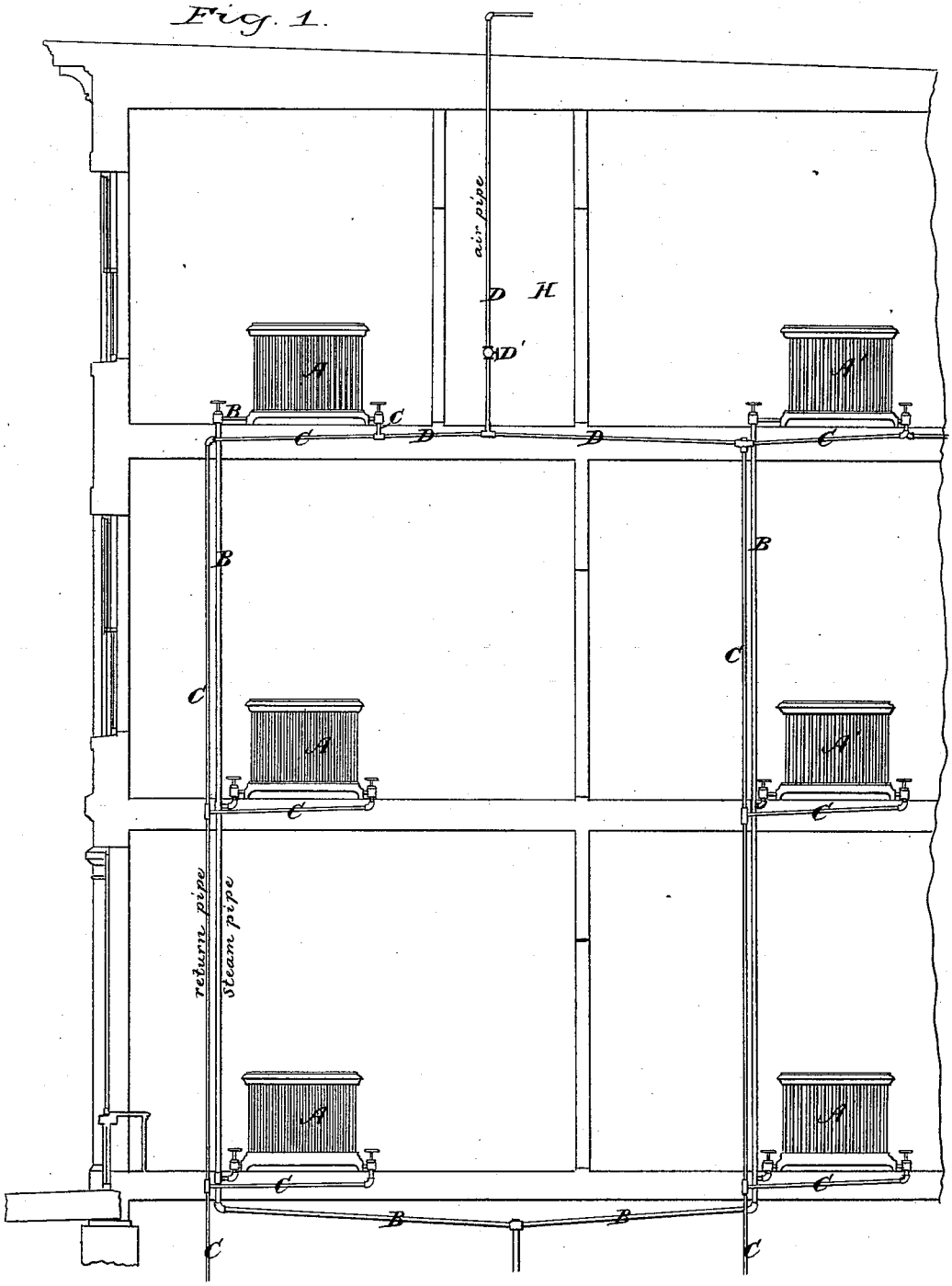
J. W. FAXON.

Steam Apparatus for Buildings.

No. 200,037. **Patented Feb. 5, 1878.**

Fig. 1.



Witnesses.

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J. WARREN FAXON, OF QUINCY, MASSACHUSETTS.

IMPROVEMENT IN STEAM APPARATUS FOR BUILDINGS.

Specification forming part of Letters Patent No. **200,037**, dated February 5, 1878; application filed October 11, 1877.

To all whom it may concern:

Be it known that I, J. WARREN FAXON, of Quincy, in the State of Massachusetts, have invented certain Improvements in Steam Apparatus for Buildings, of which the following is a specification:

In the accompanying drawing, forming a part of this specification, the figure represents a sectional view of a building showing my improvement.

My invention relates to a steam-heating apparatus for buildings, in which the radiators are connected in vertical series with steam-pipes for conducting steam from the boiler into the radiators, and with return-pipes for conducting the water of condensation back to the boiler, or to another receptacle or outlet.

It is well known that in buildings used for business purposes, or in any building in which the steam is allowed to go down or is cut off from the radiators at night, the latter become cold, and that when steam is turned on in the morning means of egress must be provided for the cold air in the radiators, and the cold air must be allowed to escape until the radiators are well charged with and heated by the steam.

For this purpose it has been the almost universal custom to provide each radiator with an escape-pipe or petcock opening into the room in which the radiator is located, so that the occupants of each room can let out the cold air from the radiator therein. The, air in its escape through the petcocks, must be discharged into the room in which the radiator is located, and it almost always happens that the escaping air forces with it more or less of the water of condensation, which falls onto the floor of the room, and is liable to damage the carpet and the ceiling of the room below. Again, if the petcock is left open too long after the cold air is expelled, the steam escapes in large quantities into the room, doing damage in various ways.

My invention has for its object to enable the cold air to be removed from all the radiators in a building without being discharged into the apartments in which said radiators are located, thus dispensing with the use of petcocks, and thereby obviating the above-mentioned liability of injuring the building by steam and water.

My invention consists in connecting, with the upper portions of the return pipe or pipes of any desired number of radiators, an air-pipe extending to the outside of the building, and arranged to form an opening or means of communication from the upper ends of the return-pipes to the air outside of the building, whereby the air and waste-steam from the radiators is conducted by way of the return-pipes to the outside of the building, and there discharged, thus dispensing entirely with petcocks, the air-pipe being provided with a suitable valve, located in a hallway or other place where it is accessible to a janitor, whereby it can be opened or closed, either wholly or partially, so as to regulate the passage of air and steam, as I will now proceed to describe.

In the drawings I have represented two vertical series of radiators, A A A and A′ A′ A′, each series being provided, as usual, with a steam-pipe, B, whereby steam is conducted to all the radiators in the series from the boiler, and with a return or drip pipe, C, whereby the water of condensation is conducted from all the radiators of the series to a suitable receptacle or outlet at the base of the building. The radiators are of any desired construction, and only differ from those in common use in that they are not provided with the usual petcocks or independent air-vents opening into the rooms in which they are located.

The arrangement of the radiators and the steam and return pipes is common, and constitutes no part of my invention, and the radiators are connected with the pipes B C by valves, as usual.

D represents the air-pipe which constitutes my improvement. This pipe is connected to the upper ends of all the return-pipes C, as shown, and passes through the roof or other part of the building to the outside of the latter, so as to constitute an opening or passage from the return-pipes C to the air outside of the building.

The pipe D is provided with a valve, D′, whereby it may be opened and closed, this valve being preferably located in a hallway, H, or other portion of the building that is ac-

cessible at all times to the janitor or other attendant.

It will be seen that when steam is admitted into the radiators, the latter being in connection with the return-pipes C, and the valve D′ in the air-pipe being open, the cold air in all the radiators will be conveyed, by way of the return-pipes C, through the air-pipe D, to the outside of the building. Hence all the air and waste-steam from the radiators, together with such water of condensation as may be carried along thereby, will be discharged into the open air from the outer end of the pipe D, from which the water of condensation will fall onto the roof, and be carried off through the gutter, thus rendering it impossible for any water or steam to escape into the rooms in which the radiators are located, and enabling all the radiators in the building to be heated simultaneously, the janitor or engineer having only to open the valve D′ for this latter purpose. After the radiators have been sufficiently heated the valve D′ may either be wholly or partially closed, the latter being preferable, as in that case a sufficient quantity of air and steam is allowed to escape to keep the radiators at uniform temperature, and the return of the water of condensation through the pipes C is facilitated, the air-pipe D obviating the liability of the water being suspended or held in the pipes C by atmospheric pressure.

It is obvious that the air-pipe D may be connected to any desired number of return-pipes C, so that all the radiators in a large building will find vent through a single air-pipe. If desired, the air-pipe D may be provided with an automatic valve in place of the valve D′, arranged to close when the escaping air and steam reaches a given velocity.

I claim as my invention—

A steam-heating apparatus comprising a series of radiators, a pipe, B, to conduct steam to said radiators, and a return-pipe, C, independent of the pipe B, to conduct water from said radiators, combined with a valved air-pipe, D, connected to the upper end of the return-pipe, and constituting a petcock for all the radiators and a vent for the return-pipe, whereby air is conducted from the radiators to the outside of the building, and the descent of water through the return-pipe is facilitated, as set forth.

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

J. WARREN FAXON.

Witnesses:

E. B. FAIRCHILD,

C. T. BROWN.