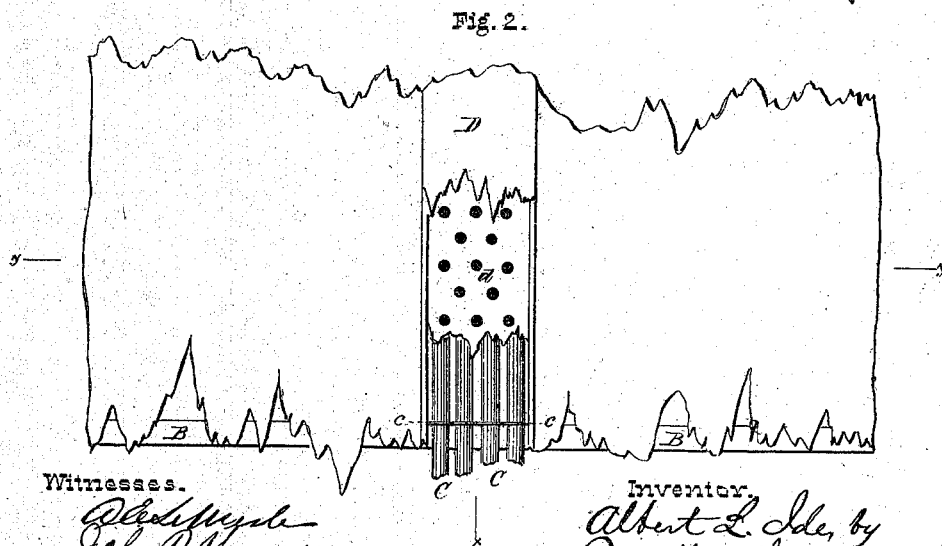
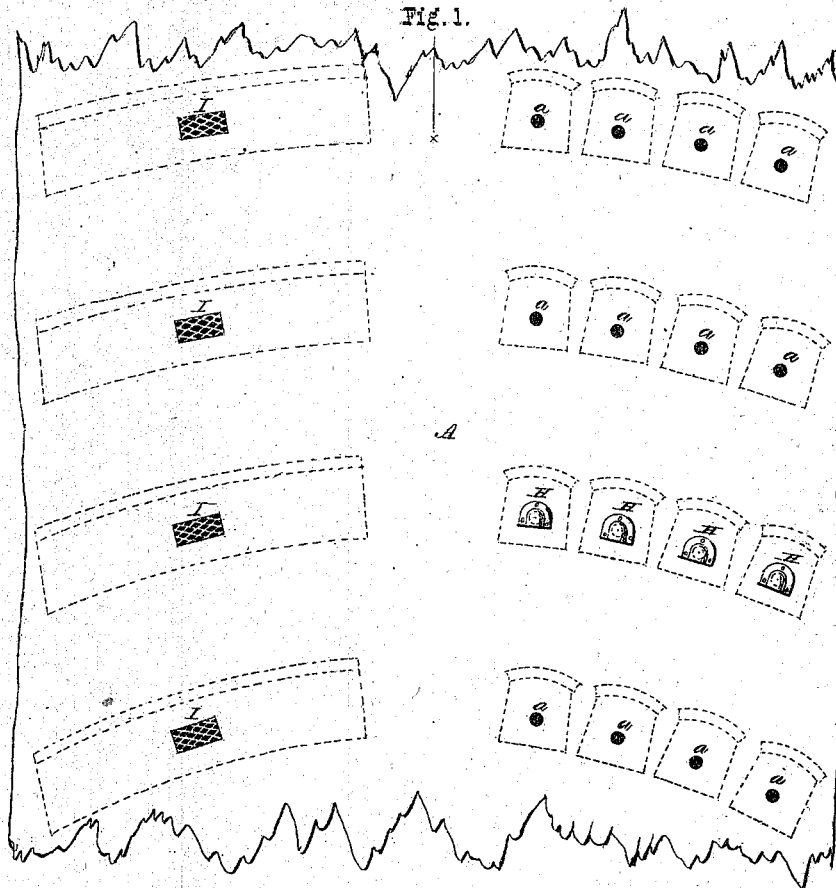


ALBERT L. IDE.

Improvement in Steam Heaters.

No. 115,477.

Patented May 30, 1871.



Witnesses.

John R. Young

Inventor.

Albert L. Ide by
Prindle and Dyer
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Fig. 3.

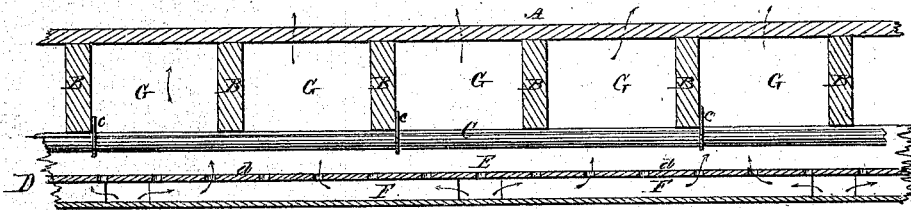


Fig. 4.

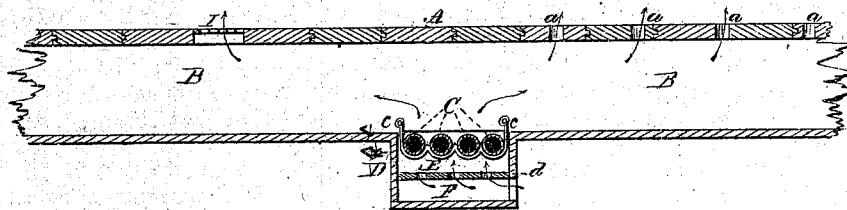


Fig. 5.

Fig. 6.

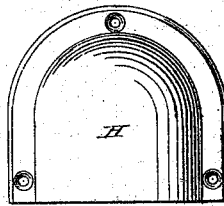
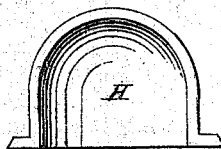


Fig. 7.

Witnesses.

John B. Young

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UNITED STATES PATENT OFFICE.

ALBERT L. IDE, OF SPRINGFIELD, ILLINOIS.

IMPROVEMENT IN STEAM-HEATERS.

Specification forming part of Letters Patent No. 115,477, dated May 30, 1871.

To all whom it may concern:

Be it known that I, ALBERT L. IDE, of Springfield, in the county of Sangamon and in the State of Illinois, have invented certain Improvements in Steam-Heating Apparatus; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view of the floor of an auditory containing my improved heating apparatus. Fig. 2 is a like view of the lower side of said floor, with a portion of the cold-air duct broken away so as to show the arrangement of the steam-pipes. Figs. 3 and 4 are, respectively, a longitudinal and a cross-section of said floor on the lines *x* and *z* of Figs. 1 and 2. Figs. 5 and 6 are, respectively, a bottom view and a front elevation of a hood or cap for covering the hot-air passages provided in and through the floor; and Fig. 7 is a vertical central section of the same.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to thoroughly and speedily warm and ventilate large apartments with the employment of a smaller amount of fuel than would be required by ordinary steam-heating apparatus; and it consists in the construction and relative arrangement of the cold and hot air ducts, the steam-pipes, and the distributing-chambers, substantially as and for the purpose hereinafter specified.

In the annexed drawing, *a* represents a floor, resting upon and secured to suitable joist *B*, all of usual construction. Suspended within suitable stirrups *c*, immediately beneath the joist *B* and at a right angle therewith, is a series of steam-pipes, *C*, arranged in parallel lines, and separated by a small space, so as to permit air to pass freely between the same. A box, *D*, corresponding in width to the transverse breadth of the series of pipes and having any suitable depth, is divided horizontally by means of a perforated diaphragm, *d*, into an upper and lower chamber, *E* and *F*, respectively, and, being open at its upper side, is placed against the joist so as to inclose said pipes within said upper chamber, as shown in Fig. 4.

The lower side of the joists upon either side

of the casing *D* being coiled or otherwise inclosed so as to form a series of chambers, *G*, and communication effected between the chamber or duct *F* and the external air, the apparatus is ready for operation, as follows: Steam being admitted to the pipes, the air entering the lower chamber or duct passes upward around and between said pipes, and, becoming heated, passes laterally in either direction into the chambers *G*, from whence it escapes through suitable openings into the room.

When fixed chairs are used I preferably construct a small opening, *a*, beneath each chair, in order that the heated air may enter at a large number of points, and thereby become more generally diffused; and as said heated air would naturally rise directly to the ceiling of the room unless its course was changed, I cover each opening with a hood or cap, *H*, open at one side, in the form shown, by which means the currents of air are changed, so as to cause them to pass horizontally along the floor for a considerable distance, or until their force is expended, before passing upward. In case settees are employed, one or more registers, *I*, of ordinary construction, may be placed beneath the same for the admission of the heated air; but it will be readily seen that the larger the number of such openings the more perfect will be the diffusion of heat through the room.

To avoid all liability to danger from the contact of heated air with the wood composing the floor and joists, and also to render the chambers *G* more perfectly tight, I preferably cover them with a coating of plaster; but, if desired, other and equally efficacious means may be employed for effecting these objects.

The especial advantages obtained by such construction and arrangement of the heating apparatus are, first, the floor is warmed sufficiently to cause it to radiate a mild heat, instead, as is usually the case, of absorbing heat from the bodies of occupants of the room; second, the steam-pipes being arranged in long lengths, a saving of fully one-third of the cost is effected, and much less difficulty experienced in maintaining tight joints than would be possible were they arranged in coils; third, by admitting air simultaneously from so many points the heat is more thoroughly and evenly distributed through the room, and enables the

same to be more speedily heated than where the usual means for the introduction of heated air are employed.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

The construction and relative arrangement of the cold-air duct F, the pipe-chamber E, the steam-pipes C, and the distributing-chambers

G, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of March, 1871.

A. L. IDE.

Witnesses:

A. B. JUDKINS,

C. S. ZANE.