

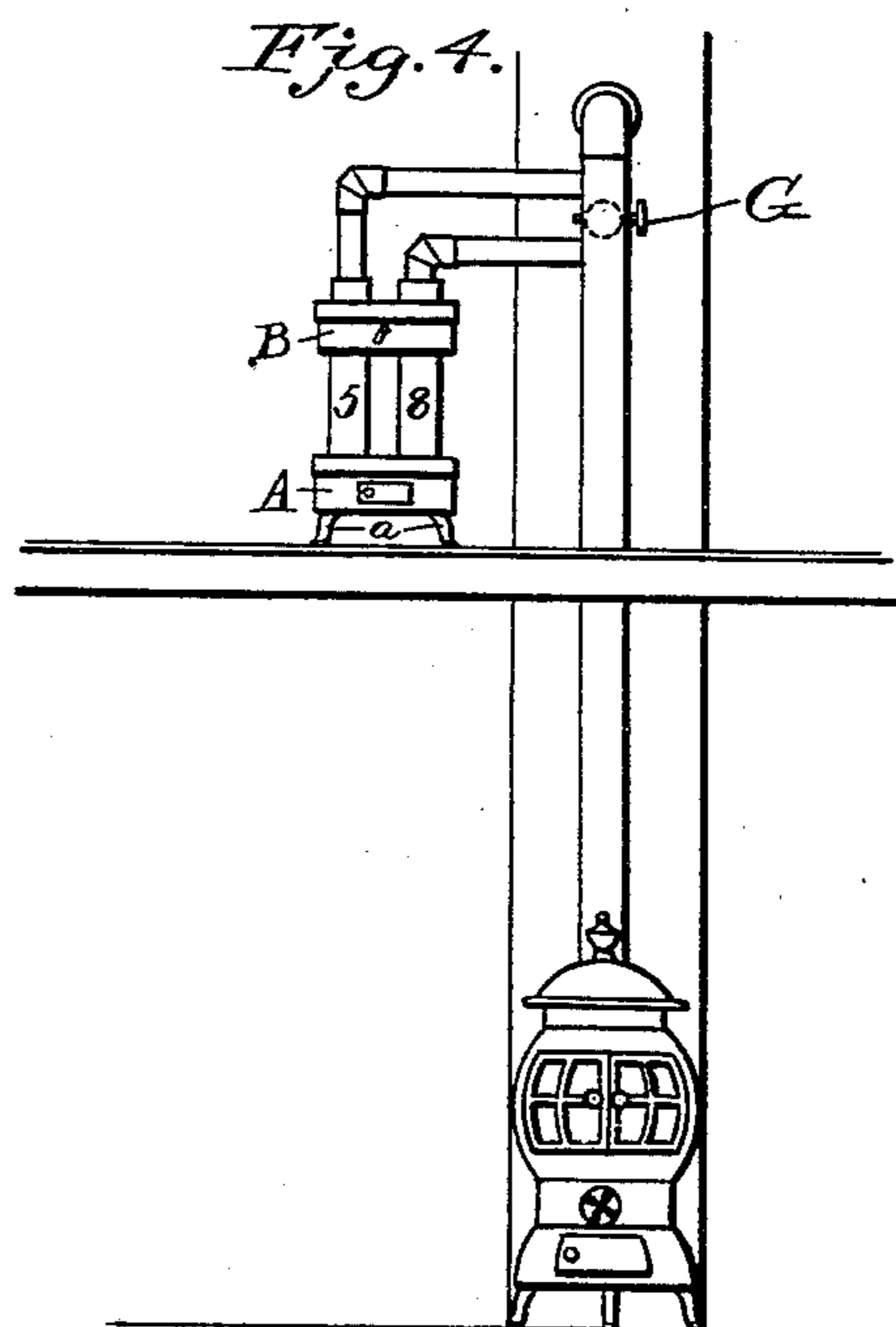
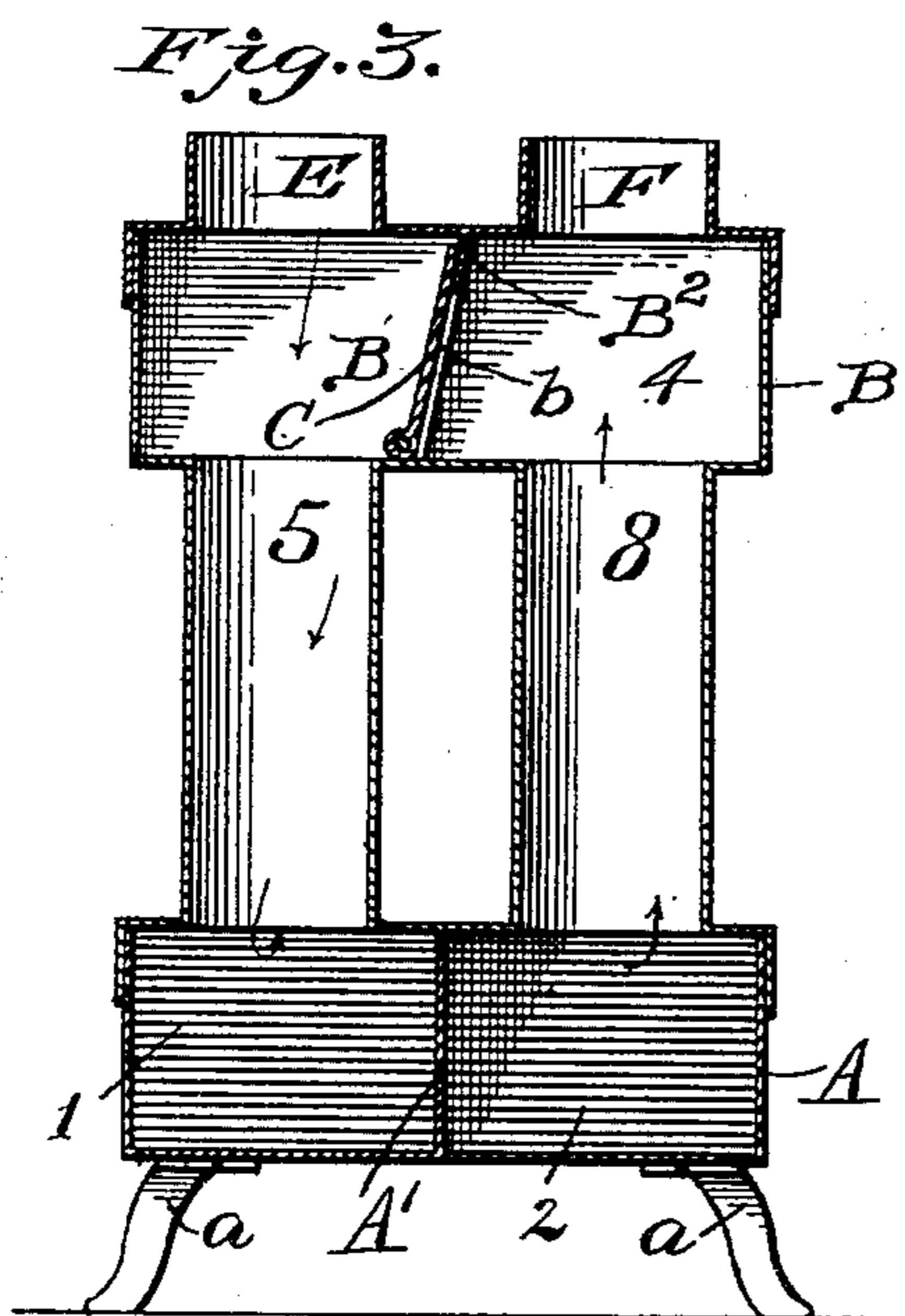
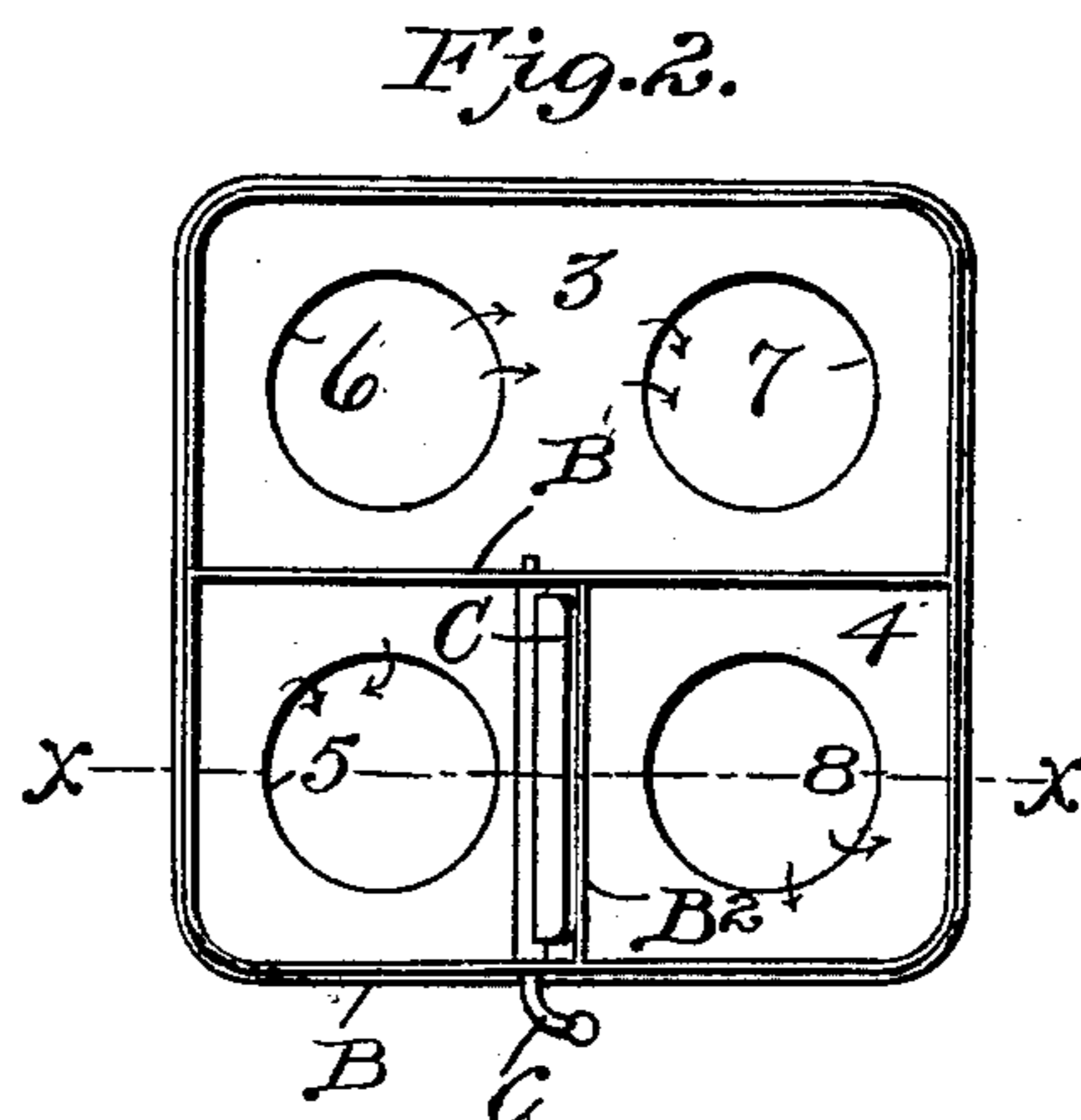
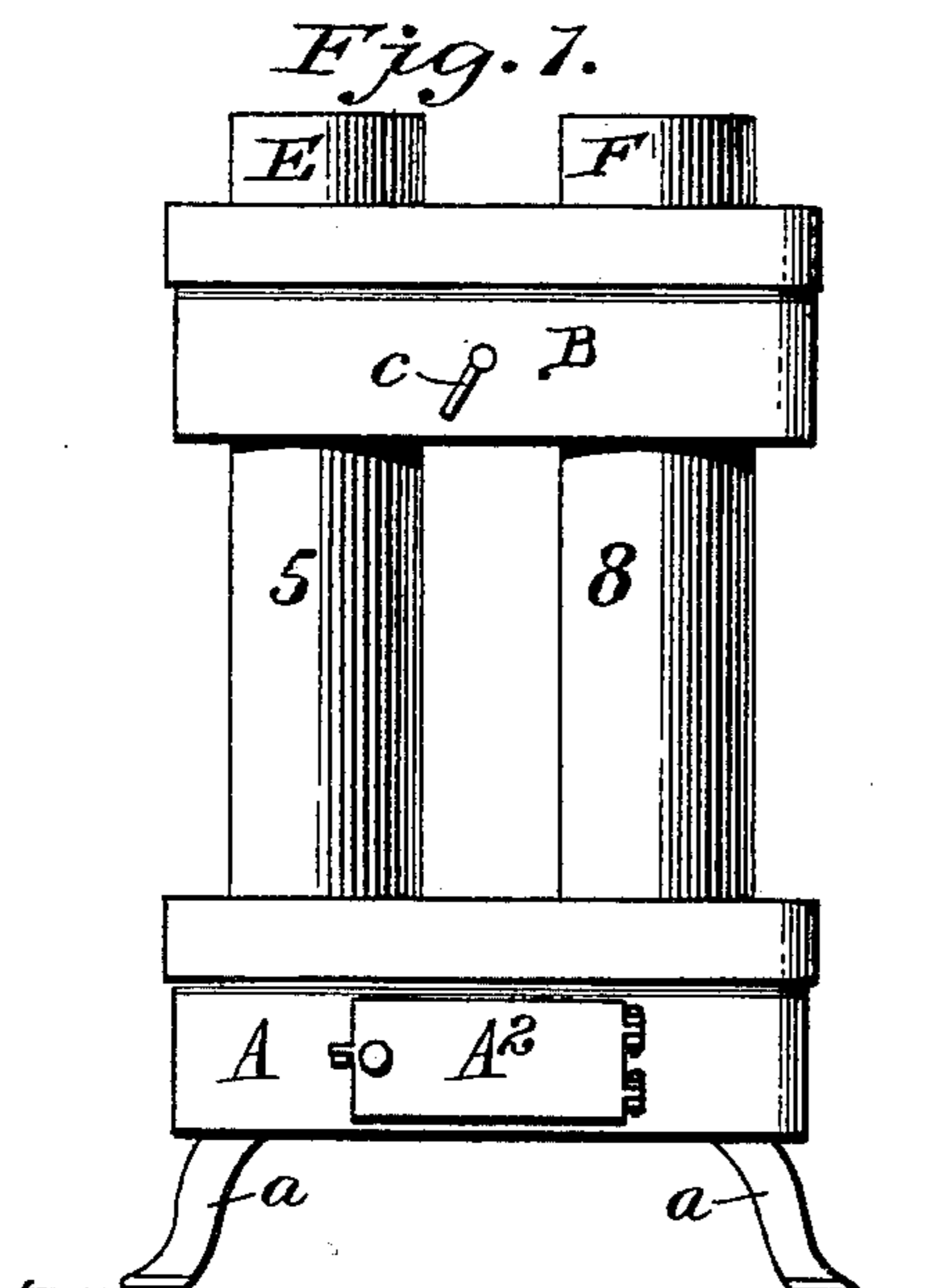
No. 633,501.

Patented Sept. 19, 1899.

J. C. BYRAM.
HEAT RADIATOR OR DRUM.

(Application filed Dec. 12, 1898.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN C. BYRAM, OF COLUMBUS JUNCTION, IOWA.

HEAT RADIATOR OR DRUM.

SPECIFICATION forming part of Letters Patent No. 633,501, dated September 19, 1899.

Application filed December 12, 1898. Serial No. 699,034. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. BYRAM, a citizen of the United States, and a resident of Columbus Junction, in the county of Louisa and State of Iowa, have invented certain new and useful Improvements in Heat Radiators or Drums; and I do 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, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a front elevation of the drum. Fig. 2 is a plan view of same with top removed. Fig. 3 is a section on the line *x x*, Fig. 2. Fig. 4 is a view showing the invention as in application.

This invention is designed to provide an improved drum or radiator for utilizing the waste heat which ordinarily escapes from stoves by way of the pipe and flue; and it consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claim.

Referring to the accompanying drawings, the letter A designates the hollow base portion of my improved drum or radiator, which is usually of rectangular form and is supported on legs *a*. Extending across the chamber of this base portion is a transverse vertical partition-plate A', which may run from any two opposite sides and which divides it into two compartments 1 and 2. In one side is a door A², which communicates with both of these compartments.

B designates the upper portion of the drum or radiator, which is similar in general form to the base portion A and which is also divided by a vertical partition-plate B' into two compartments 3 and 4. The partition-plate B' extends at right angles to the plate A' of the base portion. Compartment 3 and 4 (shown in the drawings as 4) are divided by a partition-plate B² into two subcompartments, and in said plate B² is an opening *b*, controlled by a swinging damper C, which may be hinged at one corner of and work in either of said subcompartments and having an exteriorly-projecting operating rod or handle *c*. The said portion B is supported from the base

by means of four vertical pipes or tubes 5, 6, 7, and 8, whose upper and lower ends communicate, respectively, with the several compartments and subcompartments of the upper and lower chambers. The said pipes or tubes communicate in couples with each base-compartment, the adjacent members of different couples communicating with each main compartment of the upper portion B. One member of the first couple of pipes communicates with one of the subcompartments and the adjacent member of the second couple with the other subcompartment. The top portion of the upper chamber is provided with a hollow coupling E for connection with the pipe or flue leading from the stove and with a second coupling F for the connection of an outlet-pipe. These couplings E and F communicate, respectively, with the subcompartments of the compartment 4 and are arranged, respectively, in vertical alinement with the downtake and uptake pipes 5 and 8.

The drum may be used on the same floor with the stove, in which case the stovepipe is connected directly to the coupling E, or it may be used upon a different floor. In the latter case the two couplings E and F are connected, respectively, with different portions of the pipe or flue from the stove, such pipe or flue having a damper, as indicated at G, Fig. 4, located between the two points of connection.

In operation, damper C being swung into position to close the opening *b*, hot air and gases of combustion enter one of the subcompartments of compartment 4, passing from thence down the pipe 5 into the compartment 1, thence up through pipe 6 into the compartment 3, thence down through pipe 7 into compartment 2, thence up through pipe 8 into the other subcompartment, from which it escapes through the coupling F. In making this passage the hot air and gases are brought into contact with a large area of surface, to which they impart a large proportion of their heat. Should the temperature of the room or compartment become too high, damper C may be swung into position to close the tube 5 and the hot air and gases permitted to pass directly from one of the subcompartments 4 to the other and thence to the flue.

It will be observed from the foregoing de-

scription that in constructing my radiator I am not limited to any precise manner of assembling the parts or of partitioning the upper and lower chambers, the chambers, main partitions, and pipes being all interchangeable, and it being only necessary to run the first main partition from any two opposite sides of one chamber and then run the partition of the other chamber at right angles to the first partition, also that either of the main compartments of the upper chamber may be partitioned into subcompartments, and that the damper C may be arranged in either of said subcompartments, the inlet and outlet pipes being connected accordingly.

I am aware that heretofore heat-radiators have been provided consisting of two or more heads connected by different numbers of pipes and differently partitioned and damped, whereby the gaseous products of combustion are caused to take a circuitous course therethrough or may be short-circuited to pass directly out; but I am not aware that heretofore a radiator of the above-described character has been provided which is of the simple and compact nature herein described, whereby few parts are needed, little room is taken up, and the course of said products therethrough is as rapid and unobstructed as possible.

By employing two drums of square prismatic form connected by four pipes and partitioned as described I am enabled to form the flues of the heads A and B with side walls

all parallel with the course of the smoke and gases of combustion therethrough, whereby said smoke and gases are confined to their course and any tendency thereof to spread and deposit soot prevented and facilitating rapid circulation of said smoke and gases.

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

In a heat-radiator, the combination of the two square prismatic heads, the two transverse partitions, one in each head, and at right angles to the head-walls intersecting therewith, and at right angles to each other, the two diagonally opposite uptake-pipes and the two diagonally opposite downtake-pipes connecting said heads, and communicating with the compartments thereof at opposite end portions of said compartments, inlet and outlet pipe connections with the same compartment of the upper head, a transverse inclined partition between said connections, and in vertical alinement with adjacent downtake and uptake pipes in said compartment, an opening in said partition, and a flat swinging damper in one of the subcompartments, and controlling the pipe thereof, and the opening of the partition, substantially as specified.

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

JOHN C. BYRAM.

Witnesses:

JOHN O. OWENS,
J. H. BENSON.