Jan. 23, 1951

H. S. SHANNON

2,539,279

BUILDING WALL FRAMING

Filed June 22, 1946

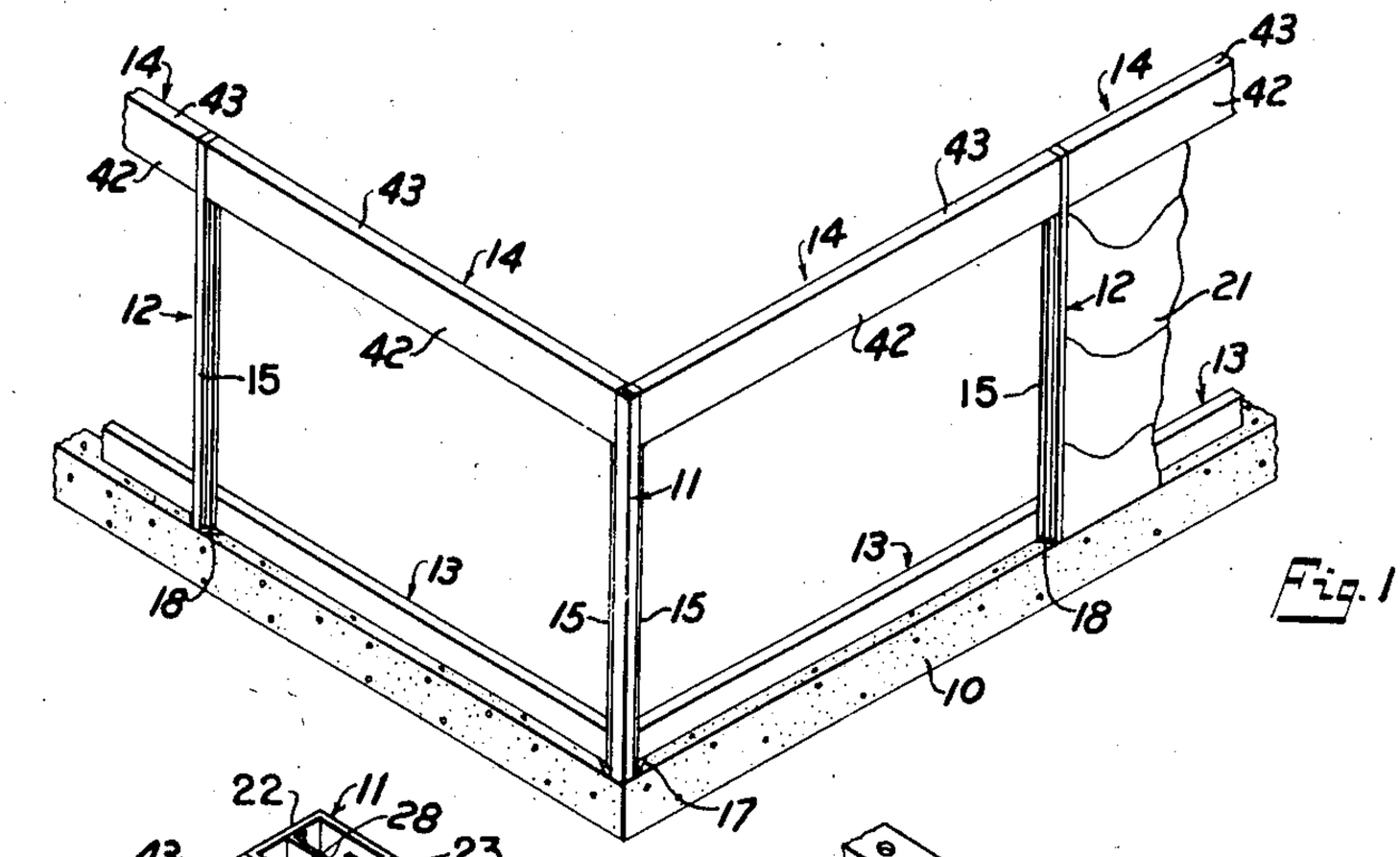

Fig. 1

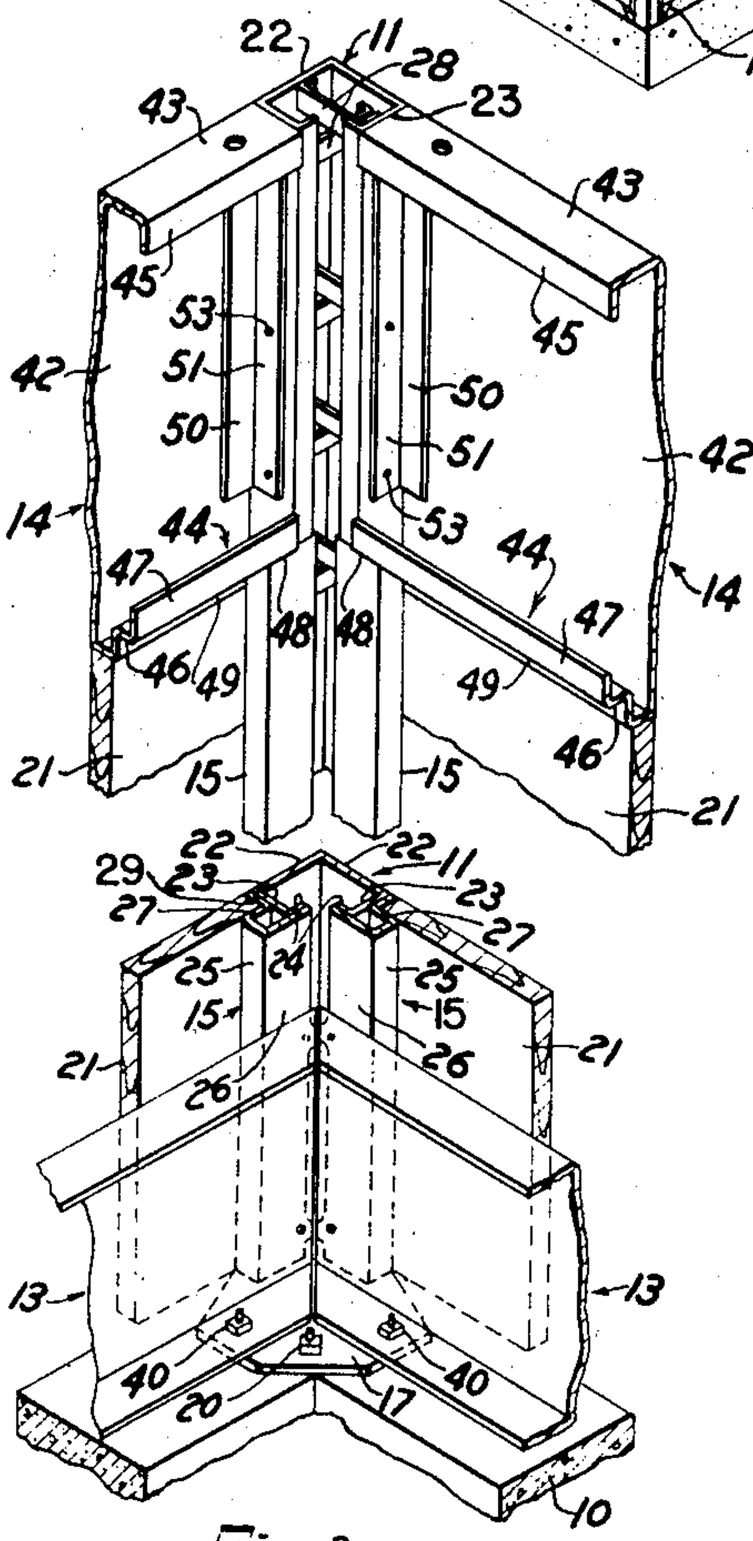

Fig. 3

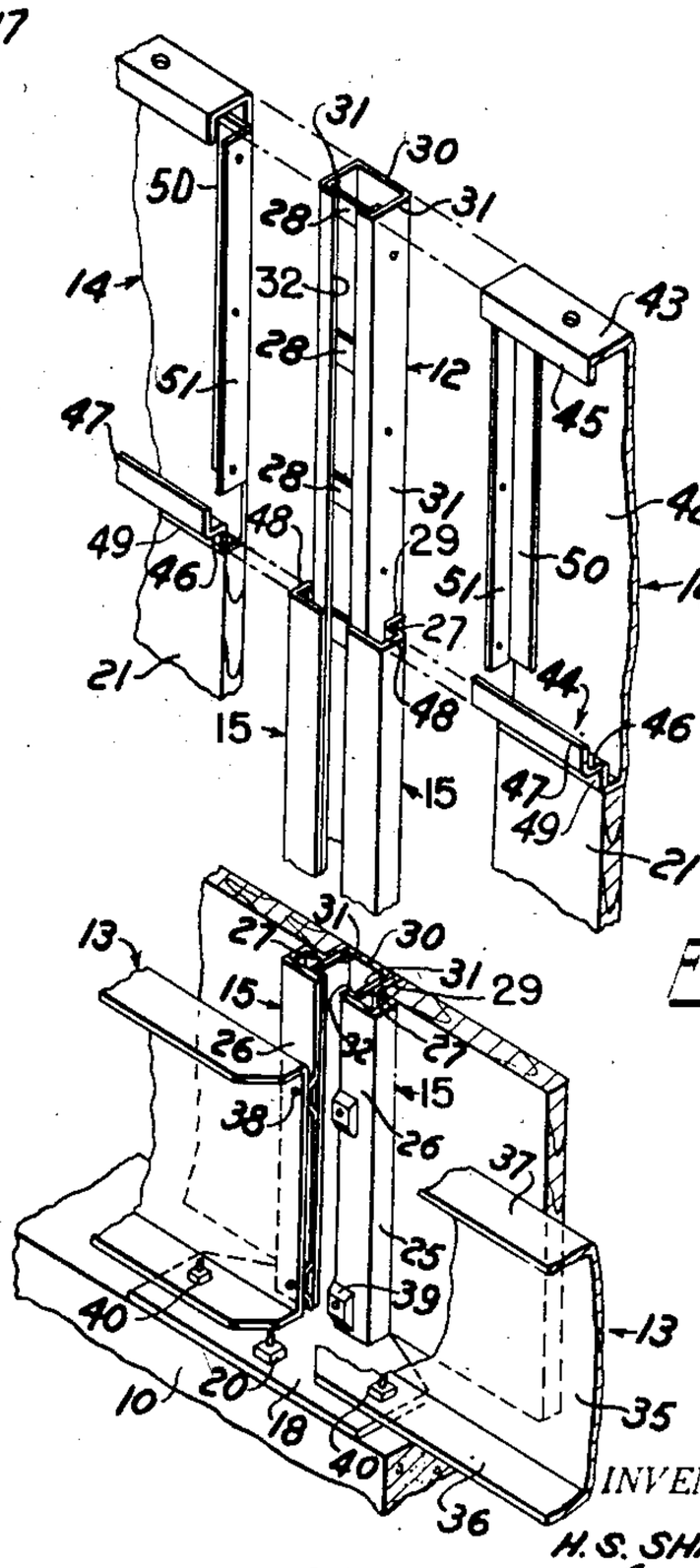

Fig. 2

INVENTOR.
H. S. SHANNON.
BY
ATTORNEY.

Patented Jan. 23, 1951

2,539,279

UNITED STATES PATENT OFFICE

2,539,279

BUILDING WALL FRAMING

Harold S. Shannon, Detroit, Mich., assignor to National Steel Corporation, a corporation of Delaware

Application June 22, 1946, Serial No. 678,635

6 Claims. (Cl. 189—34)

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This invention relates generally to buildings and more particularly to wall framing therefor.

It is an object of the present invention to provide new and improved wall framing of the type in which the number of columns or studs required is decreased by using deep grade beams and deep girders.

Another object of the invention is to provide building wall framing having a new and improved arrangement of the component parts thereof to facilitate erection.

Another object of the invention is to provide new and improved wall framing, including supplemental column members connecting grade beams of the framing to the columns.

A further object of the invention is to provide a new and improved column having girder seats and panel seats provided by supplemental column members.

Other objects of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings in which:

Figure 1 is a fragmentary, isometric view of a building wall framing embodying features of the present invention;

Figure 2 is an isometric, fragmentary view of the framing at one of the intermediate columns, as seen from the interior of the building; and

Figure 3 is an isometric, fragmentary view of a corner of the framing, as seen from the interior of the building.

In the drawings which illustrate a preferred embodiment of the invention, the building shown includes a foundation 10 for supporting the wall framing, the foundation 10 preferably being of the poured concrete slab or continuous footing type. The wall framing comprises, in general, corner columns 11, intermediate columns 12, grade beams 13 and girders 14. In addition, the wall framing includes a pair of supplemental column members 15 for each corner column 11 and for each intermediate column 12. Each of the columns 11 and 12 is preferably provided with a base plate 17 and 18 respectively. Each of the base plates is secured to the foundation by an anchor bolt and nut 20.

The columns 11 and 12 are widely spaced apart and extending upwardly from the foundation 10 are connected together by the grade beams 13 and by the girders 14. As shown, the grade beams 13 are located inwardly of the columns 11 and 12. The supplemental column members 15 are interposed between the grade beams 13 and the columns, connecting the grade beams to the columns.

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These pairs of supplemental column members 15 extend upwardly from the column base plates, terminating at the lower edges of the girders 14. Exterior panels 21 cooperate with the framing to form the walls of the building. Preferably, each of these panels 21 is of a size to extend between adjacent or opposite supplemental column members 15 of adjacent columns and to extend from the foundation 10 up to the girders 14. As shown, the panels 21 are located outwardly of the grade beams 13 and of the supplemental column members 15. The panels 21 rest against the supplemental column members 15 and the outer surfaces of the panels are preferably coplanar or flush with the outer surfaces of the girders 14.

The corner column 11 comprises preferably a steel structural member having two adjacent, exterior sides 22 and two inwardly directed sides 23. The exterior column sides 22 are preferably at right angles to each other, as seen in plan, and the column sides 23 are preferably at right angles respectively to the sides 22. Each of the column sides 23 is preferably formed with an inturned longitudinal flange 24 at its inner edge. These flanges 24 reinforce the column sides 23 and also present seating and attachment surfaces for the supplemental column members 15. Reinforcing members 28 for the columns may extend therein between and be welded to opposite sides of the columns.

The pair of supplemental column members 15 of each column are associated with and secured one to each of the column sides 23. The supplemental column members 15 are preferably of general channel shape in cross-section, each having a web 25, an inner side or leg 26, and an outer side or leg 27. These supplemental column members 15 are arranged with respect to the column 11 so that the supplemental column member legs 26, 27 extend substantially normal respectively to the column sides 23 with the webs 25 spaced therefrom outwardly of the column. As shown in Figure 3, the inner legs 26 of the supplemental column members 15 respectively seat flat against the outer surfaces of the flanges 24 of the column sides 23. The supplemental column member legs 26 are secured rigidly to the column flanges 24, preferably by welding. The outer legs 27 of the supplemental column members 15 each have outturned flanges 29 seating respectively against the column sides 23. These outturned flanges 29 preferably extend coextensive of the supplemental column members 15 and are secured preferably by welding to the column adjacent the exterior sides 22 thereof. The width of the channel-like supple-

mental columns 15 are preferably such that the legs 27 thereof are inwardly offset from the exterior column sides 22 presenting seating surfaces for side edge portions of the panels 21. These outer legs 27 of the supplemental column members 15 are inwardly offset from the adjacent sides 22 of the column so that the panels 21 seating thereagainst have their outer surfaces flush with the outer surfaces of the column 11.

Referring now to Figure 2 which shows the wall framing at one of the intermediate columns 12, this column is a channel-like structural member preferably made of steel having an exterior side 30 and inwardly directed spaced sides 31. At their inner edges, the column sides 31 have inturned flanges 32 extending coextensive therewith which flanges reinforce the sides 31 and present attachment flanges respectively for the supplemental column members 15. Each intermediate column 12 is provided with a pair of these supplemental column members 15, respectively secured preferably by welding to the column sides 31. The supplemental column members 15 are the same as the previously described supplemental column members 15 of the corner columns and therefore like parts of these members are designated by like numerals. As shown, the supplemental column members 15 of the intermediate columns extend horizontally in opposite directions respectively from the column sides 31 and from each other, the outer legs 27 of the supplemental column members presenting outwardly facing seats for side edge portions of adjacent pairs of the panels 21. These legs or seats 27, like those of the corner structure, are preferably inwardly offset from the column exterior sides 30 a distance such that the outer surfaces of the panels 21 will be flush or coplanar with the outer surface of the column 12.

The grade beam sections 13 are preferably of channel-form, each having a deep web 35, a lower seating flange 36 and an upper supporting flange 37. These channel grade beam sections 13 are arranged so that the flanges 36, 37 thereof are directed inwardly of the building, end portions of the lower flanges 36 seating on the column base plates 17, 18. The opposed ends of adjacent channel grade beam sections 13 are in spaced relation to each other at the intermediate posts with the webs 35 thereof overlapping lower portions of the inner legs 26 of the supplemental column members 15. Preferably, the grade beam webs 35 are secured by self-threading screws 38 to the inner legs 26 of the supplemental column members 15. At the locations of these screws 38, the legs 26 of the supplemental column members 15 are provided with bosses 39 extending toward and engaged by the grade beam webs 35 to provide clearance for the screws 38. The grade beam sections 13 are secured adjacent their opposite ends to the column base plates 17, 18 by nuts and studs 40. The studs 40 are carried by the base plates 17, 18 and may be welded thereto. These studs 40 extend upwardly from the base plates through apertures in the lower supporting flanges 36 of the grade beams 13 to receive the nuts which are tightened down to secure the parts rigidly together. Similarly, the grade beams 13 are connected to the corner columns 11 by the corner, supplemental column members 15 and are secured to the corner column base 17 by studs and nuts 40.

The girders 14 are preferably constructed in sections which extend respectively between adjacent columns 12 and between columns 12 and 11. These girders 14 comprise a deep web 42, an upper supporting flange 43 and a lower flange 44. As shown, the upper flange 43 preferably has a downturned, reinforcing flange portion 45 along the inner edge thereof. The lower flange 44 of the girder is stepped or offset upwardly, as at 46, along the entire length of the girder, the inner edge of the offset portion 46 preferably having an upturned reinforcing flange portion 47. At opposite ends of the girders, end portions of the offset flange portion 46 seat on the upper terminal ends or seats 48 of the complementary column members 15, the lower upturned portion of the girders, as at 49, fitting in the offset of the complementary column members against the seats 27 thereof. Secured to the opposite end of each girder 14 there is an upright angle member having one leg 50 secured to the inner side of the girder web, as by welding. The other angle leg, as at 51, is directed inwardly or in the same direction as the upper and lower flanges of the girder providing end flanges on the girders. At the corner columns 11 these girder end flanges 51 position flat against the inner column sides 23 and at the intermediate columns seat flat against the opposite column sides 31. As shown, the column sides 23, 31 and the girder end flanges 51 have aligning apertures to receive self-threading screws 53 to secure the parts together.

I claim:

1. In building construction the combination comprising, a foundation, a column supported on the foundation extending upwardly therefrom, a pair of grade beams supported on the foundation inwardly of the column, supplemental column members adjoining said column and having offset portions directed away from the latter to form a seat for receiving an exterior panel, said supplemental column members also having a leg portion joined to each of said offset portions and being interposed between and connecting the grade beams and column together, and exterior panels connected together by the supplemental column members and the column.

2. In building construction the combination comprising, a foundation, a column having an outwardly facing side and adjacent oppositely disposed sides, the column being supported on and extending upwardly from the foundation, a pair of grade beams disposed adjacent to and inwardly of the column, supplemental column members adjoining said column and including offset portions directed away from said oppositely disposed sides rearwardly of the outwardly facing side of the column for providing panel seating members, each of said supplemental columns also having a leg portion joined to one of said offset portions and connecting the grade beams to the column, and exterior panels seating against the panel seating members with their outer surfaces flush with the outwardly facing side of the column.

3. A column for use in building wall construction in which the opposed ends of sections of a lower beam and of an upper girder may be connected to the column comprising, supplemental column means having leg portions presenting surfaces for connection with the opposed ends of lower beam sections and also having offset portions associated with said leg portions, said offset portions presenting seating surfaces for a pair of contiguous panels, a central column portion separating the seats presenting oppositely facing shoulders substantially normal to the

seating surfaces, the supplemental column means terminating below the upper end of the central column portion presenting upwardly facing seats for the ends of upper girder sections, the central column portion above the upper end of the supplemental column means presenting oppositely facing surfaces for connection respectively to the ends of upper girder sections.

4. A column for use in building construction comprising, supplemental column means for extending from a lower beam of the building to upper girder sections, an attachment portion for connection with the lower beam when joined to the supplemental column means, the supplemental column means having an offset portion presenting seating surfaces for a pair of contiguous panels, a central column portion separating the seating surfaces presenting oppositely facing shoulders to the opposed edges of the pair of contiguous panels, the supplemental column means terminating below the upper end of the central column portion presenting a seat for an upper girder section, the central column portion above the seat presenting opposite sides for connection respectively to upper girder sections.

5. In building construction the combination comprising, a foundation, a column having an outwardly facing side and adjacent oppositely disposed sides, the column being supported on and extending upwardly from the foundation, a pair of grade beams disposed adjacent to and inwardly of the column, a pair of supplemental column members adjoining said column and including offset portions directed away from said oppositely disposed sides rearwardly of the outwardly facing side of the column for providing panel seating members, each of said supplemental columns also having a leg portion joined to one of said offset portions and connecting the grade beams to the column, exterior panels

seating against the panel seating members with their outer surfaces flush with the outwardly facing side of the column, and a pair of longitudinally aligned girders above the grade beams connected to opposite sides of the column, the pair of supplemental column members extending upwardly to the pair of girders and the girders each seating on the upper end of an offset portion of the respective supplemental column member.

6. A building column comprising, a channel member including a web portion, oppositely disposed sides each joined along one edge to the web portion, an inturned attachment flange joined to each of said sides along the other edge, outturned attachment flanges respectively joined to said oppositely disposed sides, a side member joined to each of said outturned flanges to provide with the latter an offset portion for seating an exterior panel, and an inturned leg member associated with each of said offset portions and connected to a respective one of said inturned attachment flanges for providing attachment means for connection with a beam joined to the column.

HAROLD S. SHANNON.

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