

No. 646,502.

Patented Apr. 3, 1900.

T. O'SHEA.

BUILDING CONSTRUCTION FOR FLOORS AND CEILINGS.

(Application filed May 12, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

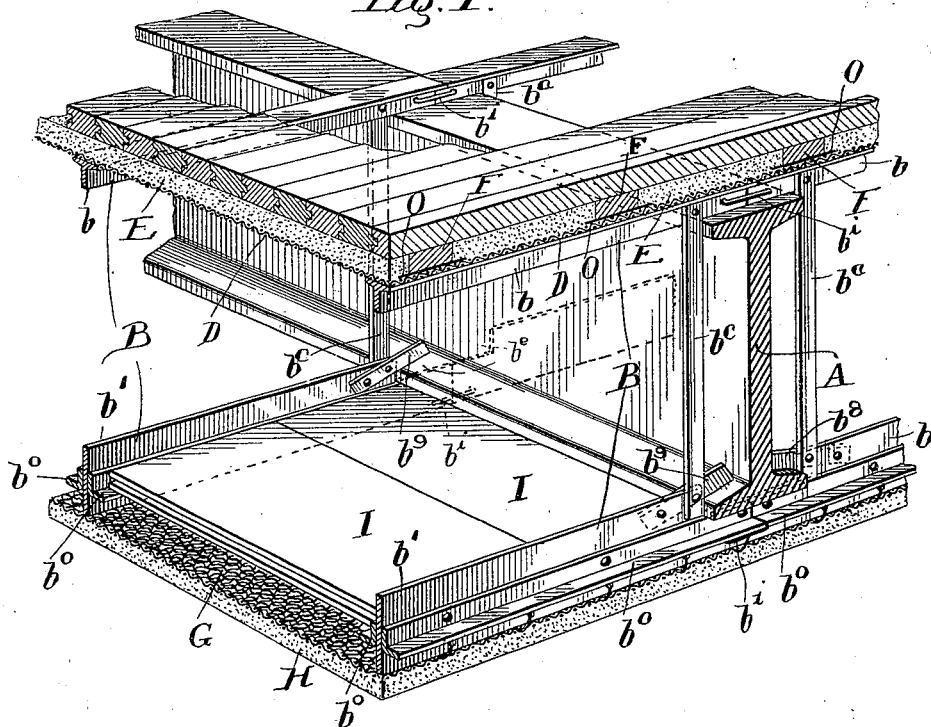
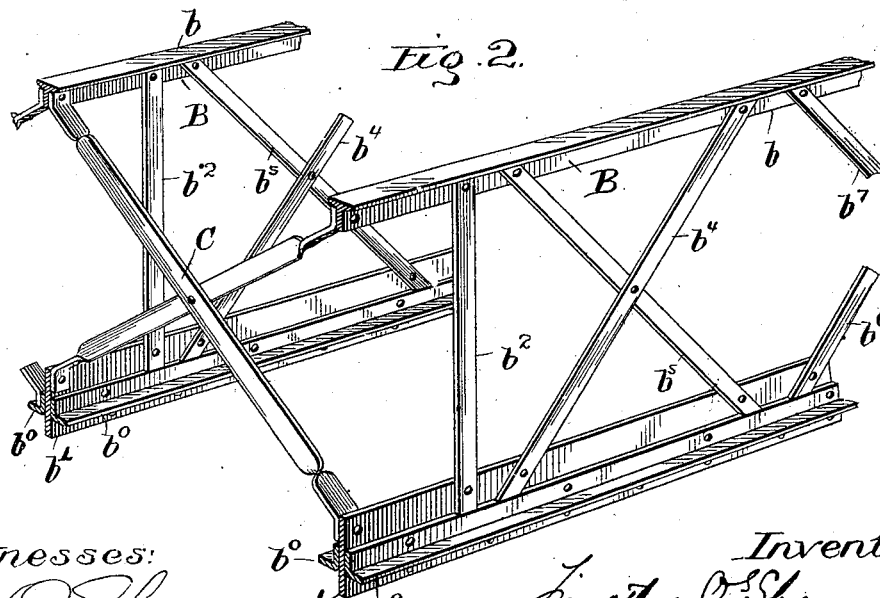


Fig. 2.



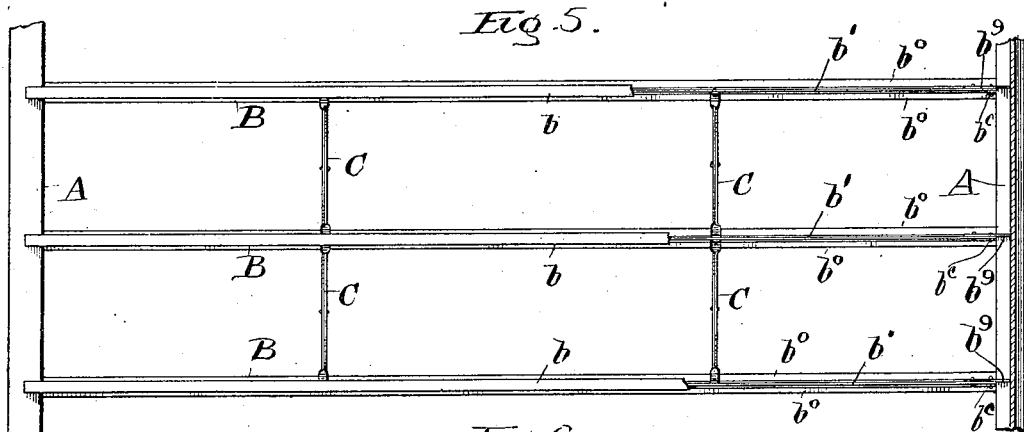
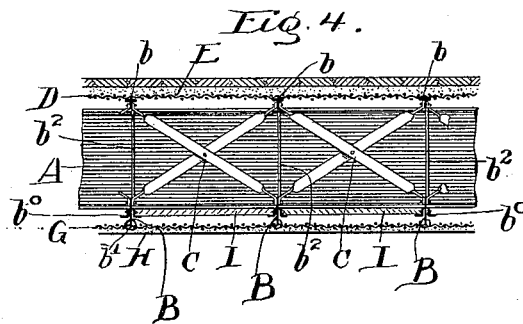
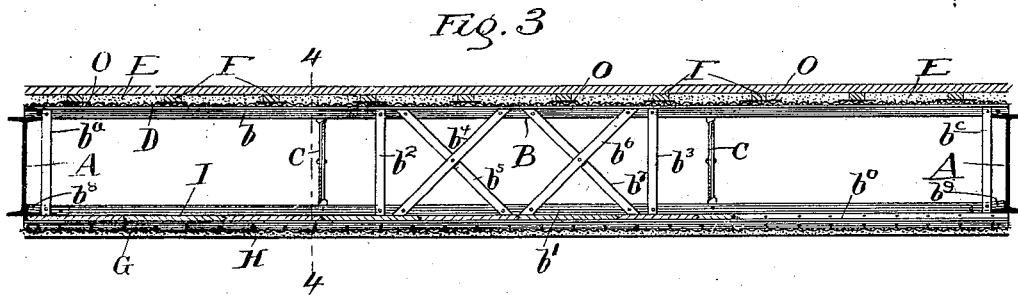
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(Application filed May 12, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:
Chas. O. Sherry
S. Bliss



Inventor:
Timothy O'Shea,
by Milburn & Butler
Attys.

UNITED STATES PATENT OFFICE.

TIMOTHY O'SHEA, OF CHICAGO, ILLINOIS.

BUILDING CONSTRUCTION FOR FLOORS AND CEILINGS.

SPECIFICATION forming part of Letters Patent No. 646,502, dated April 3, 1900.

Application filed May 12, 1899. Serial No. 716,505. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY O'SHEA, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Building Construction for Floors and Ceilings, of which the following is a specification.

My invention relates to certain improvements in floors and ceilings designed to produce a complete floor and ceiling firmly secured together, absolutely fireproof, and capable of sustaining the greatest possible load consistent with its weight and cost of construction.

To this end the invention consists in certain novel combinations which utilize the materials to the best possible advantage, both as to strength and as to resistance to the progress of fire. These will be described in detail in their preferred forms, and the essential features pointed out in the claims.

The invention is illustrated by means of six figures, of which—

Figure 1 is a sectional perspective of a portion of a floor and ceiling and part of the connecting devices. Fig. 2 is a similar perspective of the framework which supports the floor and ceiling and is itself carried by the beams of the building. Fig. 3 is a longitudinal vertical section of one of the spans between the floor-beams, showing one of the trusses in side elevation. Fig. 4 is a transverse vertical section of three of the trusses, showing in side elevation the bridging for bracing the trusses. Fig. 5 is a top plan of three of the trusses and the bridging between the same broken away at the right to show the lower members of the trusses, and Fig. 6 is a side elevation of the adjacent ends of two of the lower members of the trusses.

Referring to the figures, A represents a series of floor-beams carried by a suitable framework in the ordinary manner, and B represents a series of trusses supported upon and embracing the floor-beams. The floor-beams are preferably what are known as "I-beams," and the trusses are preferably composed of two bars b b' , the upper, b , being a T-iron having its vertical flange resting upon the top of the I-beam and the lower, b' , being a flat bar or web and extending just beneath

the bottoms of the I-beams. Notches b^e are cut out of the upper corners of the webs, in which the lower flanges of the I-beams rest. The T-iron and web are connected between their ends by vertical struts or hangers b^2 b^3 and diagonal braces b^4 b^5 b^6 b^7 . The web b' is supported at its ends upon the lower flange of the I-beams by means of short bars or plates b^8 b^9 and is supported from the T-iron by means of hangers b^a b^c . Upon each side of the webs and immediately below the I-beams are secured angle-irons b^o , adapted to stiffen the webs and to form supports for a second or safety ceiling I, hereinafter described, the bottom edge of the web b' being far enough below the angle-iron to produce a considerable air-space between the ceiling proper and the safety-ceiling. This completes the truss, and in the erection of the buildings these trusses are constructed at the most convenient place and taken to the building all ready to be slipped between the I-beams. The different trusses are braced one from another by means of bridging C after the trusses are placed in position. The adjacent ends of the T-irons and webs are preferably connected by plates or stout wires b^i to strengthen the structure.

The floor is constructed by securing wire mesh D upon the tops of the trusses, placing concrete E and furring-strips F upon the wire mesh D, and securing the floor in the ordinary manner to the furring-strips.

In the construction of the ceiling the ordinary wire lath G is secured to the webs b' of the trusses and plaster H applied to the wire lath in the usual manner, and in addition thereto a second or safety ceiling I, consisting of what are known as "plaster-boards," is laid upon the horizontal flanges of the angle-irons b^o . This plaster-board is preferably provided with a tongue and groove to make a tight ceiling, and as it can be slipped beneath the I-beams it assists in thoroughly isolating the latter from the heat of the fire.

This construction while containing all of the fire-resisting qualities of the heavier constructions has only a fraction of the weight of the latter and is much cheaper, not only in its own cost, but also in the saving it effects in the necessary strength of other portions of the structure, due to the relief there-

of from the immense weight of the ordinary fireproof floors. The horizontal flanges of the lower T-irons separate the two portions of the double ceiling, leaving an air-space between the same, which protects the upper ceiling and the parts above it until the lower is completely burned away. To further protect the furring-strips F from fire, asbestos linings may be placed beneath them, as seen at O in Fig. 1.

The particular construction herein described in detail may be varied greatly without departing from my invention, and I do not therefore limit myself to its specific details, except so far as the same may be essential to the same.

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

1. In a building construction, the combination with a series of horizontal floor-beams, of a series of trusses spanning the intervals between said beams composed of suitably-connected upper and lower longitudinal members, the former of which rests upon the tops of the floor-beams and the latter are arranged beneath the same, connecting devices between the lower members and the floor-beams to support said lower members directly therefrom, bridging between the trusses, a floor upon the tops thereof and a ceiling supported from the bottoms of the same; substantially as described.

2. The combination with a series of floor-beams, of transverse members supported by the floor-beams and having their lower sides in a plane below the latter, a ceiling lying below said members and suspended therefrom, and a safety-ceiling carried by said members and passing below the floor-beams at some distance above the ceiling first mentioned.

3. In a building construction, the combination with a series of I-beams, floor-supporting members, resting upon the top of said I-beams, ceiling-supporting members supported against the bottom faces of the I-beams, hangers, b^a , b^c , connecting the floor-supporting members and ceiling-supporting members and arranged adjacent to said I-beams and the bars, b^b , b^d , secured to the ceiling-supporting members, and resting upon the lower flanges of the I-beams; substantially as described.

4. The combination with a series of I-beams, A, of a series of transversely-extending trusses, B, comprising substantially T-irons, b , resting upon the tops of the I-beams, webs, b' , extending below the latter, angle-irons, b'' , secured upon said webs, bridging, C, connecting the adjacent trusses, a ceiling proper secured to the lower edges of the webs, b' , and a second or safety ceiling resting upon the horizontal flanges of the angle-irons; substantially as described.

5. The combination with a series of floor-beams, of a series of horizontal members extending transversely across the lower faces of the floor-beams, suspended therefrom, and provided with central longitudinal flanges, a ceiling carried by said members at their lower edges, and a second ceiling resting upon said flanges and extending beneath the floor-beams at some distance above the ceiling first mentioned.

In witness whereof I have hereunto set my hand, at Chicago, in the county of Cook and State of Illinois, this 8th day of May, A. D. 1899.

TIMOTHY O'SHEA.

Witnesses:

M. G. O'BRIEN,
CHAS. O. SHERVEY.