H. M. & W. C. Smith,

Floor.

No. 93646. Patented Aug 10. 1869.

Fig. 1.

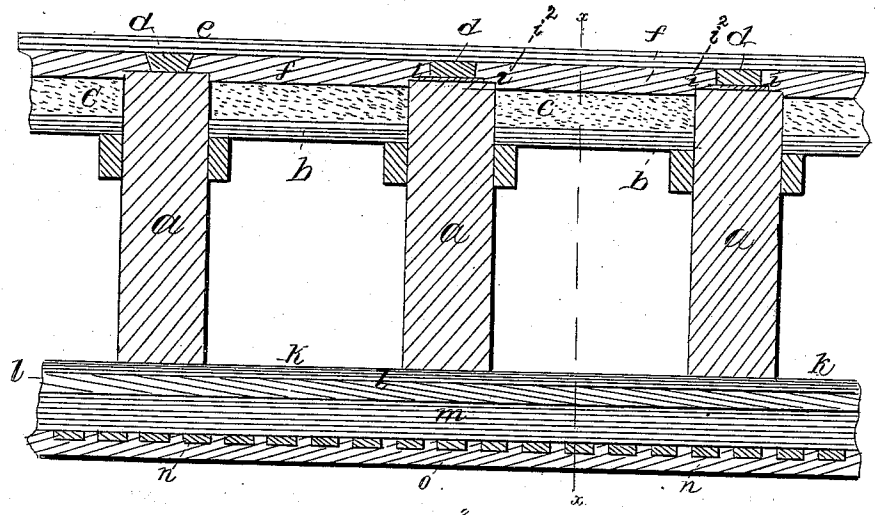
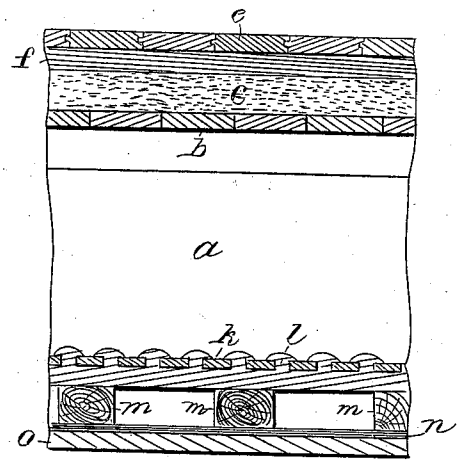


Fig. 2.



Witnesses.
Chas. H. Smith
Geo. D. Wallace

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United States Patent Office.

HAVILAH M. SMITH AND WILLIAM C. SMITH, OF NEW YORK, N. Y.

Letters Patent No. 93,646, *dated August* 10, 1869.

IMPROVED FLOOR FOR BUILDINGS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, HAVILAH M. SMITH and WILLIAM C. SMITH, of the city and State of New York, have invented and made a new and useful Improvement in Floors for Buildings; and we do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1 is a section of the floor transversely of the beams, and

Figure 2 is a section longitudinally of the beams, at the line *x x*, a portion only of such floor being represented.

Like letters denote the same parts.

Floors have heretofore been made with the beams *a a*, between which the deafening-boards *b b* are secured; and on these, deafening-material, such as refuse plaster, sawdust, &c., have been introduced, as at *c*.

In floors of this character, and also in floors without deafening, there is great risk of fire spreading with rapidity, because the air has more or less access to the under sides of the flooring-boards, and a fire that burns through the floor extends among the beams. Besides this, water will run through the floors, and frequently do more injury to goods than the fire.

The object of our invention is to render the floors fire and water-proof, so that the beams will not catch fire, even if the flooring is burnt up, and the water employed in extinguishing the fire, or otherwise falling upon the floor, will not leak through. We also construct the ceiling in such a manner that fire cannot spread with rapidity, and the ceiling is substantially fire-proof, even if the plaster is partially broken off.

In order to effect the foregoing objects, we make use of strips *d d*, nailed upon the upper surfaces of the beams *a*, said strips being of a much less width than the beams.

We next apply a layer, *f*, of plaster of Paris, mortar, or other material that will not burn, and that will form a water-proof surface, lapping over the angles 2 2 of the beams, and effectually protecting them from fire, at the same time covering the upper surfaces of the beams, and protecting them; and, the plaster being gauged level with the upper surfaces of the strips *d d*, there is no air-space between the flooring-boards *e e* and the fire-proof layer *f*; and, as an additional protection to the beams, we provide, if desired, strips of sheet-metal, at *i*, between the strips *d* and beams *a*, the same being wider than the strips *d*, and reaching into the layer *f*, so that the beam itself will be protected, even if the heat should be sufficiently intense to burn up the strips *d*.

The strips *d* may be made wider at the top than at the bottom, as shown, so as to allow the fire-proof material to more fully cover the upper surface of the beams.

It is usual to lath directly upon the beams, and then plaster upon the laths. The beams are often too far apart for receiving the lathing, in which case furring-strips are first nailed across the beams, and to these the laths are nailed.

This construction allows air to circulate through the entire floor, and hence fire will pass along rapidly, particularly after a portion of the plastering may be broken off.

Our improved ceiling is made by lathing directly upon the beams, as at *k*; then applying a rough, strong coat of plaster, at *l*; and upon this we nail the furring-strips *m m*, transversely of the beams, and apply a second lathing, at *n*; and upon this the regular coats of plaster, at *o*, are applied, and the ceiling finished.

This construction prevents fire spreading, because a circulation of air between the beams is checked, and, if the heat is sufficiently intense to crack and burn off one layer of plaster, the second layer still remains, to protect the beams.

If desired, the surface of the beams may be coated with plaster before the strips *d* are nailed down; or these strips *d* might be coated or saturated with fire-proof material.

When this improvement is used for the roof of a building more or less inclined, to shed off the water, a layer of felting may be put on after the deafening *c* and plaster *f* have been applied, and then the composition of bituminous material and sand or gravel spread upon the sheets of felting, to form what is known as the gravel-roofing; or any other desired character of roofing-material may be applied upon the surface prepared as aforesaid.

In laying the flooring-boards *e e*, paint, tar, or other water-proof material, may be employed, to aid in rendering the structure absolutely water-proof.

We do not claim supporting the floor on strips, when those strips rest upon the boards between the beams that also receive the deafening; neither do we make use of any such device; and we are aware that the furring-strips have been sustained parallel, or nearly so, with the beams, by iron bars running across them and the beams.

What we claim, and desire to secure by Letters Patent, is—

1. The strips *d*, upon the beams *a*, combined with the fire-proof material, introduced at *f*, above the deaf-

ening *b* or *c*, substantially as and for the purposes set forth.

2. The double lathing *k n*, with the intervening plastering *l* and furring *m*, in combination with the plastering *o* of the ceiling, as and for the purposes specified.

3. The combination of the double lathing and plastering of the ceiling with the deafening and fire-proof material below the floor-boards, substantially as and for the purposes set forth.

In witness whereof, we have hereunto set our signatures, this 12th day of December, A. D. 1868.

HAVILAH M. SMITH.
WILLIAM C. SMITH.

Witnesses:
CHAS. H. SMITH,
GEO. T. PINCKNEY.