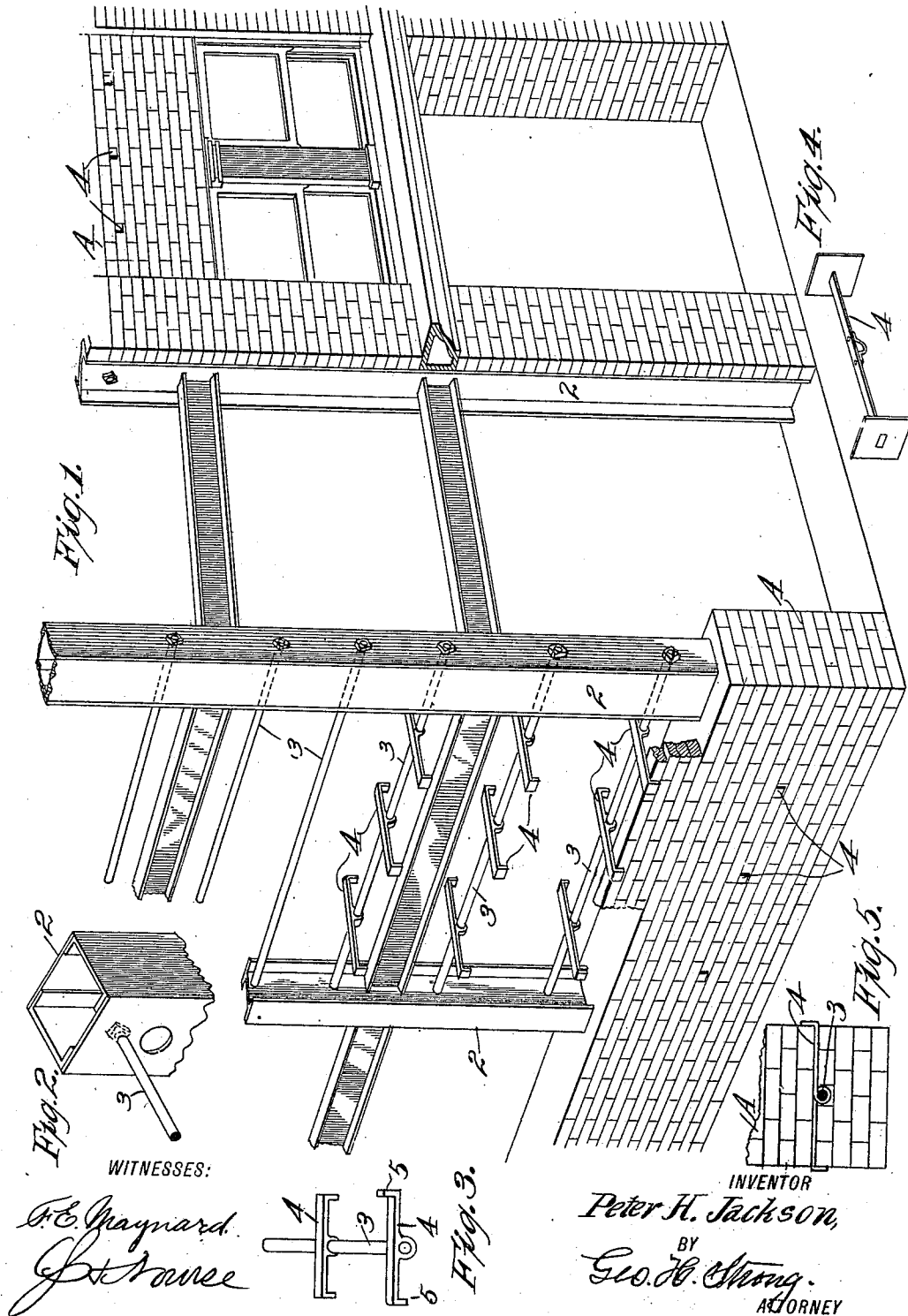


No. 839,592.

PATENTED DEC. 25, 1906.

P. H. JACKSON.
BUILDING CONSTRUCTION.
APPLICATION FILED JULY 23, 1906.



UNITED STATES PATENT OFFICE.

PETER H. JACKSON, OF EAST OAKLAND, CALIFORNIA.

BUILDING CONSTRUCTION.

No. 839,592.

Specification of Letters Patent.

Dated Dec. 25, 1906.

Application filed July 23, 1906. Serial No. 327,323.

To all whom it may concern:

Be it known that I, PETER H. JACKSON, a citizen of the United States, residing at East Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Building Construction, of which the following is a specification.

My invention relates to improvements in the construction of composite walls made of iron or steel columns and brick, stone, concrete, or other material, by which said columns are protected and strengthened.

My invention consists in combinations and arrangement of parts and details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the wall. Fig. 2 is a detail of construction. Fig. 3 shows forms of anchors. Fig. 4 illustrates a simple anchor. Fig. 5 is an end view of wall with anchor.

The object of my invention is to strengthen brick, concrete, stone, and like walls of buildings and structures situated between steel or iron columns, so that they may be kept vertical and in a line with the columns when subjected to severe heat and better resist injury when subjected to earthquake shocks.

In my improvement I employ tie-rods or metallic ties of any cross-section built in about the middle of a brick, concrete, or like wall, extending horizontally between the metal columns approximately about the neutral axis of the cross-section of the wall. The ends of these metallic ties are attached to the vertical columns in any suitable manner, and cross-anchors are attached to the ties extending through or nearly through the thickness of the wall to prevent its separation.

As shown in the drawings, A represents the walls of a building, which may be located in the middle of a block, so that the side walls are solid and continuous and the front walls have window and other openings.

A represents the brick, concrete, or stone work within which the vertical steel columns 2 are embedded. These columns may be constructed in the usual manner riveted together, and extending to any height required for the proposed building.

3 represents ties extending between the vertical columns, and secured in any desired manner by screw-bolts, nuts, keys, or

wedges, as may be most suitable. These tie-rods are disposed substantially central between the outer and inner faces of the brick or like structure, so that they are sufficiently distant from either side to be protected from any action of the heat in case of fire.

It will be understood that the tie-rods may be made of any suitable or desired form, with surfaces capable of being embedded in and interlocked with concrete in case such material is used.

The rods or ties may have raised portions on the surface or be notched or twisted spirally for this purpose.

At intervals between the vertical columns are fixed transverse anchors 4, which have the central portion secured to the ties 3 and the ends extending outward to near the vertical surfaces of the wall. The ends of these anchors may be turned up or down, or one may be turned up and one down, as shown at 5, and embedded within the material of the wall. These anchors thus serve to tie the outer and inner portions of the wall together and to prevent their being separated by any expansion by heat or shock by earthquake.

It will be understood that the ties extending between the columns may, as previously described, be fastened in any suitable manner, and, if the columns be hollow, openings can be made below the position of the ties, as shown at Fig. 2, so that the hand may be introduced with a tool, by which the inner ends of the ties may be fastened to the interior of the column.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A wall and like structure having in combination vertical columns, intermediate girders and horizontal ties extending between the columns approximately in the middle of the thickness of the wall, and provided with anchors which extend to opposite sides of the ties, said ties and anchors being embedded in the wall structure.

2. In a building and like structure, vertical columns, ties extending horizontally between said columns and approximately equidistant from the outer and inner faces thereof, anchors secured to the ties at points between the columns, said anchors extending transversely outward and inward from the ties, and a wall structure of concrete, brick,

stone and like substance within which the ties and the anchors are embedded.

3 A building structure including vertically-disposed metal columns at intervals,
5 ties extending between the said columns substantially central between the outer and inner faces thereof, anchors fixed to the ties and extending transversely, said anchors having the ends turned to an angle with the
10 main portion, and a wall composed of con-

crete, brick, stone and like substance within which the ties and anchors are embedded.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

PETER H. JACKSON.

Witnesses:

C. H. HARVEY,
E. G. KNAPP.