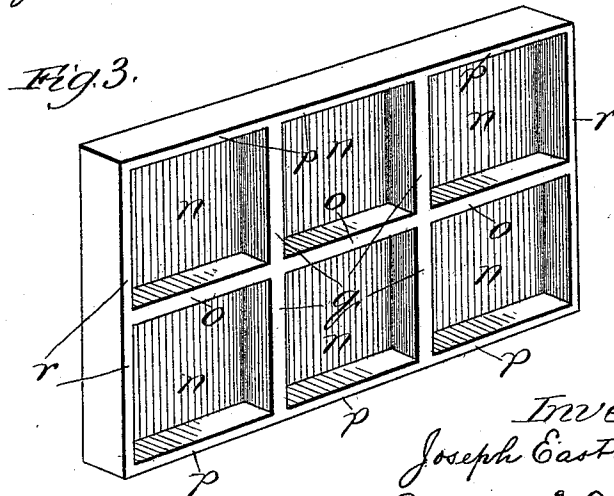
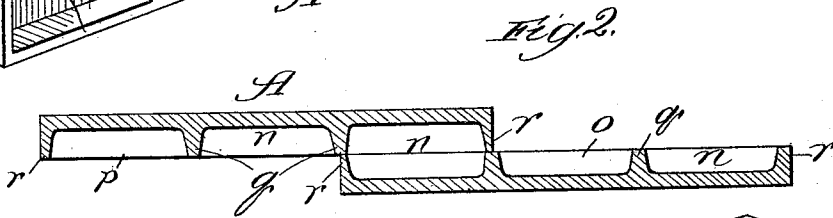
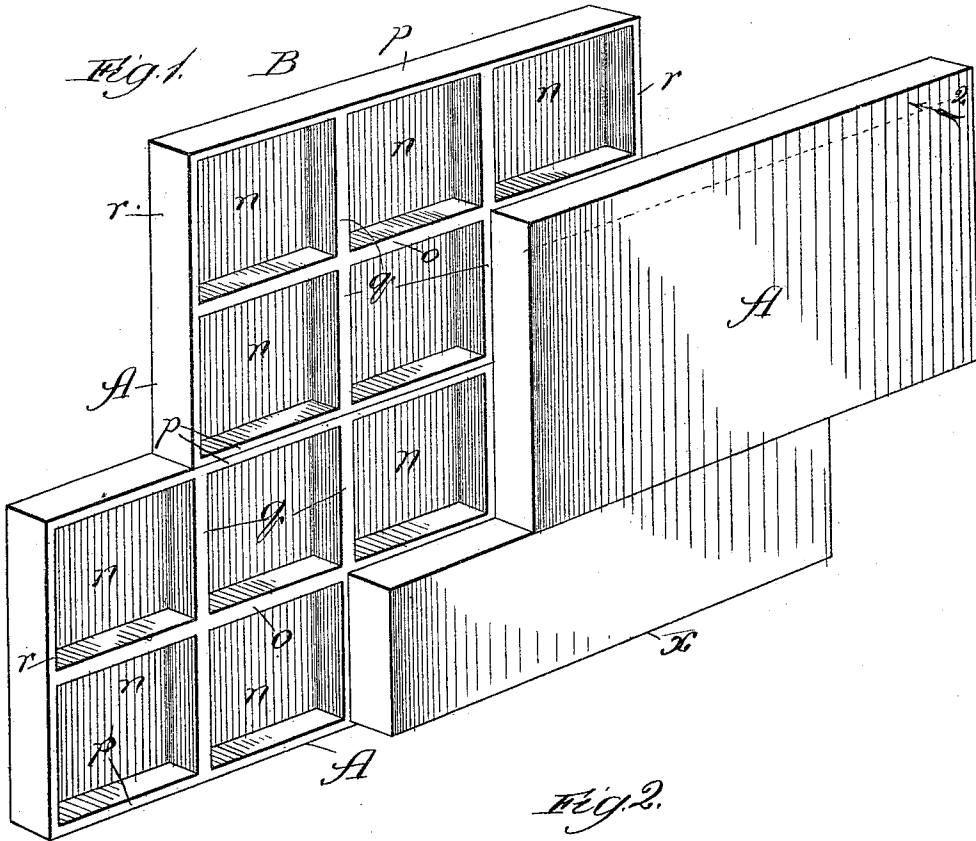


(No Model.)

J. EASTMAN.  
FIRE PROOF BUILDING MATERIAL.

No. 457,984.

Patented Aug. 18, 1891.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOSEPH EASTMAN, OF CHICAGO, ILLINOIS.

## FIRE-PROOF BUILDING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 457,984, dated August 18, 1891.

Application filed October 28, 1890. Serial No. 369,587. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH EASTMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Fire-Proof Building Material, of which the following is a specification.

My invention relates, primarily, to a slab of fire-proof material for the construction of partition-walls, and even the ceilings and floors on wooden joists, and for lining the outside walls in buildings; and it also relates to an improved construction of partition-wall formed with the slabs of my improvement, whereby it shall be rendered especially strong without the use of studding, and light, and shall contain the desired air-space.

In the accompanying drawings, Figure 1 is a view in perspective indicating a partition-wall undergoing erection with my improved construction of slab in its preferred form as to details of the construction. Fig. 2 is a section taken on the line 2 of Fig. 1 and viewed in the direction of the arrow. Fig. 3 is a perspective view of the slab, presenting its rear or inner face and showing it in its preferred form, as represented in Fig. 1, but somewhat enlarged.

While I do not limit my improvement to any particular material or composition of materials for producing the slab A, except that some form of lime shall constitute an essential element thereof, in order to attain all the advantages incidental to its use, it should be composed of a mixture of materials which will permit it to be readily formed by molding, which will harden readily and sufficiently without baking to avoid the irregularities by warping which baking induces in clay tiles, and which will cause the surfaces of the slabs in a partition formed of them to afford a substitute for one coat of so-called "browning" or brown mortar, thus adapting it to receive the finishing coat directly upon the surface. To these ends the mixture of materials I use, though I do not in this application lay claim to the composition, is plaster-of-paris and cinders or sawdust mixed in about equal proportions with water with enough hemp fiber added to afford adequate binding effect and enough glue to keep it from setting too

quickly. I form the slab A by molding it of the aforesaid composition.

The essential elements of the construction of my slab are that it be homogeneous throughout and straight or even on one face, and that it be provided on the other face with ribs or flanges extending at an angle to each other, preferably so that they join at right angles, the simplest form which occurs to me being with the ribs *r r* at its opposite ends or at two opposite sides of the center and at least one intermediate rib *q*. The most desirable form, however, by reason especially of the increased strength and adaptability for laying, is that illustrated, involving two intermediate ribs *q*, two edge ribs *p*, extending laterally from the edges of the slab at right angles to those referred to as the ends provided with the ribs *r*, and an intermediate rib *o*, crossing the ribs *q* and extending from one rib *r* to the other.

The proportionate dimensions of the slab, as shown, (though I do not limit my improvement to any particular dimensions of the slab,) are one and one-half times as long in the direction across the ribs *r* as in that across the ribs *p*, and the intermediate ribs *q* and *o* should be so disposed as to form the recesses *n* they produce of equal dimensions or in squares.

In erecting a partition with my improved slabs they are laid on their ends (or edgewise) with relation to a proper line in two thicknesses—that is to say, the wall is formed with the slabs brought together to cause their ribs to coincide and be in contact with each other, with the recesses *n* producing the desired interior air-spaces or air-chambers, while the other sides of the slabs form the opposite surfaces of the wall. The material I prefer to use for cementing the slabs together in forming the wall is plaster-of-paris, which is applied by "buttering" on the ribs. My improved slab not only thus enables me to construct a fire-proof partition without the use of studding, but it permits it to be put together, as indicated by the wall B in the drawings, by disposing the slabs to produce "break-joints" between the two thicknesses thereof, both in the vertical and horizontal direction of the structure. To accomplish this the lowermost

horizontal tier of the slabs for one side, as shown of the slab at  $x$  in Fig. 1, should be (with the dimensions of the slab referred to) one-half the width of the other slabs used generally throughout the wall, whereby in adjusting the slabs to form the opposite wall-surfaces, they will mutually overlap each other in the vertical direction, thereby forming the horizontal break-joints, while ribs on the opposite slabs will inevitably coincide. The same result may be obtained with the slabs provided in the dimensions stated by laying the first course of the slabs to extend lengthwise vertically and the corresponding course for the opposite side lengthwise horizontally. To produce the overlapping of the joints between the slabs for the opposite partition surfaces in a horizontal direction the slabs are laid accordingly, as indicated. The ribs not only strengthen the slabs, but the edge ribs afford great convenience in laying them up, since when one slab is laid against another to form the opposite sides of a partition in the manner set forth a closed ledge or shelf is formed by the coincidence of the edge rib on one with the intermediate rib  $q$  on the other, on which ledge the mortar or cement is spread, and the overlapping from one rib to another helps to bind the two slabs the better together.

In laying up the partition the face of the upper edge rib of the slab already fixed should always be "buttered," in addition to spreading the mortar or cement on the shelf or ledge referred to. Thus, as will be seen, each slab may be caused to overlap to the extent of one-half of its width above the opposing slab, and as the face of the upper rib of the slab already laid is buttered with cement, and as it comes in contact with the face of the intermediate rib of the slab being laid, which latter is embedded in cement on the shelf formed, the opposing slabs are very firmly bound together by the adhesion of the cement to the surfaces, requiring to that end no clamps, holdfasts, nails, or screws. It is therefore essential that the ribs be made of a material to which the cement will adhere. Hence both the slabs and their ribs should be formed integral from a homogeneous mass. The slabs being straight and even on one side, and both faces of the partition being laid to a line and the mortar or composition used for the slabs being of a superior quality, I am enabled thus to provide a partition having what is known as the "brown coat" of plastering with a much truer surface than is produced by the ordinary plastering, and equal to the best "rodged" work with a much harder and stronger surface than any common plastering now in use. The partition weighs only what the plastering alone weighs on other partitions, and I save over the latter the studding, lath, and grounds, and the labor of putting them up. The slabs may be made wholly by machinery, and since I save over the old method of making plaster partitions the making of the

mortar and applying the brown coat, which constitute the most laborious parts of the work, I provide a cheaper partition than the ordinary stud, lath, and plastered, and at one and the same time do away with the slavish part of the art of plastering, besides affording a partition that is fire-proof, light, and strong, and one that will not sag with the joist when weighted. A surface made with these slabs can be finished with any kind of material now used for finishing on the ordinary brown coat of mortar.

If my improved slabs be used, as they may be, for sheeting the outside of wooden buildings, which forms one of the various uses to which they may be applied, they should be secured in place, as by nailing, and relatively adjusted in a manner to produce spaces between the joints, say about three-eighths of an inch wide, which, when filled in with cement or mortar, prevents cracking at the joints.

What I claim as new, and desire to secure by Letters Patent, is—

1. A building-slab formed throughout of a hard unbaked fire-proof material having some form of lime as its essential ingredient, one face of the slab forming a plain surface and the other face having intersecting flanges or ribs, substantially as and for the purpose set forth.

2. A building-slab formed throughout of a fire-proof material having some form of lime as its essential ingredient, one face of the slab forming a plain surface and the other face having flanges or ribs on four sides intersecting at the corners, substantially as described.

3. A building-slab formed throughout of a fire-proof material having some form of lime as its essential ingredient, one face of the slab forming a plain surface and the other having ribs on its sides and intermediate ribs intersecting the said side ribs, substantially as and for the purpose set forth.

4. A building-slab formed throughout of a fire-proof material having some form of lime as its essential ingredient, one face of the slab forming a plain brown-mortar surface and the other face having flanges or ribs on its sides and intermediate flanges or ribs crossing each other and intersecting the said side ribs, substantially as and for the purpose set forth.

5. A partition B, formed of slabs A of fire-proof material, each having ribs projecting from one side, the said slabs being placed together to cause the ribbed sides to face each other and form air-spaces between them and the ribs to coincide, the said slabs being cemented together at their ribs and edges, substantially as described.

6. A partition B, formed of slabs A of fire-proof material, each having ribs projecting from one side, the said slabs being placed together to cause the ribbed sides to face each other and form air-spaces between them and the ribs to coincide, the said slabs being laid to cause those forming the opposite sides

of the partition to overlap each other and form break-joints throughout the partition and being cemented together at the ribs and edges, substantially as described.

5 7. A partition B, formed of slabs A of fire-proof material, each having ribs projecting from one side, the said slabs being placed together to cause the ribbed sides to face each other and form air-spaces and the ribs to coincide, and the said slabs being laid to cause those forming the opposite sides of the partition to overlap each other and form break-joints vertically and horizontally throughout the partition and being cemented together at the ribs and edges, substantially as described.

15 8. A wall B, formed of slabs A of fire-proof

material, each having edge ribs *r r* and *p p* and intermediate ribs *q* and *o*, projecting from one side and forming recesses *n*, the said slabs being placed together to cause the ribbed sides to face each other and the ribs to coincide and form air-spaces, and the said slabs being laid and arranged to cause those forming the opposite sides of the partition to overlap each other and form break-joints throughout the partition and being cemented together at the ribs, substantially as described.

JOSEPH EASTMAN.

In presence of—

J. W. DYRENFORTH,  
M. J. FROST.