T. H. KANE.

METAL BUILDING CONSTRUCTION.

APPLICATION FILED MAY 15, 1920.

1,421,950.

Patented July 4, 1922.

2 SHEETS—SHEET 1.

Fig. 2

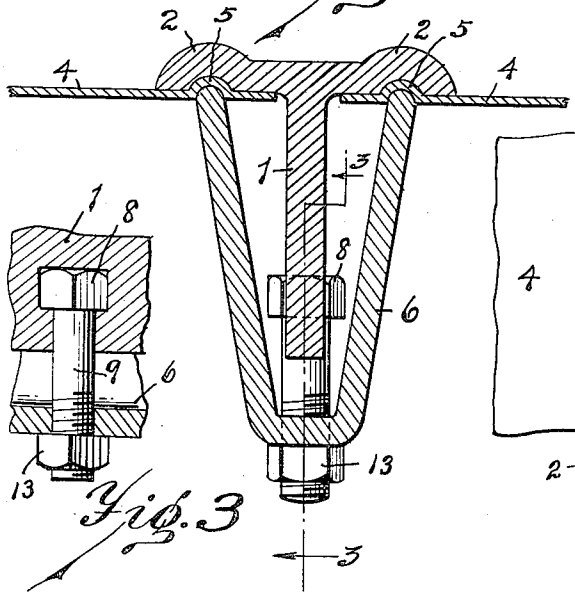


Fig. 3

Fig. 4

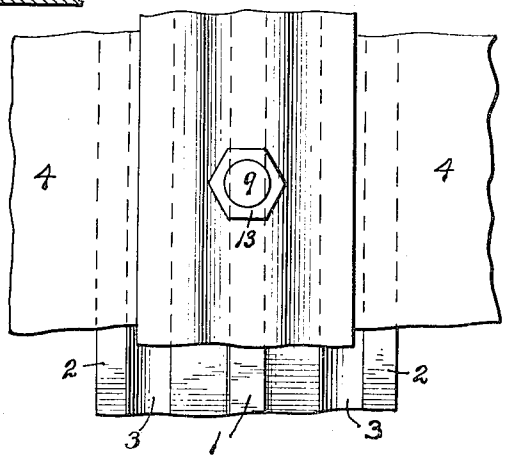
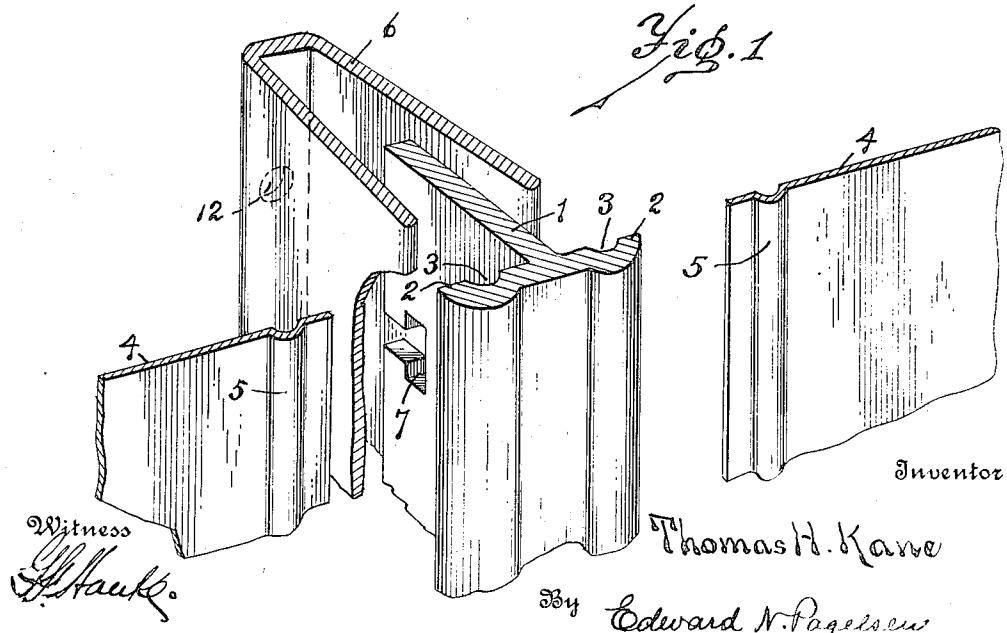


Fig. 1



Witness

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2 SHEETS—SHEET 2.

Fig. 5

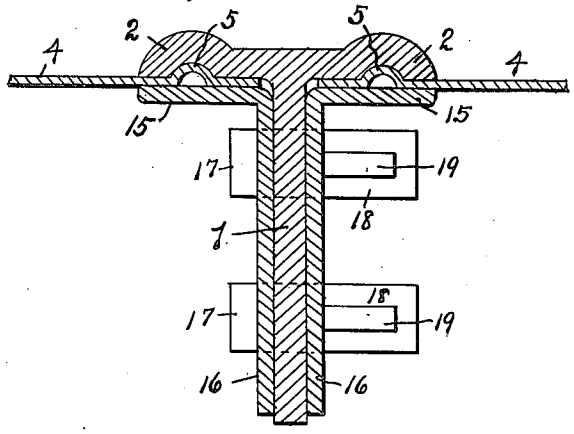
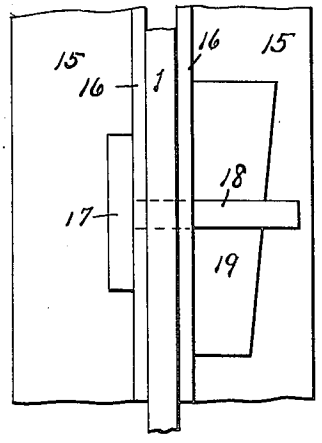


Fig. 6.



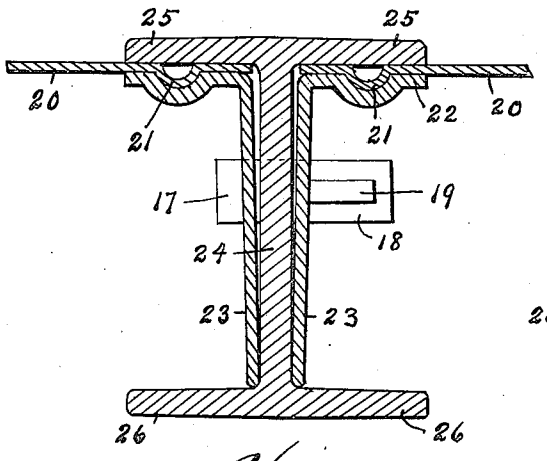


Fig. 7

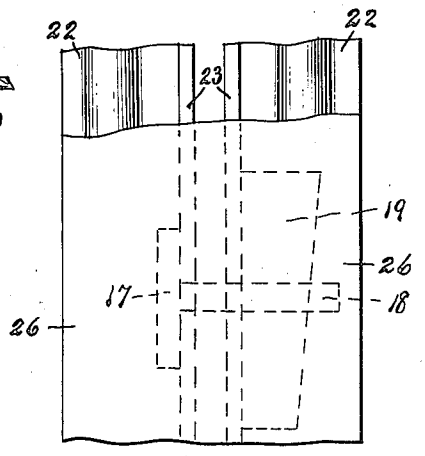


Fig. 8

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UNITED STATES PATENT OFFICE.

THOMAS H. KANE, OF YOUNGSTOWN, OHIO, ASSIGNOR TO TRUSCON STEEL COMPANY, OF YOUNGSTOWN, OHIO, A CORPORATION OF MICHIGAN.

METAL BUILDING CONSTRUCTION.

1,421,950. Specification of Letters Patent. Patented July 4, 1922.

Application filed May 15, 1920. Serial No. 381,545.

To all whom it may concern:

Be it known that I, THOMAS H. KANE, a citizen of the United States, and residing at Youngstown, in the county of Mahoning and State of Ohio, have invented a new and Improved Metal Building Construction, of which the following is a specification.

This invention relates to the construction of metal buildings, particularly those in which the roof is supported by light trusses resting on columns and in which the spaces between the columns are spanned by wall panels of sheet metal, as clearly described in my former Patent No. 1,208,568, dated December 12, 1916.

In this patent, the edges of the sheet metal wall panels are bent inwardly and are secured to the sides of the rolled metal columns at intervals by means of bolts. As the stresses on the sheet metal at these fastenings are sometimes quite high, especially during violent winds, proper provisions for such stresses must be made by having the fastening bolts sufficiently numerous and the sheet metal of proper thickness.

A continuous operative connection between the columns and the sheet metal wall panels throughout their entire height is more desirable than numerous bolts, as each bolt engages only a limited area of the panel, while a continuous connection takes advantage of the entire sheet. This is fully set forth in my copending application of even date herewith, Serial Number 381,544, which may be considered as setting forth the broad invention, the present application being limited to sheet metal panels provided with vertical corrugations which are received and held in corresponding grooves in a built-up column.

This invention, therefore, consists in the details of construction illustrated in the accompanying drawings and particularly pointed out in the claims.

In the accompanying drawings, Fig. 1 is a perspective view showing a portion of a column embodying the present invention and portions of the adjacent edges of two wall panels. Fig. 2 is a horizontal section of the column when assembled. Fig. 3 is a section on the line 3—3 of Fig. 2. Fig. 4 is an elevation of a portion of this column and adjacent panels. Fig. 5 is a horizontal section of a modified form of column and Fig. 6 is an elevation of a portion thereof. Fig. 7 is a horizontal section of another modified form of column and Fig. 8 is an elevation of a portion thereof.

Similar reference characters refer to like parts throughout the several views.

The columns shown in the drawings not alone connect and support the edges of the sheet metal wall panels, but also support the roof and its trusses. The description of the manner of mounting the roof trusses set forth in my former patent is sufficient to instruct skilled engineers in the manner of adapting the connections necessary to mount roof trusses on the present columns, so no showing of such connections is made in the present application.

In Fig. 1, I have shown a T bar provided with a web 1 and head flanges 2, each formed with a longitudinal groove 3. The sheet metal wall panels 4 have vertical corrugations 5 rolled along their adjacent edges, which corrugations are adapted to fit into the grooves 3. Any desired means may be employed to hold these corrugations in their grooves. In Figs. 1, 2 and 4, I have shown an angularly rolled member in the form of a narrow channel 6 whose edges are spaced to the grooves 3. The web 1 of the T bar may be formed with notches 7 to receive the heads 8 of the bolts 9, the shanks of the bolts extending through holes 12 in the channel 6 and receiving the nuts 13 by means of which the parts of the column and the panels may be rigidly connected. When thus assembled, there is practically no possibility of any separation of panel and column, and as the union between them is co-extensive with the height of the panel, all of the metal of the panel is made use of to resist the stresses which are resisted by limited areas in the structure shown in my former patent.

In the structure shown in Figs. 5 and 6, the same T bar with its web 1 and grooved head flanges 2 and the wall panels 4 with their vertical corrugations 5 are shown. Two angle bars provided with flanges 15 and 16 are secured to the web of the T bar by any desired means, bolts having heads 17 and slotted shanks 18 to receive the locking wedges 19 being shown. In this case, the stiffness of the sheet metal of the wall panels is relied upon to prevent the corrugations 5 being flattened when a heavy pull occurs upon the panels 4.

In the structure shown in Figs. 7 and 8, the central member of the column is in the form

of an I beam having a web 24 and flanges 25 and 26. The sheet metal wall panels 20 have inwardly extending corrugations 21 which enter grooves in the flanges 22 of a pair of angle bars whose flanges 23 are drawn against the web 24 of the I beam by means of the slotted bolts 18. As the outer edges of the flanges 23 engage the flanges 26 of the central member, the grip of the flanges 25 and 22 on the sheet metal panels will be very great and sheet metal of even slight stiffness will have sufficient rigidity to prevent the corrugations 21 from being pulled out flat and the panels separated from the column.

The details and proportions of the several parts may be further modified by those skilled in the art without departing from the spirit of my invention as set forth in the following claims.

I claim:—

1. In a metal building construction, the combination of a column, a sheet metal wall panel provided with a corrugation along a vertical edge, the column being formed of a plurality of angular members, one of which has a groove to receive the corrugation on the panel, another member being positioned to hold the corrugation on the panel in the groove, and means to secure the parts of the column together.

2. In a metal building construction, the combination of a column, and a sheet metal wall panel provided with a vertical corrugation along an edge, the column being formed of a flanged member having a longitudinal groove in one flange to receive the corrugation on the wall panel and of an angular member which holds the corrugation in said groove, and means to secure the members of the column together.

3. In a metal building construction, the combination of a column and two alined sheet metal wall panels, each provided with a corrugation along a vertical edge, the column being formed of a T bar which has a longitudinal groove in each flange a distance from the web to receive said corrugations, and means comprising a flanged bar to secure the panels and T bar together.

4. In a metal building construction, the combination of a column and two alined sheet metal wall panels, each provided with a corrugation along a vertical edge, the column being formed of a T bar which has a longitudinal groove in each flange to receive said corrugations, means to secure the panels and T bar together, comprising a channel shaped member whose edges are spaced to register with said grooves, and means to unite the parts of the column.

5. In a metal building construction, the combination of a column and two alined sheet metal wall panels, each provided with a corrugation along a vertical edge, the column being formed of a T bar having longitudinal grooves in the inner side of its head to receive said corrugations and of a channel bar adapted to extend around the web of the T bar and have its edges register with said grooves, and bolts connecting to the edge of the web and extending through holes in the channel bar to secure the several parts together.

THOMAS H. KANE.