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STRUCTURAL STEEL FRAMEWORK

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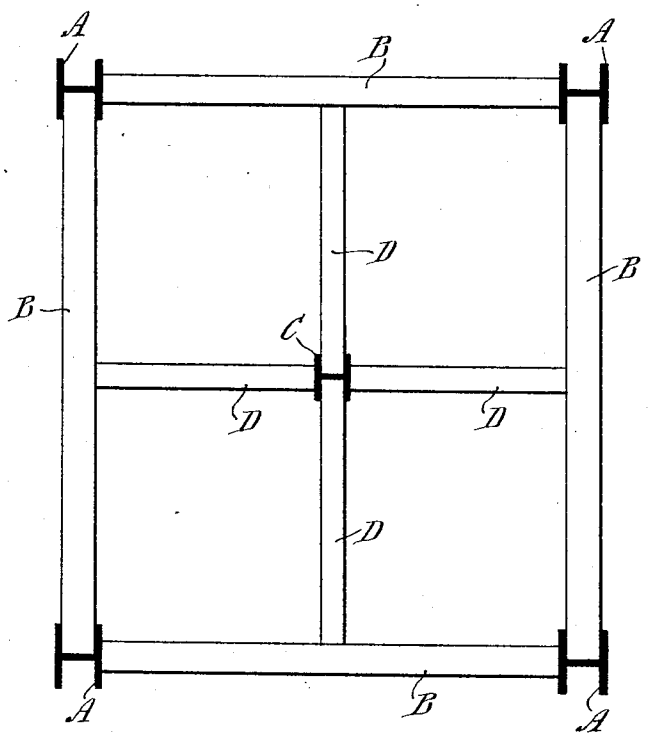

WITNESSES

Edw. Thorpe

Hugh H. Ott

INVENTOR

John A. Larkin

BY Munn & Co

ATTORNEY

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UNITED STATES PATENT OFFICE.

JOHN ANDREW LARKIN, OF NEW YORK, N. Y.

STRUCTURAL-STEEL FRAMEWORK.

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This invention relates to structural steel framework for building construction, and has particular reference to a framework employing in combination with certain groups of main columns, supplemental columns so arranged and connected with the main columns as to assume a part of the gravity load usually supported by the main columns, and this without receiving wind loads or stresses to which the main columns are subjected.

The invention comprehends the employment of supplemental columns in conjunction with certain groups of main columns for partially supporting a building area gravity load in order to relieve the main columns of a portion of the gravity load and to lend to the main columns a greater wind stress capacity than could otherwise be sustained on a given area, thereby allowing the main columns of a structure to be erected to a greater height than heretofore possible.

The invention furthermore comprehends a supplemental column for use in a structural steel framework for buildings for supporting a portion of the building area gravity load by relieving a part of the gravity load usually supported by the main columns of the building to permit a greater proportion of the sectional area of the main columns so supplemented, to become effective for resisting wind stresses.

As a further object of the invention embodies the use of supplemental columns employed to support a part of a building area gravity load, which by relieving part of the gravity load usually supported by the main columns of the building, permits the main columns having the maximum sectional area assembled by the use of rivets, having maximum legal grips, thus enabling, due to the use of a greater proportion of such maximum sectional area for resisting wind stresses, the effective erection of main columns to a greater height and consequently the erection of buildings of greater heights.

More specifically the invention comprehends a structural steel framework for buildings including a supplemental column disposed between a group of main columns out of alinement with the webs or flanges of the main columns or in diagonal relation thereto and indirectly connected to said main columns.

The invention further aims to provide an improvement in a structural steel framework for buildings which does not materially increase the cost of erection and which is thoroughly reliable and highly efficient in its purpose.

With the above recited and other objects in view, reference is had to the following description and accompanying drawings in which there is exhibited one example or embodiment of the invention, while the appended claims define the actual scope of the invention.

In the drawing, the figure is a diagrammatic plan view illustrating the arrangement of a group of main columns and a supplemental column in accordance with the invention.

Referring to the drawings by characters of reference, A indicates the main columns which are directly connected to each other by girders B in any approved manner so that the webs and flanges of the main columns are in alinement. Associated with a group of main columns is a supplemental column C which is placed diagonally between the group of main columns, with the webs or flanges of said supplemental column out of direct alinement with the webs and flanges of the main columns. The supplemental column C is indirectly connected to the main columns by beams D, which beams are connected to and extend from the supplemental column to the girders B to which they are connected so that said supplemental column may support a part of the building area gravity load to relieve the main columns of said part of the load, whereby said main columns are given a greater wind stress capacity than could otherwise be permitted on a given sectional area. This obviously permits the main columns of the structure to be erected to a greater height. It should also be noted that the supplemental column is so located and indirectly connected with the main columns that no wind load or stress is imparted thereto, it functioning merely to assist in supporting the building area gravity load.

It thus follows that by providing a supplemental column employed solely for the purpose of supporting a part of the building area gravity load thus relieving the main columns of the building of such part of the gravity load which is usually supported thereby, allows the said main columns having the maximum sectional area assembled

by the use of rivets, to have maximum legal grips (legal grips being the trade term for the distance between the under side of both rivet heads or the actual length of the rivet shank or stock actually gripping the metal.) By permitting the use of a greater proportion of such maximum sectional area for resisting wind stresses, it is obvious that the effective erection of the main columns to a greater height is enabled and, consequently, the erection of buildings to greater heights is provided for.

What is claimed is:

1. In a structural steel framework for buildings, a group of main columns, a supplemental column disposed therebetween, main girders connecting said main columns, and beams uniting said supplemental column and main girders.

2. In a structural steel framework for buildings, a group of main columns symmetrically arranged, a supplemental column disposed therebetween and equi-distant from said main columns, main girders connecting said main columns and beams uniting said supplemental column and said main girders.

3. In a structural steel framework for buildings, a group of main columns, a supplemental column of relatively small weight and cross section as compared with said main column, said supplemental column being disposed within the group of main columns, main girders connecting said main columns, and means for connecting said supplemental column to said main girders.

4. A structural steel framework unit for buildings comprising a group of main columns, girders connecting said main columns together, said main columns and said girders being adapted to resist gravity load and wind stresses, a supplemental column associated with said main columns and adapted to relieve said main columns of a portion of the gravity load, and connections for maintaining said supplemental column in fixed spaced relation with said main column while preventing the supplemental column from being subject to wind stresses.

5. In a structural steel framework for buildings, a group of main columns arranged to form a square, girders connecting said main columns, a supplemental column disposed centrally of the square, and connections from said supplemental column to each of said girders.

6. In a structural steel framework for buildings, a group of main columns arranged to form a square, girders connecting said main columns, a supplemental column of smaller cross section and weight than any of said main columns, said supplemental column being disposed at the center of the square, and connections extending from said supplemental column perpendicularly to each of said girders.

JOHN ANDREW LARKIN.