

W. J. TOWNE.
HOT AIR FURNACE, STOVE, &c.

No. 251,320.

Patented Dec. 20, 1881.

FIG. II.

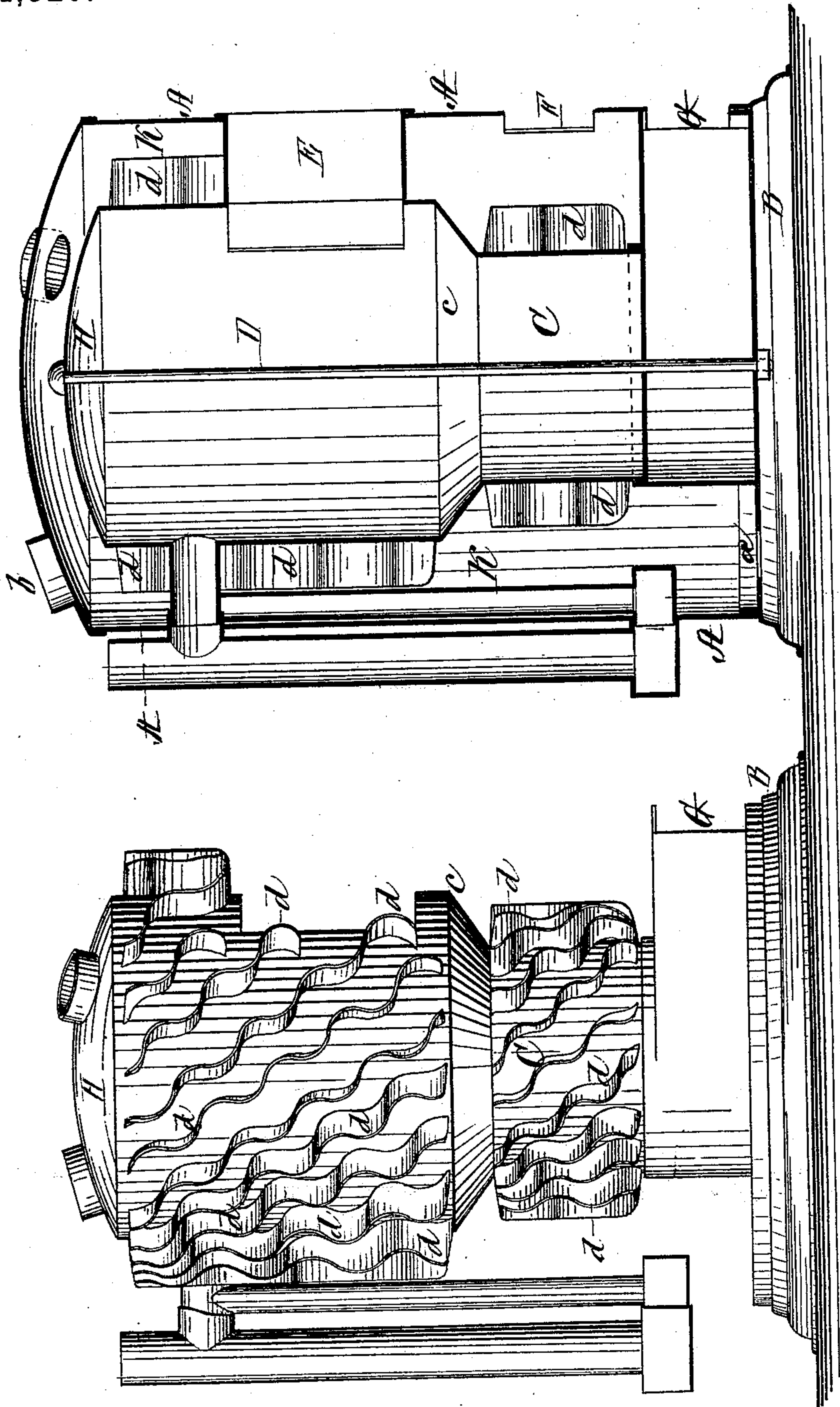
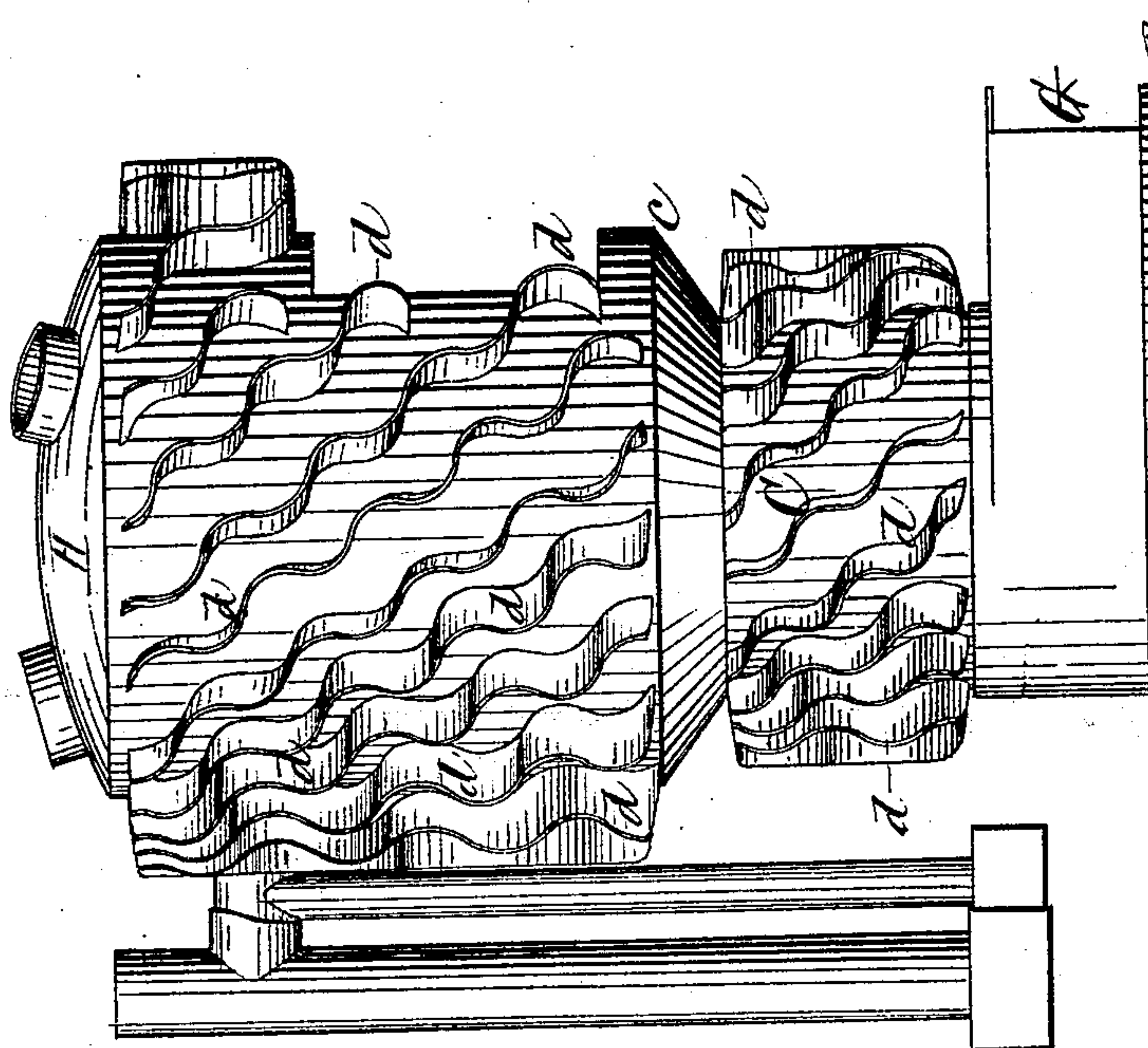


FIG. I.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM J. TOWNE, OF NEWTON, MASSACHUSETTS.

HOT-AIR FURNACE, STOVE, &c.

SPECIFICATION forming part of Letters Patent No. 251,320, dated December 20, 1881.

Application filed January 5, 1880.

To all whom it may concern:

Be it known that I, WILLIAM J. TOWNE, of Newton, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Hot-Air Furnaces, Stoves, Radiators, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

10 Figure 1 is a front elevation of a hot-air furnace constructed in accordance with my invention, the outer casing being removed. Fig. 2 is a vertical section through the center of the same.

15 My present invention consists in a series of wave-like, corrugated, or zigzag flanges arranged upon or around and projecting out from the exterior surface of the fire-pot or radiator above it, or upon the outside of both, the said
20 corrugated flanges serving the twofold office of increasing the amount of radiating-surface to the greatest possible degree in a given amount of space, and also preventing the cracking of the fire-pot, radiator, or dome, incident to the
25 use of those without flanges, or those having plain vertical flanges on their exterior surface.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it
30 out.

In the said drawings, A represents the outer casing of a hot-air furnace, the base or bottom B of which is provided with apertures *a* for the admission of cold air, and its top with outlets *b* for the passage of the heated air into the distributing-pipes above, (not shown,) to be connected with them.

35 C is the fire-pot, the upper periphery of which terminates in a flange, *c*, slightly inclined upward and outward.

D is the combustion-chamber directly over the fire pot; E, the opening by which the fuel is introduced; F, the opening communicating with the bottom of the grate, and G the opening to the ash-pit, which, together with the smoke-pipe and direct draft leading to the chimney-flue, are of well-known construction.

45 The outside of the fire-pot, from its bottom up to the point *c* near its top, where it flares outwardly, is provided with a series of waved

or corrugated spirally-arranged flanges, *d*, projecting out at right angles thereto, and the external surface of the casing or wall of the combustion-chamber or radiator (resting upon the fire pot C) is also provided with similar flanges, *d*, extending from the flaring top of the fire-pot up to the dome H of the combustion-chamber. 55

The space between the outer casing, A, and the outside of the fire-pot below, and that of the combustion-chamber or radiator above, forms 60 the hot-air chamber K.

The cold air entering the apertures *a* at the bottom of the furnace rises immediately into contact with the heated corrugated surface of the spiral flanges on the fire-pot, and is thereby retarded in its circuitous passage upward through the hot-air chamber K, along and in contact with the outside of the combustion-chamber or radiator and its corrugated flanges, till brought to a very high temperature—much 70 higher than would be obtained were the flanges not of wave-like or corrugated form; and, finally, in this intensely-heated state the air finds its way to the top of the hot-air chamber, and thence flows up into the apartments. 75

I am aware that plain (not corrugated) flanges have been spirally wound around the outside of a fire-pot, as described in Letters Patent of the United States No. 11,278; but said construction does not insure in a given space the 80 maximum degree of radiation obtained by my corrugated or wave-like flanges spirally arranged around the fire-pot.

I am also aware that a steam-radiator described in Patent No. 111,721 has been constructed with a series of zigzag flanges arranged in vertical rows parallel to each other; but a steam-radiator is not exposed to the direct action of the fire, and is not liable to crack, as a fire-pot of a furnace would be. Consequently no necessity arises for strengthening the steam-radiator by the arrangement of vertical wave-like or corrugated flanges in the manner described by me. 90

The following advantages result from my construction, to wit: an increase of radiating-surface, the liability of fracture avoided, and a slower transit and deflection of the air along the air-channels between the flanges. 95

I claim—

In a hot-air furnace, stove, &c., in combination with a fire-pot, combustion-chamber, or dome, a series of external wave-like or corrugated flanges, *d*, arranged spirally upon it, as
5 described, for preventing the cracking of the fire-pot, &c., increasing its radiating surface, and deflecting the air laterally over its cylindrical surface, substantially as set forth.

Witness my hand this 31st day of December, 1879.

WILLIAM J. TOWNE.

In presence of—

W. H. TOWNE,
E. S. FARNSWORTH.