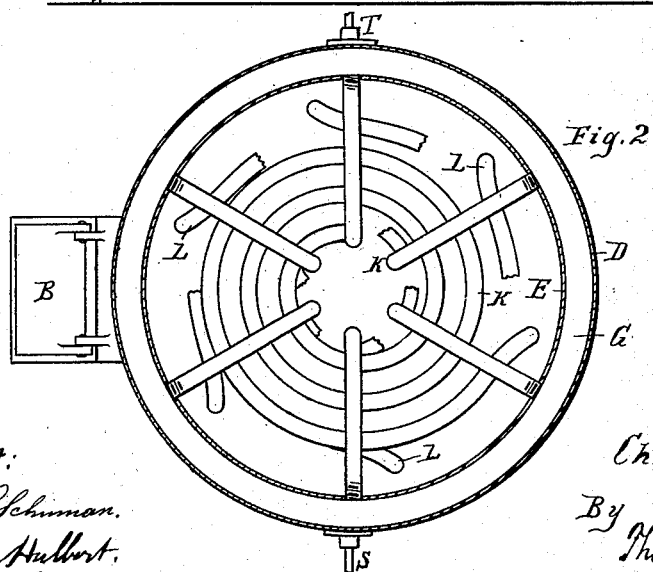
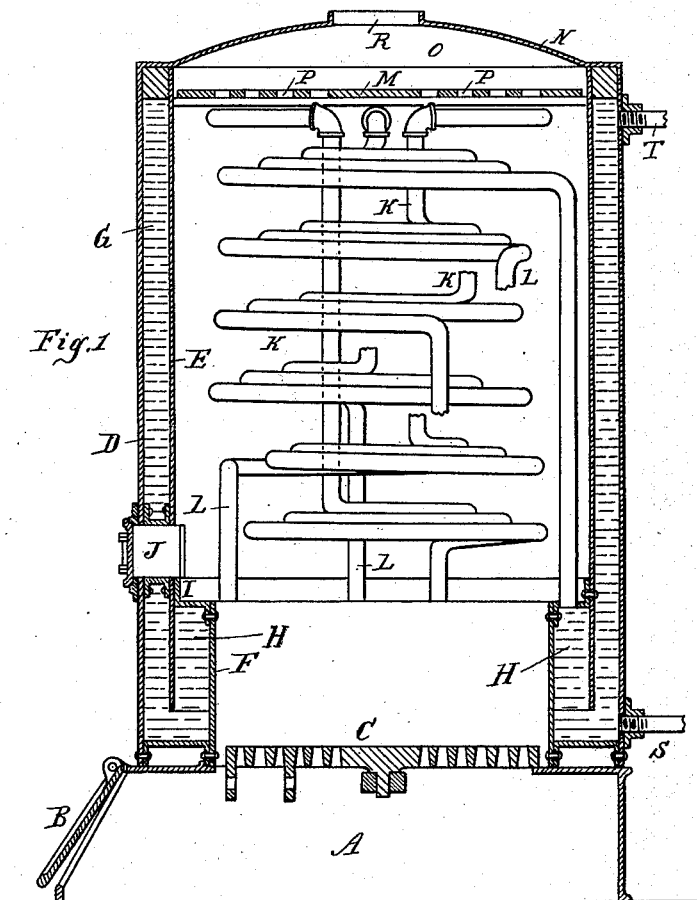


(No Model.)

C. G. JEWETT.
WATER HEATER.

No. 384,695.

Patented June 19, 1888.



Attest:
John Schuman.
R. M. Hulbert.

Inventor:
Charles G. Jewett.
By *Thos. L. Sprague & Son*
Att'y.

UNITED STATES PATENT OFFICE.

CHARLES G. JEWETT, OF HOWELL, MICHIGAN.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 384,695, dated June 19, 1888.

Application filed February 2, 1888. Serial No. 262,729. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. JEWETT, a citizen of the United States, residing at Howell, in the county of Livingston and State of Michigan, have invented certain new and useful Improvements in Water Heaters and Circulators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in water heaters and circulators; and the invention consists in the peculiar construction and arrangement of the parts, as more fully hereinafter described.

In the drawings which accompany this specification, Figure 1 is a vertical central section of my improved heater, and Fig. 2 is a top plan thereof.

A is the base or ash-pit section of the heater, provided with the usual draft-door, B, and supporting the heater and the grate C, which latter may be of any suitable construction.

The heater consists of three concentric shells, D E F, which form between them two annular water-chambers, G and H. The outer water-chamber extends the whole height of the heater. The inner annular water-chamber communicates with the outer annular chamber at or near the bottom of the heater, and extends only about the height of the furnace-chamber proper, of which the inner shell forms the walls.

I is a ledge formed by the junction of the inner shells, E and F, and above this ledge is placed the usual feed-door, J.

K are circulating-coils arranged in vertical series in the space above the furnace. Each coil forms a helix, preferably slightly conical, with the ends of each helix terminating in vertical risers L K, the outer one extending downward and connecting into the top of the inner annular water-chamber, and the inner one extending upward from the eye of the helix to or near the top of the heater, and then extending laterally and connecting into the outer annular water-chamber, at or near the top thereof. The helices may be all alike; but they are preferably placed to distribute the risers equally around the circumference and the center, as this arrangement makes the circulation in the heater equal and gives the best exposure of

every part of the circulating-coils to the heat from the furnace.

The top of the heater is provided with two heads, M N, forming between them the smoke-chamber O, into which the products of combustion pass through a series of holes or perforations, P, in the lower top plate, and from which they escape into the chimney through an aperture in the top plate, N, which latter is preferably made crowning.

The incoming and outgoing connections S T for the radiating system are arranged in the usual manner—that is, with the highest and lowest part of the heater, respectively.

The advantage of my heater consists, mainly, in the peculiar arrangement and construction of its heating-surface, which presents a large extent to the direct action of the heat of the furnace, as the flame and hot gases of combustion can freely circulate around and through the coils and also maintains a very efficient circulation, as it is apparent that the inner annular water-chamber temporarily traps a quantity of water and exposes it at the point of lowest temperature to the most direct heat from the burning fuel, and then sends it through a series of channels, in which its temperature is quickly raised to the highest point—to the top of the heater—where it enters the radiating-circuit.

The communication between the annular water-chambers G H is preferably established by not extending the shell E quite to the bottom of the heater, so as to establish communication between the two chambers all around, which facilitates the circulation.

What I claim as my invention is—

1. In a water heater and circulator, the combination of three concentric shells arranged to form two annular water-chambers communicating with each other at the bottom, the outer chamber extending the height of the heater and the inner chamber the height of the furnace, and heating-coils connecting the top of the inner chamber with the top of the outer one, substantially as described.

2. In a water heater and circulator, the combination of three concentric shells arranged to form an outer and an inner annular water-chamber opening into each other at the bottom, the outer chamber extending to the top of the

heater and the inner one to the top of the furnace-chamber, and helical heating - coils in vertical series and arranged to connect the tops of the two water-chambers, substantially
5 as described.

3. In a water heater and circulator, the combination of three concentric shells arranged to form an outer and an inner annular water-chamber opening into each other at the bottom, the outer chamber extending the height
10 of the heater and the inner one the height of the furnace, a ledge formed on top of the inner chamber, and heating-coils arranged in vertical series, said coils consisting of conical
15 helices terminating in downwardly-extending risers at the outer ends, which connect with the top of the inner chamber, and in upwardly-extending risers at their inner ends which extend upwardly and then laterally to connect

with the top of the outer chamber, substantially as described. 20

4. In a water heater and circulator, the combination, with the annular water chamber or chambers, of a series of substantially horizontal circulating heating-coils arranged in a vertical series, each coil having its inner end extended upwardly and connected to the top of
25 the water-chamber and its outer end extending downwardly and connected to the bottom of the water-chamber, substantially as described. 30

In testimony whereof I affix my signature, in presence of two witnesses, this 10th of January, 1888.

CHARLES G. JEWETT.

Witnesses:

JAS. WHITEMORE,

P. M. HULBERT.