

H. L. LEWEN.  
 FIREPROOF BUILDING CONSTRUCTION.  
 APPLICATION FILED OCT. 30, 1911.

1,035,206.

Patented Aug. 13, 1912.  
 2 SHEETS-SHEET 1.

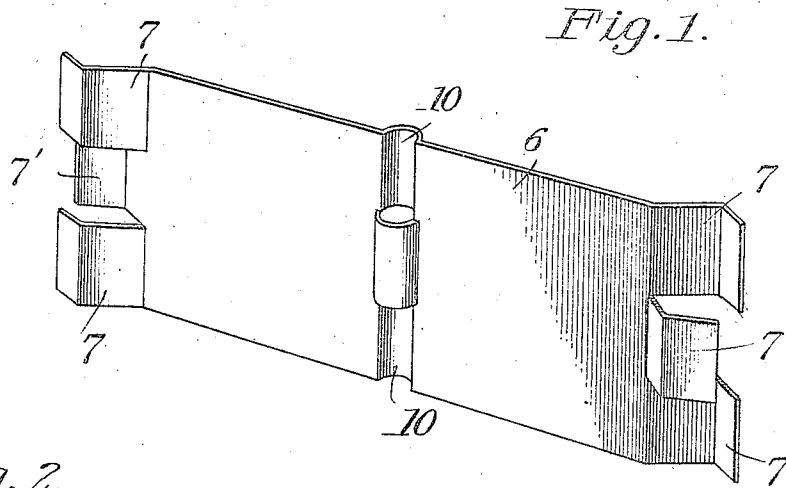
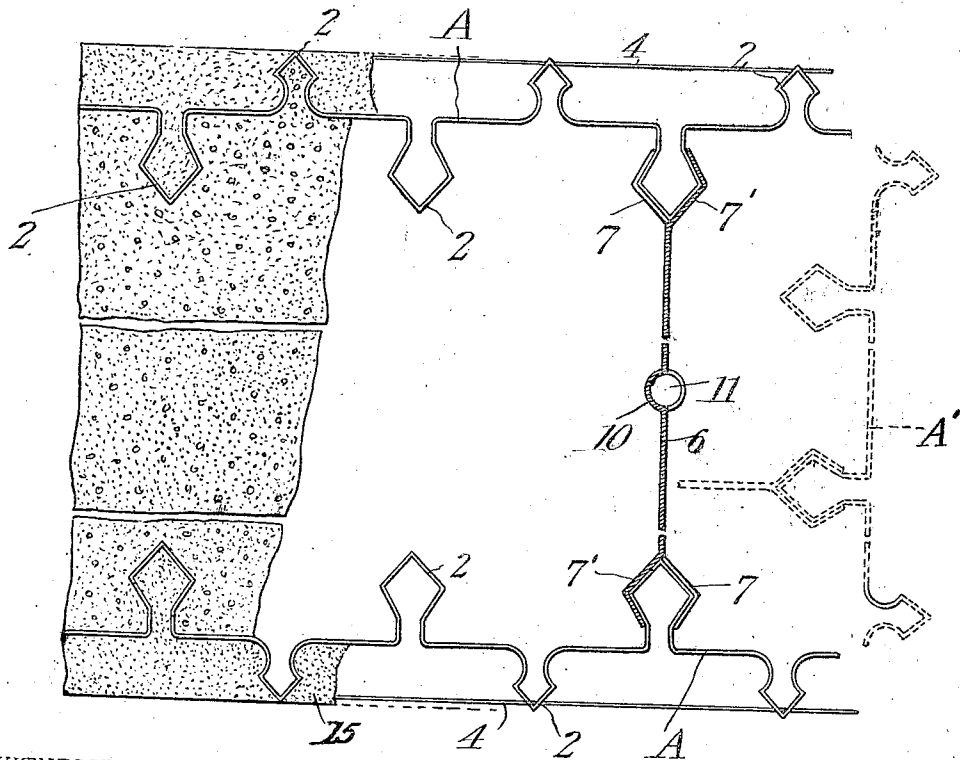


Fig. 2.



WITNESSES  
*Touton St. Belt*  
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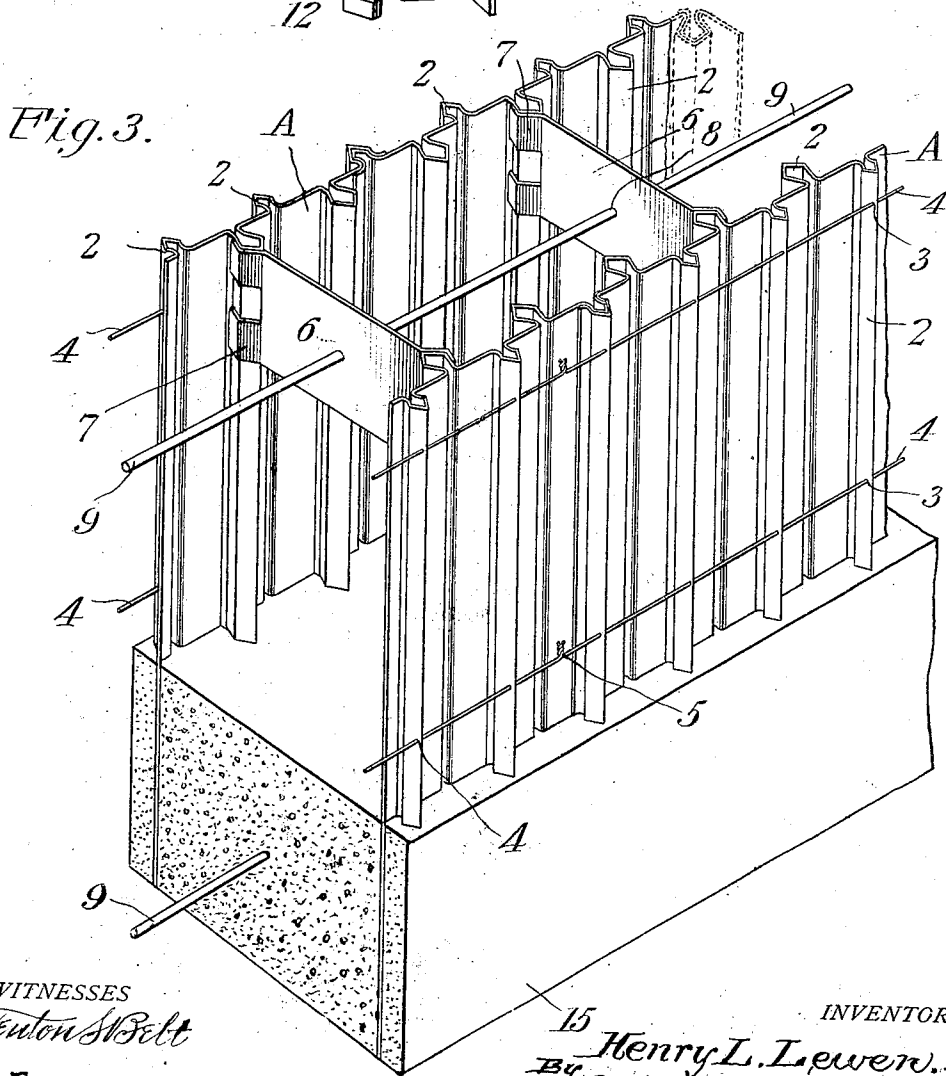
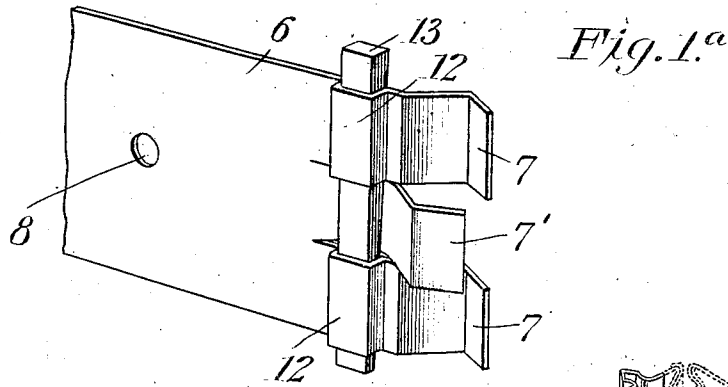
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*Henry L. Lewen.*  
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# UNITED STATES PATENT OFFICE.

HENRY L. LEWEN, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL CORPORATION OF MODERN IMPROVEMENTS, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## FIREPROOF BUILDING CONSTRUCTION.

1,035,206.

Specification of Letters Patent. Patented Aug. 13, 1912.

Application filed October 30, 1911. Serial No. 657,543.

To all whom it may concern:

Be it known that I, HENRY L. LEWEN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Fireproof Building Construction, of which the following is a specification.

My invention relates to certain new and useful improvements in fire-proof building construction and particularly to a novel means for anchoring together in spaced relation two specially formed plates, and the invention consists of the parts, and the constructions, arrangements and combinations of parts which I will hereinafter describe and claim.

In the accompanying drawing forming part of this specification and in which similar reference characters indicate like parts throughout the several views;—Figure 1, is a perspective view of a building element constructed according to my invention and designed particularly for vertical reinforcement. Fig. 1<sup>a</sup>, is a similar view of a part of a building element or anchor designed for horizontal reinforcement. Fig. 2, is a horizontal sectional view showing the anchoring element connecting two spaced ribbed plates. Fig. 3 is a perspective view showing anchors or building elements, connecting spaced ribbed plates and showing horizontal reinforcing rods extending through the anchors, and tie-wires extending through the apices of the ribs of said plates.

In the said drawings I have shown the present improvement in connection with suitable ribbed plates, A, which plates constitute reinforcing elements and are preferably in the form of sheet-metal rolled or otherwise provided with hollow ribs, 2, of suitable design and preferably of the form shown in Figs. 2 and 3, which ribs are made to project at right-angles from both sides of the plates, although it is evident from what will hereinafter appear that the ribs may extend from the inner side only in order that they may be successively engaged by an anchoring element which holds the plates spaced apart.

In the form of plates shown in Figs. 2 and 3, the ribs extend from both sides of the plates; the ribs of the outer side are shown of smaller size than those of the inner side, said ribs inclosing the space which is de-

signed to be filled with concrete, the outer ribs being provided with perforations, 3, through which pass suitable tie-wires, 4, and which wires are usually placed two or three feet apart when the plates are lying in a horizontal position, the ends of the wires being twisted together as at 5 to form a continuous tie throughout the length of the form produced by the ribbed-plates. This construction, except as to the difference in the size of the ribs on the plates is substantially like what is disclosed in my former applications Serial Nos. 571,743, filed July 13/10; and 638,085, filed July 12/11.

The leading characteristic of the present improvement is in the form of the element or anchor, 6, which serves as a spacer for the main plates, A, and as a means for properly anchoring said plates in either a horizontal or vertical position. The anchoring element, 6, is formed from a sheet of metal of appropriate thickness and of such width and length as may be desired for the particular purpose, the ends of the sheet being slitted longitudinally for a suitable distance to form independent forks, 7, 7'. The intermediate fork, 7', at each end of the plate is designed to be bent in one direction while the outer forks, 7, are to be bent in the opposite direction, said forks being fashioned to conform to the cross-sectional design of the rib on the plate, with which the forks are to engage, as shown particularly in Fig. 3, where the plates are vertically disposed and the anchoring elements extend transversely from one plate to the other and the oppositely bent forks at the ends engage corresponding ribs on the inner faces of the opposed plates. By this construction the anchoring element is formed with three forks, two of which at each end are bent in one direction while the other or intermediate fork is bent in the opposite direction, the three forks at each end of the anchor being designed to embrace the rib of the plate, A, as shown, and the construction being such that the anchors may be freely moved up and down or lengthwise of the ribs of the main plates, whereby their position may be readily adjusted to any point desired. It will be understood that the length of these anchoring elements will depend upon the thickness or width of the proposed partition, or of a floor or ceiling construction, said anchors holding the ribbed

plates suitably spaced apart, the space between the plates, A, and likewise the space inclosed by the ribs on the plates, being designed to be filled with concrete in the manner well known in this art, whereby a reinforced structure is produced. The anchoring elements are provided with perforations, 8, and through these perforations pass suitable rods, 9, which serve as additional reinforcements for the structure.

In Fig. 1 the plate or anchoring element, 6, is slitted and bent in opposite directions as at 10, to form loops to receive a rod, 11, which will serve as a vertical reinforcement; in Fig. 1<sup>a</sup> the slitted end of the plate or element, 6, is bent to form alined loops, 12, through which pass a suitable wedge, 13, which when driven in place not only strengthens the plate, but also draws upon the forks thereof to cause the latter to clench the longitudinal engaging rib of the contiguous plate, A. It will also be observed that wherever the construction calls for the same, other ribbed plates may extend at right angles to the plates first mentioned to produce a square or like form, as indicated in dotted lines at A', in Fig. 2, and that the anchoring elements at their forked ends may connect these additional plates, in which case they extend above at right-angles to the corresponding elements which are spaced apart and anchor the plates, A, it being understood that the interspaces between the plates and those inclosed by the ribs will be filled, say when the plates are in the horizontal position, and that when set up the ribbed plates are held apart by the anchoring elements; the outside finishing plaster, 15, may then be applied to the outer faces of the ribbed plates, as shown in Fig. 3. The space inclosed by the outside ribs, 2, is generally filled while the plates are in a horizontal position and before assembled for walls or pillars. They are then

plastered with a light coat; afterward the form produced by the ribbed plates is filled with concrete when in an upright position.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination with a pair of parallel plates having hollow ribs projecting from their surfaces, of a spacing element arranged at right angles to the plates, and having a length about equal to the distance between the inner face of opposite plates, said element having its ends slitted in a plurality of places to provide a central tongue and a tongue at each side thereof, said central tongue being bent oppositely to the tongues at each side of it and the tongues being fashioned to substantially conform to the cross-sectional form of the ribs and being slidably mounted on said ribs, said element having a perforation through it, and a reinforcing rod passing through said perforation and forming a reinforcing connection between a plurality of spacing elements.

2. The combination with a pair of parallel plates having hollow ribs on their corresponding surfaces, of a spacing element extending edgewise from one plate to the other having its opposite ends slitted to form a plurality of forks, said forks at both ends being bent in opposite directions, and made to substantially conform to and embrace the ribs of said plates, said spacing element having its slitted portion formed with open loops, and wedges engaging said loops and holding the forked ends of the plate in clenching engagement with said rib.

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

HENRY L. LEWEN.

Witnesses:

C. F. HOPPE,  
H. F. MOON.