(No Model.) 2 Sheets—Sheet 1.

I. D. SMEAD.

CONSTRUCTION OF BUILDINGS.

No. 426,552. Patented Apr. 29, 1890.

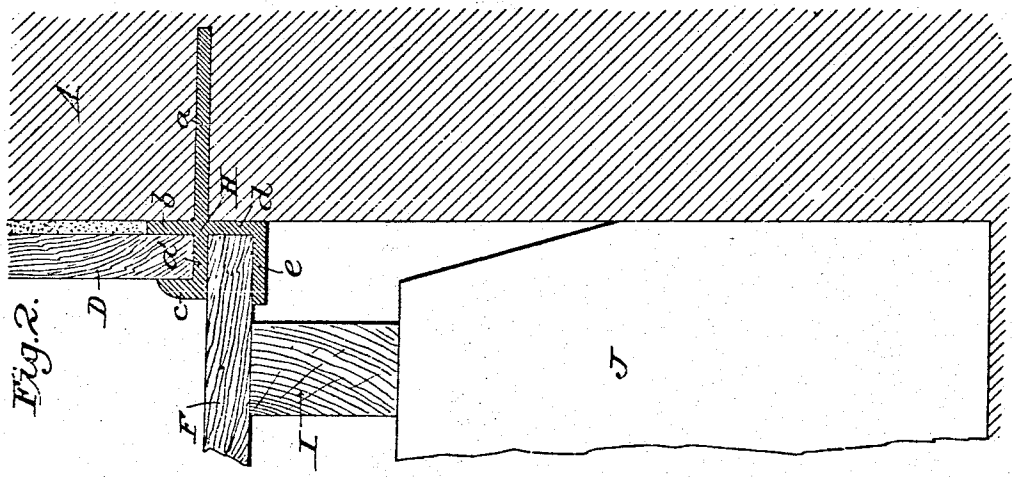


Fig. 2.

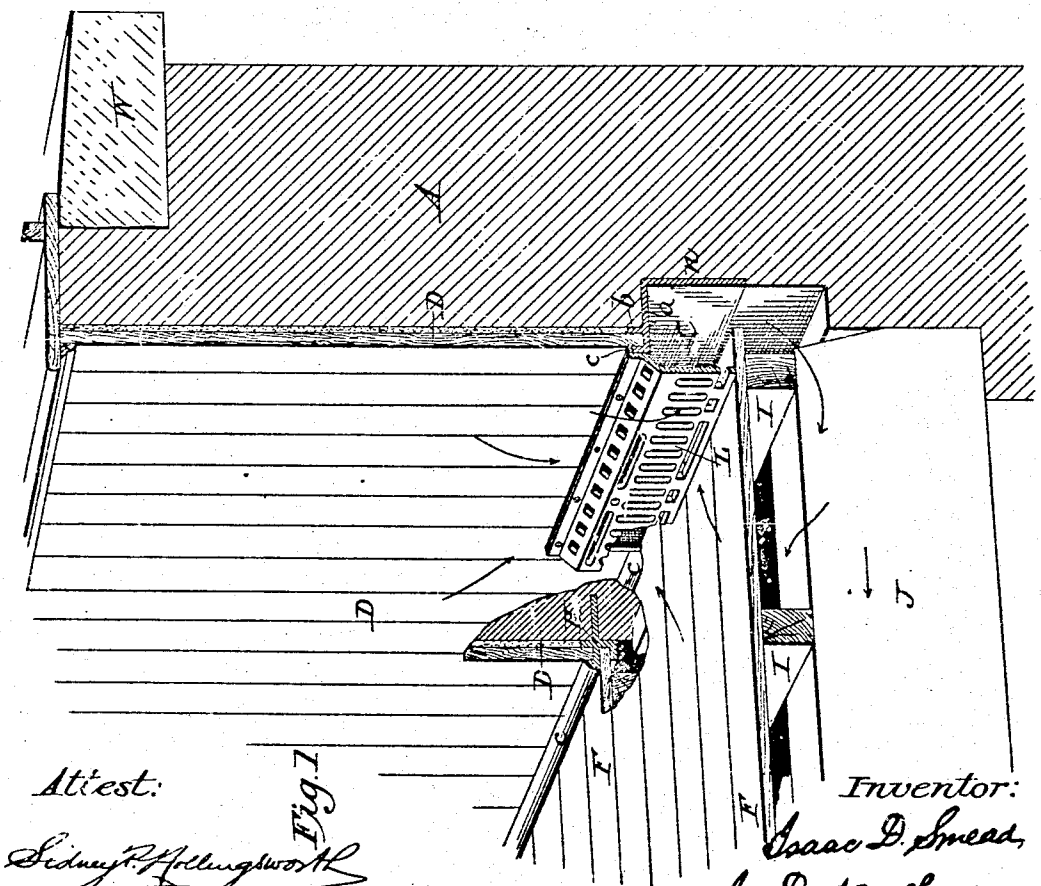


Fig. 1.

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Fig. 4.

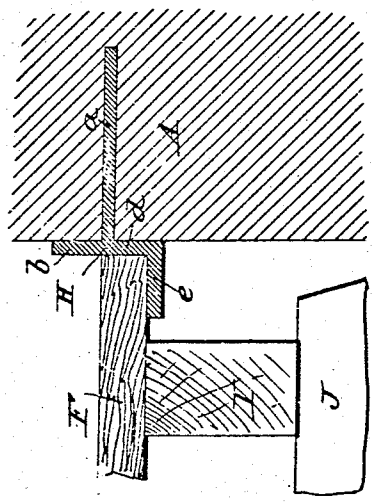


Fig. 6.

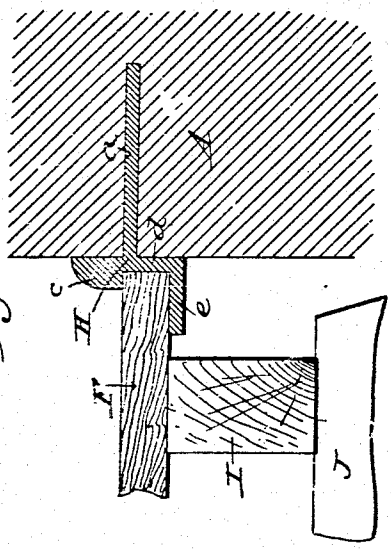


Fig. 3.

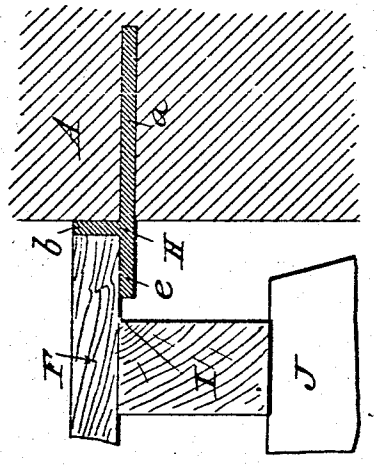
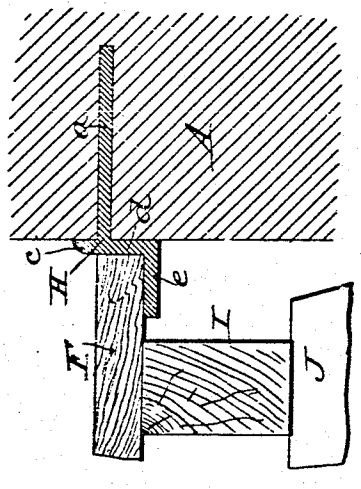


Fig. 5.



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UNITED STATES PATENT OFFICE.

ISAAC D. SMEAD, OF TOLEDO, OHIO.

CONSTRUCTION OF BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 426,552, dated April 29, 1890.

Application filed November 15, 1889. Serial No. 330,387. (No model.)

To all whom it may concern:

Be it known that I, ISAAC D. SMEAD, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in the Construction of Buildings, of which the following is a specification.

My present invention relates to certain improvements in the construction of buildings, as hereinafter more fully set forth.

Figure 1 is a sectional view of a portion of a building in perspective, showing my improvements as applied to a building. Fig. 2 is a vertical section of a portion of a building with the parts enlarged to more clearly illustrate the same, and Figs. 3, 4, 5, and 6 illustrate modifications.

This invention is designed for use in the larger class of buildings—such as school-houses, court-houses, public halls, churches, and the better class of private dwellings—and it is especially adapted for use in buildings designed to be warmed and ventilated by the well-known Ruttan-Smead system of warming and ventilation. In constructing buildings to be warmed and ventilated by this system it is customary to take the foul air out of the rooms through openings or screens set in the base-board, (or in the floor in old buildings,) and convey it thence under the floor to a gathering-room located in the basement, from whence it passes either directly or through a vault or duct into an uptake or ventilating-shaft which extends above the roof of the building.

Where there are numerous rooms to be ventilated, as is usually the case, it is frequently necessary to have the outgoing air under the floor travel crosswise of the floor-joists, in order to reach the gathering-room or ventilating-shaft, and for that reason it is customary to nail the floor-boards to strips resting on and at right angles to the floor-joists, as shown in the drawings, in which—

A represents a portion of one of the vertical walls of the building, J the floor-joist, I the transverse strips, and F the floor.

For a more detailed description of this plan of warming and ventilating buildings reference is hereby made to my prior patents, Nos. 261,879 and 314,884.

With this plan of warming and ventilation it is desirable to prevent the entrance of air into the rooms at all points, except through the warm-air flues, and it is also desirable to prevent the escape of the foul air from the rooms at all points, except those specially provided for that purpose, and which are connected by suitable passages with the ventilating-shaft, as stated.

Experience shows that as buildings are ordinarily constructed, especially when built of brick or stone, large cracks are frequently left under the stone sills, it being the custom to bed the sill on mortar at its ends only, in order to prevent it from being cracked or broken by the weight of the walls above, which bear on its ends only. Through such cracks and other openings a large amount of cold air enters the building, and where the walls are furred out and lathed and plastered this cold air passes down behind the plastering or wainscoting, if any, and generally enters the room at the bottom of the base-board, between which and the top of the floor there is almost invariably a crack, owing to the shrinkage of the wood, even if made tight at first. The cold air which thus enters is deflected in a sheet or current along the floor across the room, and is specially injurious to school children or others sitting in the room, as it tends to make their feet cold, and thereby interferes with the proper circulation of the blood in the extremities. In addition to this, these cold currents of air interfere with the operation of the warming and ventilating system, and are objectionable for that reason also. In some cases this cold air passes down between the plastering and outer wall into the rooms below or into the basement, and in some cases, where the flooring does not extend out to the wall, so as to make a tight joint all around, and which is always the case to a greater or less extent, this cold air gets under the floor and interferes with the draft from the rooms, it taking the place of the foul warm air which would otherwise be drawn out of the room.

It is to remedy these difficulties mainly that my invention is designed, although it also accomplishes other beneficial results, as will be hereinafter explained.

The improvement consists of a metallic

plate II, (shown more clearly in Fig. 2,) of a suitable form to be set in the wall and project inward all around far enough to form a perfect joint with the floor, and also with the wainscoting, when the latter is used. This plate H may be made in various forms in cross-section, as shown in Figs. 3, 4, 5, and 6; but the form shown in Figs. 1 and 2 is that which I consider preferable where wainscoting is to be used. It consists of a web or plate *a*, which is to be built into the wall at the proper height, and which has a vertical wing or flange *b* above and a vertical flange *d* below, these being opposite each other so as to fit snugly against the inner face of the wall. The lower flange *d* has a flange *e*, which projects horizontally inward, and which, with the prolongation of the plate *a*, as at *a'*, forms a continuous groove or socket for the reception of the ends of the floor-boards F, as shown in Figs. 1 and 2.

Where wainscoting is to be used, as is customary in modern school-buildings, an upturned rib *c* is formed along the inner edge of the horizontal extension *a'*, its inner face being beveled or rounded at its upper edge to make a neat finish and also to prevent the lodgment and accumulation of dust thereon. It is obvious that this rib or lip *c*, and which is the only part that will show in the room, (aside from the ventilating-screens hereinafter explained,) may be made in the form of a fancy molding of any desired style, if desired; but for school-buildings and the like I prefer to make it plain, because it is easier kept clean. It will be seen that the space between this rib *c* and the vertical flange *b* forms a groove for the reception of the lower end of the wainscoting D, as shown in Figs. 1 and 2, the space in rear of the wainscoting being occupied by the plastering.

In cases where it is desired to fur out and lath the outer walls, the vertical flange *b* may be set in far enough to allow for the same, and in cases where the wainscoting is dispensed with the rib *c* will take the place of the flange *b*, as represented in Fig. 3. By this means not only is the leakage of air into and out of the rooms prevented, but in the case of a fire in a building the walls of which are furred out this metal plate forms a cut-off at each story and prevents the fire from creeping gradually up behind the lath from one story to another. In like manner it serves to prevent mice and other vermin from getting in behind the lath and plastering and passing up and down from basement to attic, and which not infrequently is a great nuisance, as when once there it is almost impossible to get at them or dislodge them.

It will of course be understood that this plate II is to be inserted in the outer walls of the building all around, it being made in pieces of any suitable length for that purpose. So, too, where the partition-walls are of brick or stone, as is usually the case in large or public buildings, it may be used in them also, and thus be placed around the base of each and all the rooms. It is also obvious that it may be used in partition-walls formed with wooden studding, it only being necessary to form the part *a* with notches or holes at the points where the studs come, and which are usually set at uniform distances apart.

At points where the air is to be taken out of the room I modify the form of the plate, as shown at C, Fig 1, it being raised and provided with a downwardly-projecting flange *n*, as shown, the casting thus forming a box open at front and bottom, and which projects into a recess in the wall, as shown. The front above the floor is covered by a perforated plate L, through which the air can pass into the box-shaped recess, from whence it passes under the floor, as indicated by the arrows in Fig. 1. Any required number of these outlets may be used in a room, and they may be set along one, two, or more sides of the room, that being determined at the time the plans for the ventilation are prepared.

It will of course be understood that these ventilating boxes or devices may be made of the proper length to be set in between the studding of partition-walls, and thus be used in walls of that character as well as in brick or stone walls, and that the front plate or screen L may be made to project slightly, as shown, or that it may be made flat, so as to come even with the face of the wall, or nearly so, this, together with the style of the perforations, being matters of choice merely.

It will of course be understood that these box-shaped plates C when set in the wall will be made to join or abut against the end of the adjacent plate II on each side, so as to form a continuation thereof, and thus the plates II and C, when properly set in the wall, form a continuous cut-off between the exterior of the building and the interior of the room.

Having now fully described my invention so that any person skilled in the art can readily construct and apply the same, what I claim is—

1. A metallic plate adapted to be set in the wall of a building at the floor-line and cut off the passage of air into the rooms from the exterior of the building, substantially as shown and described.

2. A metallic building-plate for insertion in the walls of a building, provided along its front face with a groove or flange adapted to receive the ends or edge of the floor-boards, substantially as shown and described.

3. A metallic building-plate for insertion in the walls of a building, provided with a groove along its top for the reception of the lower end of the wainscoting, substantially as shown and described.

4. As an improvement in the construction of buildings, the metallic plate inserted in

the wall of the building and made to project from the inner face of said wall sufficiently to form a support for the floor-boards, substantially as shown and described, whereby a tight joint is secured at the base of the room.

5. A metallic box-shaped plate C, adapted to be set in the wall of a building to form a cut-off to the admission of air from the exterior, and a passage for the escape of the foul air from within the room, substantially as described and shown.

In witness whereof I hereunto set my hand in the presence of two witnesses.

ISAAC D. SMEAD.

Witnesses:
A. C. KOEHLER,
M. L. PECKHAM.