

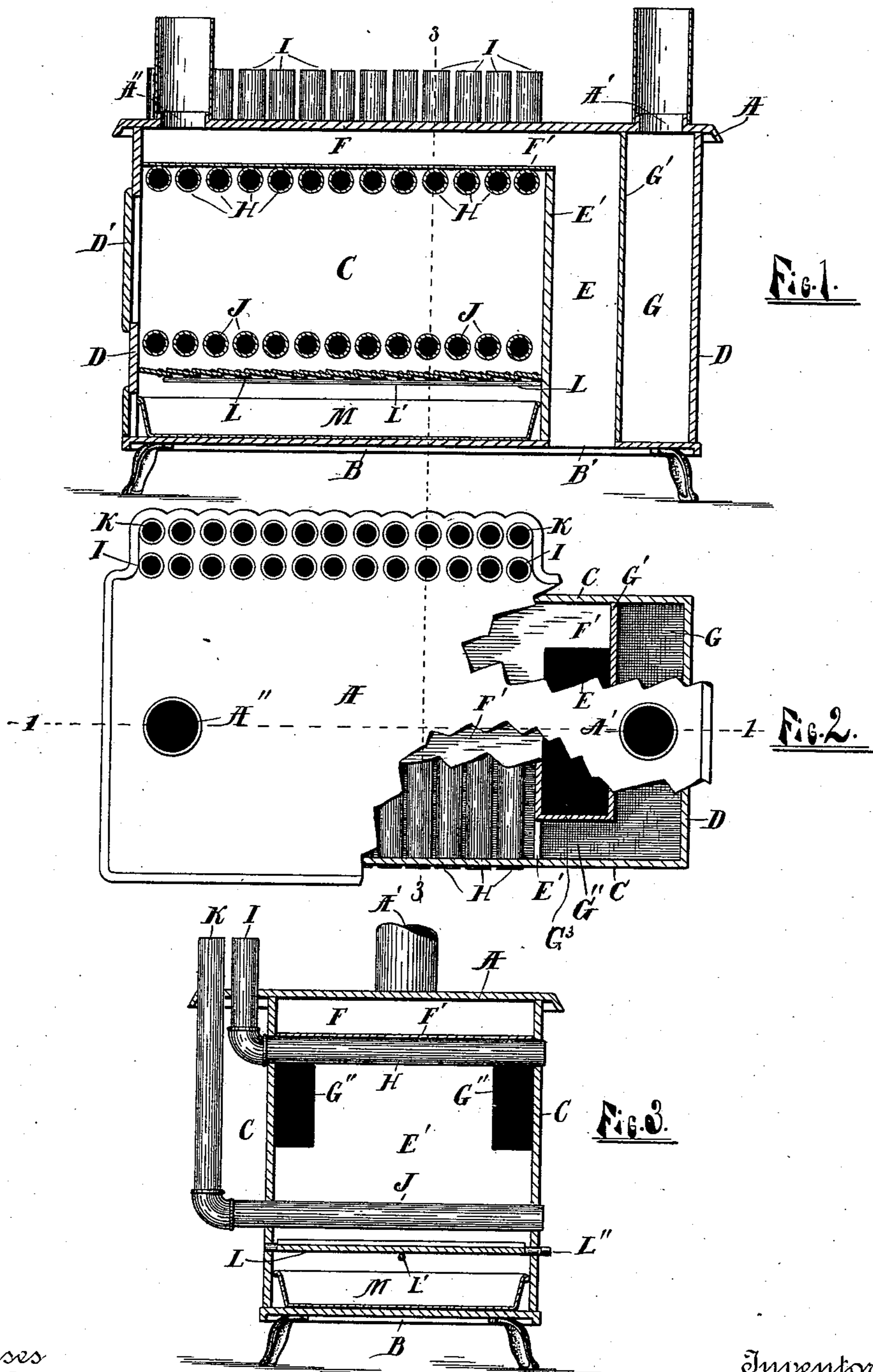
(No Model.)

2 Sheets—Sheet 1.

J. WHEELER.
HOT AIR FURNACE.

No. 564,322.

Patented July 21, 1896.



Witnesses
Louis Moulton
Lewis E. Flanders.

Inventor
John Wheeler
By Attorney
Cuthbert V. Moulton

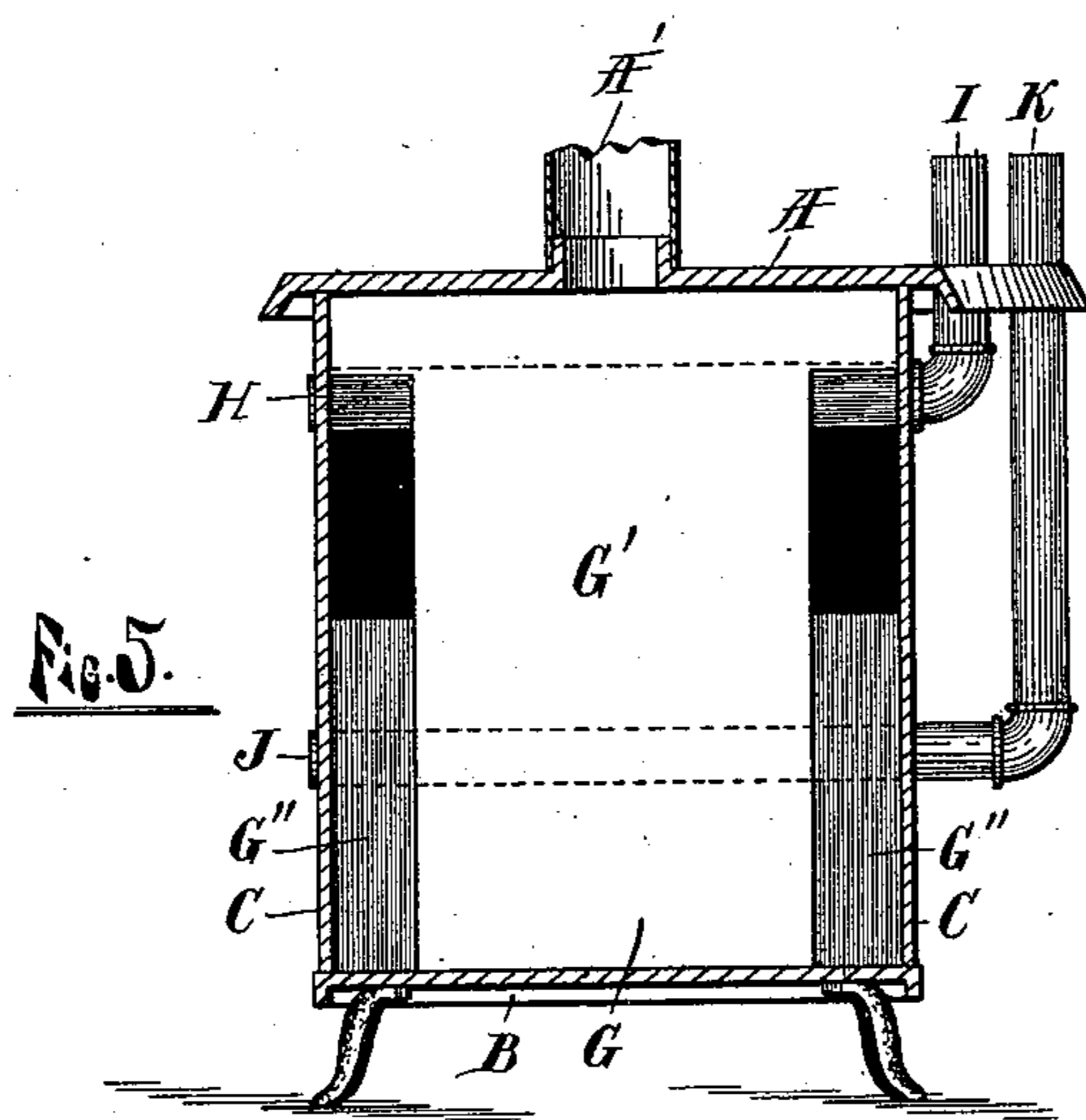
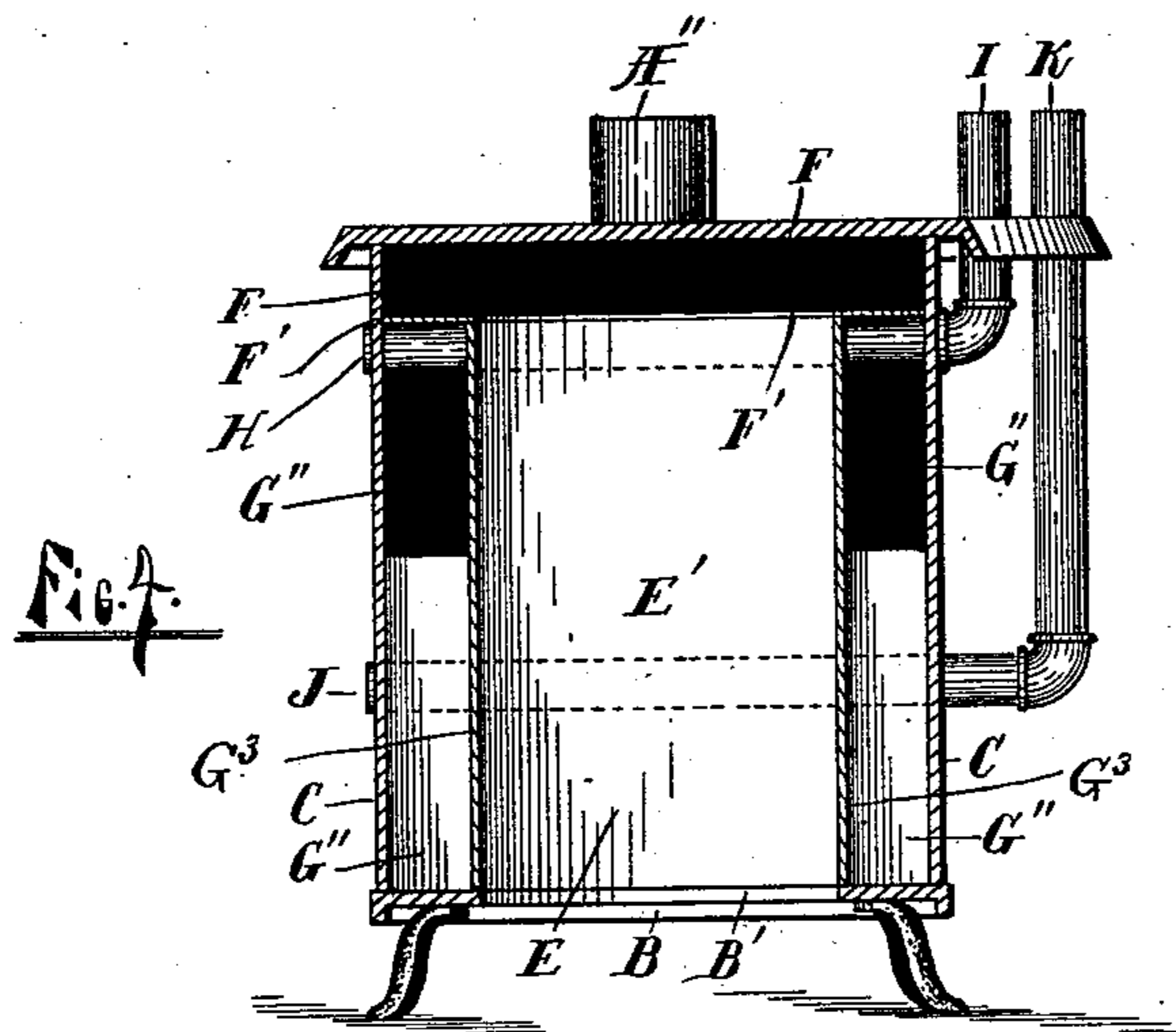
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2 Sheets—Sheet 2.

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Lewis E. Flanders
Lois Moulton.

Inventor

John Wheeler.

By Attorney
Luther V. Moulton

UNITED STATES PATENT OFFICE.

JOHN WHEELER, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-HALF
TO GEORGE M. EDISON, OF SAME PLACE.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 564,322, dated July 21, 1896.

Application filed April 29, 1895. Serial No. 547,439. (No model.)

To all whom it may concern:

Be it known that I, JOHN WHEELER, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Hot-Air Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to hot-air furnaces, and its object is to provide a furnace of most compact and simple construction that will have maximum efficiency. This object is accomplished by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of a device embodying my invention on the line 1 1 of Fig. 2. Fig. 2 is a plan view of the same, with the main part of one end of the top plate A and with the left-hand side of plate F' and left-hand corner of partition E' broken away to more clearly show the construction. Fig. 3 is a section on the line 3 3 of Figs. 1 and 2; and Figs. 4 and 5 are sections on the lines 4 4 and 5 5, respectively, of Figs. 1 and 2, looking toward the front of the stove.

The same letters of reference designate the same parts in the several figures.

The main body of the stove consists of a box-like structure having the top plate A, bottom B, sides C, and ends D. The bottom plate is formed with an opening B', the top plate with openings A' and A'', and the front end plate D with an opening, covered by a door D', for permitting the fuel to be inserted.

Near the rear end plate D is a transverse vertical partition G', which extends from the bottom to the top plate of the body, and extending from said plate G' to the front plate of the body, at a proper distance beneath the top plate A, is a horizontal plate F'. A suitable distance forward of plate G' is a second vertical transverse partition E', which, however, extends only to the partition F', and extending from said partition E' to partition G' are two vertical partitions G³ G³, located one near each side wall of the body.

It will be observed that the relative locations of partitions E', F', and G' is such as to form a fire-box C' of less depth and length than the body, a vertical air-flue E, having communication with the outer air through opening B' in the bottom plate and being of less width than the fire-box, a horizontal air-flue F above the fire-box and of the same width as the same, and a smoke-flue G at the rear end of the body, and also that the flame and heated air in the fire-box impinge the front wall of the vertical air-flue and bottom wall of the horizontal air-flue, respectively.

The main part of partition G' is of less width than the body of the stove to form an opening at each side thereof for the entrance of smoke into the smoke-flue G, but the upper end of said partition, which forms the rear wall of air-flue F, is extended laterally to the full width of the body, so that there will be no communication of the air-flues with the smoke-flue at the top. The lower end of partition E' is of the full width of the fire-box, but its upper corners are removed, as shown best in Fig. 3, to provide openings at opposite sides for the exit of smoke from the fire-box C'. The openings in the partition G' are opposite those of partition E', and laterally-closed passages G'' are formed at each side of vertical air-flue E, through which the smoke is conducted from the fire-box to the smoke-flue by the longitudinal partitions G³ above referred to.

The horizontal partition F' is formed immediately over the vertical air-flue E, with an opening, as shown in Fig. 2, through which the air from said vertical flue flows into the horizontal flue. Said horizontal air-flue communicates at its forward end with a hot-air pipe through opening A'' in the top plate, and smoke-flue G communicates at its top with a smoke-pipe through the opening A' in said top plate.

It will be observed that the above construction is very simple and compact, and it will be apparent that it will rapidly and efficiently heat the air taken in through opening B'.

J are transverse pipes arranged parallel and close to each other, forming a suitable grate to support the fuel, and extending through

the side plates C C. Said pipes are open to the air at one end and are connected by elbows at the other end to upwardly-extended pipes K, which pipes in turn may be connected to any suitable means for conducting the heated air to any point where it is used.

H are a second series of pipes above the fire, passing through the sides C C in like manner and open at one end and also connected to vertical pipes I, which may also be connected to any suitable means for conveying away the hot air.

M is an ash-pan below the pipes J, and above this ash-pan and close to said pipes is a secondary grate formed of overlapping pivoted plates L, arranged and pivoted in the same manner as the slats of ordinary blinds, and provided with the connecting-rod L' to simultaneously adjust the same. These may be adjusted by a lever applied to the outwardly-extended squared end L'' of the journal of one or more of the said plates. I thus regulate the draft, and these plates also may be moved to a vertical position to dump the ashes lodged thereon. Said plates when properly adjusted catch the small coals that pass through between the pipes J and also radiate the heat, and thus serve to aid the fire in heating the pipes J.

By the described construction and arrange-

ment I am able to secure a large and effective heating surface in a cheap structure.

What I claim is—

The herein-described hot-air furnace; embodying a box-like structure, having openings at opposite ends of its top plate and an opening near the rear end of its bottom plate; a vertical partition near the rear plate of the body, extending from the bottom plate to the top plate and having openings in its sides; a horizontal partition arranged beneath the top plate of the body and extending from said vertical partition to the front plate and having an opening near its rear end; a second vertical partition, located at the forward end of the opening in the bottom plate of the stove and extending from said bottom plate to said horizontal partition and having its upper corners removed to provide smoke-exits; and longitudinal partitions extending from one to the other vertical partition, substantially as described and for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN WHEELER.

Witnesses:

LUTHER V. MOULTON,
LOIS MOULTON.