, thereby producing almost instant heat as soon as a fire is applied.

A further object is to dispense with the use of packing, and a still further object is to provide for an immense amount of heating surface arranged in a very compact and small space.

The invention consists in the novel construction, arrangement, and combination of parts, as hereinafter fully described, illustrated in the drawings, and pointed out in the claim.

In the drawings:—Figure 1 is a front view of my heater; Fig. 2, a horizontal sectional view on line J—K of Fig. 4; Fig. 3, a vertical sectional view on line N—O of Fig. 2; Fig. 4, a vertical sectional view on line L—M of Fig. 2.

A indicates the base of the heater formed by horizontally-arranged flues or tubes with which latter communicates the return pipe G.

B and C indicate vertically-arranged tubes which communicate at their lower ends with the base A, and at their upper ends with the horizontally-arranged dome D while C′ B′ indicate tubes constructed in a zig-zag shape, which communicate at one end with the vertical tubes and at the opposite end with the dome D.

E indicates the flow pipe which runs from the dome D.

F indicates the smoke pipe from the top of the generator.

H is the ash pit and I the fire box.

P indicates a cross-wall upon which the grate R rests.

The heater is provided with a covering Q of brick and concrete resting upon iron bars and sheet iron embedded in the walls.

The tubing, &c., are surrounded by an eight inch brick wall, the front of the apparatus being of iron and brick.

It will be seen from the described construction and arrangement of parts that I provide an immense amount of surface to be heated and that in a very compact space, and it will also be found in practice that the tubing will not burn out or clog up from sediment as long as care is taken in keeping the same filled with water (necessary wear of course excepted). It will also be found that by reason of the heat coming in direct contact with the tubing, no soot will adhere to the same, thus obviating all cleaning.

The many advantages of my improved heater will be readily seen and appreciated by those conversant with this class of apparatus.

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

In a hot water generator, the combination with an inclosing casing, of a base A consisting of a number of horizontally arranged flues or tubes the vertically arranged tubes B, C communicating at their lower ends with the tubes of the base, a horizontally arranged dome D, with which the upper ends of the tubes B, C communicate, vertically arranged tubes B′ C′ having a zig-zag shape, one end of said tubes B′ C′ communicating with the tubes B C at points intermediate the height of the latter, and the opposite end communicating with the dome D, a flow pipe E running from the dome, and a return pipe G communicating with the tubes of the base, all as specified.

JOHN ENGELHART.

Witnesses:
E. C. HOUSEL,
JOHN T. DONAHUE.