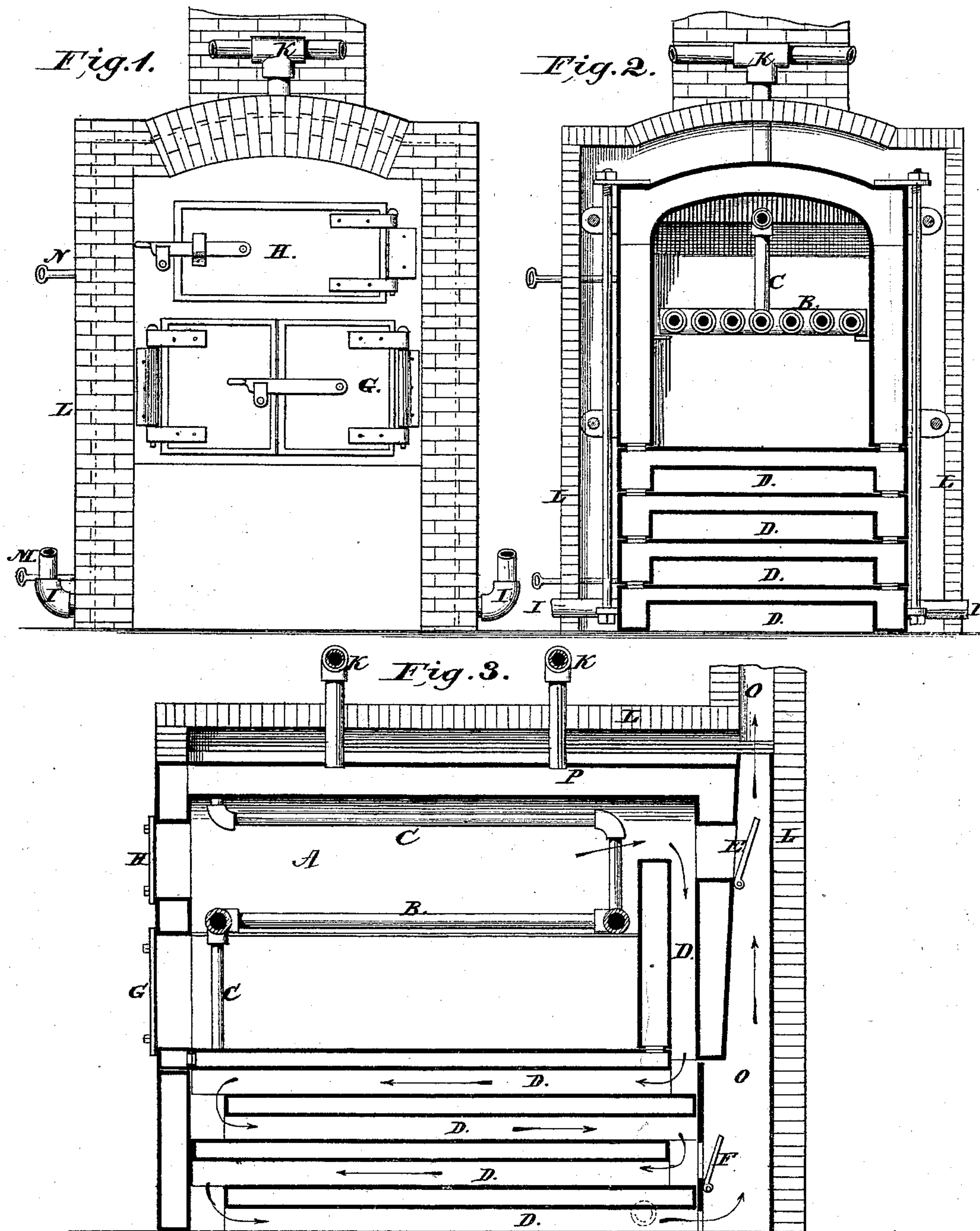


J. H. WALKER.
Water-Heating Furnaces.

No. 150,991.

Patented May 19, 1874.



Witnesses.
J. J. Smith
Ch. O. 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 L, 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,

OLE O. STORLE.