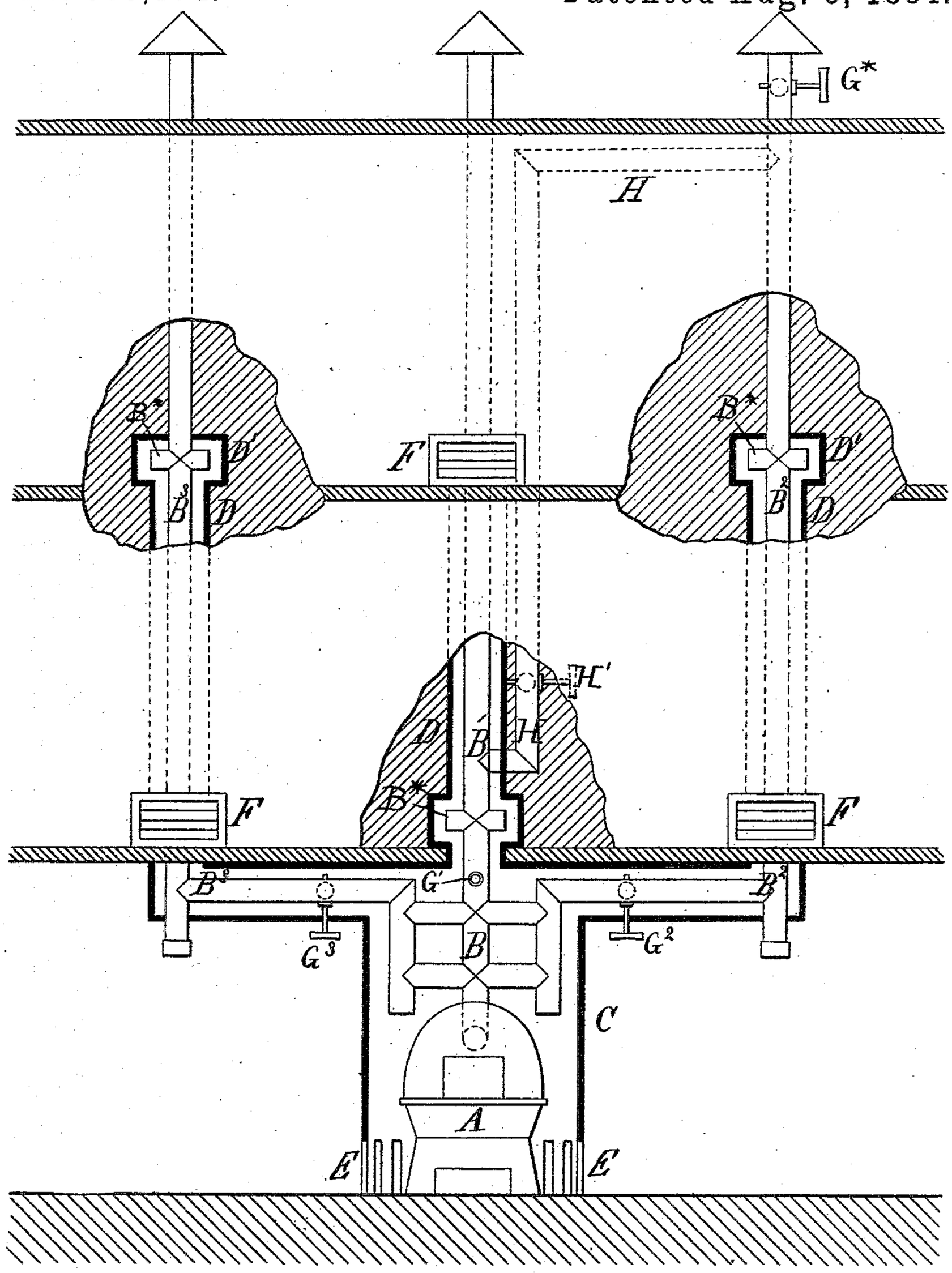
(No Model.)

J. R. MASON.

HEATING APPARATUS.

No. 303,174. Patented Aug. 5, 1884.



WITNESSES:

Chas. Wahlers.

William Miller

INVENTOR

James R. Mason

BY Van Santvoord & Hauff

his

ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES R. MASON, OF NEW YORK, N. Y.

HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 303,174, dated August 5, 1884.

Application filed November 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. MASON, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Heating Apparatus, of which the following is a specification.

My invention relates to heating apparatus for buildings, and especially that class thereof in which a current of hot-air is produced through the agency of a smoke-pipe.

The object of my invention is to utilize the smoke-pipe to superior advantage to provide for concentrating the effect thereof upon either of a series of hot-air flues, and to provide for regulating the temperature of the hot air. This object I have accomplished by the novel means hereinafter described, and illustrated in the accompanying drawing, which represents a vertical section.

In the drawing, the letter A designates a furnace, which may be set up at any suitable spot in a building and used for any general purpose. The smoke-pipe B of this furnace extends through an air-chamber, C, and thence into and through a series of three (more or less) hot-air flues, D, to the top and exterior of the building, the hot-air flues D leading from the air-chamber C, thus taking the air therefrom, and that portion of the smoke-pipe B which is in such air-chamber is bent or distributed through a circuitous course, thus presenting a large heating-surface, and, due to this condition of the pipe, the air entering the air-chamber is exposed to a comparatively great heating-surface, so that when it is received in the flues D it is in the proper state for heating purposes. The branches B' B^2 B^3 of the smoke-pipe, however, also tend to heat the air, and especially to keep the same at the required temperature in the flue D until it is admitted to the apartments. Cold fresh air enters the air-chamber C through suitable openings, E, while hot air is admitted to the apartments from the flues D through suitable registers, F. Those portions of the air-flues D which contain the registers form storage-chambers D', and those parts of the smoke-flues B' B^2 B^3 which are situated in these storage-chambers are provided with enlargements B^*, so that the air in said chambers, as it comes in contact with these enlargements, absorbs an extra quantity of heat, and the heat of the smoke is utilized as much as possible. Each of the branches B' B^2 B^3 of the smoke-pipe is provided with a damper, G' G^2 G^3, respectively, so that the smoke can be made to pass either through one or all the branches. The dampers G' G^2 G^3 are situated in the lower part of the building, as shown in the drawing. Near the upper end of the branch B^2, I have shown an additional damper, G^*, and from said branch B^2 extends a pipe, H, to the lower portion of the branch B', so that when the damper G^2 is open and the dampers G' G^* are closed the smoke ascends through the branch B^2, thence down through the pipe H, and up through the branch B'. The pipe H is also provided with a damper, H', near its junction with the branch B', so that it can be shut off when the damper G' is open.

In the example represented by the drawing I have shown those branches B' B^2 B^3 which extend through two stories of a building; but it is obvious that said branch pipes may be run up through any desired number of stories, and the number of the branch pipes may be increased to suit circumstances.

I am aware that in heating and ventilating buildings hot-air flues have heretofore been connected at their lower ends with a hot-air chamber around the furnace, and at their upper ends with the apartments to be heated, the smoke-pipe of the furnace extending to the roof through a vertical ventilating-flue, having communication with the several apartments, so that the products of combustion heat the air in the ventilating-flue and create an upward draft. Such differs from my invention in that I extend the smoke-pipe to the roof through the hot-air flues, which communicate at their lower ends with the hot-air chamber, and provide each smoke-pipe with a damper for causing the smoke to pass through one or all of the branches of the smoke-pipe of the furnace, so that the heat emanating from the smoke-pipes is utilized to impart additional heat to the heated air in the flues leading to the apartments.

I am also aware that steam-radiators have been arranged in a chamber having a flue leading to the apartments to be heated, an extension leading from the radiator extending upward into the flue, for imparting additional

heat to the air in its passage through the flue to the apartments; but such is not my invention, as I utilize the smoke and other products of combustion from the furnace to impart additional heat to the hot air from the furnace, and carry the smoke off through the roof.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as hereinbefore described, with the heater, the air-chamber surrounding the heater, and a series of hot-air flues leading from the air-chamber up into the building, of the smoke-pipe having branches which extend from the air-chamber into and through the hot-air flues, respectively, to the exterior of the building, and each of which is provided with a damper at a point intermediate of the hot-air flues and air-chamber.

2. The combination, substantially as hereinbefore described, with a hot-air flue and a register connecting the flue with an apartment, of a storage-chamber formed in the flue at a point opposite the register, a smoke-pipe extending through the flue, and an offset on the smoke-pipe at a point opposite the storage-chamber.

3. The combination, substantially as hereinbefore described, of the furnace, the air-chamber surrounding said furnace, the smoke-pipe circulating in the air-chamber, the air-flues extending from the air-chamber up through the building, the branches B′ B², extending from the smoke-pipe through said air-flues to the exterior of the building, the pipe H, connecting the branches B² B′, and the dampers G′, G², and G*.

4. The combination, substantially as hereinbefore described, with the furnace, of a smoke-flue, one or more air-flues extending up into a building, one or more branch pipes or flues extending from the smoke-flue each through one of the air-flues to the exterior of the building, and a damper in the smoke-flue to throw the smoke into the branch pipe.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JAMES R. MASON. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.