

W. TWITCHELL.
Heating-Furnaces.

No. 156,447.

Patented Nov. 3, 1874.

FIG. 7.

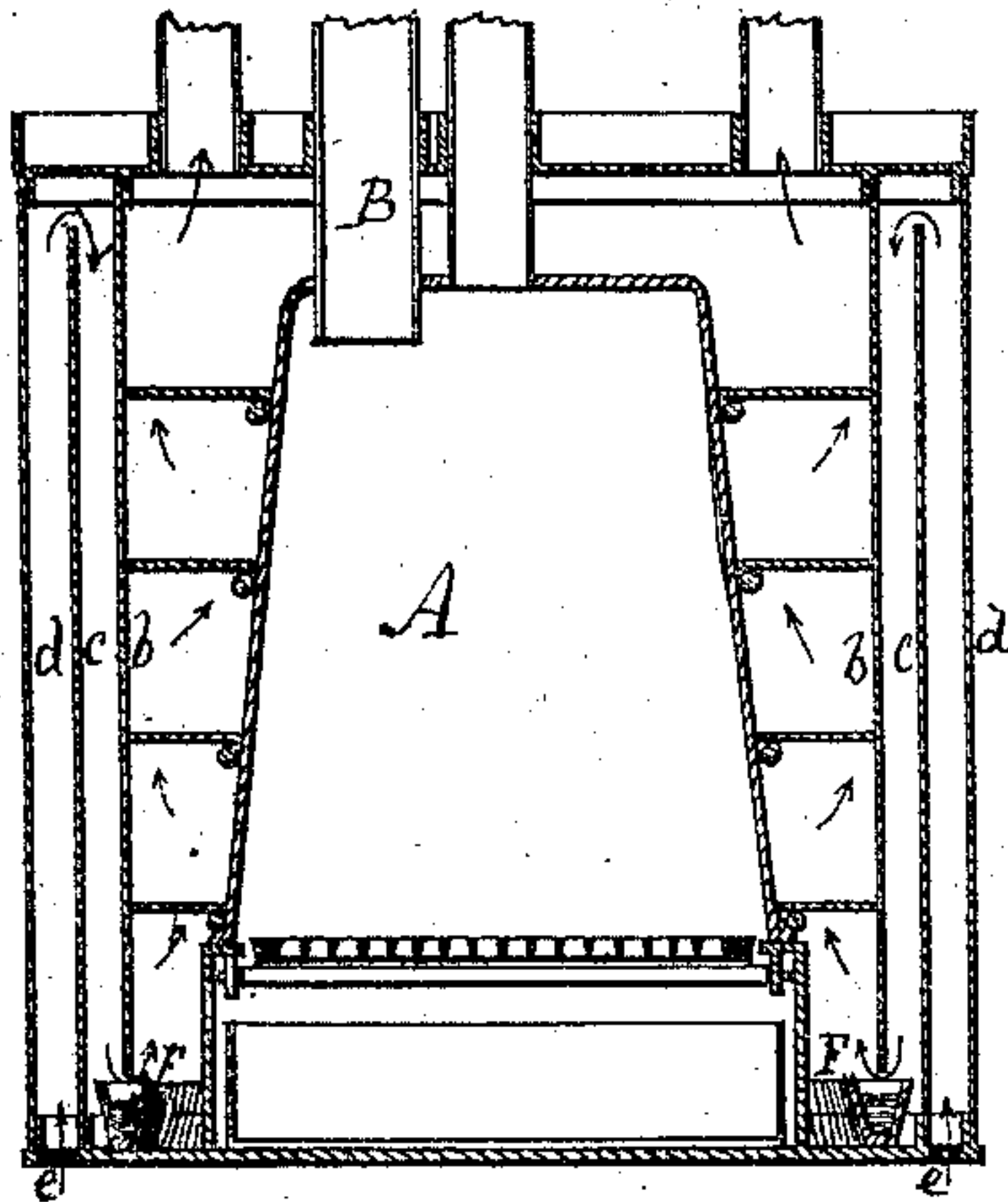


FIG. 2.

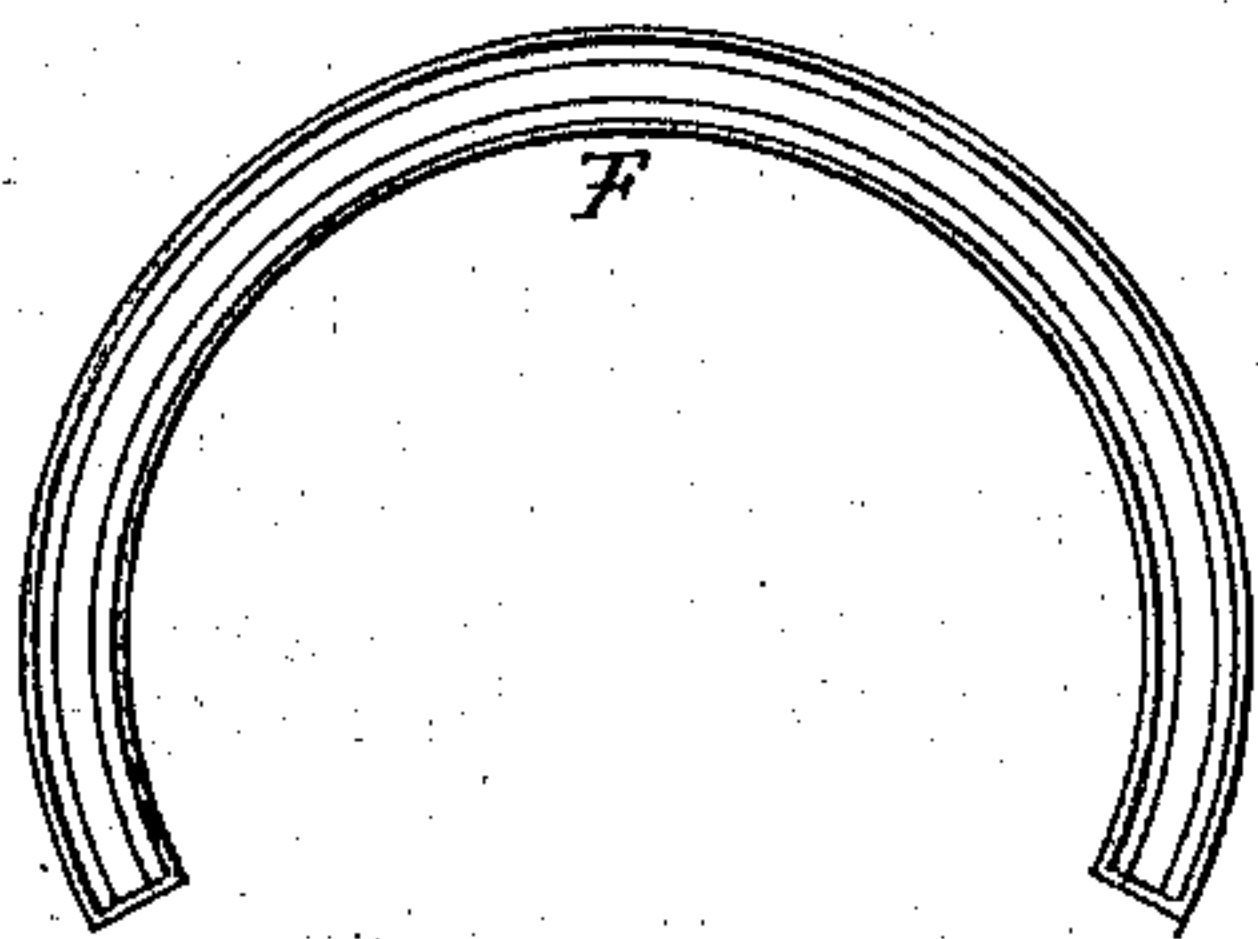
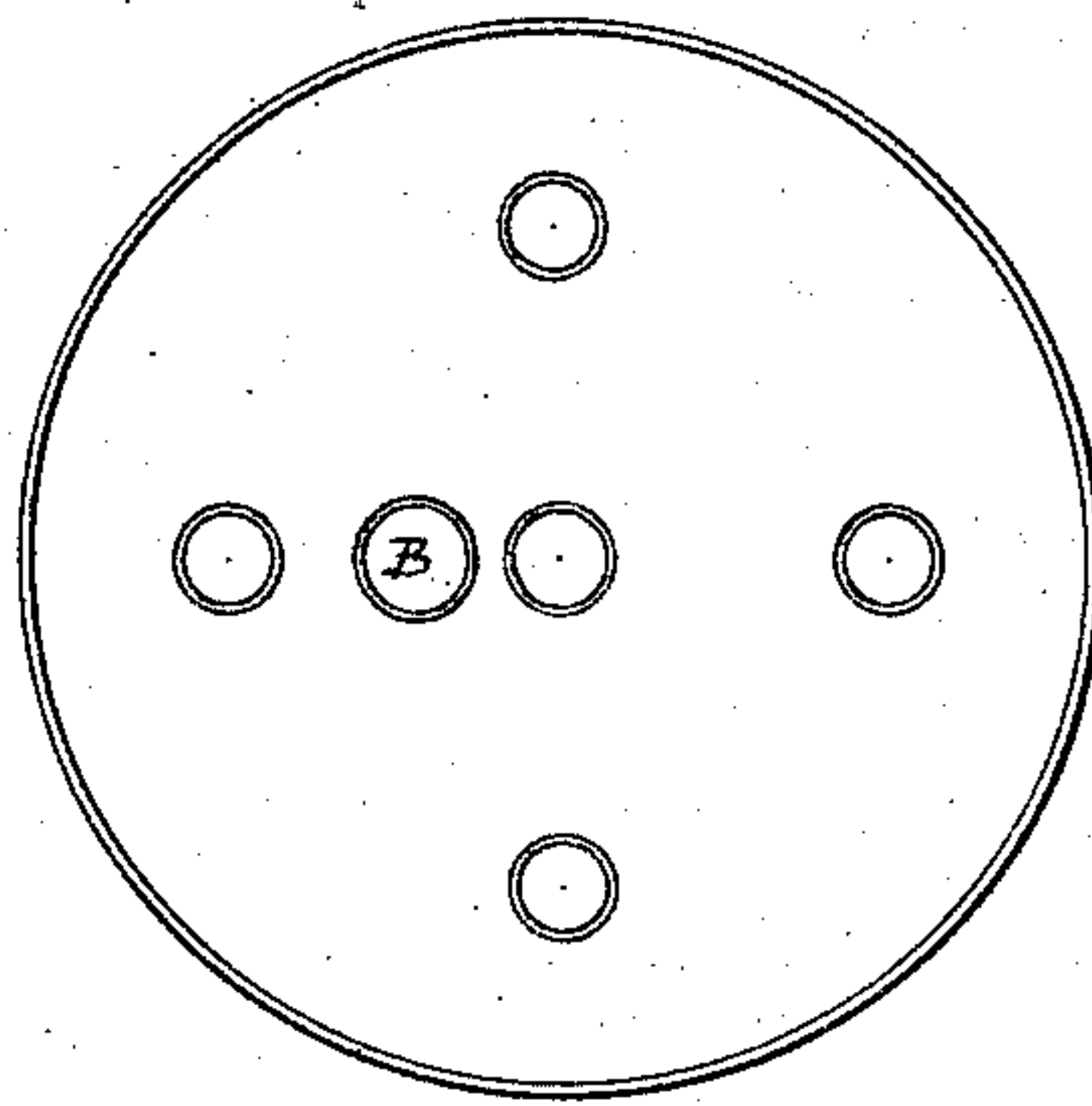


FIG. 3.



WITNESSES.

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A. wing

INVENTOR

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UNITED STATES PATENT OFFICE.

WILLARD TWITCHELL, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN HEATING-FURNACES.

Specification forming part of Letters Patent No. **156,447**, dated November 3, 1874; application filed June 6, 1874.

To all whom it may concern:

Be it known that I, WILLARD TWITCHELL, of Syracuse, in the State of New York, have invented certain Improvements in Furnaces for Heating Buildings, of which the following is a specification:

The object of my invention is to charge the air introduced into the air-heating chamber of the furnace with moisture prior to its entrance into the chamber surrounding the combustion-chamber, by which I increase the capacity of the air to take up and bear off from the furnace the whole body of heat generated with rapidity and without injury to the air, as is the case when it comes in contact with the heated metal surface in a dry state.

The furnace and its concentric chambers I prefer to make as set forth in the reissue of my patent dated the 24th September, 1872, a vertical section of which is shown at Figure 1 in the accompanying drawing. Fig. 2 is a plan of the water-pan. Fig. 3 is a plan of the cast-iron cap.

The furnace consists, as shown in the drawing, of a combustion-chamber or fire-pot, A, surrounded by air-chambers *b c d*, the air entering the outer chamber at *e*, its course being indicated by the arrows, rising to the top in the outer chamber, and thence descending through the second and again ascending in the third, which surrounds the fire-pit, where it is thoroughly heated, and is discharged from the top through the hot-air pipes. So far the

invention is covered by my patent above named; but I have found that I did not get the best effects, namely, rapidly absorbing and bearing off the heat from the fire-chamber A, while the air impinged against the highly-heated metal of the fire-pit in a dry state. To effect this desirable object I place in the bottom of the air-chamber, just at the point where the descending column of air enters the inner chamber, and where it is somewhat warmed, an annular basin or water-pan, F, which extends around the whole circle, except the space occupied by the ash-pit door. This is clearly seen at Fig. 2, and the descending column of air, impinging upon the water in the pan, becomes saturated, and its capacity to take up and bear off the heat is thereby greatly increased, while the moisture protects the air from injury as it impinges against the iron of the fire-chamber in a highly-heated state.

Having thus fully described my improvements, I claim—

The combination of the annular water-pan F with the descending air-flue at its opening into the hot-air chamber, causing the air to impinge upon the water and pass through its vapor before striking the hot metal of the fire-chamber, as and for the purposes set forth.

W. TWITCHELL.

Witnesses:

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PETER B. MCLENNAN.