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(54) **MULTI-PURPOSE CONSTRUCTION PANEL AND METHOD**

(76) Inventor: **Thomas Herren**, Crossville, TN (US)

Correspondence Address:
PLAGER LAW OFFICES
16152 BEACG BLVD.
SUITE 207
HUNTINGTON BEACH, CA 92647 (US)

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(57) **ABSTRACT**

A pre-fabricated multi-purpose construction truss panel comprising a plurality of stud members of varying length generally parallel to each other possessing first terminal ends and second terminal ends; a truss frame comprising three brace members wherein one or more of said brace members comprises expansion-contraction members slideably attached to said first or second terminal ends of said stud members; and said truss panel comprises at least one reinforcement member secured between at least two of said stud members, or between one of said stud members and one of said brace members.

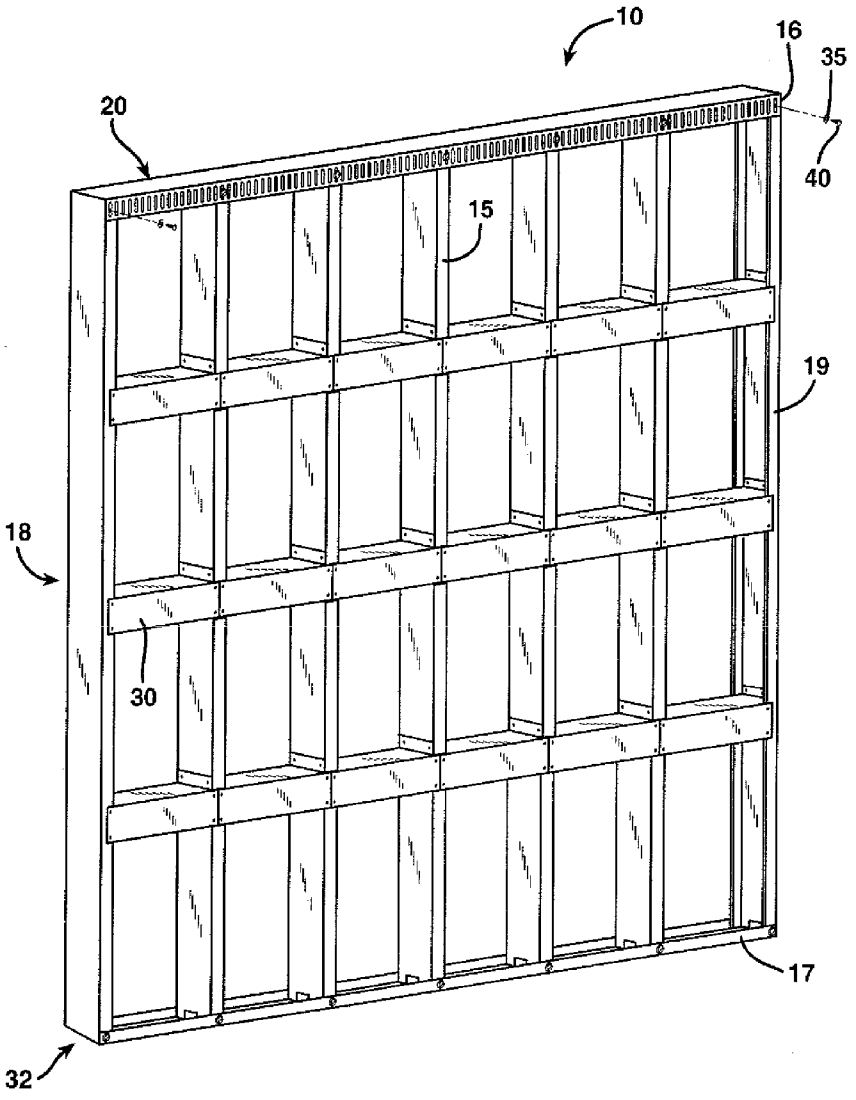


FIG. 1

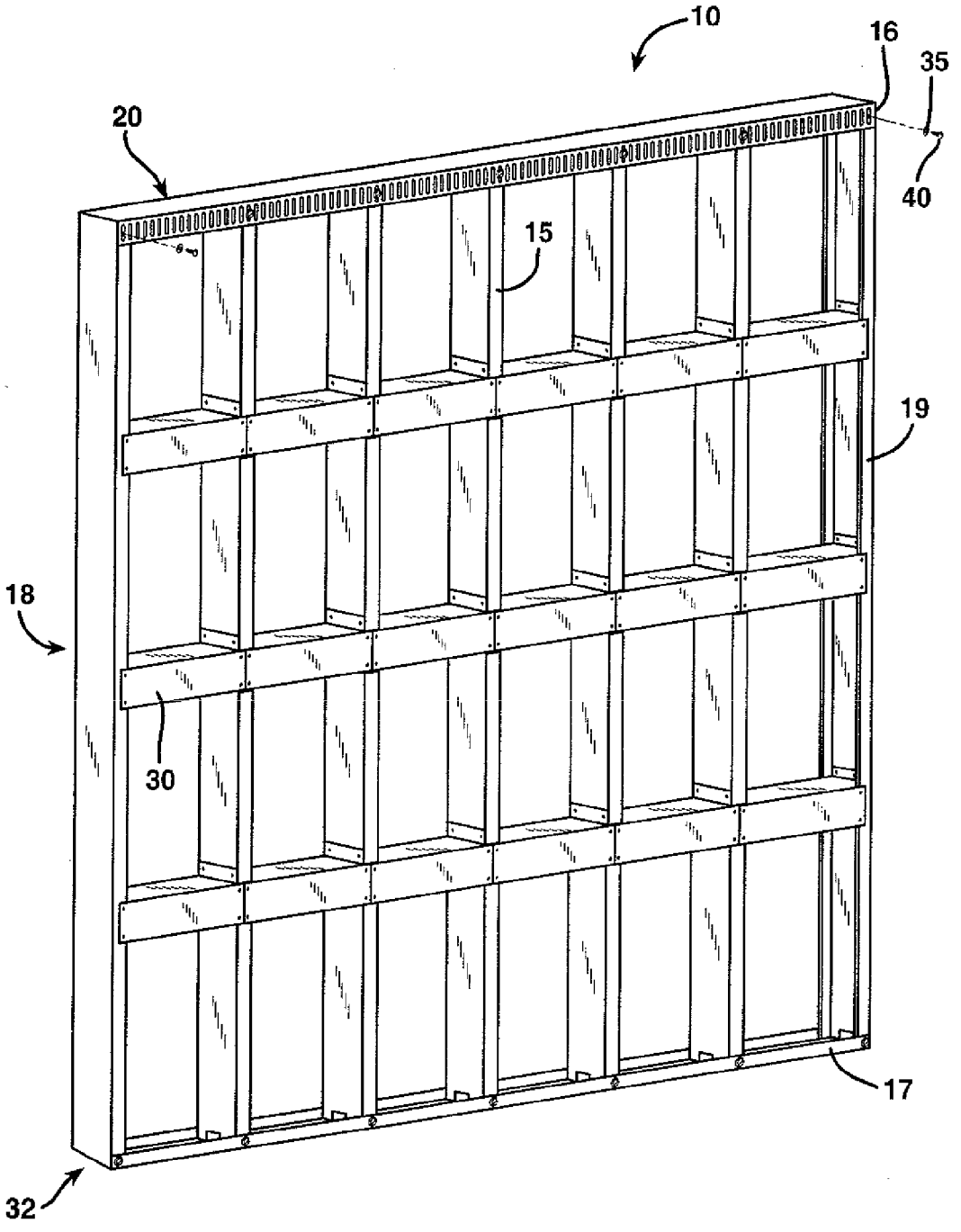


FIG. 2

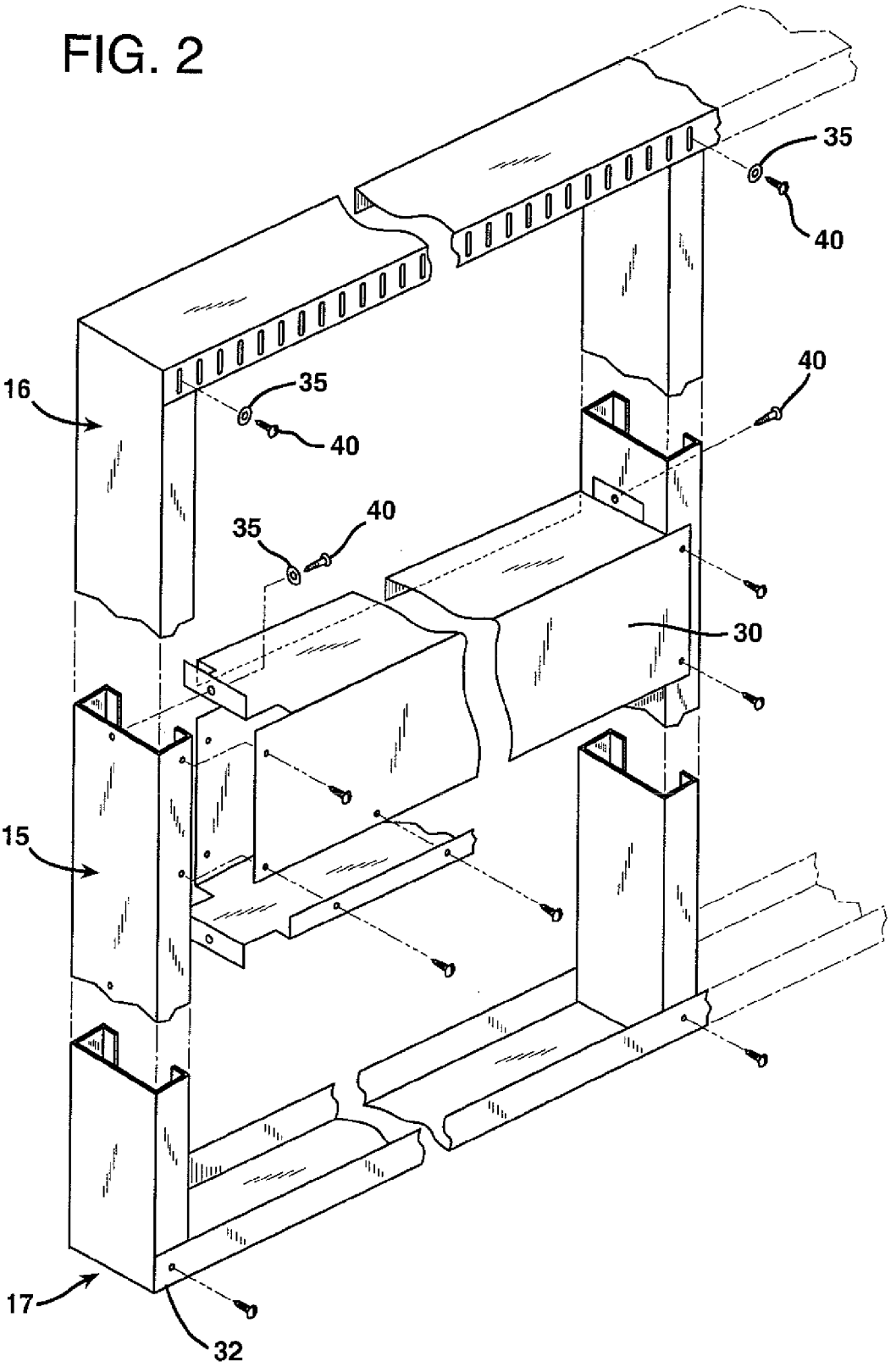


FIG. 2A

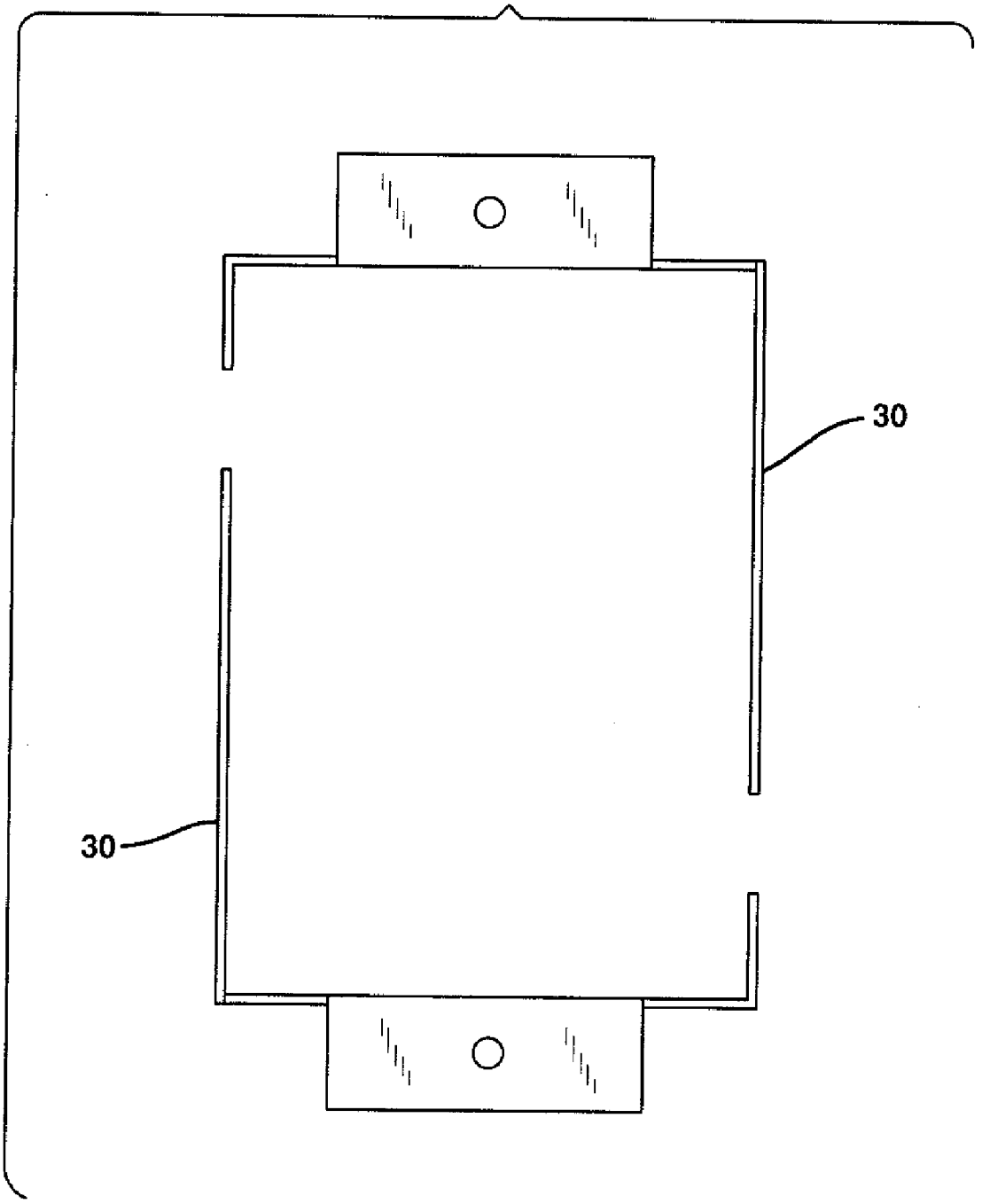


FIG. 3

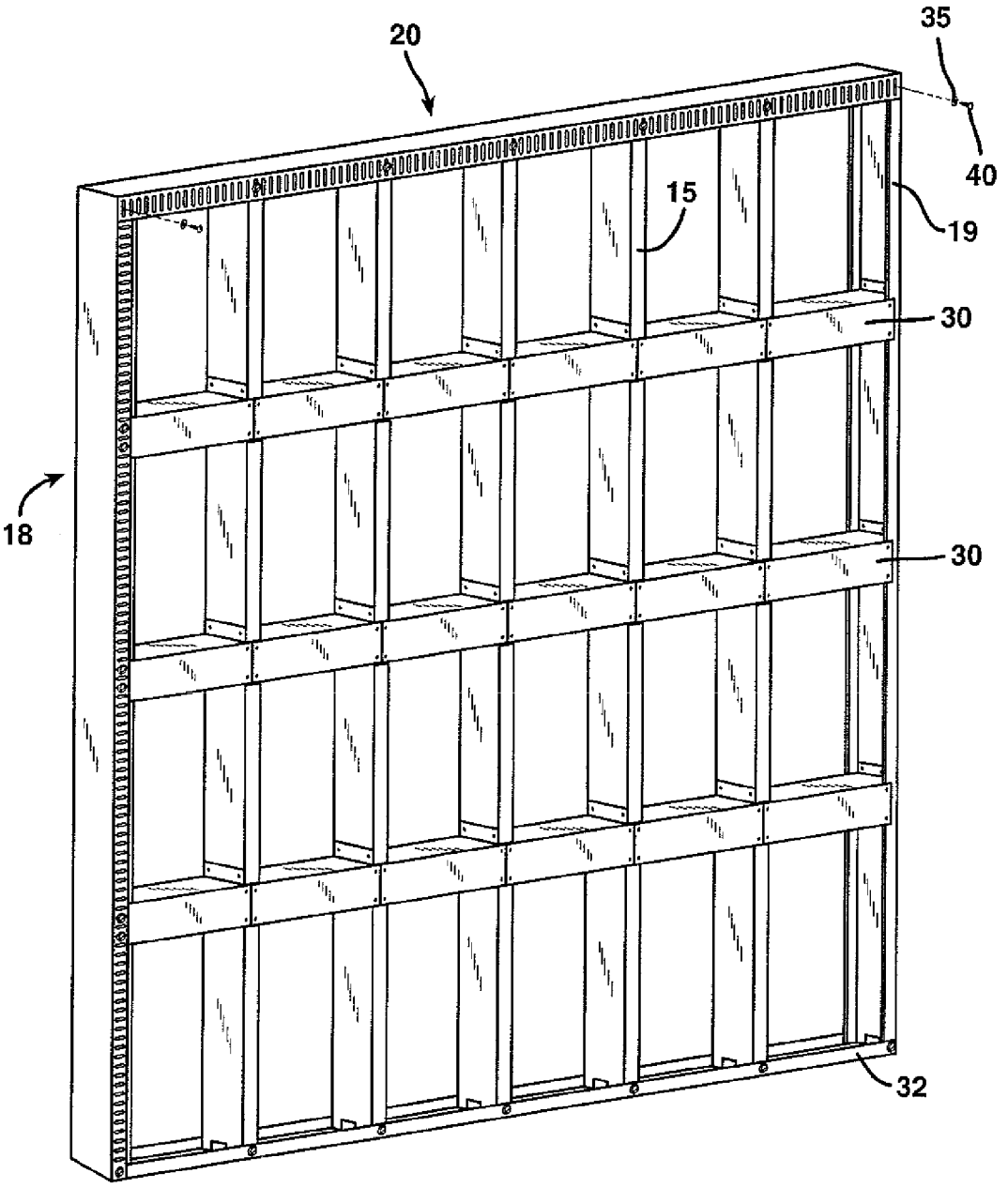


FIG. 4

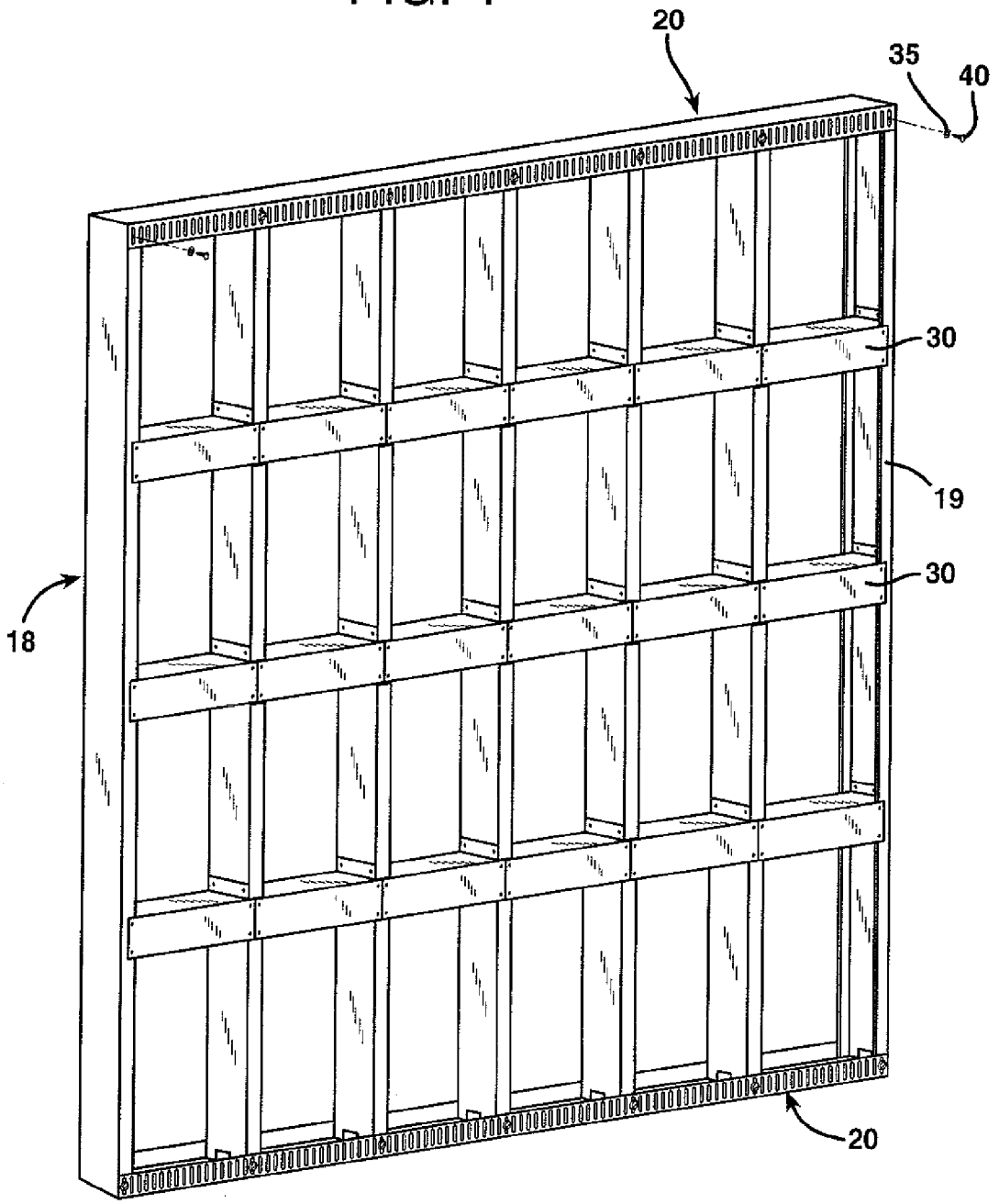


FIG. 5

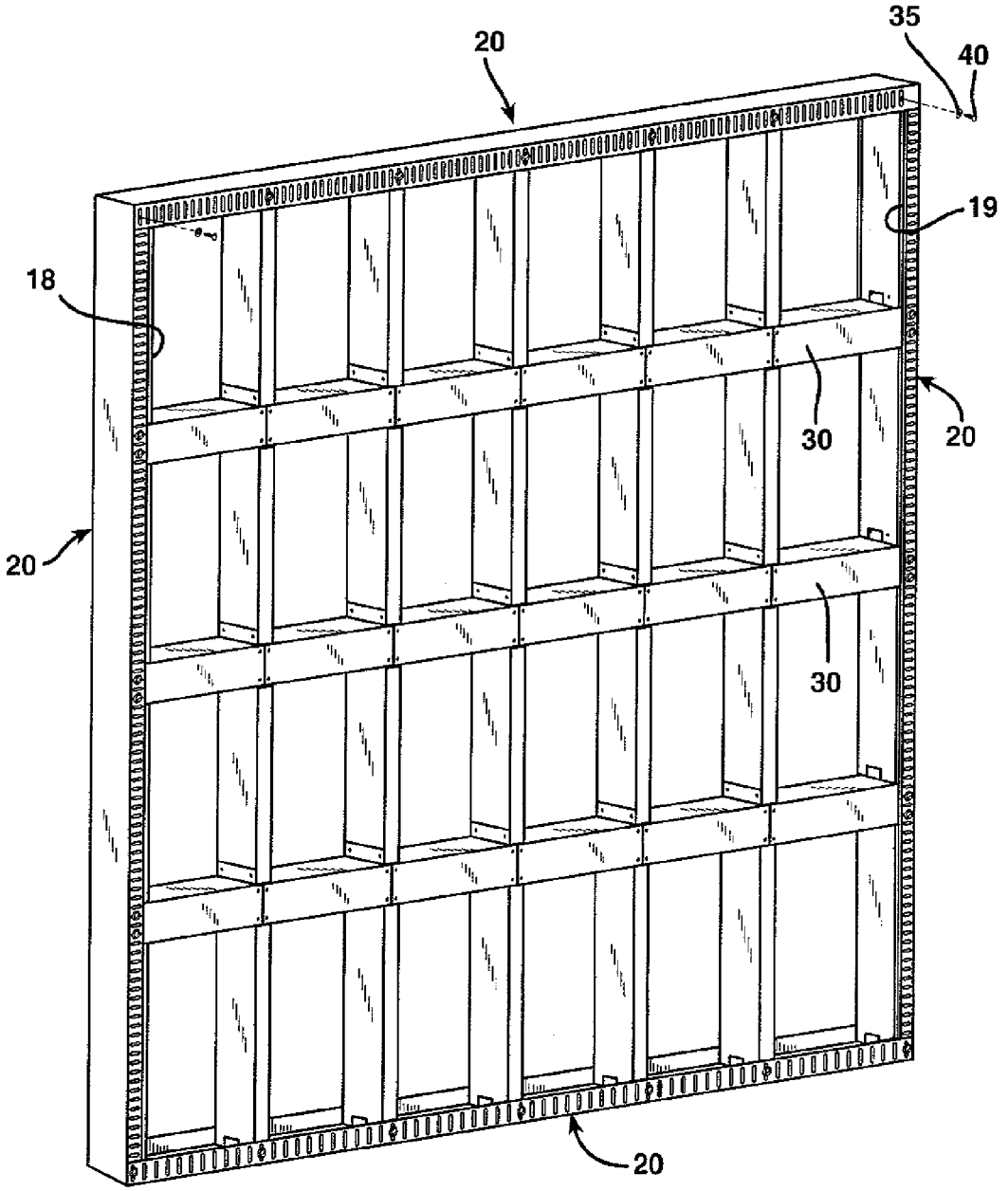


FIG. 6A

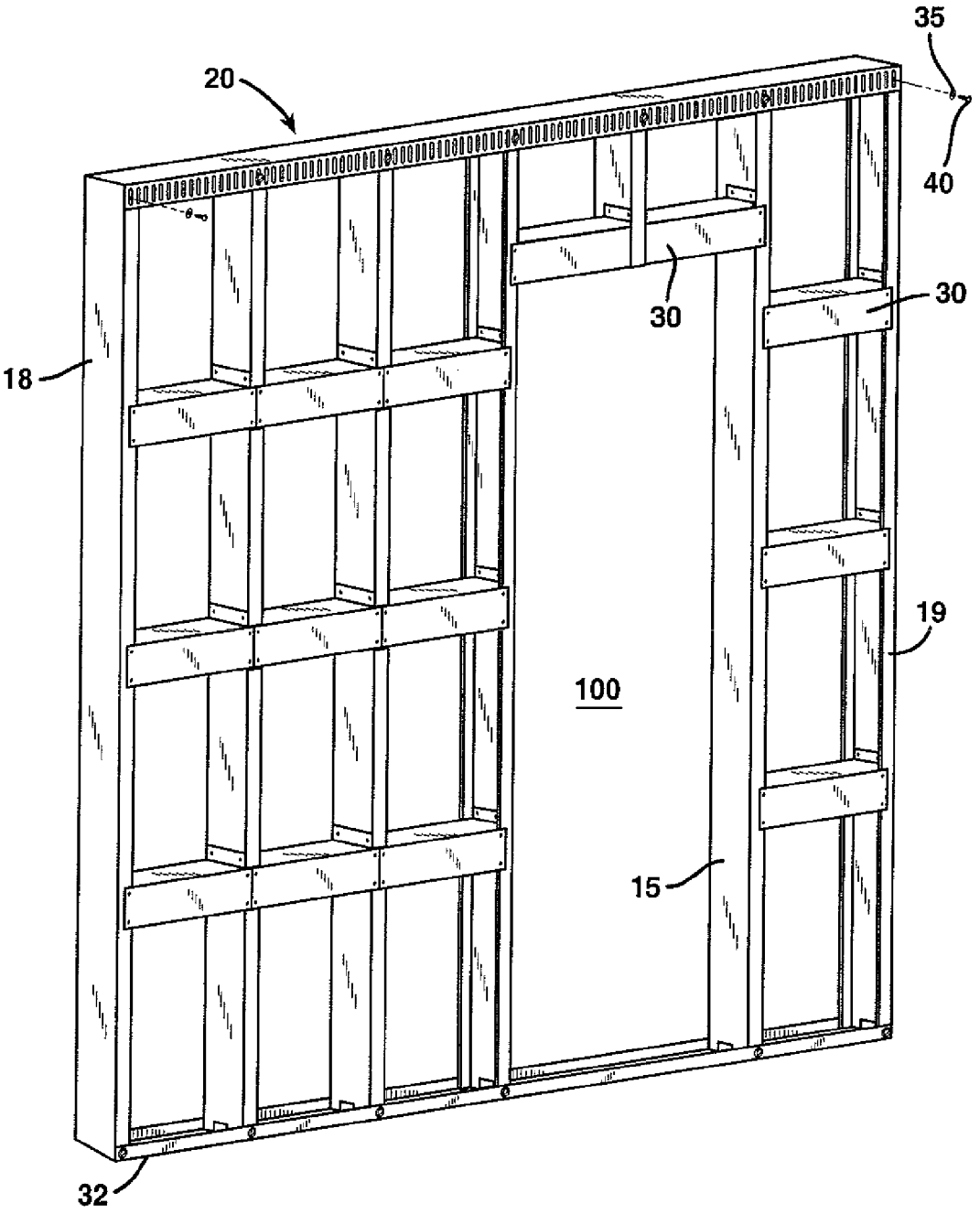


FIG. 6B

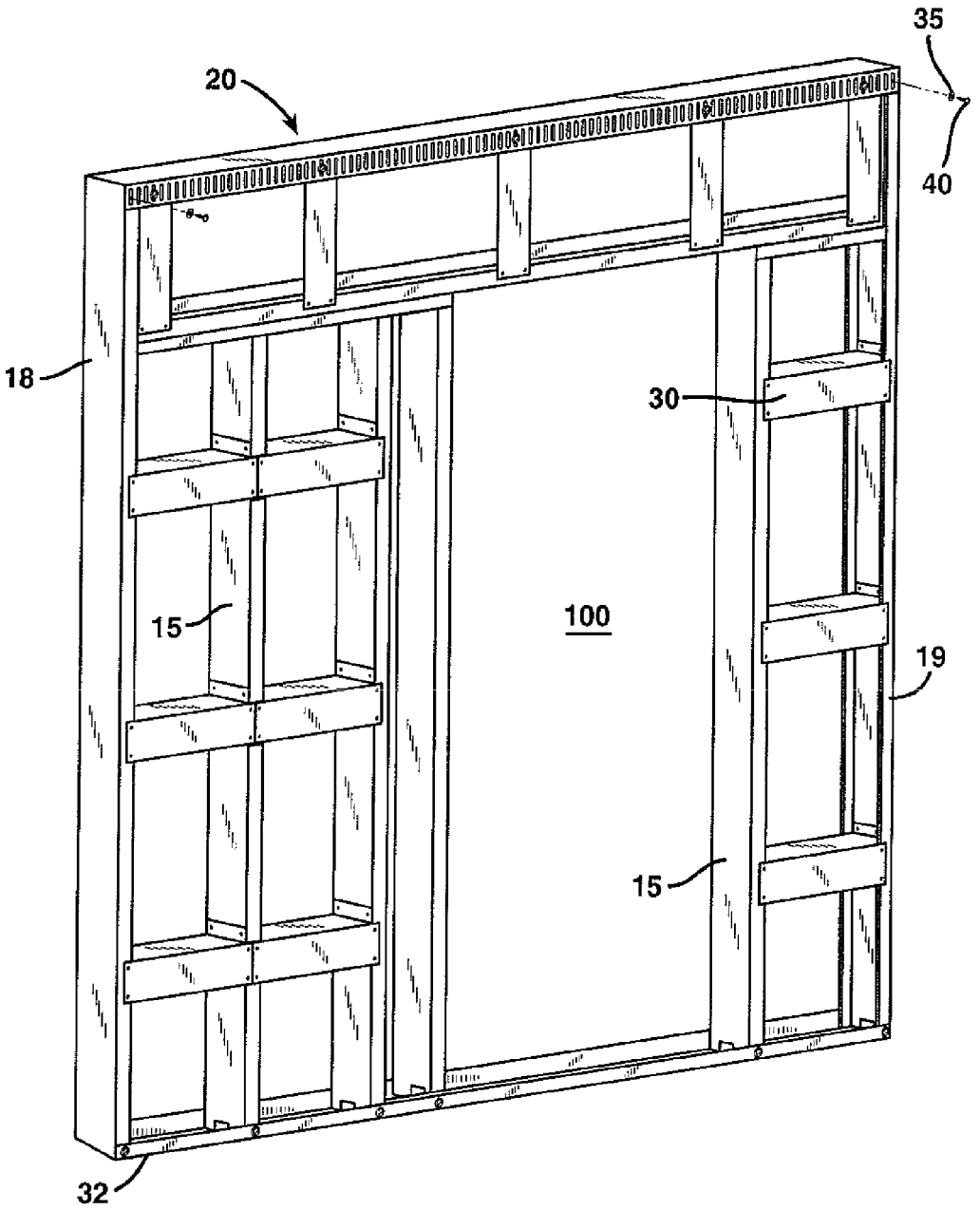
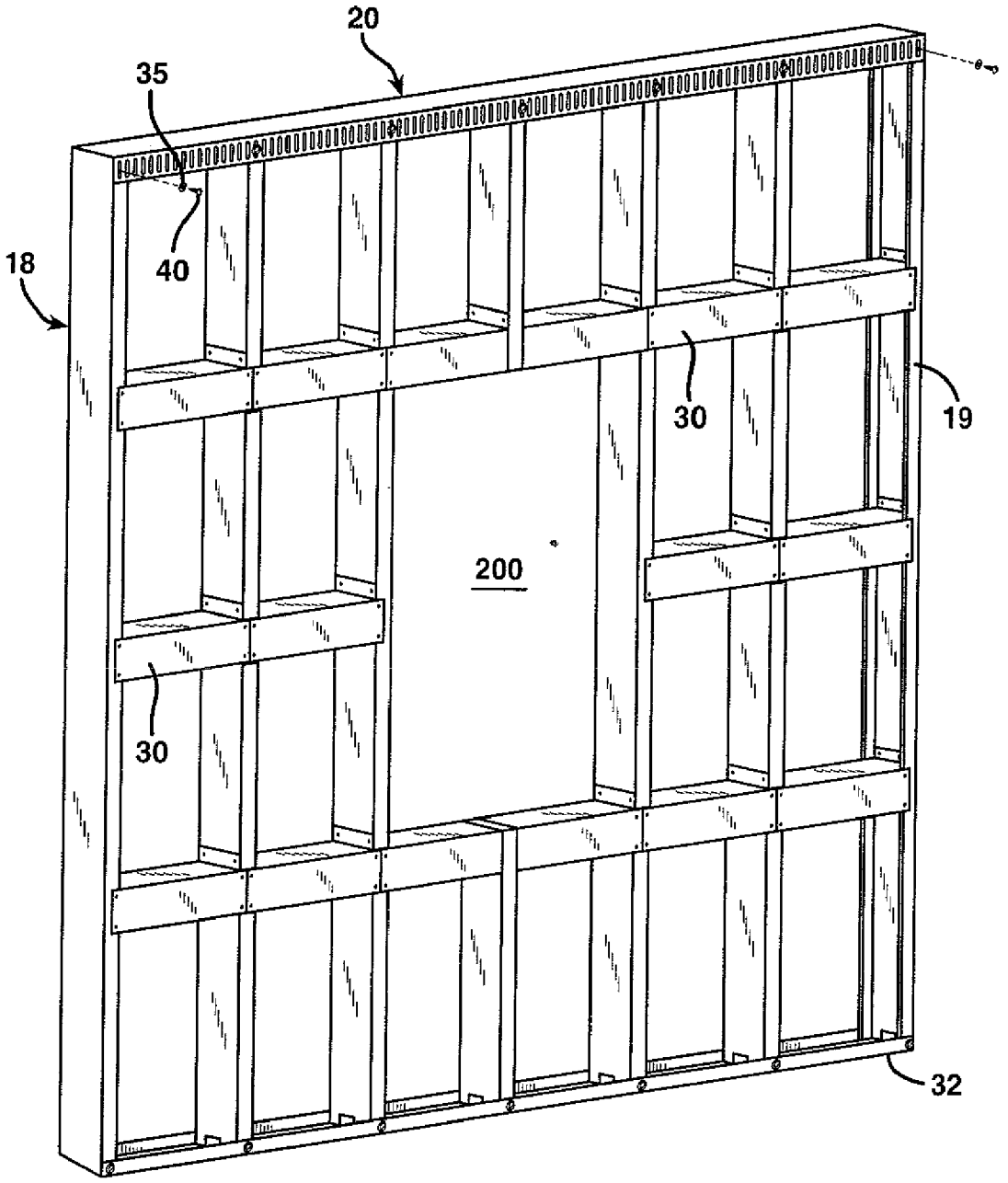


FIG. 7



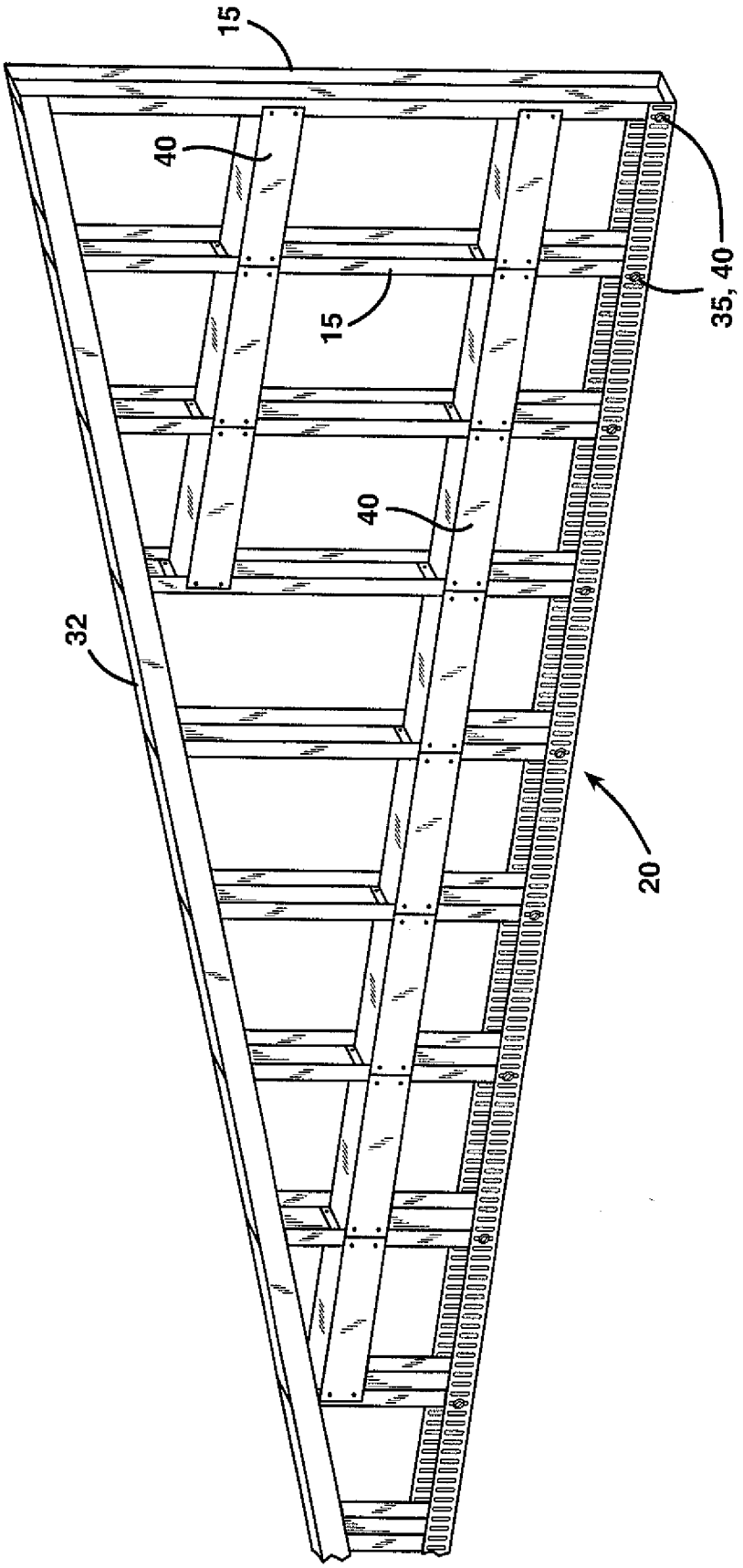


FIG. 8

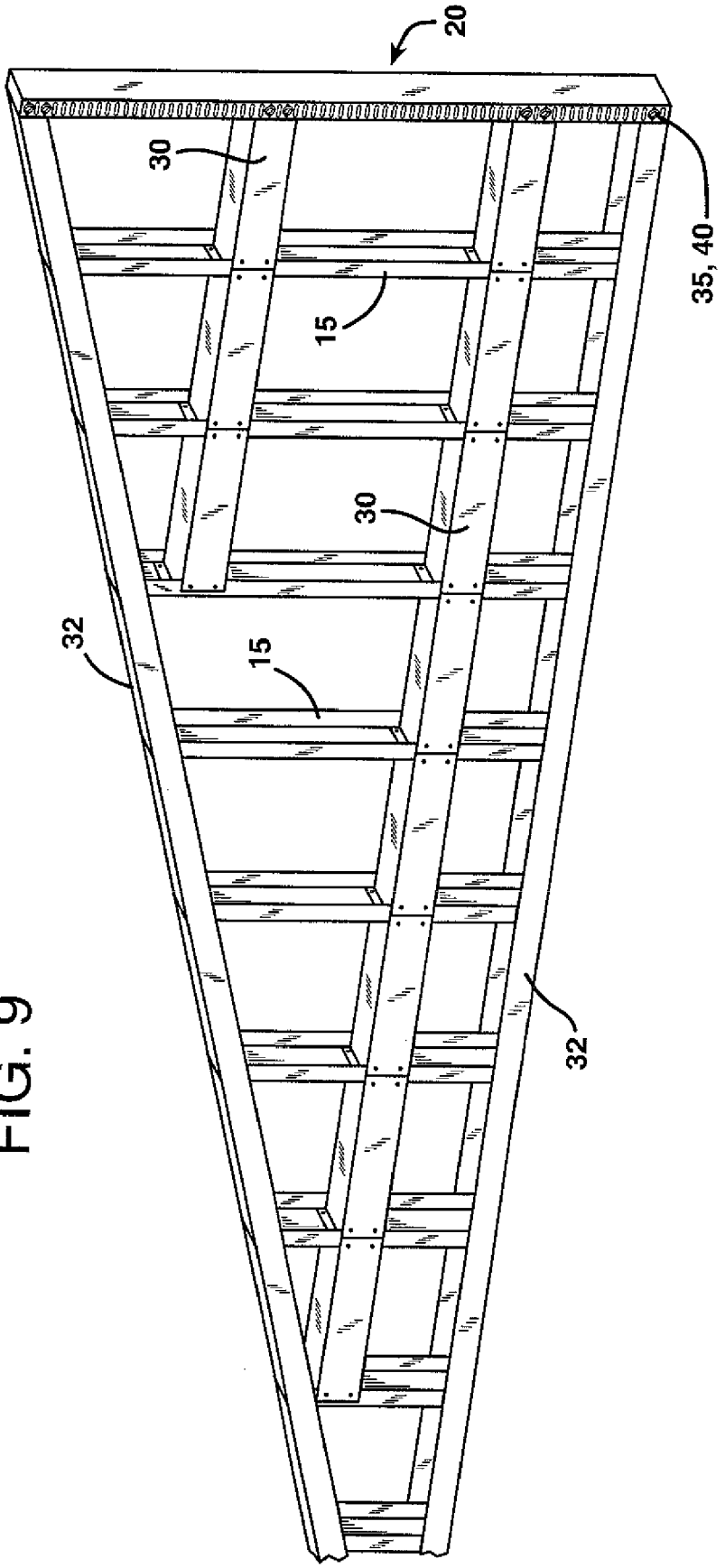


FIG. 9

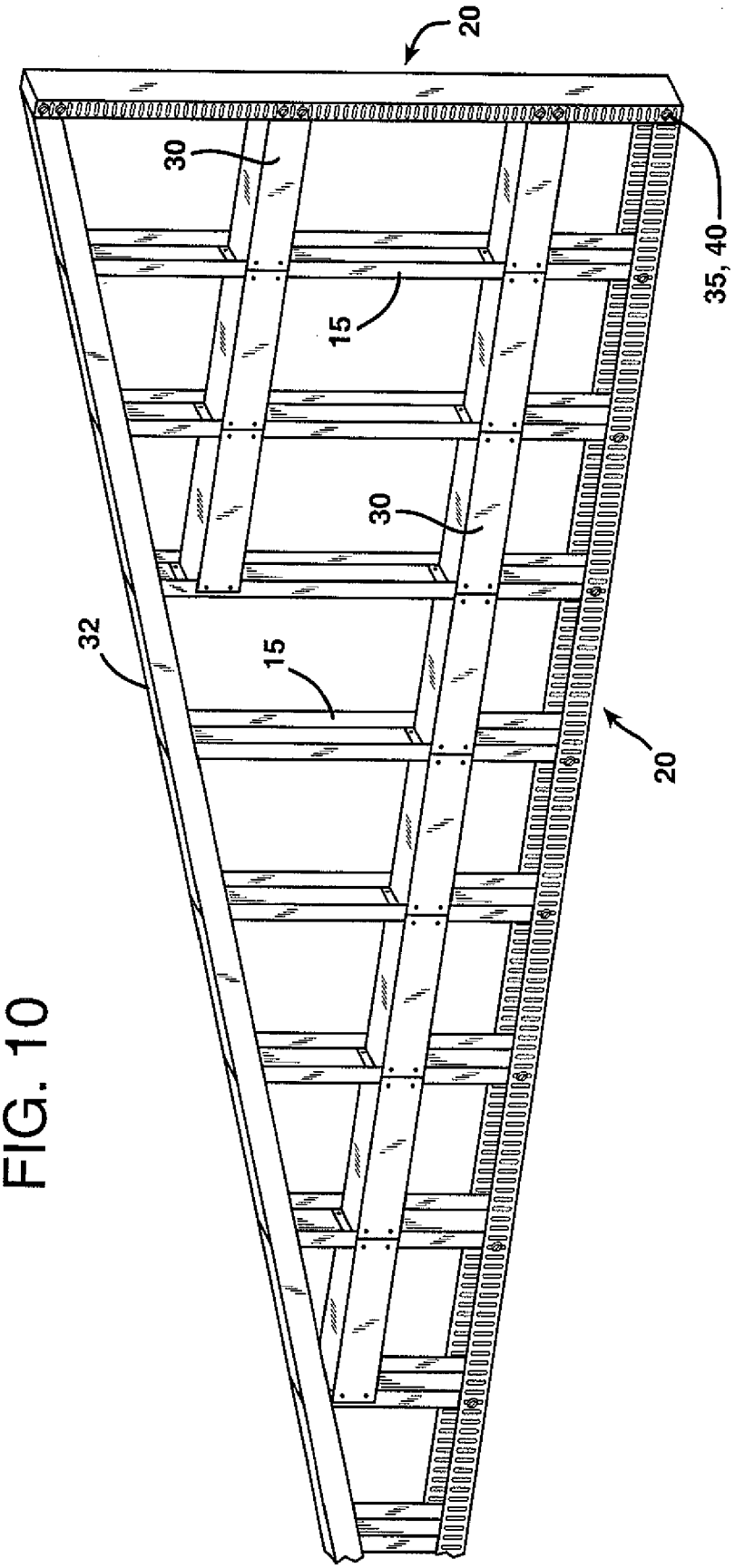


FIG. 10

MULTI-PURPOSE CONSTRUCTION PANEL AND METHOD

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a divisional application of U.S. Application Ser. No. 10/600,806, filed on Jun. 19, 2003.

FEDERALLY SPONSORED RESEARCH

[0002] Not Applicable

SEQUENCE LISTING OR PROGRAM

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] 1. Field of the Invention

[0005] The present invention relates to construction assemblies for the construction of single and multi-story buildings. More specifically, the present invention provides an easier and more economic device and method for constructing single and multi-story buildings from a truss panel and which complies with applicable building codes, is resistant to environmental forces, and has superior load-bearing capacity.

[0006] 2. Description of Related Prior Art

[0007] In recent years, the use of metal studs has gained acceptance, and is mandated for use in multi-story buildings, i.e., commercial buildings, such as office buildings and hospitals. It has been found that metal studs can be advantageously employed, since a suitable metal, such as galvanized steel, is stronger than wood, will not rot, is not subject to damage by pests such as termites, remains resistant to fire, and is economically feasible. Historically, construction of such multi-story buildings was done piece by piece, i.e., stud by stud, thereby requiring substantial time, labor and money to construct a multi-story building.

[0008] Conventional steel frame buildings are constructed using thick gauge steel to form the structural skeleton of the building. However considerable difficulties arise in using thick gauge steel for building frames. The thick gauge steel is difficult to cut and form. Often, the heat generated by cutting destroys the galvanized coating on the steel. An added difficulty arises in joining the structural elements once formed to make up a building frame. Owing to the rigid nature of the thick gauge steel, these structural elements cannot be easily deformed to fit one within another and must undergo crimping or other special forming operations to ensure the proper mating between structural steel joists.

[0009] A difficulty with conventional building structures is that assembly of the various elements requires skilled labor. In timber structures, the roof trusses are often constructed by assembling timber pieces on-site because the heavy timber would be difficult to manage and lift an assembled or partially assembled form. The difficulty of assembling trusses on-site is that all the roof trusses must be assembled to define a plane for the intended roof surface and thus the upper edges of all the roof trusses must align. Thus, considerable skilled labor is required to form a planar roof using a conventional truss system.

[0010] Over the course of time, prefabricated buildings came into existence whereby manufacturers would assemble large portions of a building off-site for complete construction at the building location. Although partially pre-fabricated, complete construction remained time consuming and costly because the pre-fabricated fabricated pieces would often times not properly fit together thereby requiring deformation of the adjacent pieces to join the pieces. In addition, structural steel would still be required to form the structural foundation of the building. Generally, pre-fabricated structures were not intended to endure extreme environmental forces such as seismic events or wind sway caused by hurricane winds, unless specially engineered to do so.

[0011] Generally, both multi-story and single story buildings were constructed piece by piece or using pre-fabricated construction units consisting of metal studs, metal headers, metal anchors, fasteners, and wallboard. These pieces alone do not support the construction of a multi-story building let alone an edifice which could withstand extreme environmental forces. The invention disclosed herein presents a multi-purpose assembly to form pre-fabricated walls, pre-fabricated floors and pre-fabricated trusses for the construction of a multi-story building which can be assembled easily and cost effectively, without the need of structural steel while still withstanding environmental forces such as gravity from floor loads, seismic forces from earthquakes, and wind sway from hurricane-type winds.

[0012] Metal studs are typically formed of sheet metal bent to encompass a cross sectional area having nominal dimensions of two inches by four inches. To conform to architectural plans and building code requirements, metal studs are formed of sheet metal bent into generally "c"-shaped cross-section in which a relatively broad central base is flanked by a pair of narrower sides that are bent at right angles to the base. The base typically has a uniform range of 1⅝ to 16 inches which is commonly referred to as the "web." The sides of the "c"-shaped stud typically extends a distance of 1 to 3 from the base which are commonly referred to as "flanges." To enhance structural rigidity the flanges of the stud, the flanges are normally bent over into a plane parallel to and spaced from the plane of the web. These turned over edges of the sides thereby form marginal lips which are typically one quarter to one half inch in width. Conventionally, the metal studs are erected with the webs oriented on the same side in the same direction.

[0013] Metal headers are typically formed of sheet metal bent into generally "u"-shaped cross-section in which a relatively broad central base is flanked by a pair of narrower perpendicular flanges extending downward from the base. The base typically has a uniform nominal width of either four inches or 3⅝ inches which is commonly referred to as the "web." The flanges of the "u"-shaped stud typically extends a nominal distance of two inches from the base. Each stud is attached to the header with a self tapping screw or other, similar fasteners.

[0014] To complete a common construction assembly, sheathing manufactured from gypsum or plywood is attached to the outside of the studs. However, this common assembly is unable to withstand extreme floor loads, wind sway or seismic tremors. If installed in a multi-story building the sheathing would crack and break as a result of being locked in place with a common construction assembly.

[0015] Recently, to overcome the locking of the sheathing, more specifically gypsum wallboard, the header and the method to attach the stud have been modified. This modification is reflected in U.S. Pat. No. 5,127, 203, claim **5**; and U.S. Pat. No. 5,913,788. U.S. Pat. Nos. 5,127,203, and 5,127,760 disclose a header possessing a multiplicity of vertical slots along the longitudinal axis the flanges the permit the studs and wallboard attached thereto to deflect vertically as a result of seismic movement, and natural expansion and contraction of buildings. U.S. Pat. No. 5,913, 788 improved upon the wall assembly by the insertion of a metal stand-off washer between the self-tapping screw and the flange of the header to prevent locking the stud within the slotted metal header. U.S. Pat. No. 5,913,788 provided for horizontal movement in response to environmental forces with the addition of a horizontal slot in the web of the slotted u-shaped channel. In addition, U.S. Pat. No. 5,913, 788 improved upon the method of fire-proofing used with respect to headers that deflect with the inclusion of pop-up tabs built into the header to hold the fire-safing material inserted into the flutes of the corrugated metal decking generally installed as part of the roof structure above the wall assembly. Despite these improvements, the wall assemblies disclosed by U.S. Pat. Nos. 5,913,788; 5,127,760; and 5,127,203 did not provide a sufficient meachnism for reinforcing the assemblies against sheer forces and perpendicular forces such as wind. Furthermore, the assembly disclosed by each of the foregoing patents is only useable as an interior wall assembly. The foregoing assemblies cannot withstand environmental forces of wind in order to be used as an outside wall structure, or withstand the application of weight in a horizontal setting as a floor. Consequently, a new assembly and method became necessary to endure these environmental forces while as obviating the need for costly structural steel.

[0016] Historically, vertical metal studs are braced or linked transversely to provide enhanced structural rigidity. The first method of bracing was known as "Black Iron."."Black Iron" comprises a metal "u"-shaped channel which is run through the parallel apertures of the parallel studs to reinforce the parallel studs. Additional examples of such braces are disclosed in U.S. Pat. Nos. 6,260,318; 5,189,857; 4,791,766; 4,658,556; and 1,867,449. However, the prior art does provide the strength necessary for such assemblies to meet or exceed building code requirements for use as either a floor assembly or exterior wall assembly. For example, the Florida Building Code requires that floor assemblies shall withstand a maximum of 150 pounds per square foot of live load in armories and drill room, and 100 pounds per square foot of live load in residential, office buildings, and manufacturing facilities. Florida Building Code § 1604 (2001). The Florida Building Code further requires that wall assemblies withstand a minimum of 10 pounds per square foot. Florida Building Code § 1606.1.2 (2001).

[0017] The claimed invention discloses a construction assembly which may be used to form pre-fabricated floors, pre-fabricated exterior and interior walls which also serve as structural support for a multi-story edifice, and pre-fabricated trusses for the construction of roofs and ceilings. The use of such pre-fabricated building assemblies allows property owners and contractors to construct multi-story buildings with less time, labor and cost, while still complying with applicable building and safety codes.

[0018] Moreover, the claimed panel assemblies avoid the cost of purchasing and installing structural steel to form the structural framework of a multi-story building. The unique bracing system incorporated into each assembly provides enough strength and integrity that the assembly can withstand over 300 pounds per square foot of load.

[0019] The claimed assembly incorporates fire stopping in accordance with the BOCA National Building Code and the anticipated International Building Code. The BOCA Code defines "draft stopping" as "building materials installed to prevent the movement of air, smoke, gases, and flame to other areas of the building through large concealed passages." See BOCA § 7.02.0 (1999). See also International Building Code § 702.1 (1998).

[0020] The claimed invention also incorporates the ability to attach handrails and grab bars in accordance with the Americans With Disabilities Act (ADA) code requirements when the assembly as used as a wall structure. The transverse brace between parallel studs permits the anchoring of hand rail and grab bars which can with stand 250 pounds of point load pressure in accordance with the ADA. See ADA Accessibility Guidelines for Buildings and Facilities, 56 Federal Register 35408 (Jul. 26, 1991).

SUMMARY OF THE INVENTION

[0021] A pre-fabricated multi-purpose construction truss panel comprising a plurality of stud members of varying length generally parallel to each other possessing first terminal ends and second terminal ends; a truss frame comprising three brace members wherein one or more of said brace members comprises expansion-contraction members slideably attached to said first or second terminal ends of said stud members; and said truss panel comprises at least one reinforcement member secured between at least two of said stud members, or between one of said stud members and one of said brace members.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] These and other objects and advantages of the invention will be more readily apparent when considered in relation to the preferred embodiments of the invention as set forth in the specification and shown in the drawings. Referring now to the drawings which illustrate the invention as follows:

[0023] FIG. **1** is perspective view of a construction panel for use as either a wall or a floor.

[0024] FIG. **2** is an exploded view of a construction panel for use as either a wall or a floor.

[0025] FIG. **2**A is a cross-sectional view of bridging, bracing and fire-blocking inserted between vertical studs.

[0026] FIG. **3** is a perspective view of a construction panel incorporating both a vertical and horizontal expansion-contraction joists.

[0027] FIG. **4** is a perspective view of a construction panel incorporating horizontal expansion-contraction joists along the top end and bottom end of studs.

[0028] FIG. **5** is perspective view of a construction panel incorporating horizontal construction joints along the top and bottom of studs and vertically attached to terminal studs of the panel.

[0029] FIG. **6** is a perspective view of a construction panel for use as a wall incorporating a door opening.

[0030] FIG. **7** is a perspective view of a construction panel for use as a wall incorporating a window opening.

[0031] FIG. **8** is a perspective view of a construction truss panel with expansion-contraction joints opposite a hypotenuse side of the truss.

[0032] FIG. **9** is a perspective view of a construction truss panel with an expansion-contraction joint attached to a vertical stud.

[0033] FIG. **10** is a perspective view of a construction truss panel having an expansion-contraction joint attached parallel to the longest vertical stud and opposite the hypotenuse.

DETAILED DESCRIPTION OF THE DRAWINGS AND PREFERRED EMBODIMENTS

[0034] A complete understanding of this invention can be gained through reference to the drawings in conjunction with a thorough review of the disclosure herein.

[0035] Referring now to the drawings, and particularly to FIGS. **1** and **2**, which depicts a construction panel embodiment for use as either a wall or a floor assembly. The preferred embodiment incorporates a plurality of parallel studs **15** which are preferably spaced apart eighteen inches on center. The first terminal end of the studs **18** are fastened to an expansion-contraction joist **20** that forms part or all of a panel frame around the studs. It is preferred that the expansion-contraction joist comprises a slotted u-shaped channel as described in U.S. Pat. No. 5,127,203 which is incorporated herein by reference. The second terminal end of the studs **19** are fastened to an anchor **32** or a second expansion-contraction joist if desired. The anchor **32** comprises a "u"-shaped channel having of a horizontal web wide enough to accommodate the width a stud **15** and vertical flanges rising from the web. It is preferred the first terminal end **16** and the second terminal end **17** of the studs **15** are secured respectively by an expansion-contraction joist **20**. The parallel studs **15** are slideably attached to the expansion-contraction joists **20** using fasteners **40** known in the art. It is preferred however, that the fasteners **40** are self-tapping screws or other like fasteners. To insure that a stud **15** deflects within the expansion-contraction joist **20**, it is recommended that a washer **35** is placed between the fastener **40** and the expansion-contraction joist **20**. It is preferred that the washer **35** is a stand-off washer as described in U.S. Pat. No. 5,467,566 which is incorporated herein by reference. If an anchor **32** comprising "u"-shaped channel is used to secure the second terminal end **17** of the parallel studs **15**, the studs can then be fixed to the anchor **32** using a fastener **40**.

[0036] To accommodate construction error, i.e., avoiding gaps between assemblies or cutting of the assemblies when the assemblies are interconnected to construct a building, it is preferred that at least one expansion-contraction joist **20** is slideably fastened to the first terminal stud **18** of the panel **10**. It is preferred the expansion-contraction joist **20** comprises a slotted track as disclosed in U.S. Pat. No. 5,127,203, which is incorporated herein by reference. The expansion-contraction joist **20** is preferably attached to the terminal studs **1819** with self-tapping screws. It is also preferred that a washer **35** is inserted between the fastener and the slotted track used as the expansion-contraction joist. It is preferred that the washer **35** is a stand-off washer. To provide greater flexibility for the absorption of construction errors, a second expansion-contraction joist **20** may also be attached to a second terminal stud **19** of the panel **10**.

[0037] To provide structural support to the panel **10**, bridging, bracing and fire-blocking **30** are installed transversely between each stud **15**. It is preferred that the bridging, bracing and fire-blocking **30** are installed between each stud six to twelve inches on center apart from each other. The preferred bridging, bracing and fire-blocking is a unitary bridging, backing and fire stop device described in U.S. Pat. No. 6,260,318 which is incorporated herein by reference. However, preferred bridging, bracing and fire-blocking described in U.S. Pat. No. 6,260,318 can be modified in a novel way by reversing a second flange in an upward direction in order to permit a complementary installation of two of the unitary bridging, backing and fire stop devices between parallel studs **15** to form a box structure. In this way, the box structure formed by the complementary installation of the preferred bridging between the studs **15** may then be used as a conduit for running of utility lines through the construction assembly provided the box structure is aligned with apertures generally formed in standard studs.

[0038] The method of constructing this new construction assembly supports the objective of cost-effectiveness. In a standard panel, studs **15** are laid parallel to each other with the "c"-shape of each stud facing the same direction. Second, the first terminal end **17** of the parallel studs **16** are inserted into the expansion-contraction joist **20**. Third, the studs are slideably fastened **40** to the expansion-contraction joist(s) **20** through apertures in the expansion-contraction joist(s) **20** with the fastener **40** first passing through a washer **35**. Fourth, the second terminal end of the stud **19** is inserted into an anchor **32**. Fifth, the second terminal end of the stud is fastened to the anchor **32** using a fastener **40**. If the second terminal end of the stud is fastened to an expansion-contraction joist **20**, it is preferred that the fastener **40** is first inserted through the aperture of a stand-off washer **35** before securing the second terminal end of the stud **17** to the expansion-contraction joist **20** to slideably connect the stud **15** and the expansion-contraction joist. Sixth, the bridging, bracing and fire-blocking **30** is inserted between each stud **15**. Seventh, the bridging, bracing and fire-blocking **30** is fixed between the studs **15**. Eighth, a first expansion-contraction joist **20** is slideably attached to the first terminal stud **18** using a fastener **40** inserted through a washer **35**. Ninth, if desired, a second expansion contraction joist **20** is slideably attached parallel to a second terminal stud **19** using a fastener **40** inserted through a washer **35**. Last, sheathing **45** is attached to the studs **15** so as not to impair expansion-contraction of the studs and sheathing in relation to the expansion-contraction joist to complete the panel **10**.

[0039] If the panel is intended to be used as an interior wall, then gypsum wallboard is applied to the opposite sides of the panel. If it is used as an exterior wall then metal sheathing, wood paneling or glass is applied to the side which will form the exterior of the building, and gypsum wallboard is applied to the side which will form the interior wall of the building. If the panel is intended to be used as a

floor panel, then plywood or other similar material can be attached to the opposite sides.

[0040] Referring to FIG. **7**, which depicts a wall panel incorporating a window opening, the preferred structure and method of construction discussed with respect to FIGS. **1** and **2** above, remains the same, with the additional method of incorporating a window opening without defeating the integrity of the entire construction assembly. The window opening in the wall assembly is created by cutting out a section of at least one of the parallel studs **15** to form the window opening. The terminal ends of the severed stud(s) are capped by the bridging, bracing and fire-blocking **30** or a "u"-shaped metal channel thereby forming a generally smooth square or rectangular opening for the installation of a window and frame.

[0041] FIGS. **6**A and **6**B, depict a construction wall panel incorporating a door opening. The preferred structure and method of assembly discussed with respect to FIGS. **1** and **2** above remains the same, with the addition of the method to form a door opening created by removing a terminal length of a stud to form the door opening. The remaining portion of the severed stud can then be capped by either the bridging, bracing and fire-blocking **30** or a metal "u"-shaped channel attached between the remaining parallel studs which form the door opening. Thereafter, a door and frame may be attached within the opening of the panel.

[0042] FIGS. **8** and **9** depict a truss construction panel. As an alternate method for constructing a truss, studs of increasing or decreasing length can be used to form a triangular or other shape to form the interior of the panel. Triangular trusses of various shapes (equilateral/scalene/isosceles) are used primarily as roof supports.

[0043] Terminal ends of studs **15** on the truss panel form a hypotenuse of the truss and are fastened to an anchor **32**. It is preferred the anchor **32** comprises a "u"-shaped channel possessing a central web which is wide enough to accommodate the studs **15**, and perpendicular flanges extending from the web at least two inches in length. The terminal ends of the studs opposite the hypotenuse of the truss are preferably attached to an expansion-contraction joist **20**. However, it will be recognizable to those skilled in the art that an expansion-contraction joist **20** can also be fastened to any side of the truss. To provide the truss panel with the greatest ability to absorb workmanship errors during the construction of a building, i.e., avoid gaps between construction panels, it is preferred the terminal stud forming the right angle of the triangle truss is slideably attached to an expansion-contraction joist **20**. It is preferred that self tapping screws are used as fasteners to secure the studs to the expansion-contraction joists and anchor. To insure that the stud deflects within the expansion-contraction joists, it is also recommended that a washer **35** is placed between a fastener **40** and an expansion-contraction joist **20**. It is preferred that the washer **35** is a stand-off washer as described in U.S. Pat. No. 5,467,566 which is incorporated herein by reference.

[0044] As in a flat panel of the present invention, the studs are typically placed parallel to each other. However, not all studs need to be parallel to each other as there may be more than one set of studs with each stud in a set being parallel to the studs of its respective set but not parallel to the studs of the other set. In this way, the truss interior can be formed of a criss-cross pattern of studs to add additional structural strength.

[0045] In another exemplary embodiment and to provide further support to the truss panel, rigid attachments such as welds or other more permanent fasteners can be applied to the truss joints where each of the expansion-contraction joists intersect. Or, if using an anchor or other solid support joist or combination truss with solid support and an expansion-contraction joist, creating a more permanent attachment where these intersect each other. In this way, the studs will be still be able to expand or contract at their terminal ends but the truss proper will be able to withstand increased forces because of the rigid attachments at the truss corners.

[0046] To provide structural support to the truss assembly, at least one bridging, bracing and fire-blocking **30** is installed transversely between each parallel stud. The preferred bridging, bracing and fire-blocking **30** is a unitary bridging, backing and fire stop device described in U.S. Pat. No. 6,260,318 which is incorporated herein by reference. However, the preferred bridging, bracing and fire-blocking described in U.S. Pat. No. 6,260,318 can be uniquely modified by reversing the second flange in an upward direction to permit the complementary installation of two of the unitary bridging, backing and fire stop devices between the parallel stud to form a box structure. The box structure formed by the complementary installation of the preferred bridging between the parallel studs **15** may be used as a conduit for running of utility lines through the construction assembly provided the box structure is aligned with the aperture generally formed in standard studs.

[0047] The method of construction for the truss assembly is the same as for the wall and floor assembly discussed in relation to FIGS. **1** and **2**, however, studs are of various length, usually in descending or ascending order.

[0048] It is preferred that the foregoing embodiments are constructed from galvanized steel, not less than sixteen gauge to provide the soundest structural construction.

Conclusion, Ramification, and Scope

[0049] While the above description contains many specifications, these should not be construed as limitations on the scope of the invention, but as exemplifications of the presently preferred embodiments thereof. Many other ramifications and variations are possible within the teaching of the invention.

[0050] Thus the scope of the invention should be determined by the appended claims and their legal equivalents, and not solely by the examples given.

I claim:

1. A pre-fabricated multi-purpose construction truss panel comprising:

a plurality of stud members of varying length generally parallel to each other possessing first terminal ends and second terminal ends;

a truss frame comprising three brace members wherein one or more of said brace members comprises expansion-contraction members slideably attached to said first or second terminal ends of said stud members; and

said truss panel comprises at least one reinforcement member secured between at least two of said stud members, or between one of said stud members and one of said brace members.

2. The pre-fabricated multi-purpose construction truss panel of claim 1 wherein:

said stud members further comprise a first set of stud members generally parallel to each other and a second set of stud members generally parallel to each other.

3. A pre-fabricated multi-purpose construction truss panel of claim 1 wherein:

All of said brace members comprise expansion-contraction members slideably attached to each other.

4. The pre-fabricated multi-purpose construction truss panel of claim 1 wherein:

said at least one reinforcement member comprises a boxed reinforcement member between at least two of said stud members or between one of said stud members and one of said brace members.

5. The pre-fabricated multi-purpose construction truss panel of claim 1 wherein:

said brace members are permanently secured where said one or more horizontal expansion-contraction members intersect each other.

6. The pre-fabricated multi-purpose construction truss panel of claim 1 wherein:

said at least one reinforcement member comprises a boxed reinforcement member either between at least two of said stud members or between one of said stud members and one of said brace members comprised of a pair of complementary unitary elongated metal plate-like members;

said unitary elongated metal plate-like member terminates in a first end and a second end;

said unitary plate-like member possesses a first horizontal edge and a second horizontal edge between the first end and second end;

said first end and second end of the elongated metal plate-like member extend generally upward and perpendicular from the elongated metal plate to form a first flange on said first end and a second flange on said second end to permit the fastening of the elongated plate to said stud members or said brace members;

said first end of the elongated metal plate incorporates a pair of parallel notches along the horizontal axis;

said first horizontal edge and the second horizontal edge of the elongated plate are folded downward and perpendicular to the elongated plate forming a first downward flange and a second downward flange; and

said first downward flange of the first horizontal edge is substantially longer than the second downward flange of the second horizontal edge and the width of first downward flange is greater than the width of said elongated plate-like member.

7. The prefabricated multipurpose construction truss panel of claim 1 wherein at least one aperture is formed therein and reinforcing said at least one aperture with one or more reinforcement members.

8. A method for constructing a multi-purpose construction truss panel comprising:

placing a plurality of stud members of varying length possessing first and second terminal ends generally parallel to each other;

creating a truss frame of three brace members around said stud members wherein one or more of said brace members comprise one or more expansion-contraction members slideably attached to said first and second terminal ends of said stud members; and

inserting at least one reinforcement member between at least two of said generally parallel stud members or between one of said stud members and one of said brace members.

9. The method of claim 8 for constructing a multi-purpose construction truss panel wherein:

said plurality of stud members further comprises a first set of stud members generally parallel to each other and a second set of stud members generally parallel to each other.

10. The method of claim 8 for constructing a multi-purpose construction truss panel wherein:

said brace members comprise expansion-contraction members slideably attached to each other.

11. The method of claim 8 for constructing a multi-purpose construction truss panel wherein:

said at least one reinforcement member comprises a boxed reinforcement member between at least two of said stud members or between one of said stud members and one of said brace members.

12. The method of claim 8 for constructing a multi-purpose construction truss panel wherein:

said brace members are permanently secured where said one or more horizontal expansion-contraction members intersect each other.

13. The method of claim 8 for constructing a multi-purpose construction truss panel wherein:

said at least one reinforcement member comprises a boxed reinforcement member either between at least two of said stud members or between one of said stud members and one of said brace members comprised of a pair of complementary unitary elongated metal plate-like members;

said unitary elongated metal plate-like member terminates in a first end and a second end;

said unitary plate-like member possesses a first horizontal edge and a second horizontal edge between the first end and second end;

said first end and second end of the elongated metal plate-like member extend generally upward and perpendicular from the elongated metal plate to form a first flange on said first end and a second flange on said second end to permit the fastening of the elongated plate to said stud members or said brace members;

said first end of the elongated metal plate incorporates a pair of parallel notches along the horizontal axis;

said first horizontal edge and the second horizontal edge of the elongated plate are folded downward and perpendicular to the elongated plate forming a first downward flange and a second downward flange; and

said first downward flange of the first horizontal edge is substantially longer than the second downward flange of the second horizontal edge and the width of first downward flange is greater than the width of said elongated plate-like member.

14. The method of claim 8 for constructing a prefabricated multipurpose construction truss panel wherein at least one aperture is formed therein and reinforcing said at least one aperture with one or more reinforcement members.

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