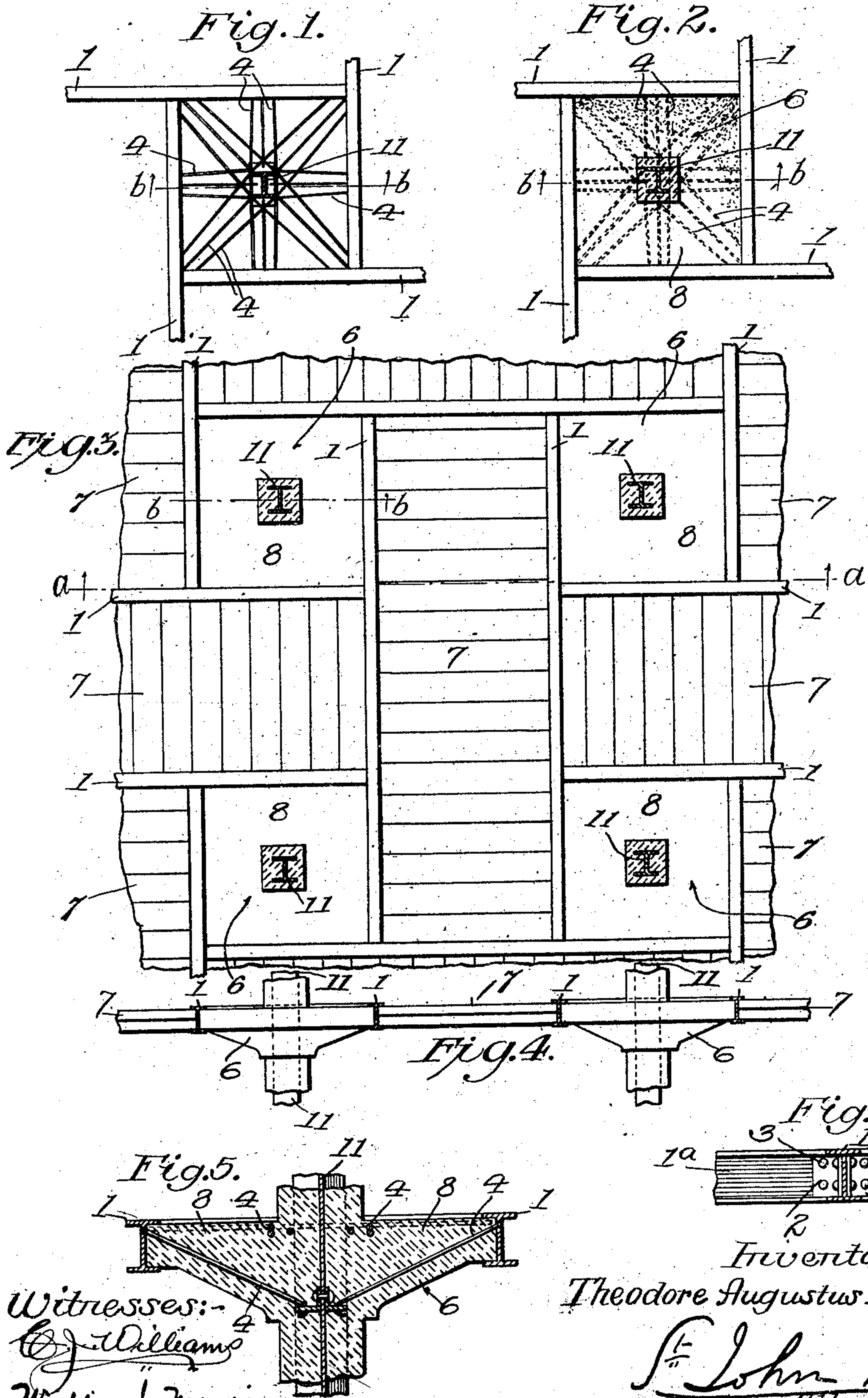


T. A. EISEN.  
BUILDING,  
APPLICATION FILED DEC. 2, 1909.

998,479

Patented July 18, 1911.

2 SHEETS—SHEET 1.



Witnesses:  
C. J. Williams  
Willis L. Morrison

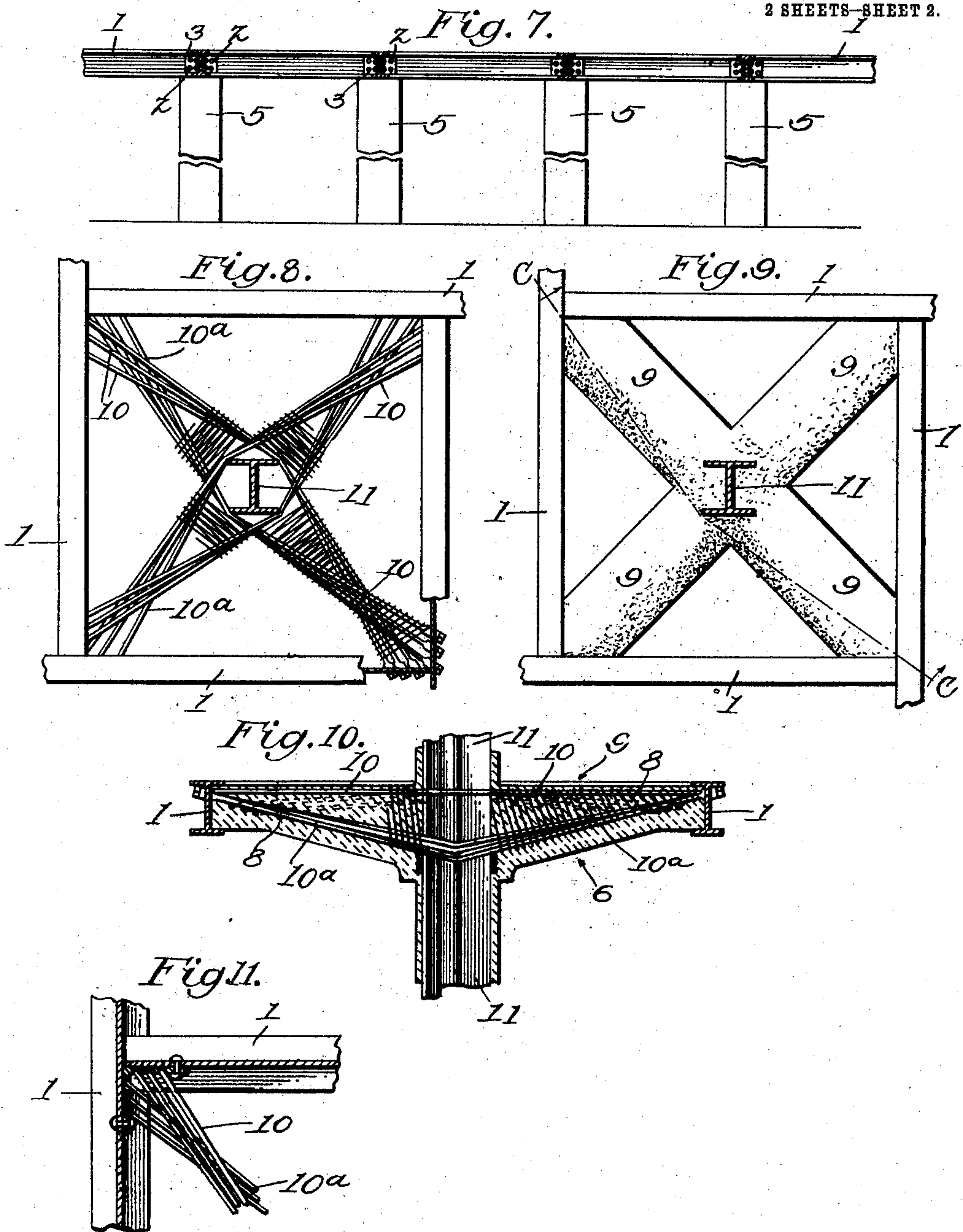
Inventor,  
Theodore Augustus Eisen  
J. L. Day  
Attorney.

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# UNITED STATES PATENT OFFICE.

THEODORE AUGUSTUS EISEN, OF LOS ANGELES, CALIFORNIA.

BUILDING.

998,479.

Specification of Letters Patent.

Patented July 18, 1911.

Application filed December 2, 1909. Serial No. 531,909.

*To all whom it may concern:*

Be it known that I, THEODORE AUGUSTUS EISEN, of the city of Los Angeles, in the county of Los Angeles, in the State of California, have invented certain new and useful Improvements in Buildings, of which the following is a full, clear, and exact specification, reference being had to the annexed drawings and to the letters and figures marked thereon.

My said invention which relates to certain improvements in buildings, is more particularly adapted for the construction of warehouses, hotels, office buildings, and other architectural structures generally, wherein is a succession of floors each above another and supported on columns in spaced parallel rows between the outer walls of the buildings or in the walls themselves.

The object of my present improvements is to produce or construct such buildings wherein the floors are carried by cantaliver platforms upon the upper parts of the columns, whereby the cantaliver platforms and the floors are supported, and the arrangement of the construction is such that the cantaliver platforms need not be placed on the columns, and need not receive and carry the load of the floors until after the columns and the girders which constitute the carrying edges thereof at each side of each cantaliver platform, and throughout the entirety of each floor, are permanently placed and connected.

In carrying my invention into practical effect, after the position of the several columns has been determined, floor carrying girders which may be of metal, reinforced concrete, wood, burned fireclay, or other material, are placed in position at certain distances from the outside of the columns as determined by the desired size of the cantaliver platforms in order to be permanently connected to the cantaliver platforms, and prior to the said cantalivers being constructed or placed, these girders are to be temporarily carried at the required levels corresponding to the floors of the structure, by being temporarily supported upon uprights, or a framing of timber, or other material.

After the aforesaid girders of each floor, and the portions thereof constituting the sides of each cantaliver platform are tied together, and to the columns by reinforcing ties, or united by braces, or their equivalents, then the frame constituted of those portions of

the aforesaid girders which are to become the sides or edges of the cantaliver platforms, and of the aforesaid reinforcing ties, or braces, may then be united with each other for each cantaliver platform, and with the top of each column, by wholly or partly filling each such frame with concrete, which is allowed to set therein, and when set becoming the body of each cantaliver, or by connecting the girders and columns, with or without ties by a brace of steel, wood, cast iron, burned fireclay, or other material; it being understood that the columns may be of cast, riveted or rolled metal, covered or not covered with cement or concrete, or of wood, or of reinforced fireclay, or terra cotta, or of reinforced concrete, the whole of which materials are now used as the material for the columns of buildings.

After the concrete constituting the body of each cantaliver has completely set, or the aforesaid braces are secured in the structure, then the cantalivers take the weight of the girders in each entire floor, this being effected by knocking out the temporary upright props, or supporting frame of timber upon which the floor-carrying girders are supported during their assembling, and while being united at the several angles where those girders meet to form the sides and edges of the portions of the cantalivers, all in the manner hereinafter set forth. The spaces between the girders of each floor, parts of which constitute the sides and edges of the cantaliver platforms, are filled in with floor beams, joists, or slabs of reinforced concrete, or other material. The columns are arranged in spaced parallel rows with cantaliver platforms on the columns and girders or beams arranged on the edges of the platform, each girder extending from one platform to the next of the adjacent column the ends of the girders being flush with the platform edges, there being a girder for each platform edge, excepting those situated on the outside.

Upon the annexed drawings: Figure 1, is a plan showing the meeting ends of the girders at any place in the floor of a building wherein the ends of adjacent girders meet for the purposes of being united at the locus of a column where a cantaliver is to be constructed to carry the floor after the said girders have been assembled, and tied together in the places where such cantalivers are to be formed. Fig. 2, is a plan corre-



sponding to Fig. 1, showing the said meeting ends of the girders united, and the concrete constituting a cantaliver filled into the space comprised between the meeting ends of the girders where a cantaliver is to be constructed, also showing the columns upon or by which the cantaliver is supported. Fig. 3, is a plan showing a portion of a floor wherein several cantaliver platforms, and columns are included, together with the girders and floor beams, joists or slabs supported in, by or between the said girders. Fig. 4, is a sectional elevation upon the line *a, a*, Fig. 3. Fig. 5, is a transverse section upon an enlarged scale, showing the girders in section, the ties connecting opposite girders with each other, also other ties connecting said girders with the center of a column supporting a cantaliver constructed in accordance with my present invention. Fig. 6, is an elevation showing a girder of I shaped section to which other girders of the same section on either side thereof are united by two angle irons and rivets. Fig. 7, is an elevation indicating the supporting of the girders upon vertical posts or props, of wood or other material, by which said girders are carried while being assembled and united by angle irons and tie or reinforcing rods, or by reinforcing rods alone, that is to say, without angle irons. Fig. 8, is a plan on a larger scale than Fig. 1, showing the meeting ends of four girders at the place where they unite for forming the edges of a cantaliver platform, and which are united by reinforcing ties connected to the webs of said girders, and passing around a column of H section at the center, upon which the cantaliver platform is to be carried. Fig. 9, is a plan corresponding to Fig. 8, wherein concrete is used to inclose the reinforcing rods shown in Fig. 8, in the form of a cross, whose arms stretch from one angle to the diametrically opposite angle of the square formed by such meeting of the said girders; the spaces between the concrete in the cruciform shape being left unoccupied or empty. Fig. 10, is a section on the line *c, c*, Fig. 9. Fig. 11, is a horizontal section, showing the meeting of the reinforcing rods, an angle iron at the place of meeting of two girders at right angles to each other, and the reinforcing rods extending from said angle iron. As shown by Figs. 1, 2, and 3, the adjacent ends of the girders 1, constitute a rectilinear figure around the loci where the supporting column 11, is situated, and constitute a frame to be afterward filled by the concrete forming part of the cantaliver platforms of the building. The meeting angles of the girders 1, may be united in various ways, but a convenient method of uniting the same is shown at Fig. 6, wherein the girder 1, shown in transverse section is united on each of its sides to another girder 1<sup>a</sup>, projecting at right

angles thereto. The girders 1, and 1<sup>a</sup>, are connected by the angle irons 2, respectively, by rivets 3, as shown at Fig. 6, and as shown at Fig. 1, the four meeting and fastening ends of the girders 1, are further united by tension and compression reinforcing rods 4, situated at any suitable angles within the frame formed by the meeting and union of the ends of the girders 1, so as to provide transverse compression and tension of the rods 4, in as many times as are sufficient to produce the requisite stiffness of the cantalivers when completed. To complete a cantaliver of which the frame and central column is shown at Fig. 1, concrete is poured into the hollow rectangular space constituting the cantaliver frame, a temporary bottom or mold being placed beneath the frame formed by the girders 1, upon which the concrete rests after being poured and while setting. In every such rectangular frame reinforced as hereinbefore described, and as shown at Figs. 1, and 2, of the drawings, the concrete when it has set therein, constitutes the solid body of the cantaliver platform, which may be either in one piece with the columns 11, thereof, or there may be a joint whereby every column and its corresponding cantaliver platforms are not united. For general purposes, however, the column 11, is a vertical steel or iron beam of an H shape section, around which concrete is poured and sets in the same manner as it sets within the frame of the cantaliver platform, or the columns may be constructed of reinforced concrete or fireclay, iron, wood, or other material. So long as the girders 1, are not connected by the concrete of the cantalivers with the columns, and while placing the girders 1, in their proper relative positions for being united in frames at the columns where the cantaliver platforms are to be constructed, these girders 1, rest upon the temporary timber supports 5, Fig. 7, or upon analogous supports which are removed so soon as the concrete of the cantalivers has set and united with the cantalivers 6, and the girders 1, with the columns 11, after which the flooring, consisting of floor beams, joists, or slabs 7, of reinforced concrete, steel or other material, are placed in position and supported by girders constituting the sides and edges of the cantaliver platforms.

In Figs. 1, 2, and 5, of the annexed drawings, I have shown the concrete 8, as filling the entire space of each of the rectangular frames formed at the loci of the columns 11, but in place of filling the frames entirely with concrete the concrete may occupy a portion of the said frames only, in the form of a cross 9, as shown at Fig. 9, or in any other suitable form, whereby portions of the space within the rectangular frames are not filled by concrete.

The form of concrete shown at Fig. 9, is



very conveniently applied when the rectangular frames formed by the meeting of portions of the girders 1, are connected together diagonally by reinforcing rods 10, as shown at Figs. 8, 10, and 11, and the concrete when so applied as shown at Fig. 9, completely incloses the upper tension rods 10, and the lower compression rods 10<sup>a</sup>. By such construction a cantaliver platform containing less concrete is obtained than by the construction hereinbefore described with reference to, and shown at Figs. 1, 2, 3, 4, and 5. It is to be understood that the girders may be of any section adapted for the purposes of this invention.

I claim as my invention.

1. In a building construction, a series of columns in spaced parallel rows, the columns having enlargements comprising cantaliver platforms of approximately rectangular shape, a series of floor girders extending from column to column, and at right angles to each other, each girder lying against an edge of the cantaliver platform and the end thereof flush with an adjacent edge of the platform and in abutting relation with the girder thereagainst, substantially as set forth.

2. In a building construction, a series of concrete columns in spaced parallel rows, the columns having enlargements comprising reinforced cantaliver platforms of rectangular shape, a series of floor girders ex-

tending from column to column, and at right angles to each other, each girder lying against an edge of the cantaliver platform and the end thereof flush with an adjacent edge of the platform and in abutting relation with the girder thereagainst.

3. In a building construction, a series of columns in spaced parallel rows, the columns having enlargements comprising cantaliver platforms of approximately rectangular shape, a series of floor girders extending from column to column, and approximately at right angles to each other, each girder lying against an edge of the cantaliver platform, and the end thereof flush with an adjacent edge of the platform, and in abutting relation with the girder thereagainst, the space between the said girders and the said supporting columns to be filled with filling material, and the spaces outside of girders filled with floor beams, joists or slabs, the whole forming one continuous floor, substantially as shown and described.

In testimony whereof, I, the said THEODORE AUGUSTUS EISEN, have hereunto set my hand and seal at the city of Los Angeles, in the county of Los Angeles, in the State of California, in the presence of two subscribing witnesses.

THEODORE AUGUSTUS EISEN. [L. S.]

Witnesses:

IDA M. DASKAM,  
J. D. CORY.