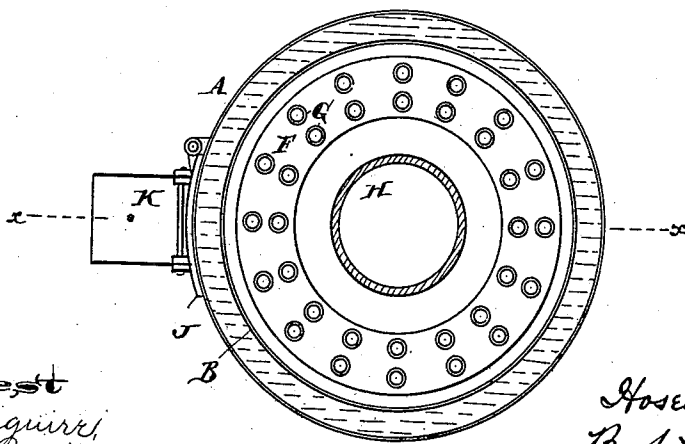
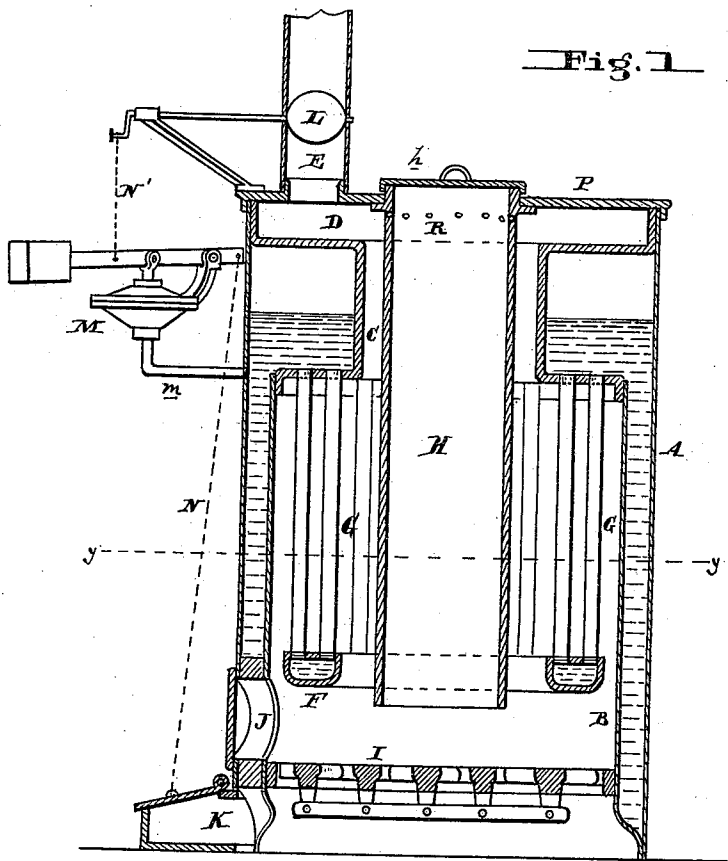


(No Model.)

H. K. KRIEBEL.
HOT WATER HEATER.

No. 337,068.

Patented Mar. 2, 1886.



Attest
J. Maguire,
C. H. Breckinridge

Fig. 2

Inventor
Hosea K. Kriebel
By *Wm. A. G.*

Wm. A. G.

UNITED STATES PATENT OFFICE.

HOSEA K. KRIEBEL, OF WEST POINT, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FREDERICK LIGHT, JR., OF SAME PLACE.

HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 337,068, dated March 2, 1886.

Application filed October 6, 1885. Serial No. 179,129. (No model.)

To all whom it may concern:

Be it known that I, HOSEA K. KRIEBEL, of West Point, Montgomery county, State of Pennsylvania, have invented an Improvement in Hot-Water Heaters, of which the following is a specification.

My invention has reference to hot-water heaters or boilers, especially adapted for domestic purposes; and it consists in certain specific constructions of the boiler and its appendages, all of which are fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

The object of my invention is to provide a suitable construction of heater for heating and causing a circulation of hot water for heating houses, whereby it shall require the least attention with the greatest heating capacity.

In the drawings, Figure 1 is a sectional elevation on line *x x* of a hot-water-heating boiler embodying my improvements, and Fig. 2 is a sectional plan view of same on line *y y*.

A is the outer shell of the boiler, and B is the inner shell, forming the fire-box, and having its crown-sheet (which is below the water-level) connected by a tube, C, with the smoke-box D, which is covered by a cast-iron cap or plate, P, from which the chimney E emerges.

The bottom of the smoke-box flue C and crown-sheet of the fire-box is preferably made of cast-steel, as indicated; but it may be made of wrought-iron plate, if desired.

F is an annular hollow ring-shape casting, and is connected to the crown-sheet of the fire-box B by a series of tubes, G, screwed into the casting F at the bottom, and flanged into the crown-sheet at the top, and this ring is located a short distance above the grate-bars I. These grate-bars may be rigid, or of the self-raking pattern.

J is the fire-door, and K is the draft-door, of the ash-pit.

H is a magazine-tube depending from the cap-plate P, being closed at the top by a removable cover, *h*, and having the bottom extending near the grate I and just below the ring F. This tube H passes down through the flue C, leaving the annular passage-way around the same, and is surrounded at its lower part by the tubes G and ring F. The

upper portion of this magazine-tube H may be provided with holes or apertures R, connecting with the smoke-box, so that any gases distilled from the coal descending through the magazine-tube may pass off and be consumed in the smoke-box.

M is a regulator of the ordinary construction, having the usual diaphragm of flexible material, which is acted on in this instance by the water instead of steam, as is usually the case, the regulator being connected to the boiler by the pipe *m*, below the water-level. The lever of the regulator is connected to the butterfly-valve L in the chimney E, and by a chain, N, it is connected with a draft-regulator valve, K. As the pressure increases, the diaphragm is moved, the lever is rocked, and the butterfly-valve L is closed, reducing the draft and lowering the temperature, the object being to maintain the temperature and pressure substantially the same at all times, this being necessary in a practical household heater.

While I prefer the construction shown, I do not limit myself to the details thereof, as they may be modified in various ways without departing from my invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A hot-water boiler consisting of the outer shell, A, and inner fire-box, B, forming an annular water-space about the fire-box, in combination with annular hollow heating-ring F and water-tubes G, connecting said ring with the crown-sheet of the fire-box, said ring F being suspended in the fire-box, so that the flame and heat in rising surround it and pass freely about it on all sides, substantially as and for the purpose specified.

2. A hot-water boiler consisting of the outer shell, A, and inner fire-box, B, forming an annular water-space about the fire-box, in combination with annular hollow heating-ring F and water-tubes G, connecting said ring with the crown-sheet of the fire-box, said ring F being suspended in the fire-box, so that the flame and heat in rising surround it and pass freely about it on all sides, tubes C through the upper part of the boiler and connecting the fire-box with the smoke-box, magazine-

tube H, extending down between the tubes G and through the tube C and ring F, close to the grate, and the grate I, substantially as and for the purpose specified.

5 3. A hot-water boiler consisting of the outer shell, A, and inner fire-box, B, in combination with annular hollow heating ring F and water-tubes G, connecting said ring with the crown-sheet of the fire-box, magazine-tube H,
10 extending down between the tubes G and through the tube C and ring F, close to the grate, the grate I, smoke-box D, and flue C, connecting the fire-box and smoke-box, substantially as and for the purpose specified.

15 4. The outer shell, A, inner fire-box, B, the

smoke-box D, cap P, and flue C, connecting the smoke-box and fire-box, in combination with the grate I and magazine-flue H, suspended from the plate P and extending down through the flue C, annular suspended heating-ring F, 20 exposed to heat on all sides, and tubes G, connecting said ring with the crown-sheet of the fire-box, substantially as and for the purpose specified.

In testimony of which invention I hereunto 25 set my hand.

HOSEA K. KRIEBEL.

Witnesses:

R. M. HUNTER,

ANDREW ZANE, Jr.