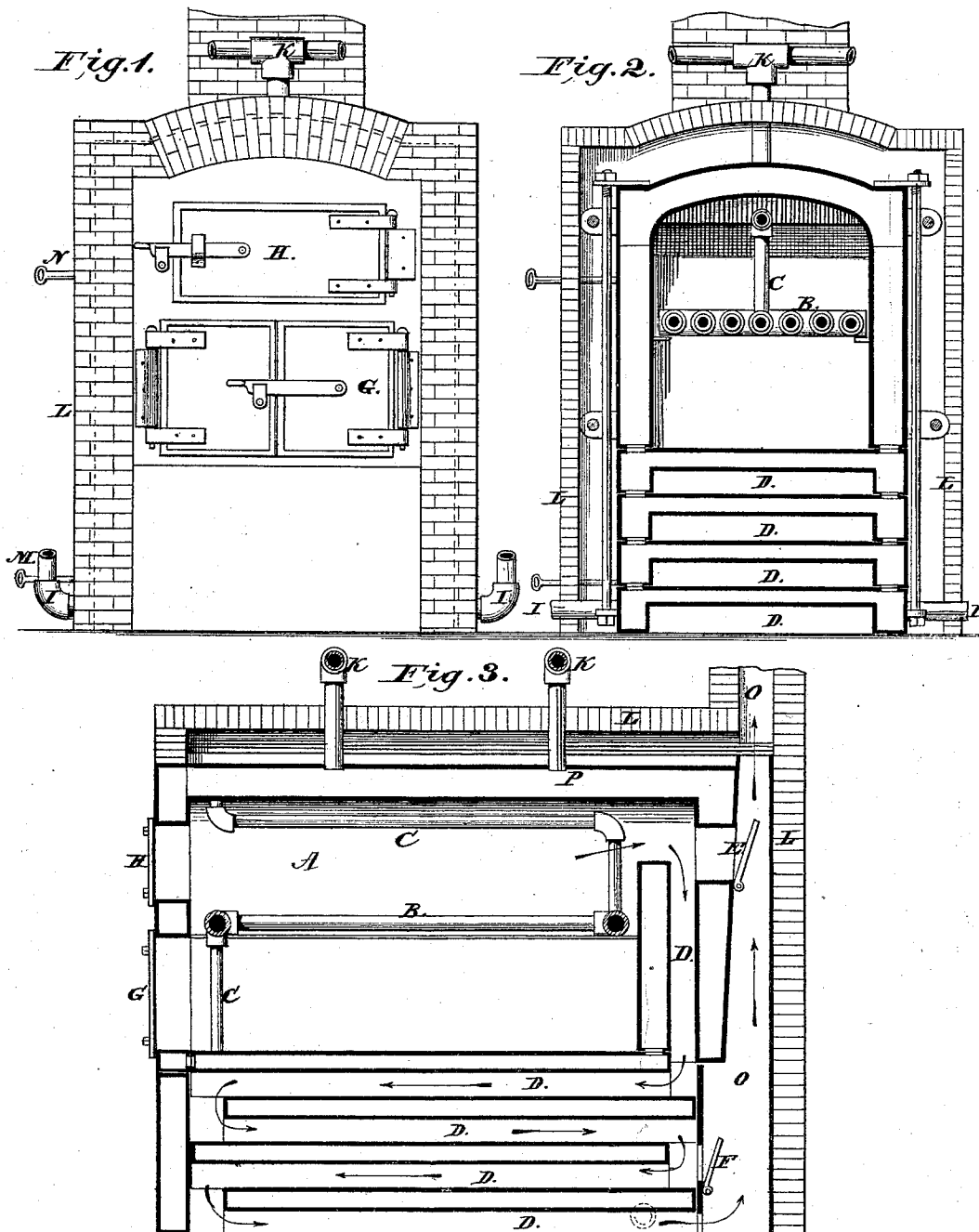


J. H. WALKER.
Water-Heating Furnaces.

No. 150,991.

Patented May 19, 1874.



Witnesses.
J. J. Smith
Chas. Stoll.

Inventor:
Jas. H. Walker.

UNITED STATES PATENT OFFICE.

JAMES H. WALKER, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN WATER-HEATING FURNACES.

Specification forming part of Letters Patent No. 150,991, dated May 19, 1874; application filed February 21, 1874.

To all whom it may concern:

Be it known that I, JAMES H. WALKER, of Milwaukee, in the county of Milwaukee, in the State of Wisconsin, have invented certain Improvements in Water-Heating Furnaces, of which the following is a specification:

My invention has for its object the heating of buildings by hot water, and is accomplished by a water-heater, with the fire arranged at the top of the heater, with a bottom grate and flues leading to the bottom of the furnace.

Figure 1 is a view of the front end of the heater; Fig. 2, a sectional view across the back end of same, and Fig. 3 a side sectional view.

A is the fire-box; B, hollow grates; C, communicating pipes from the grate to the water-chamber; D, the flues; E, upper damper, which, when open, admits of a direct draft from the fire-box to the escape draft-flue; F, lower damper; G, door to ash-pit; H, door to fire-box; I I, pipes by which the water is returned to the heater after being cooled in heating the house; K K, pipes from the top of the heater, from which the water is taken to the heating-pipes, for heating and circulating; L, jacket to the heater, made of metal, brick, or any other suitable material; M, handle for the lower damper; N, handle for the upper damper; O, exhaust-flue; P, water-space.

This heater or furnace is arranged with the fire-box at its top, which makes the water hottest when it leaves the heater and enters the heating-pipes. The bottom grate-bars take the water from the lower part of the water-space, and convey it through them to the top of the water-space, thus heating it as it passes through.

When the fire is first kindled in the fire-box the upper damper, E, is opened, to give a free draft, and after the fire gets to burning well the draft E is closed, and the smoke and gases will pass down through the flues, as indicated by the arrows, and the damper F is left open or not, as the draft may be wanted heavier or lighter. When the damper F is closed the smoke and gases pass clear to the bottom of the heater, and into and out through the exhaust-flue O.

I claim as my invention—

The combination of fire-box A, bottom grate B, pipe C, flue D, and water-space P, arranged in a water-heating furnace, the water filling the furnace above and around the fire-box, substantially as described.

JAS. H. WALKER.

Witnesses:

J. B. SMITH,
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