

Aug. 16, 1932.

A. B. PATTERSON

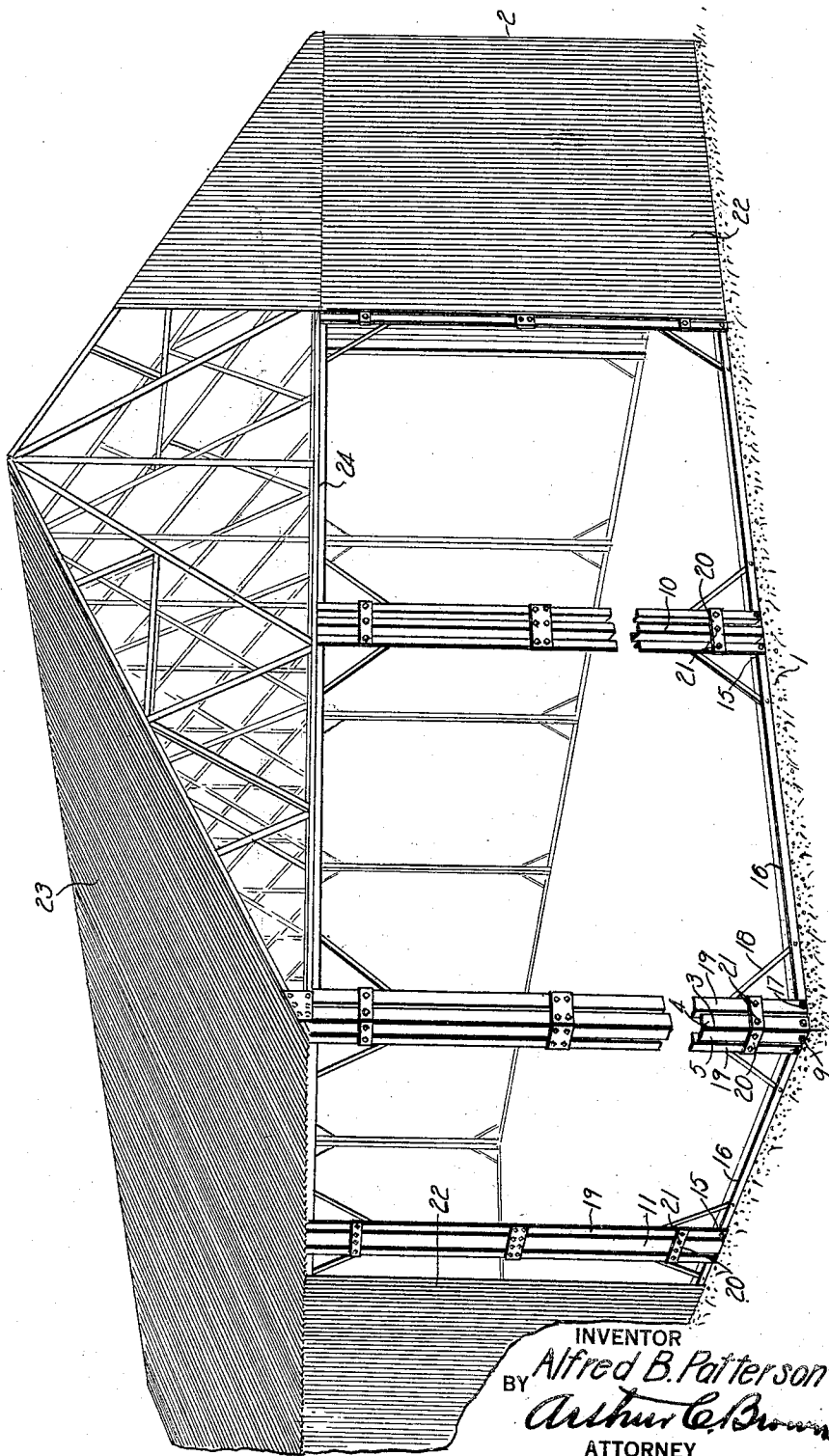
1,871,913

STEEL BUILDING CONSTRUCTION

Filed July 12, 1930

2 Sheets-Sheet 1

Fig. 1.



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2 Sheets-Sheet 2

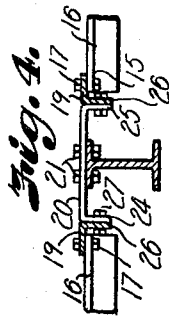
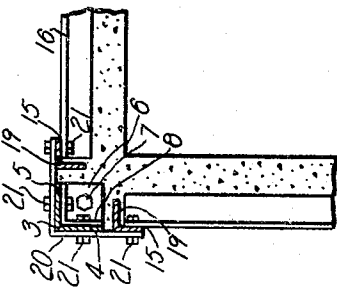
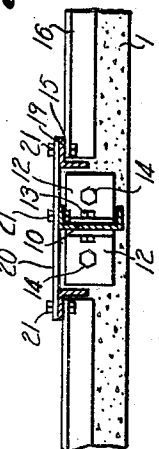
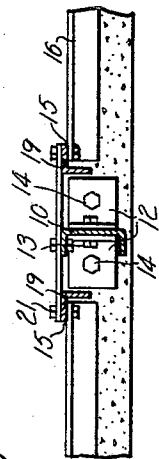
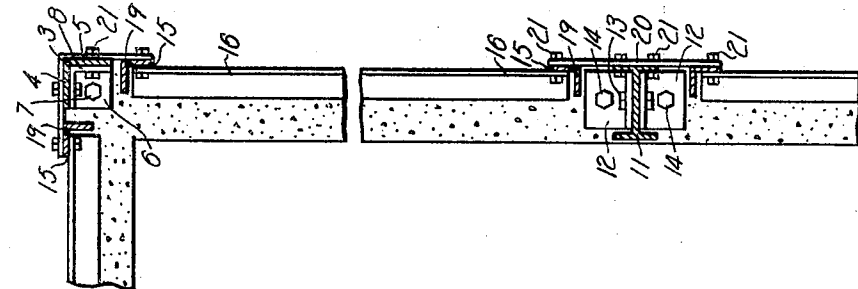
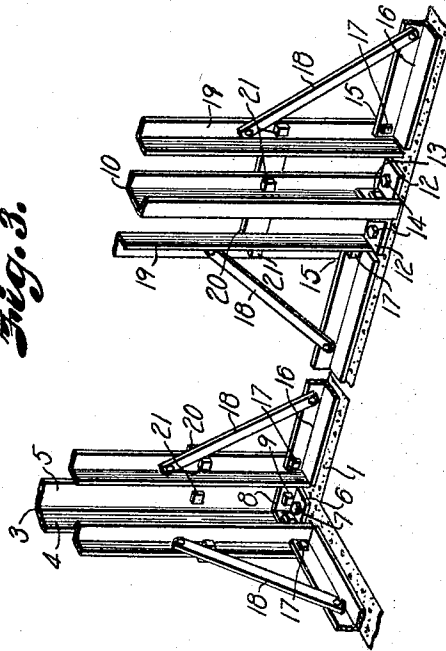


Fig. 3.



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STEEL BUILDING CONSTRUCTION

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My invention relates to building construction and more particularly to the structure of sectional steel buildings, the principal object of the invention being to provide simple and easily applied means for uniting the related sections or panels of the building in assembled condition, to produce a sturdy structure with a minimum number of parts, and to provide for removal of one or more sections without danger of collapse of the building.

In accomplishing these and other objects of my invention, I have provided improved details of structure the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a building constructed in accordance with my invention, a plurality of the sections and a portion of the gable being shown uncovered to more clearly illustrate the manner of connecting the sections with tie members or plates.

Fig. 2 is a fragmentary horizontal section illustrating particularly the tie plates connecting sections to corners and to intermediate columns.

Fig. 3 is a fragmentary view in perspective of the interior of the building, particularly illustrating corner and intermediate columns.

Fig. 4 is a fragmentary horizontal section illustrating a modified form of tie plates connecting adjacent sections to an I-beam column.

Referring more in detail to the drawings: 1 designates a foundation or sill for supporting a rectangular building 2 preferably formed of steel sections and including corner columns 3 comprising angle members having side flanges 4 and 5.

Anchoring plates 6, secured to the foundation by bolts 7 include upstanding flanges 8, attached to the lower ends of the corner columns by bolts 9 or the like extended through the flanges 8 and through the side flanges 4 and 5 of the angle members.

Intermediate columns comprising either channel members 10 or I-beams 11 as shown in Fig. 2, are preferably anchored to the foundation by angle plates 12 secured by

bolts 13, or the like, to the columns and by bolts 14 to the sill.

Removable frames or sections 15, preferably formed of angle irons 16 connected at their corners by means such as bolts 17 and braced by straps 18, are formed sufficiently small to freely enter into the spaces between the columns, the outer flanges 19 of the vertical angle irons of the frame members being positioned in a plane with the outer flanges of the intermediate and corner columns so that tie plates 20 may be readily applied to the columns and to the frames to form a continuous wall.

The tie plates comprise rectangular straps of steel or the like and are preferably secured to the columns and flanges by bolts 21 or the like so that sections of the wall may be readily removed when desired. If preferred, the intermediate plates may be formed wider than the plates near the upper and lower end of the sections in order to provide a stronger structure.

Covering material such as corrugated metal sheets 22 may be applied to the frames for inclosing the building.

A self-supporting roof 23 having a lower chord 24 is preferably used for a structure such as described so that a corner column or an intermediate column may be removed from the building if desired without danger of collapse of the roof.

Assuming a building to be constructed as described the procedure for erecting and of assembling a building would be as follows:

The corner and intermediate columns are secured to the foundation by the anchoring plates, and the sections are then inserted in the spaces between the columns and are fastened to the columns by the tie plates 20. The roof may next be mounted on the skeleton structure, the lower chord of the roof tying the upper ends of the columns together.

As illustrated in the drawings, space is reserved between the ends of the sections and the columns in order to eliminate difficulty of assembling the structure should there be a slight mis-alignment of the columns and sections.

It will be readily apparent that any of the

sections may be removed independently of the adjacent sections and that due to the self-supporting roof an entire corner can be removed if necessary for installing large machinery and the like in the building.

The covering material may be applied to the frame members before or after the sections have been installed between the columns.

A building constructed and assembled as described can also be readily disassembled, and since the individual tie plates overlie an intermediate or corner column and are connected to adjacent sections a rigid structure is obtained that embodies a large amount of wind resistance.

If it is desirable to form the tie plates in two parts instead of one, which could be done satisfactorily when installing sections between H-beam columns, the tie plates are preferably secured to the column in abutting relation to each other.

In the modified form shown in Fig. 4 the tie plate is provided with lateral flanges 24 and 25 adapted to be connected to the inwardly directed flanges 26 of the frame members by bolts 27 or the like. With this form of plate it is possible to connect or disconnect the sections to the columns from within the building.

What I claim and desire to secure by Letters Patent is:

1. In building structure of the character described, spaced corner and intermediate columns having outer faces in one plane, a frame of less width than said spacing adapted to be mounted between a pair of columns from either the interior or exterior of the structure, tie plates abutting the frame and said faces to maintain the frame in the same plane with said faces, and means for connecting the tie plates to the columns.

2. In building structure of the character described, spaced corner and intermediate columns having outer flanges in one plane, a frame of less width than said spacing adapted to be mounted between a pair of columns and having outer flanges in the same plane with the column flanges, tie plates overlying the flanges of the frame and columns, and means for connecting the plates to the flanges of the frame and columns.

3. In building structure of the character described, formed corner and intermediate columns having outer flanges in one plane, a frame of formed members adapted to be mounted between a pair of columns and having side edges spaces from the columns, and outer flanges in the same plane with the column flanges, tie plates overlying the flanges of the frame and columns, and means for connecting the plates to said flanges.

4. In building structure of the character described, corner columns of formed angle members having flanges, intermediate col-

umns of formed channel members having an outer flange in a plane with a flange of the angle member, a frame of formed angle members adapted to be mounted between a corner and an intermediate column or between intermediate columns and having outer flanges in the same plane with said column flanges, and vertically spaced means for connecting and maintaining said flanges in linear relation.

5. In building structure of the character described, corner columns of formed angle members having flanges, intermediate columns spaced from each other and from the corner columns and including formed members having an outer flange in a plane with a flange of the angle member, a frame of less width than said spacings formed of angle members adapted to be mounted between a corner and an intermediate column or between intermediate columns and having outer flanges in the same plane with said column flanges, tie plates located against the flanges of the frame and columns, and means for connecting the plates to said flanges.

6. In building structure of the character described, spaced formed corner and intermediate columns having flanges in one plane, a frame of formed members of less width than said spacings adapted to be mounted between a pair of columns and having inwardly directed flanges, a plurality of tie plates overlying the flange of a column and having inwardly directed flanges complementary to said frame flanges, and means for connecting the inwardly directed flanges of the frame and tie plates in abutting relation.

7. In building structure of the character described, spaced formed corner and intermediate columns having flanges in one plane, a frame of less width than said spacings adapted to be mounted between a pair of columns and spaced therefrom, the frame having inwardly directed flanges, tie plates overlying the flange of a column and having inwardly directed flanges complementary to said frame flanges, means for connecting the inwardly directed flanges of the frame and tie plates, and means for securing the tie plates to the flanges of the columns.

8. In building structure of the character described, formed corner and intermediate columns having outer flanges in one plane, a frame of formed members adapted to be mounted between a pair of columns and having outer flanges in the same plane with the column flanges, a plurality of vertically spaced tie plates overlying the flanges of the frame and columns, and bolts connecting the plates to the flanges of the frame and columns.

9. In building structure of the character described, formed corner and intermediate columns having outer right-angular flanges in one plane, a frame of formed members

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adapted to be mounted between a pair of columns and spaced therefrom, and having outer right-angular flanges in the same plane with the column flanges, a plurality of vertically spaced tie plates overlying the flanges of the frame and columns, and means for connecting the plates to the flanges.

10 In building structure of the character described, formed corner and intermediate columns having flanges in one plane, a frame of formed members adapted to be mounted between a pair of columns, and having inwardly directed flanges, a plurality of vertically spaced tie plates overlying the flange of a column and having inwardly directed flanges complementary to said frame flanges, and bolts for connecting the inwardly directed flanges of the frame and tie plates.

In testimony whereof I affix my signature.

ALFRED B. PATTERSON.