No. 850,948. PATENTED APR. 23, 1907.

A. MOHR.

BUILDING CONSTRUCTION.

APPLICATION FILED DEC. 19, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

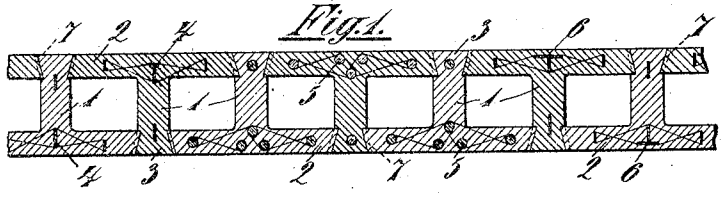


Fig. 2.

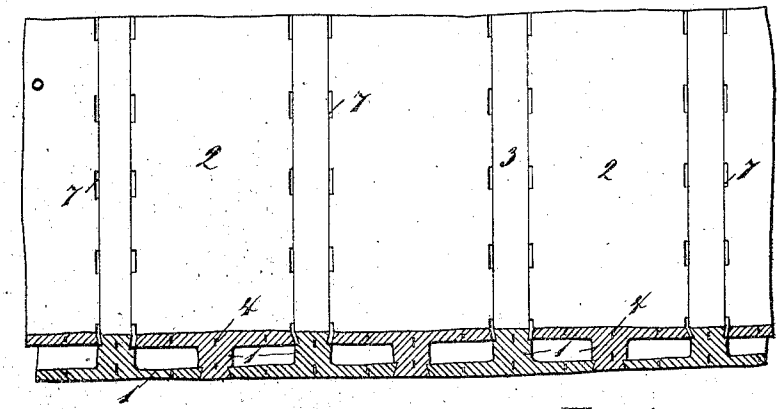


Fig. 3.

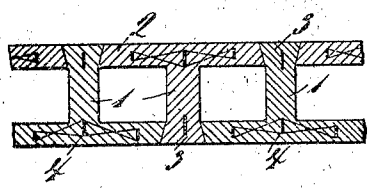


Fig. 4.

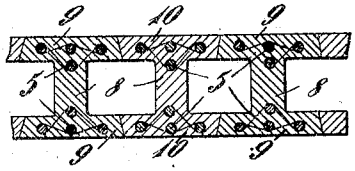


Fig. 5.

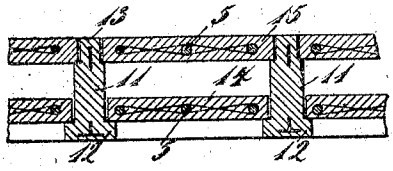


Fig. 6.

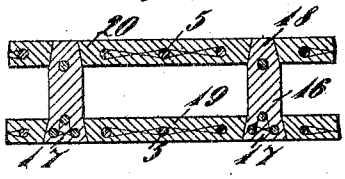


Fig. 7.

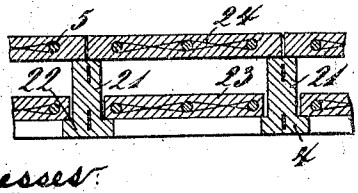
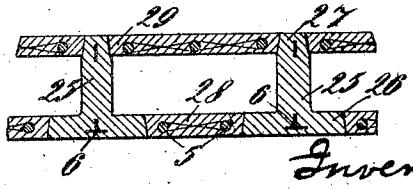


Fig. 8.



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2 SHEETS—SHEET 2.

Fig. 9.

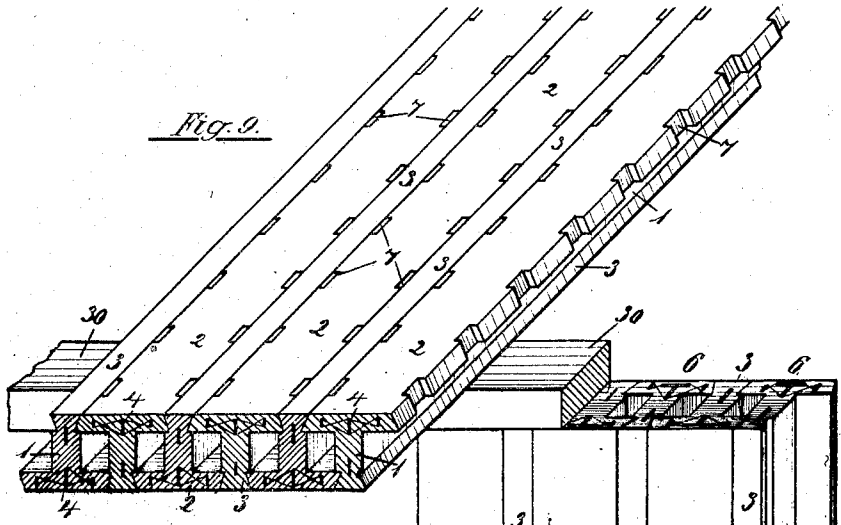


Fig. 10.

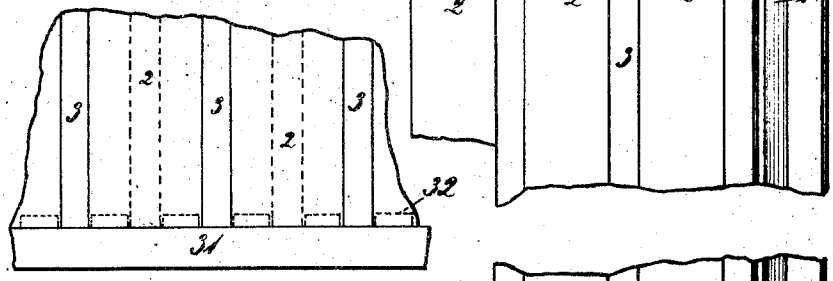
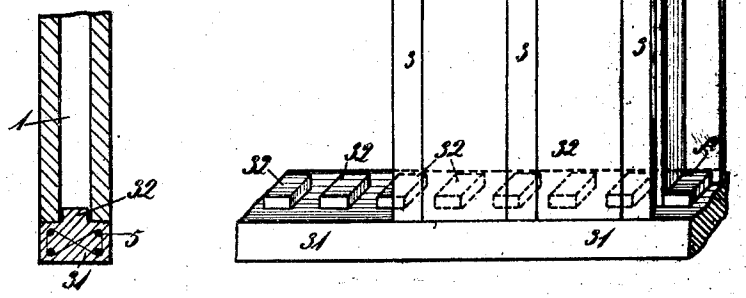


Fig. 11.



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UNITED STATES PATENT OFFICE.

AUGUST MOHR, OF STUTTGART, GERMANY.

BUILDING CONSTRUCTION.

No. 850,948. Specification of Letters Patent. Patented April 23, 1907.

Application filed December 19, 1904. Serial No. 237,554.

To all whom it may concern:

Be it known that I, AUGUST MOHR, a citizen of the German Empire, residing at Stuttgart, Neckarstrasse 107, Germany, have invented certain new and useful Improvements in Building Construction; and I do hereby 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.

This invention relates to fireproof building construction, and has for its object particularly the provision of hollow ceilings or walls possessing to a large degree inherent stability and involving a minimum of expense in manufacture and assembling.

The invention as hereinafter particularly described and claimed may best be understood by a reference to the accompanying drawings, in which a preferred embodiment is exemplified.

In the drawings, Figure 1 is a section through a ceiling or wall constructed according to my invention. Fig. 2 is a plan, partly in section, of Fig. 1. Figs. 3 and 4 are sections showing a slightly-modified form of the structural elements employed. Figs. 5, 6, 7, and 8 represent sections through modified forms. Fig. 9 is an isometric view of a ceiling and wall constructed according to my invention. Fig. 10 is a front view of a portion of such a wall, and Fig. 11 is a vertical cross-section through the lower part of the wall.

Referring to the drawings more in detail, the structural elements are formed of concrete or other suitable fireproof material and individually of angular cross-section, preferably T-shaped, having a web 1 and a plate 2, which latter is beveled at both sides, as shown. The web 1 is also beveled or incut along the two sides of its extremity to form each one-half of a dovetail recess 3. If the structural elements are formed of concrete or the like, metal reinforcements 4, 5, and 6 may be embedded within the material in such relation to the different parts thereof as to constitute effective tension members. These reinforcements may be further assisted by wires passing from one to another in such way as to distribute the strain.

It will be observed that the cross-section of the elements is such that when placed alongside each other, with each alternate element inverted at an angle of one hundred and eighty degrees, the beveled edges of the plates 2 engage with the dovetail recesses formed in the opposing sides of the adjoining web extremities in such manner as to firmly interlock and complement each other, presenting two plane surfaces with intermediate longitudinally-extending cavities and connecting-webs, as shown most clearly in Figs. 2 and 9.

To further perfect the union of the several elements, the edges of the plates 2 are provided with recesses or notches 7, into which cement may be poured after the elements are assembled, thus sealing the connection between the adjacent elements.

In Fig. 4 is shown an embodiment in which the structural elements are of I-shaped cross-section, the web 8 connecting the two plates 9 and 10, both of which are beveled in lines parallel to each other, so that when the elements are placed adjoining in alternately-inverted position the opposing beveled faces will fit snugly, presenting a result similar to that described above.

In the form of construction shown in Fig. 5 the web 11 is provided with an abbreviated plate 12, while at the opposite end it is incut at 13 upon a beveled or straight line, the plate 12 supporting upon its inner surface the tile or planks 14, while the web supports other tiles or planks 15.

In Fig. 6 the elements 16 have the end corresponding to the plate provided merely with a conical enlargement 17, while the opposite end is beveled at 18 in the manner previously described with reference to Fig. 5, upon which beveled faces the planks 19 and 20 rest.

In Fig. 7 the elements possess a modified T-shaped cross-section, the webs 21 being provided with abbreviated plates 22, the plates supporting the planks 23, while the planks 24 rest upon the end of the web.

According to Fig. 8 the structural elements comprising the web 25 and the plates 26 are assembled without alternate inversion, each element occupying the same position as the adjacent element, the beveled faces 27 of the web and plate serving to support correspondingly-beveled planks 28 and 29, which occupy a position between the structural elements and flush with the extremities thereof.

The range of employment for ceilings and walls formed by the combination of structural elements having the general characteristics as set out is limited only by the requirements of the builder. Whether laid in

a horizontal position to form a floor and ceiling or vertically, as partitions or walls, the completed structure possesses with great lightness a very high degree of strength, due to the fact that the component elements interlock and reinforce each other in such a manner as to distribute the strain most effectively.

In Fig. 9 is shown a fragment of a wall and ceiling assembled in such way as to illustrate the advantages of this construction. Upon the upper edge of the wall formed by the combination of a plurality of the structural elements previously described is laid a lintel or beam 30, having a plane upper surface and provided with projections extending downwardly in engagement with the cavities formed between the adjacent structural elements forming the wall and serving to rigidly bind and interlock the different elements of the partition. The partition itself rests upon a foundation-beam 31, similar in all respects to the beam 30, upon which can be clearly seen the projections 32, above mentioned with reference to the beam 30, which projections have lateral dimensions corresponding to the cross-section of the cavities within the partition. These projections absolutely prevent any relative movement between the different structural elements forming the partition or wall and constitute of the wall a homogeneous whole. Upon the beam 30, resting upon the partition or wall, is supported the floor, made in a similar manner to the wall, the only difference being that one occupies a horizontal and the other a vertical position.

It will be readily understood that by utilizing structural elements formed according to my invention the erection of a building is greatly simplified, and consequently cheapened in cost. One great difficulty in the construction of fireproof ceilings is the usual necessity of constructing and retaining in place for some time scaffolding for the support of the different parts. This is entirely obviated by my invention, as the different structural elements may be placed readily in position without the use of supporting-scaffolding. The coöperation between the different elements is so intimate that joints may be broken between the meeting ends of different elements without a supporting-pillar, an advantage which will be readily appreciated.

The advantage of a hollow construction in floors and ceilings is well recognized; but the difficulty in manufacturing such floors and ceilings in place or in molding the same preparatory to placing in position has served to discourage such construction by adding to its cost. Structural elements formed as above described are readily molded without special arrangements or apparatus, no cores being necessary, for the reason that the elements so coöperate and complement each other when placed in position as to attain the hollow construction without the disadvantages usually incident thereto.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A structural element for building construction, having a continuous plate and web, the edges of the plate being beveled in opposite directions and provided with cement-receiving recesses, and the extremity of the web being of dovetail shape.

2. In building construction, a plurality of structural elements each of angular cross-section and having a continuous web and plate, the edges of the one extremity beveled and the other extremity incut at each side to form one-half of a dovetail recess, the several elements arranged side by side and alternately in inverted position with the beveled edges of one extremity in dovetail engagement with the recesses formed in the adjoining sides of the other extremity to present two plane surfaces with intermediate longitudinally-extending cavities and connecting-webs, in combination with beams provided with spaced projections having lateral dimensions corresponding to the cross-section of the longitudinal cavities, said beams arranged at right angles to the first-named elements with the projections in engagement with the said cavities.

3. In building construction, a plurality of concrete structural elements each of T-shaped cross-section and having a continuous plate and web, the edges of the plate beveled and the extremity of the web incut at each side to form one-half of a dovetail recess, the several elements arranged side by side and alternately in inverted position with the beveled edges of one plate in dovetail engagement with the recesses formed in the sides of the adjoining web extremities to present two plane surfaces with intermediate longitudinally-extending cavities and connecting-webs, in combination with beams provided with spaced projections having lateral dimensions corresponding to the cross-section of the longitudinal cavities, said beams arranged at right angles to the first-named elements with the projections in engagement with said cavities.

4. In building construction, a plurality of concrete structural elements each of T-shaped cross-section and having a continuous plate and web, the edges of the plate beveled and the extremity of the web incut at each side to form one-half of a dovetail recess, the several elements arranged vertically side by side and alternately in inverted position with the beveled edges of one plate in dovetail engagement with the recesses formed in the sides of the adjoining web extremities to present two vertical plane surfaces with intermediate longitudinally-extending cavi-

ties and connecting-webs, a foundation-beam provided with spaced projections having lateral dimensions corresponding to the cross-section of the longitudinal cavities, said beam arranged beneath the assembled structural elements and at right angles thereto with its projections in engagement with the said cavities, and a similar beam arranged on top of the assembled structural elements with its projections extending downwardly in engagement with said cavities, in combination with similarly-assembled structural elements resting upon the second beam in a horizontal position and forming a ceiling.

In testimony whereof I affix my signature to this specification in the presence of two witnesses.

AUGUST MOHR.

Witnesses:
A. B. DRANTZ,
FRITZ HOFMANN.