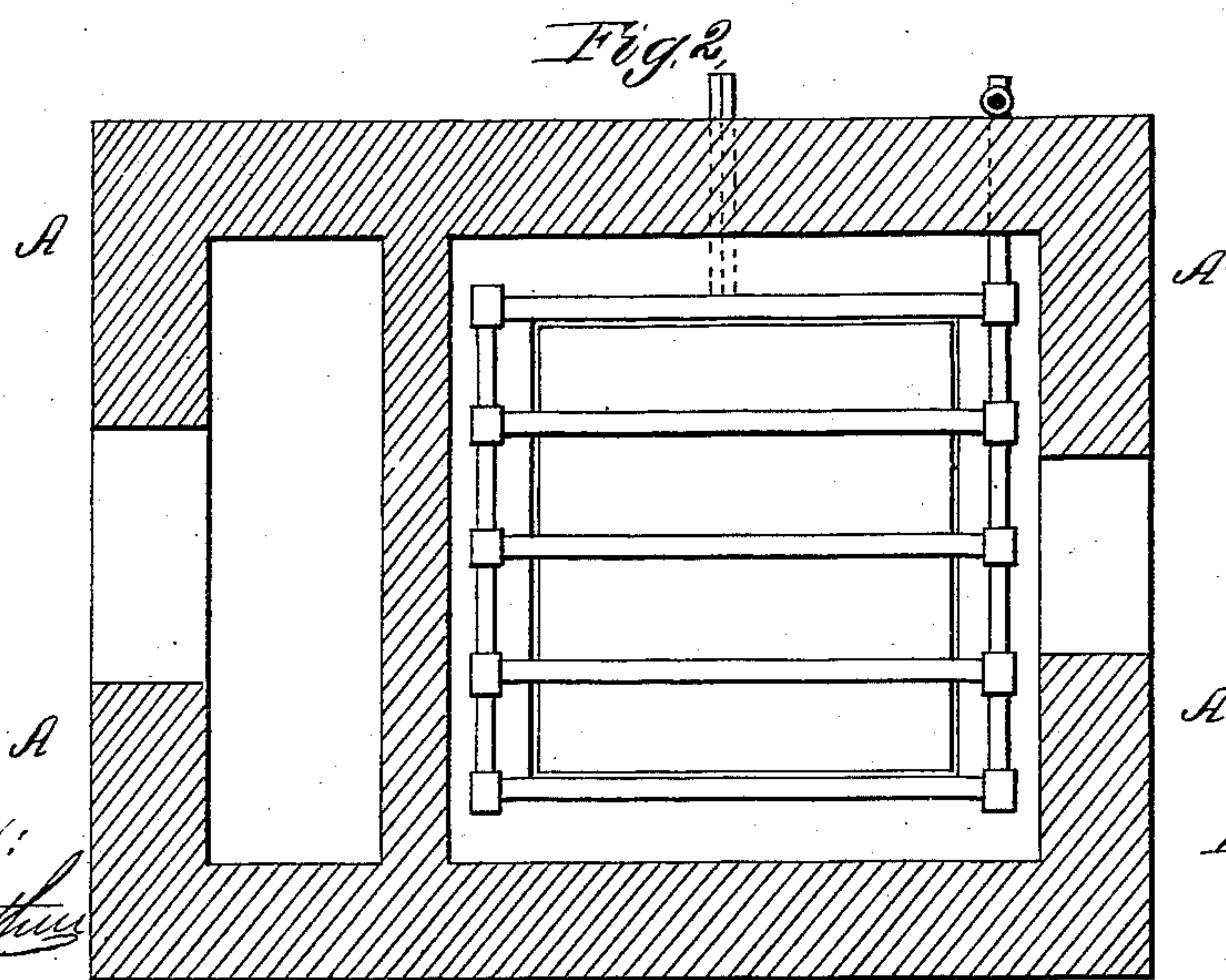
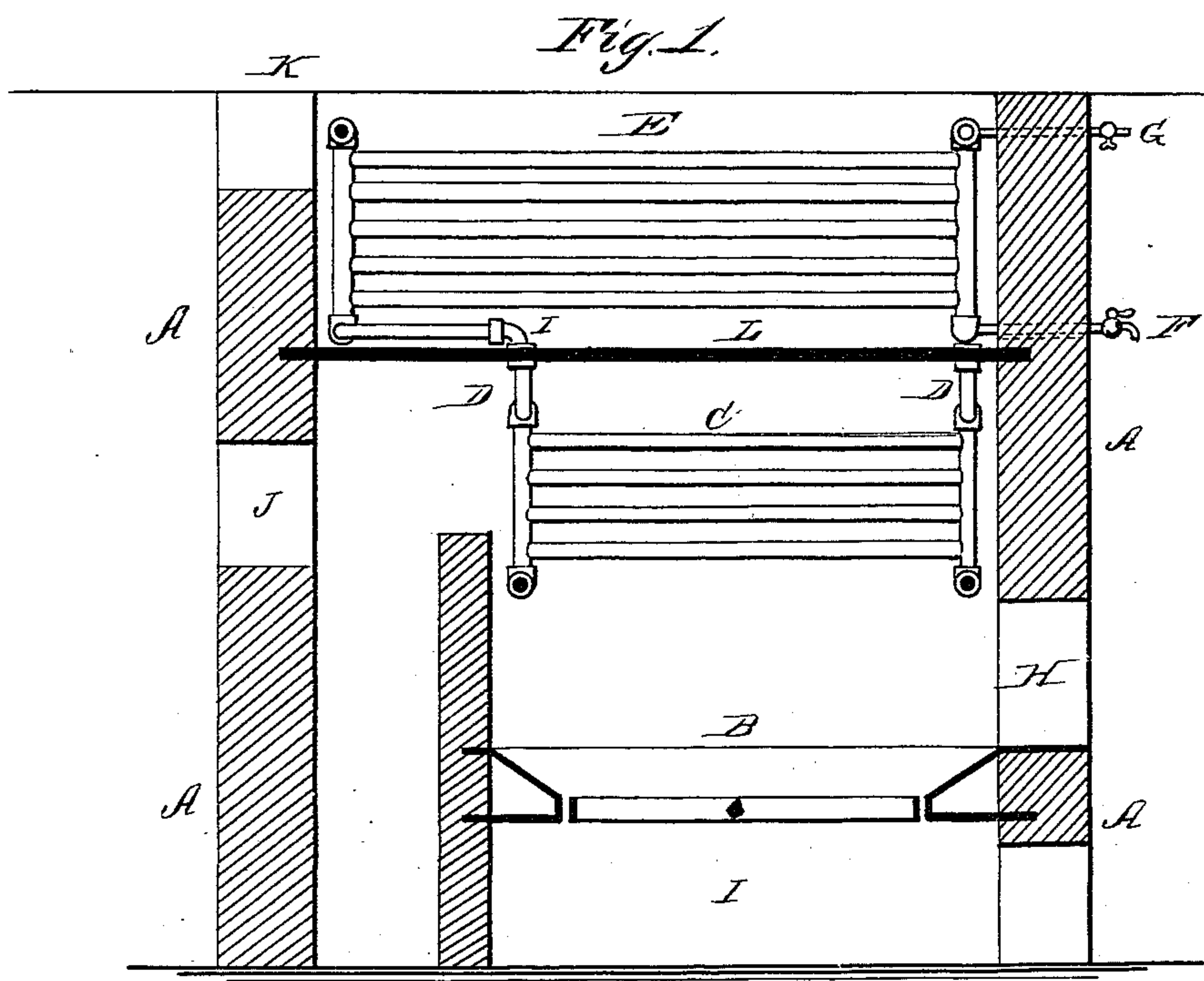


A. ANNAN.
Steam-Heating Apparatus.

No. 211,879.

Patented Feb. 4, 1879.



Witnesses:
N. C. McCarty
J. A. Stockman

Inventor

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per
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UNITED STATES PATENT OFFICE.

ALEXANDER ANNAN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STEAM-HEATING APPARATUS.

Specification forming part of Letters Patent No. **211,879**, dated February 4, 1879; application filed November 20, 1878.

To all whom it may concern:

Be it known that I, ALEXANDER ANNAN, of the city of Brooklyn, county of Kings, State of New York, have invented a new and useful Improvement in Steam-Heating Apparatus, of which the following is a specification:

The invention relates to steam-heating apparatus for supplying hot air for buildings of every description.

In the systems of steam-heating heretofore employed the steam was generated in the ordinary manner, and conveyed by pipes connected with the boiler to radiators in each apartment to be heated. This method is objectionable, on account of the expense involved, the space occupied by the radiators in the different apartments, also the injury to carpets, wood-work, and walls thereof.

I am aware that steam-heating apparatus are in use in which the radiators for heating cold air are placed within chambers separate from the boiler-inclosure, and the heated air conveyed to the different apartments through hot-air flues, whereby the apparatus is rendered complicated, occupying too much space to be applied for general purposes.

My improvement consists in placing the radiator-chamber, furnace, and boiler in one inclosure, as shown in the accompanying drawings, in which similar letters of reference indicate like parts.

Figure I is a perpendicular cross-section. Fig. II is a plan thereof.

A represents the inclosure, containing the fire-box, with the grate B, ash-pit I, steam-generator C, and steam-coil E. Between said generator and coil is an iron gas-tight septum,

L, through which said generator and coil are connected by the steam-pipe D. Water is supplied to the steam-generator at F, and the connection for safety-valve is shown at G. Cold air is admitted to the chamber containing the steam-coil at any convenient point, when it becomes heated by contact with the same and the additional heat supplied by the iron septum, which is heated from below by the fire itself, forming thereby a combined steam and hot-air heating apparatus, from which a greater amount of heated air can be obtained from the same amount of fuel than in heaters heretofore in use, while at the same time it presents great simplicity of construction and economy in space.

The heated air is delivered to registers in the different apartments through flues connected with the opening in the chamber at K, or at any other convenient point.

I am aware that a furnace, steam-boiler, steam-radiator, and a gas-tight septum, all placed in one inclosure, is not new, and I do not claim such, broadly, as my invention; but

What I do claim is—

The combination of the inclosure A with grate and ash-pit, as shown, the steam-generator C, radiating gas-tight septum L above the generator, dividing the inclosure into two chambers, and the steam-coil E above the septum, the coil and generator being connected by pipes D through the septum, substantially as set forth.

ALEXANDER ANNAN.

Witnesses:

HAMLIN Q. FRENCH,
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