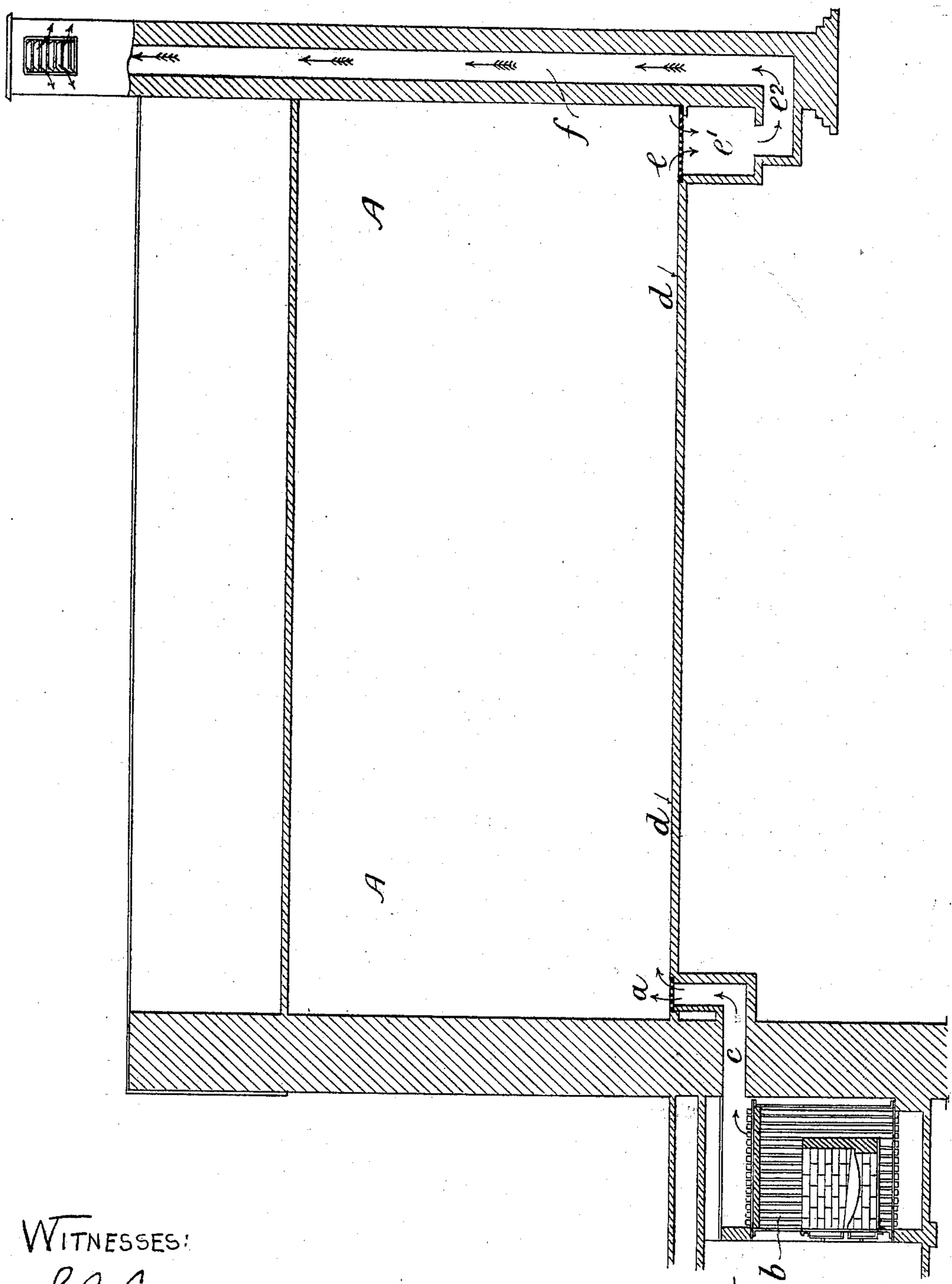
No. 610,140. Patented Aug. 30, 1898.

J. LANGFIELD.

MEANS FOR HEATING, DRYING, AND VENTILATING.

(Application filed Apr. 11, 1898.)

(No Model.)



WITNESSES:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN LANGFIELD, OF MANCHESTER, ENGLAND.

MEANS FOR HEATING, DRYING, AND VENTILATING.

SPECIFICATION forming part of Letters Patent No. 610,140, dated August 30, 1898.

Application filed April 11, 1898. Serial No. 677,192. (No model.)

To all whom it may concern:

Be it known that I, JOHN LANGFIELD, a subject of the Queen of Great Britain, residing at Manchester, in the county of Lancaster, England, have invented new and useful Improved Means for Heating, Drying, and Ventilating, of which the following is a specification.

This invention relates to that class of apparatus for supplying a room or space with heated air for which Letters Patent were granted to me in the United States, No. 549,799, dated November 12, 1895, and to similar heating, drying, and ventilating devices.

The object of this invention is to reduce still further the appreciable current of air caused by the change of air in the space or room, especially when such change of air is required to be very rapid—say for more perfect ventilation—and the invention will be readily understood from the following description on reference to the accompanying drawing, which illustrates in section a room fitted according to my invention.

I form the area of the inlet *a* or grid-openings admitting the fresh hot air into the room or space A to be heated at least twice as large as the combined area of the heating-tubes *b* or other tube supplying the hot air, the said heating-tubes *b* or tube being connected with the inlet *a* to the room or space A by a chamber or duct *c*, of such an area that the air will thus expand into the said chamber or space *c*, beneath the floor *d*, before entering the room or space to be heated or ventilated. I also make the area of the openings in the grid forming the outlet *e* at least twice as large as the inlet *a*, the said outlet *e* opening into a chamber or space *e'*, which I prefer to form below the floor-level, as shown on the drawing, but which may be inside the room or space to be heated or outside and close to the floor thereof. This last-named chamber or space *e'* should preferably be of an area of at least twice the size of the openings *e* into the same, thus forming a reservoir of air, and it should also be three times the size of the uptake or chimney *f*, with which it communicates, thus making the area of the uptake or chimney less than the area of the outlet. The outlet e^2 from the reservoir *e'* into the said uptake should preferably be at the bottom of the reservoir, as shown, and this reservoir *e'* should have a capacity of twice as many cubic feet as there are square feet area of thoroughfare through the outlet-grating *e* from the chamber A to be ventilated, the area of the outlet *e* from the said room A and the capacity of the space *e'* forming the reservoir varying according to the height of the said uptake *f*.

By the combination of such an inlet *c a*, outlet *e*, and reservoir *e'* the air in the room or space can be changed very rapidly without any draft or current of air appreciable near the outlet.

I claim as my invention—

1. The combination with the room to be heated, or dried and ventilated, of a suitable air-heating apparatus, an expansion-chamber between the air-heating apparatus and the room into which the heated air is discharged, an inlet connecting the room with said chamber, the area of which inlet is greater than the combined area of the air-heating tube or tubes of the air-heating apparatus, an outlet from said room of greater area than the inlet and greater than the area of the chimney or uptake, an uptake or chimney and a reservoir between said outlet and uptake or chimney, substantially as described.

2. The combination with the room to be heated, or dried and ventilated, of a suitable air-heating apparatus, an expansion-chamber between the air-heating apparatus and the room into which the heated air is discharged, an inlet connecting the room with the chamber, the area of which inlet is at least twice the area of the air-heating tube or tubes, an outlet from said room of greater area than the inlet, an uptake or chimney of less area than the outlet, and a reservoir between the outlet and uptake or chimney, the area of which reservoir is substantially twice the area of the openings in the grid forming the outlet and the cubic capacity of which is greater than the number of square feet of area in the outlet, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN LANGFIELD.

Witnesses:

CHARLES A. DAVIES,

JNO. HUGHES.