

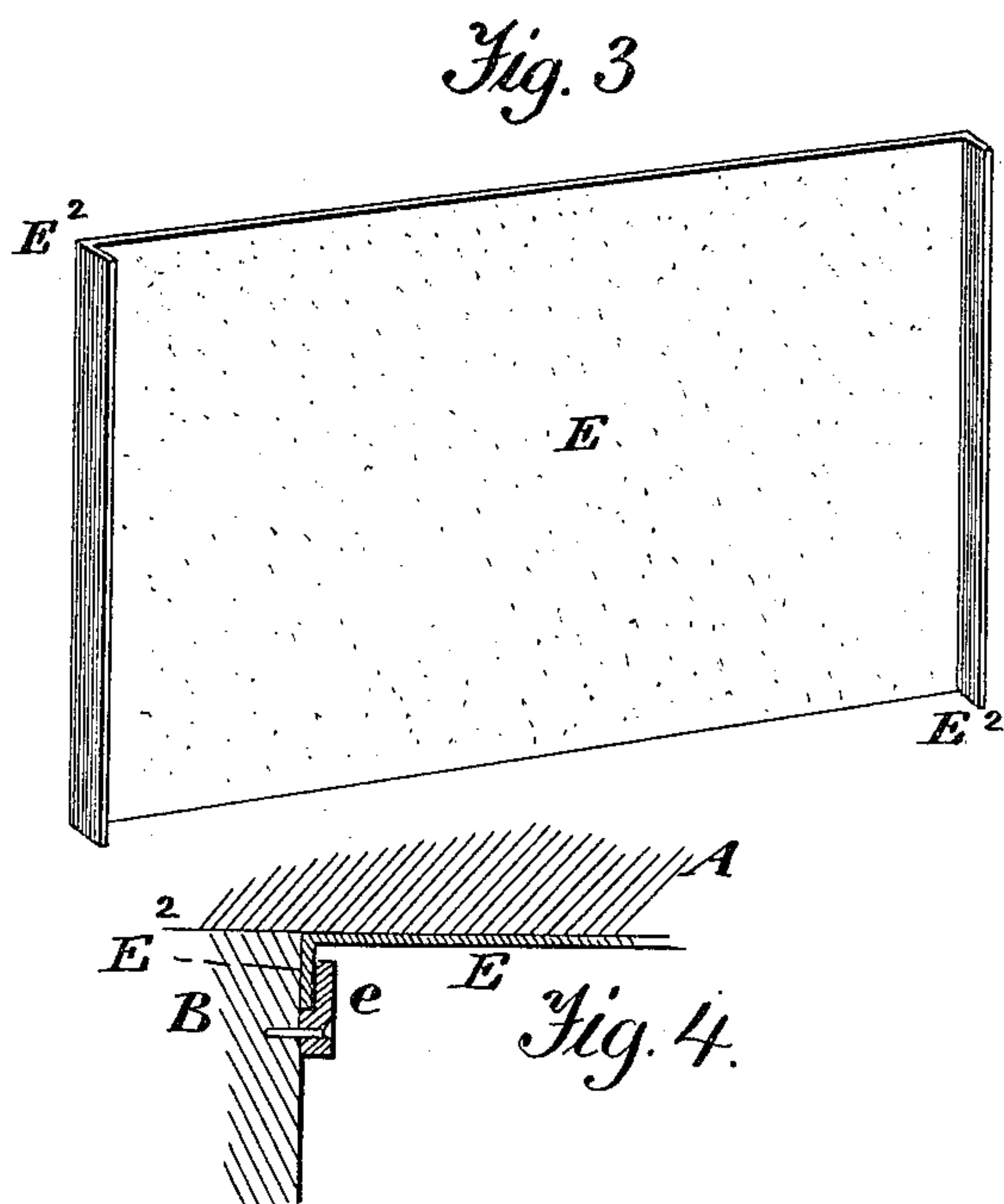
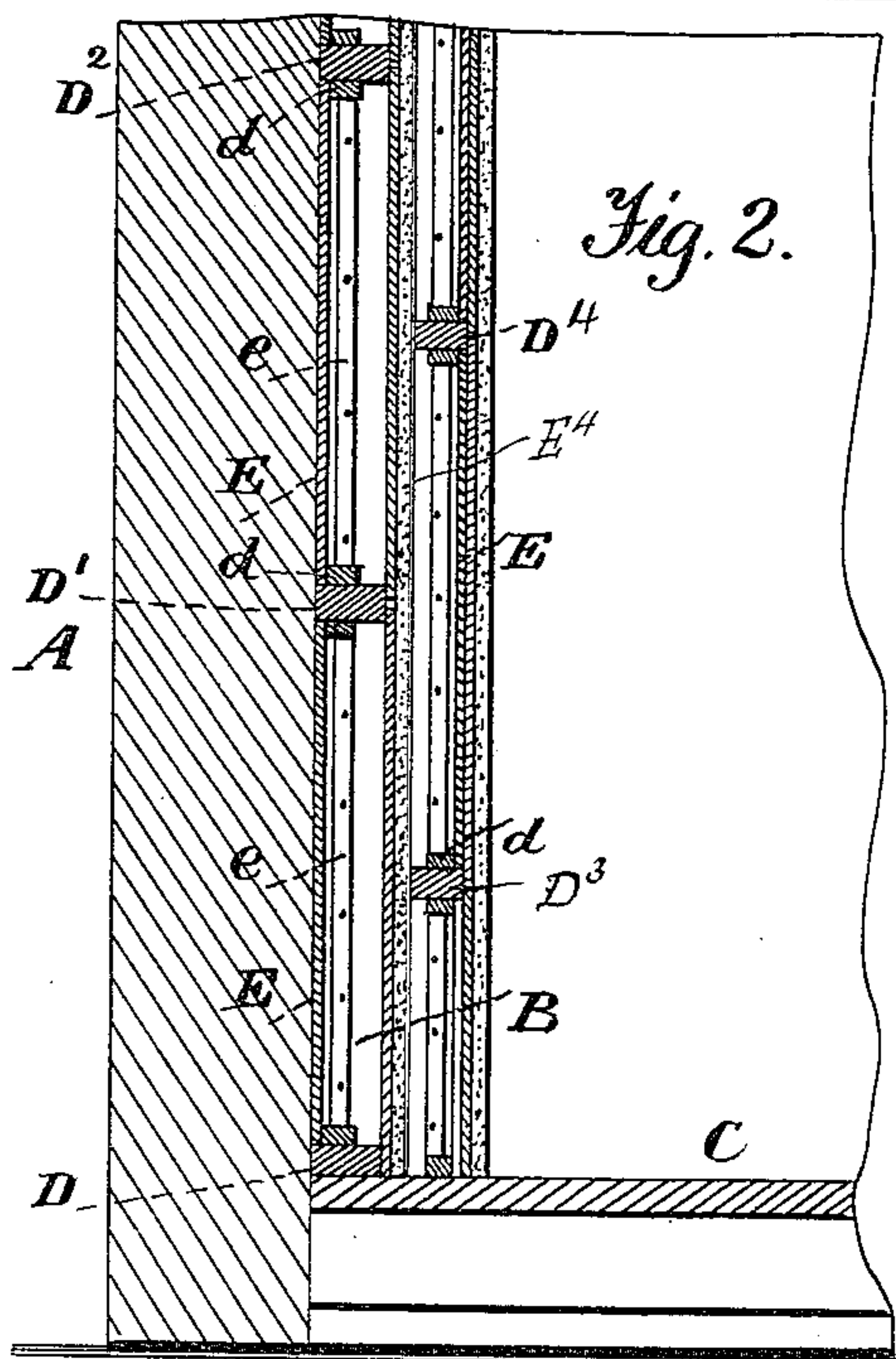
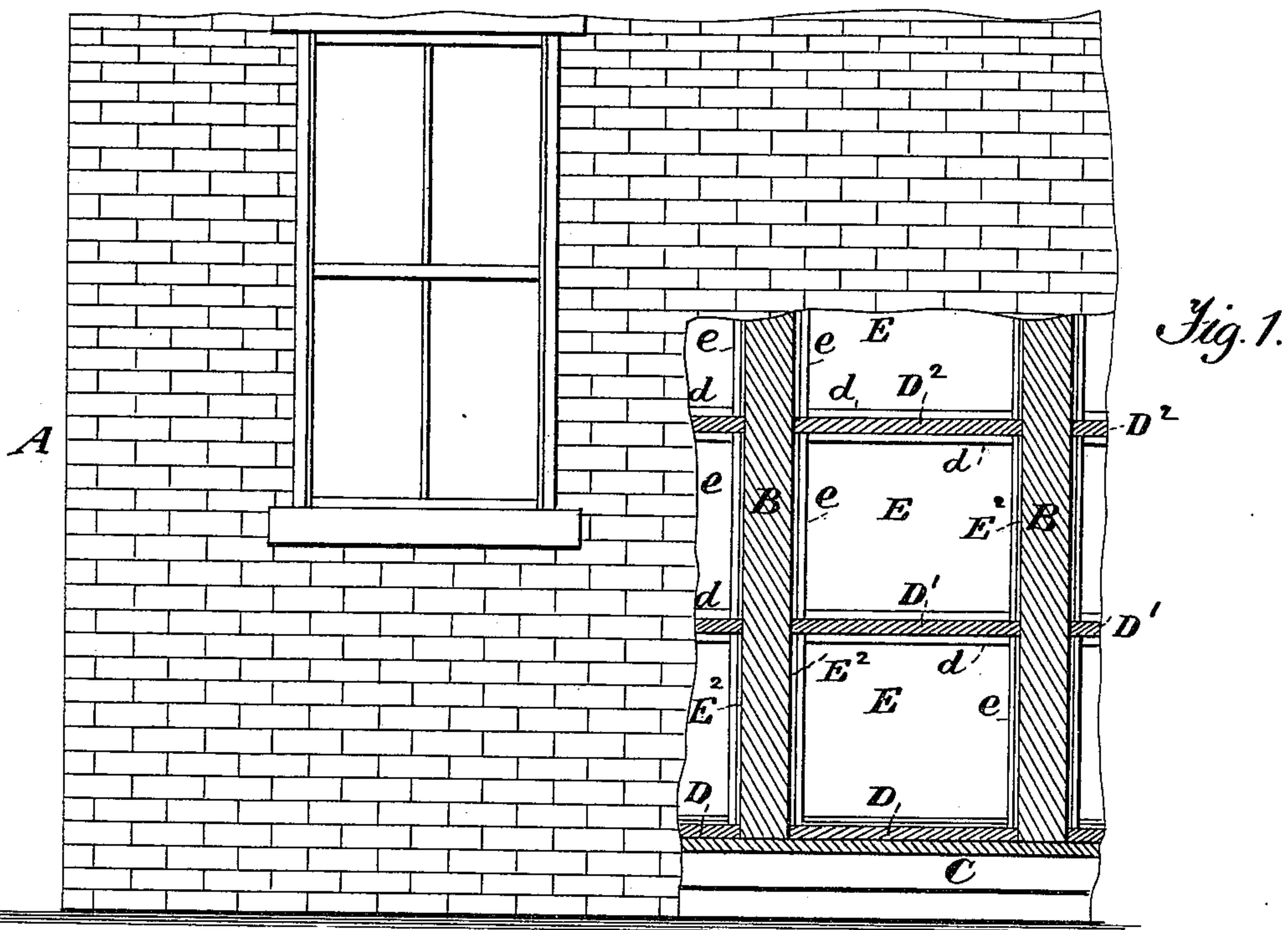
(No Model.)

2 Sheets—Sheet 1.

J. O'DONNELL.  
CONSTRUCTION OF BUILDINGS.

No. 405,794.

Patented June 25, 1889.



Witnesses.  
A. Ruppert,  
Chas. E. Brock

Inventor:  
John O'Donnell.  
By Franklin A. Hough  
his Attorney

(No Model.)

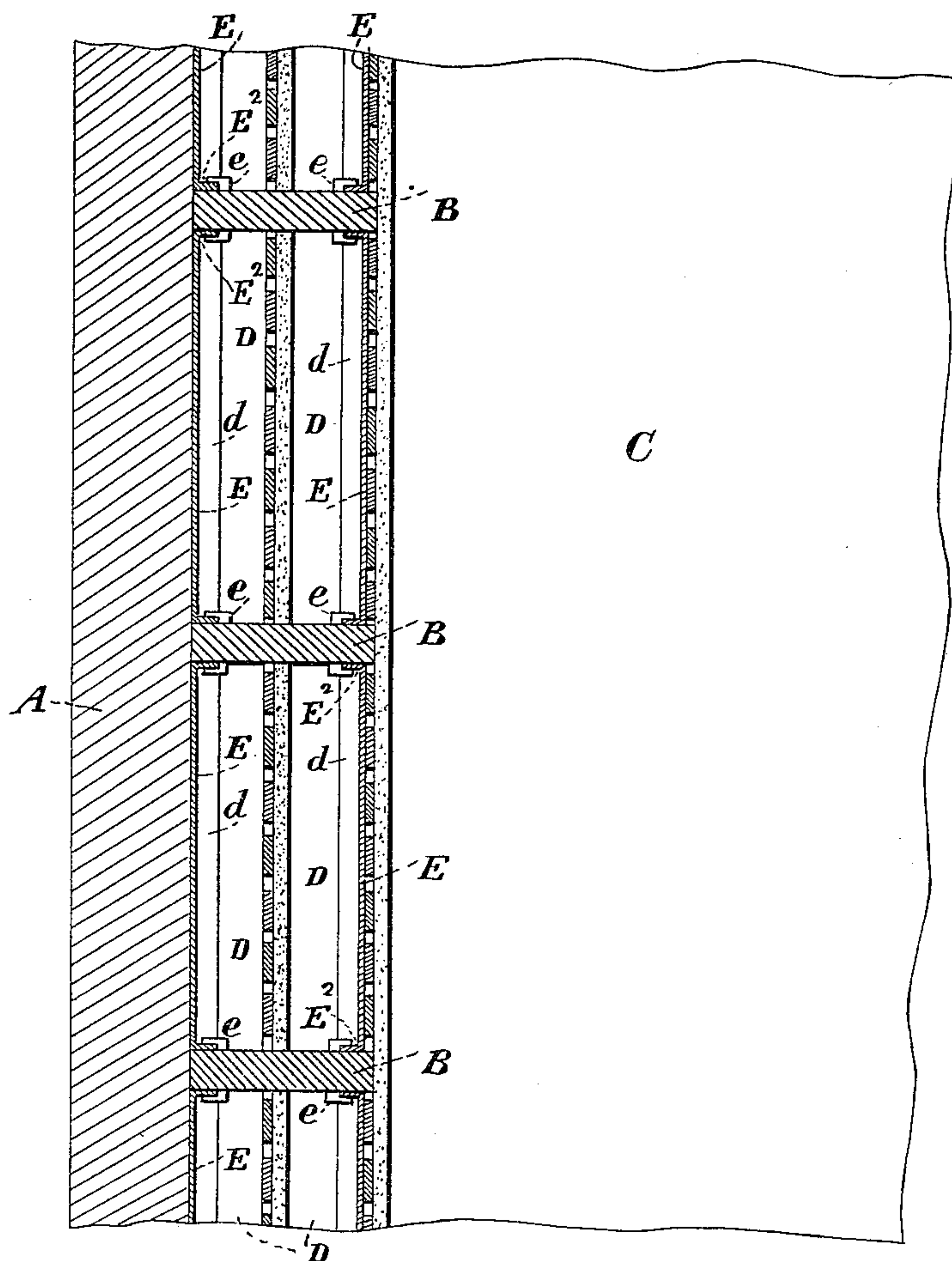
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*Fig. 5.*



*Witnesses.*  
*A. Ruppert,*  
*V. L. Mason,*

*Inventor.*  
*John O'Donnell*  
*by Franklin H. Hough*  
*His Atty.*



# UNITED STATES PATENT OFFICE.

JOHN O'DONNELL, OF LOWVILLE, NEW YORK.

## CONSTRUCTION OF BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 405,794, dated June 25, 1889.

Application filed December 20, 1888. Serial No. 294,192. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN O'DONNELL, a citizen of the United States, residing at Lowville, in the county of Lewis and State of New York, have invented certain new and useful Improvements in the Construction of Buildings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in the construction of the walls of any kind of buildings; but it has more particular reference to the construction of the outer walls of that class of frame buildings which are commonly designated "balloon frames."

The object of the invention is, primarily, to provide the walls of the building with a series of air-tight compartments or dead-air cells, so constructed and arranged as to render the interior of the building more uniform in temperature during the extremes of heat and cold, and to render the air within the building drier during damp and rainy seasons. Moreover, in case of conflagrations the spread of the fire will be much less rapid in buildings constructed in accordance with my invention than in frame or other buildings heretofore constructed in which continuous open spaces have been left between the studs.

To these ends and to such others as the invention may pertain, the same consists in the peculiar combinations and in the novel construction, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which.—

Figure 1 represents in side elevation a portion of the side of a house constructed in accordance with my invention, parts being shown

as broken away, in order to better illustrate the construction. Fig. 2 is a vertical section of the same. Fig. 3 is a perspective view of one of the sheets of paper used, showing the manner in which the same is folded. Fig. 4 is an enlarged detail showing the manner of securing the paper. Fig. 5 is a section taken at right angles to Fig. 2.

Reference now being had to the details of the drawings by letter, A represents the ordinary outer walls of a balloon-frame building constructed in accordance with my invention.

B B are the studs, and C the flooring of the building.

Beginning at the floor, I first nail securely between the adjoining studs a strip of wood D of any desired thickness and of a width preferably equal to one-half the width of the studs. This strip fits tightly against the outer wall, so as to exclude drafts of air. I next at suitable intervals, preferably of from two to four feet, fasten in a similar manner like strips of wood D' D<sup>2</sup>, &c., until I reach the top of the room or of the studding, as the case may be. After the strips described have been secured in place, strips of heavy building paper or equivalent material E are provided, preferably of a length sufficient to extend from one cross-piece to another, and about two inches wider than the intervening space between the studs, the extra paper along the edges of the strip being bent at right angles to the direction of the strip, thus forming the flanges E<sup>2</sup>, which are clearly shown in Fig. 3 of the drawings. These strips of paper are secured to the cross-strips D by other similar cross-strips d, placed above the paper and directly over the strips D, and of sufficient width to come out flush with the outer face of the studs. These strips are securely pressed down upon the paper, and are secured in position by tacks or nails driven through the outer edge of the strips into the studs. It will be seen that when thus secured the nails will not pass through the paper. In order to the more effectually provide against the passage of air, and to further secure the paper in position, I nail upon the inner faces of the flanges E<sup>2</sup>, about one-fourth of an inch



from the angle, a strip of wood *e*, about the size of a common lath and of sufficient length to fit closely between the cross-pieces. At the upper and also at the lower end of the space between the studs the paper is provided with flanges similar in all respects to the flanges upon the sides, and the entire paper partition is rendered as nearly as possible air-tight.

The object in placing the cross-strips and the strips of wood over the paper, as described, is to provide a means for the paper to give, in case of warping of the studs to which it is attached, instead of tearing, as would otherwise be the case, and to provide for expansion and contraction, as well as to form the air cells.

The paper partition described having been secured in place, a series of practically air-tight cells is provided behind the partition, which extend from the base to the top of the building and fill one-half of the space intervening between the coping and the inner face of the studding.

When other material than paper—such as lath and plaster *E*<sup>4</sup>—is used for the inner partition, a second series of cross-strips *D*<sup>3</sup> *D*<sup>4</sup> is preferably so placed as to alternate with the strips *D* *D'* *D*<sup>2</sup> beneath the partition, and upon the outer faces of these strips are secured the lath forming the inner face of the wall to which the plaster or other material is applied.

It will be readily understood that the construction which I have described is subject to certain modifications without departing from the spirit of the invention—as, for instance, the covering of the first series of strips *D* *D'* *D*<sup>2</sup> may be of lath and plastering *E*<sup>4</sup>, or any other suitable material instead of paper, as an effectual and air-tight partition between the adjoining series of cells is what is required. Nor do I desire to be understood as limiting myself to any particular number of cells or series of cells, as, though I have described the use of two series of cells, and I ordinarily prefer the use of such number, a greater number may be employed, and it is

at once evident that the usefulness of the cells would be increased in proportion to the increase in number.

While I have described the invention as applied to the outer walls of a building it is equally well adapted to inside partitions and to floors.

I deem it important that two series of strips alternate, as shown, whereby greater strength is obtained and greater safety is provided in case of fire.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

1. In a wall for a building, the combination, with the outer wall *A*, the studs, and a series of strips between the studs, of a layer of paper between each two strips and a second series of strips and paper alternating with said strips, substantially as and for the purpose specified.

2. A wall for a frame building, composed of an outer and an inner wall and studs, cross-pieces between the studs, fitting close to the inside of the outer wall, thereby making an air-tight joint, alternating cross-pieces fitting closely with the inside face of the plaster or other material of the inside wall, thereby making an air-tight joint, paper having flanges, as shown, and strips of wood for holding said paper nailed to the studs, said strips being placed about one-fourth of an inch (more or less) from the inner corner of the angle of the paper or other equivalent material used, said flanged material and strips forming an air-tight joint between the cross-pieces and making complete dead-air cells, and giving the paper or other material used free play between the edges of the cross-pieces, thereby providing for the expansion or contraction of the material used or of the shrinkage of the studs.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN O'DONNELL.

Witnesses:

W. J. WOOD,

E. G. O'DONNELL.