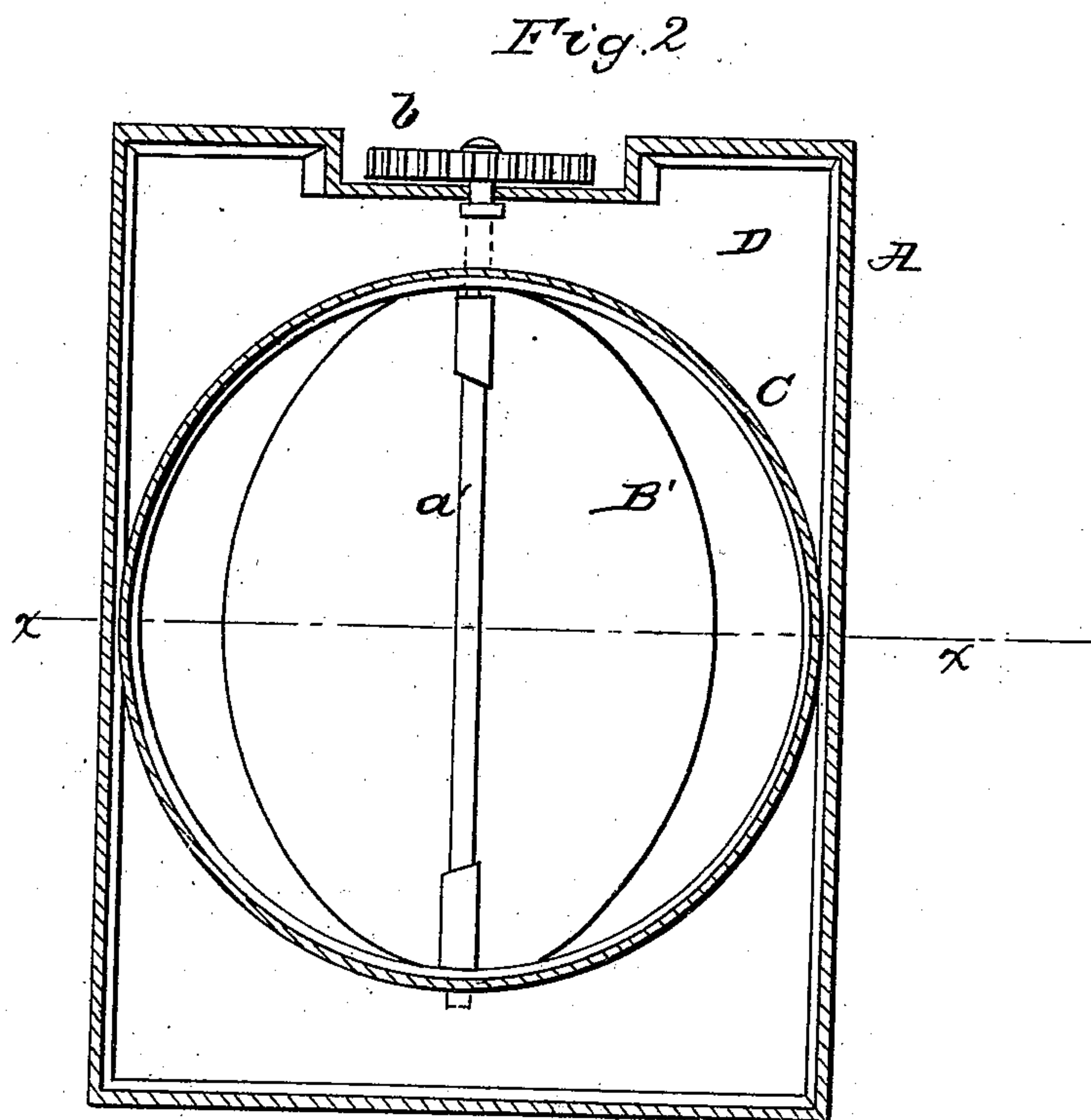
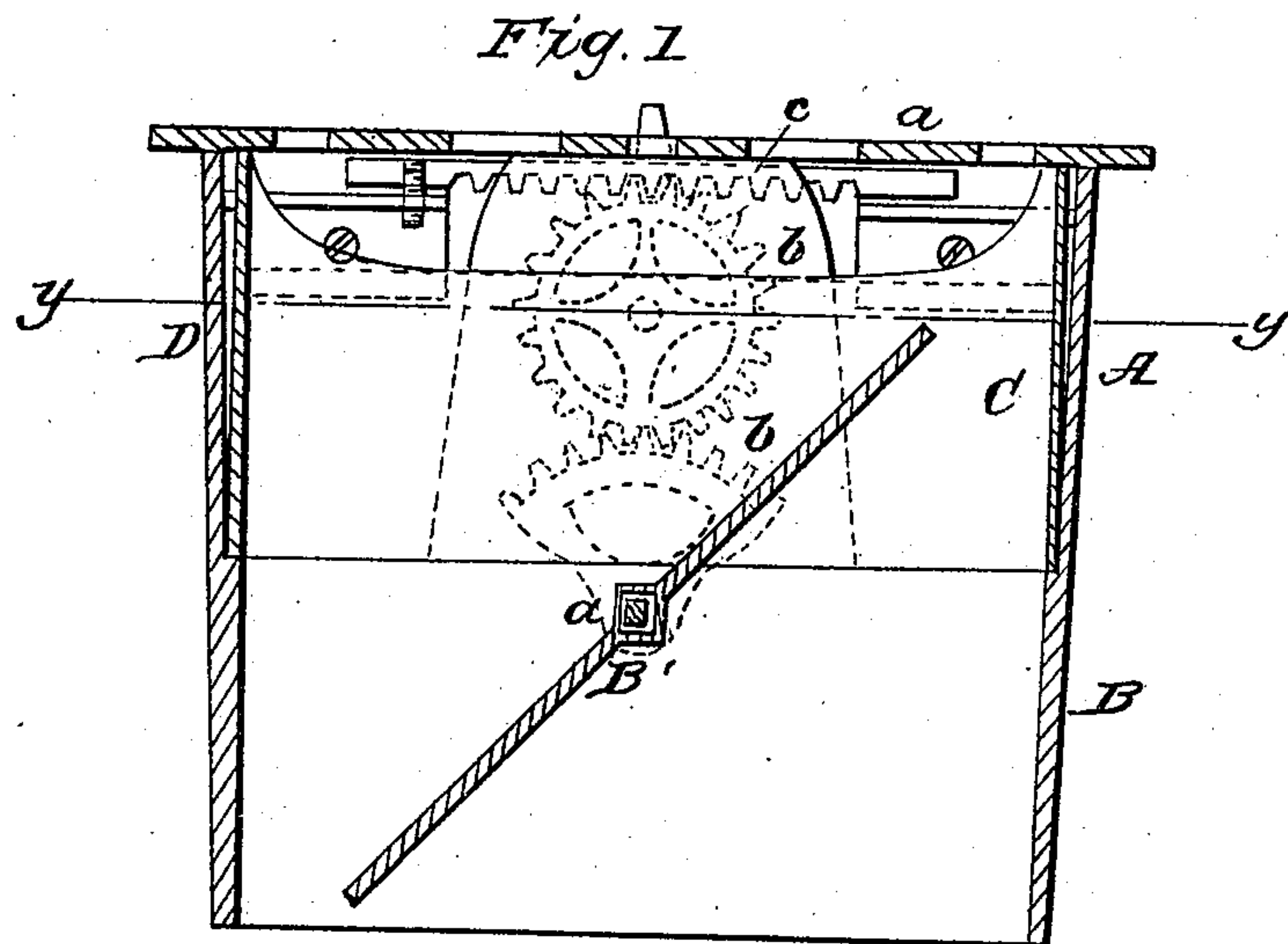


C. B. SAWYER.
Hot Air Register.

No. 34,783.

Patented March 25, 1862.



Witnesses
James David
McGawley

Inventor
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UNITED STATES PATENT OFFICE.

CHARLES B. SAWYER, OF FITCHBURG, MASSACHUSETTS.

IMPROVEMENT IN HOT-AIR REGISTERS.

Specification forming part of Letters Patent No. 34,783, dated March 25, 1862.

To all whom it may concern:

Be it known that I, CHARLES B. SAWYER, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented a certain new and useful Improvement in Registers, &c., for the Hot-Air Pipes of Heaters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line $x x$, Fig. 2; Fig. 2, a horizontal section of the same, taken in the line $y y$, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in combining a water-chamber with a hot-air register, substantially as hereinafter fully shown and described.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the register box or pan, which is of quadrilateral form and has its top plate a perforated or formed of open scroll-work to admit of the heated air passing through it. The box A may be of cast metal, and it has a cylindrical flange B cast with it, which projects down from its bottom a suitable distance. This flange is of such diameter that it may receive the hot-air pipe, which is of cylindrical form and is designed to fit snugly on the flange B.

The box A is to be fitted in the floor of the apartment with its upper surface "flush" with the floor, as usual, and within the flange B there is placed a circular damper or valve B', which is hung on pivots or a central shaft a' , and may be opened and closed by gears b and a sliding rack c , all of which are shown by dotted lines in Fig. 1. Other means, however, may be employed for operating the damper.

Within the register box or pan A there is placed an upright cylindrical flange C, which may be equal in diameter to the flange B and in line with it. This flange C does not extend up quite as high as the top of the box A, and it serves as a partition in said box to form a water-chamber D. The flange C may be cast

with the box A and flange B, or be made separately and then attached. The flange B may also be cast or made separately and then attached to the box A; but the most desirable mode of manufacture would be to cast the box A and the two cylindrical flanges B C in one piece.

The chamber D is supplied with a requisite quantity of water, and as the heated air passes into the box A it will take up moisture from the chamber D as much as it requires and no more, it being well ascertained that air, whether hot or cold, will when lacking a requisite quantity of moisture supply itself with a sufficiency only if allowed to be brought in contact with it.

Water-chambers have been used in connection with air-heating furnaces, but so far as I am aware they have invariably been placed within the heater or furnace and in such position as to reach at times the boiling-point. When this occurs, the heated air becomes loaded with steam, the latter being carried along into the apartment and rendering the latter damp and consequently unwholesome; but by having the water-chamber D placed in the register-box A said chamber is entirely too remote from the heater or furnace to admit of the water reaching the boiling-point, and hence the difficulty alluded to is obviated. By having the cylindrical flange B directly connected to the register-box A and the circular damper or valve B' fitted therein, I avoid the comparatively expensive valves hitherto employed in the register box or pan A.

I would remark that the water-chamber D serves effectually as a preventative against fire. The wood-work in which the register is set cannot be ignited from the hot-air pipe, a contingency which not unfrequently occurs with the ordinary registers.

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

Combining a water-chamber with a hot-air register in such a manner that the hot-air pipe shall pass through the water-chamber, substantially as set forth.

CHARLES B. SAWYER.

Witnesses:

JAMES LAIRD,
R. GAWLEY.