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**Folding telescopic prefabricated framing units for non-load-bearing walls**

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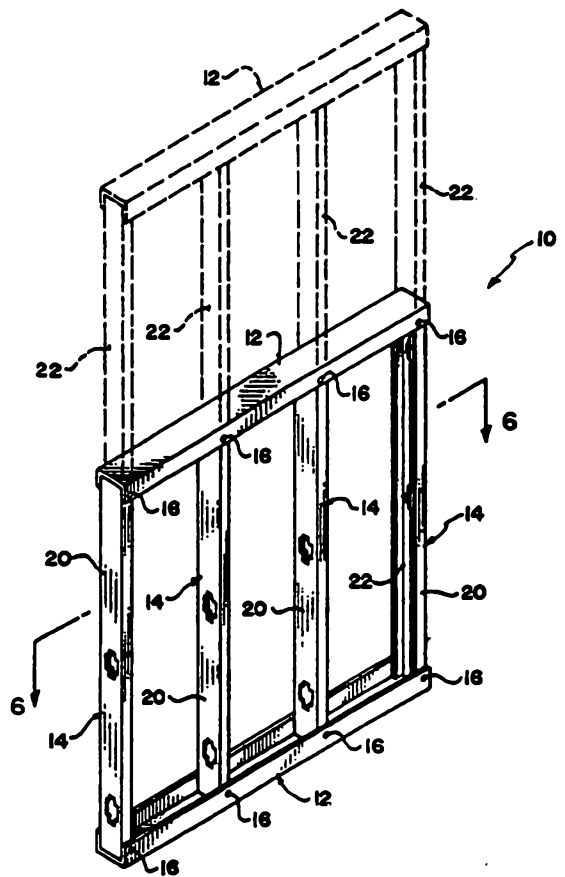


Global Steel Innovations Inc.

(54) Title: FOLDING TELESCOPIC PREFABRICATED FRAMING UNITS FOR NON-LOAD-BEARING WALLS

(57) Abstract

A prefabricated framing unit (10) for constructing non-load-bearing walls and partition is disclosed. The framing units have vertical studs (14) which both pivot in respect to the horizontal members (12), to allow collapsing of the unit (10), and telescope to allow the unit to be raised to fit the space between ceiling and floor without measuring and cutting to height.



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**FOLDING TELESCOPIC PREFABRICATED FRAMING UNITS**  
**FOR NON-LOAD-BEARING WALLS**

Technical Field

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The invention relates to the field of prefabricated partition framing and more particularly to prefabricated framing units for constructing non-load-bearing interior and exterior walls which are telescopic and fold for easy shipment and installation.

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Background Art

According to existing methods, interior non-load-bearing wall partitions for dividing space in office buildings, and exterior non-load-bearing walls, are constructed using wood or metal framing members which are measured and cut to length. The vertical components (studs) and horizontal components are fastened to each other and to the load-bearing structure, and holes are cut or drilled in the vertical members for accommodating wiring and plumbing. Such construction methods require skilled tradesmen on site due to the measuring and fastening required, and are time consuming and expensive.

20

To reduce the time and expense required for constructing non-load-bearing partitions, it has been attempted to provide prefabricated framing which can be manufactured off site and readily assembled on site into a partition wall. For example United States Patent no. 3,078,968 issued February 26, 1963 to Harvey Aluminum Inc. discloses a prefabricated partitioning system, however such systems have not found general acceptance because they are overly complicated.

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Disclosure of Invention

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The invention provides a prefabricated framing unit for constructing non-load-bearing walls and partitions. The framing units have vertical studs which both pivot in respect to the horizontal members, to allow collapsing of the unit, and telescope

to allow the unit to be raised to fit the space between ceiling and floor without measuring and cutting to height.

The invention therefore provides a prefabricated framing unit for constructing  
5 a non-load-bearing wall or partition comprising:

- a) a lower horizontal member;
- b) an upper horizontal member;
- c) a plurality of vertical members hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members at spaced  
10 locations thereon;

wherein each said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said vertical member, and wherein an upper end of one of  
15 said inner and outer elements is hingedly fastened to said upper horizontal member and an upper end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and the lower end of the other of said inner and outer elements is hingedly fastened to said lower horizontal member and a lower end of said other of said inner and outer elements is free to slide relative to said other of  
20 said inner and outer elements.

In a second aspect the present invention provides a method of constructing a non-load-bearing partition between a floor and a ceiling, comprising:

- a) providing a prefabricated framing unit for constructing a non-load-bearing  
25 wall or partition comprising: i) a lower horizontal member; ii) an upper horizontal member; iii) a plurality of vertical members hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members; wherein each said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, said inner element adapted to slide within said outer element and parallel to said outer element thereby lengthening or shortening said vertical member, and wherein an upper end of one of said inner and outer elements is hingedly fastened to said upper horizontal member and an upper end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and a lower end of the other of said inner and outer elements is hingedly fastened to said lower horizontal member and a lower end of said  
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other of said inner and outer elements is free to slide relative to said other of said inner and outer elements;

- b) placing said lower horizontal member in position on said floor;
- c) raising said upper horizontal member to a position with said vertical members aligned generally vertically;
- d) fastening said lower horizontal member in position on said floor;
- e) raising said upper horizontal member until it contacts said ceiling thereby causing said inner vertical member to slide relative to said outer vertical member;
- f) fastening said upper horizontal member in position to the ceiling; and
- g) fixing relative positions of said outer and inner vertical members.

In a third aspect the present invention provides a prefabricated framing unit for constructing a non-load-bearing wall or partition comprising:

- a) a lower horizontal member;
  - b) an upper horizontal member;
  - c) a plurality of vertical members hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members at spaced locations thereon;
- wherein each said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said vertical member wherein said upper and lower ends are adapted to prevent rotation of said vertical members beyond a right angle to said horizontal members.

In a fourth aspect the present invention provides a prefabricated framing unit for constructing a non-load-bearing wall or partition comprising:

- a) a lower horizontal member;
  - b) an upper horizontal member;
  - c) a vertical member hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members at spaced locations thereon;
- wherein said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said vertical member, and wherein an upper end of one of said inner and



outer elements is hingedly fastened to said upper horizontal member and an upper end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and the lower end of the other of said inner and outer elements is hingedly fastened to said lower horizontal member and a lower end of said other of said inner and outer elements is free to slide relative to said other of said inner and outer elements.

In a fifth aspect the present invention provides a prefabricated floor joist framing unit for constructing a load-bearing floor comprising:

- a) a first horizontal member;
- b) a second horizontal member;
- c) a plurality of telescopic members hingedly fastened at first and second ends thereof respectively to said first and second horizontal members at spaced locations thereon;

wherein each said telescopic member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said telescopic member, and wherein a first end of one of said inner and outer elements is hingedly fastened to said first horizontal member and a first end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and the second end of the other of said inner and outer elements is hingedly fastened to said second horizontal member and a second end of said other of said inner and outer elements is free to slide relative to said other of said inner and outer elements.

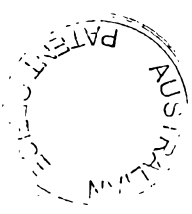
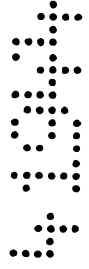
In a sixth aspect the present invention provides a telescopic stud for use in combination with a prefabricated framing unit for constructing a non-load-bearing wall or partition comprising a) a lower horizontal member; b) an upper horizontal member; c) a plurality of vertical members hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members at spaced locations thereon; wherein each said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said vertical member; said stud comprising an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said telescopic stud.



In a seventh aspect the present invention provides a prefabricated framing unit for constructing a roof truss comprising:

- 5 a) a telescopic lower horizontal member;
- b) a folding upper peak member; and
- c) a plurality of bracing members adapted to be fastened at upper and lower ends thereof respectively to said upper peak member and lower horizontal member at spaced locations thereon;

10 wherein said telescopic lower horizontal member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said lower horizontal member, and wherein the ends of said telescopic lower horizontal member are hingedly fastened to the ends of  
15 said folding upper peak member; and wherein said folding upper peak member comprises first and second elements hingedly connected.



Brief Description of Drawings

In drawings which illustrate a preferred embodiment of the invention:

5 Fig. 1 is an elevation view of a framing unit according to the invention in collapsed condition;

Fig. 2 is an elevation view of the framing unit shown in Fig. 1 in partly raised condition;

Fig. 3 is a perspective view of the framing unit shown in Fig. 2 in raised position, with the extended condition shown in phantom outline;

10 Fig. 4 is a perspective view of the framing unit shown in Fig. 2 in raised and extended position;

Fig. 5 is a partial elevation view of the framing unit shown in Fig. 4 illustrating the ends of the vertical studs in dotted outline;

Fig. 6 is a cross-sectional view taken along lines 6-6 of Fig. 3;

15 Fig. 7 is a detailed view of the right hand end of Fig. 6;

Fig. 8 is an elevation view of a header framing unit according to the invention in collapsed condition;

Fig. 9 is a perspective view of the header framing unit shown in Fig. 8 in raised condition;

20 Fig. 10 is a perspective view of the header framing unit shown in Fig. 8 in raised and extended condition;

Fig. 11 is an elevation view of a roof truss framing unit according to the invention in collapsed condition;

25 Fig. 12 is an elevation view of the roof truss framing unit shown in Fig. 11 in raised condition;

Fig. 13 is an elevation view of a second embodiment of a roof truss framing unit according to the invention in collapsed condition;

Fig. 14 is an elevation view of the roof truss framing unit shown in Fig. 13 in raised condition; and

30 Fig. 15 is a perspective view of a single stud framing unit according to the invention.



Best Mode(s) For Carrying Out the Invention

With reference to the accompanying drawings, the prefabricated framing unit 10 comprises horizontal members 12 and vertical studs 14. A standard framing unit 10 is designed to fill an 8 foot by 4 foot space when fully raised and extended. To allow some flexibility the extended height as shown in Fig. 4 is 8 feet one inch, as further explained below. Studs 14 are hingedly connected to the horizontal members 12 at hinges 16, which typically are metal screws. Horizontal members 12 are preferably 28 gauge galvanized steel channel, the lower member 12 forming a channel 3 5/8 inches in width and 1 1/4 inches deep, and the upper member 12 forming a channel 3 1/2 inches in width and 1 1/4 inches deep. Studs 14 comprise outer stud members 20 and inner stud members 22 as shown in Fig. 4. Referring to Fig. 7, outer stud members 20 are preferably 3 5/8" wide by 1 3/8" deep and inner stud members 22 are 3 1/2" wide by 1 1/4" deep, thus permitting the inner stud members 22 to slide freely within outer stud members 20 to permit extension and retraction of the studs. Pre-punched service openings 26 are provided in inner and outer stud members 20, 22 for purposes of wiring and plumbing. As shown in Fig. 4, the outer and inner stud members are preferably each about 4'6" in height so that with an extended height of 8'1" there is an overlap B of about 11".

20

Fig. 5 illustrates in detail the connection of studs 14 to horizontal members 12. Screws 16 fasten studs 14 to horizontal members 12 to permit relative pivoting. The upper end 30 of inner stud members 22 is positioned so that corners 31 contact member 12 to limit the rotation of the stud beyond a right angle to the horizontal member 12. The upper end 30 of inner stud members 22 is angled at an angle C of approximately 15 degrees to allow for installation on non-parallel floors and ceilings where the height of the vertical studs will be unequal. The lower end 32 of outer stud members 20 is also positioned so that corners 34 contact member 12 to limit the rotation of the stud beyond a right angle to the horizontal member 12. A short shoulder at corner 34 is provided to give added support to the stud. The lower end 32 of outer stud members 20 is angled at approximately 15 degrees in the

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opposite direction to thereby permit a variation of up to 30 degrees from the horizontal to accommodate non-parallel floors and ceilings where the height of the vertical studs will be unequal.

5 To install a partition using the invention, the framing unit 10 is manufactured off-site and is shipped to the site in collapsed condition as shown in Fig. 1. The location for the wall partition is marked on the floor with chalk, tape or the like, and the lower horizontal member 12 is laid in position on the floor. The upper horizontal member 12 is grasped and raised to the position shown in Fig. 3  
10 with studs aligned vertically. The lower horizontal member 12 is fastened in position on the floor with screws, nails or the like. The upper horizontal member 12 is grasped and raised vertically to the position shown in Fig. 4, causing the inner stud members 22 to slide out from outer stud members 20, until the upper horizontal member 12 meets the ceiling (not shown). The upper horizontal member 12 is then  
15 fastened in position to the ceiling with screws, nails or the like. The outer and inner stud members 20, 22 are then fastened by screws or the like in the overlap area B. The required panelling can then be attached to the framing unit to complete the partition. Magnetic sheeting, consisting of panels which have integral magnets to attach to the steel framing of the invention, can be used for quick installation and  
20 removal of the wall partition.

It will be understood that the invention can accommodate uneven floor and ceilings since the studs 14 can be extended to different lengths respectively, with up to a 30 degree variance being accommodated. The vertical sizing of the unit is  
25 accomplished automatically without time-consuming measurement and cutting. Other sizes of units (e.g. 8' by 2') are also possible, as well as units incorporating door frames and/or window frames. While a framing unit 10 has been shown with four studs 14, the fourth stud can be omitted to avoid duplication of studs at adjacent framing units when installed, or indeed other numbers of vertical studs can be used  
30 still within the scope of the invention.

Various related elements can be used to add to the usefulness of the present invention. For example, a related folding, telescopic header unit 40 shown in Fig. 8 through 10 facilitates the framing of door or window units. The header unit is constructed of the same types of materials as the framing units 10. It comprises upper and lower horizontal members 42 and vertical member 44. It is designed to fill the space above a door or window frame and will overlap the width of the door or window by about 7/8 inches on each side. The raised height adjusts from 13 1/2 inches to 22 1/2 inches. For openings wider than 3 feet, one or more additional telescoping vertical members can be used. Vertical members 44 are pivotally connected to the horizontal members 42 at hinges 46, which typically are metal screws. As in the case of studs 14, the vertical members 44 consist of outer member 48 pivotally connected to the lower member 42 and inner member 50 pivotally connected to the upper member 42 which slides in outer member 48.

The header unit 40 is installed in the same manner as the framing unit 10. It is manufactured off-site and is shipped to the site in collapsed condition as shown in Fig. 8. The lower horizontal member 42 is laid in position on the door or window frame. Tabs 52 overlap the adjoining framing units. The upper horizontal member 42 is grasped and raised to the position shown in Fig. 9. The lower horizontal member 42 is then fastened in position with screws, nails or the like. The upper horizontal member 42 is grasped and raised vertically to the position shown in Fig. 10, causing the inner stud member 50 to slide out from outer stud member 48, until the upper horizontal member 42 meets the ceiling (not shown). The upper horizontal member 42 is then fastened in position to the ceiling with screws, nails or the like. The outer and inner stud members 48, 50 are then fastened by screws or the like in the overlap area. The required panelling can then be attached to the header unit.

Fig. 15 illustrates a single telescopic stud 60 for use in conjunction with the invention. It has an inner element 62 which slides within outer element 64. Service openings 66 are pre-cut in elements 62, 64. End caps 68 are provided with

pre-drilled holes 69 for screws. When a partition wall being constructed requires a framing unit 10 which is less than a standard length, stud 60 can be installed at the required length by screwing end caps 68 into the upper and lower channels 12 of framing unit 10, and the excess length of framing unit 10 cut off. Similarly stud 60  
5 can be installed at a location in framing unit 10 to frame a door or the like.

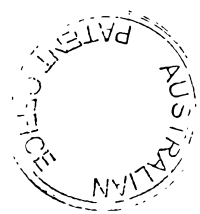
Pre-fabricated framing units using a principle similar to that shown in Fig. 1-7 can be used as a load-supporting roof or loft truss, as shown in Fig. 11-14. The collapsible telescopic framing units for a roof truss are also constructed of  
10 galvanized steel channel but require a heavier gauge steel to support loads, typically 18 to 20 gauge. The necessary type and thickness of steel will be apparent to those skilled in the art. Fig. 11 and 12 show a loft truss 70 comprising peak elements 72, 72' joined by hinge 73, and inner and outer cross-members 74, 76 joined to peak members 72', 72 by hinges 75, 77 respectively. Inner cross-member 74 telescopes  
15 within outer cross-member 76. The loft truss is transported in collapsed condition as shown in Fig. 11. To erect it on-site, the peak members 72, 72' are raised, causing inner cross-member 74 to slide inside cross-member 76. Peak member 72' is slightly narrower than peak member 72 to permit it to fit within the channel of peak member 72 in the vicinity of hinge 73. Similarly, cross members 74, 76 are slightly narrower  
20 than peak members 72', 72 to permit them to fit within the channels of peak member 72', 72 in the vicinity of hinges 75, 77. Reinforcing members 78, 78' and 79 are then screwed to the respective beams by screws 71 as shown to secure the truss and to secure cross member 74 in cross member 76. A roof truss 80, shown in Fig. 13, 14 is constructed similarly, comprising peak elements 82, 82' joined by hinge 83, and  
25 inner and outer cross-members 84, 86 joined to peak members 82', 82 by hinges 85, 87 respectively. Inner cross-member 84 telescopes within outer cross-member 86. To erect the roof truss, the peak members 82, 82' are raised, causing inner cross-member 84 to slide inside cross-member 86. Reinforcing members 88, 88' and 89 are then screwed by means of screws 81 to the respective beams as shown to secure  
30 the truss.

A similar framing unit to that shown in Fig. 1-7 can be used as a load-supporting floor joist system. Collapsible telescopic framing units for a floor joist system are constructed in the same manner as for the partition wall framing units described above, but require a heavier gauge steel to support loads, typically 18 to 5 20 gauge. The necessary type and thickness of steel will be apparent to those skilled in the art. The size of the floor joist framing units would also be larger, typically 8 feet wide by 16, 24 or 32 feet long. The floor joist framing units would be assembled off-site and shipped in collapsed condition. Once on site they would be 10 unfolded and telescoped to the required size, placed horizontally on edge and nailed or screwed to the supporting beams or walls, which would be the load-supporting beams or foundation walls as in current construction methods. The telescopic studs would then be screwed to each other to fix their lengths as in the case of the partition wall framing units.

15 As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. For example, different cross-section shapes and different sizes can be selected for the studs and horizontal members, and different materials are suitable for the components. Accord- 20 ingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

25 For the purposes of this specification it is to be clearly understood that the word "comprising" means "including" but not limited to", and that the word "comprises" has a corresponding meaning.

It is to be understood that, if any prior art information is referred to herein, such reference does not constitute an admission that the information forms a part of the common general knowledge in the art, in Australia or any other country.



## WHAT IS CLAIMED IS:

1. A prefabricated framing unit for constructing a non-load-bearing wall or partition comprising:
- 5 a) a lower horizontal member;  
b) an upper horizontal member;  
c) a plurality of vertical members hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members at spaced locations thereon;
- 10 wherein each said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said vertical member, and wherein an upper end of one of said inner and outer elements is hingedly fastened to said upper horizontal member
- 15 and an upper end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and the lower end of the other of said inner and outer elements is hingedly fastened to said lower horizontal member and a lower end of said other of said inner and outer elements is free to slide relative to said other of said inner and outer elements.
- 20
2. The prefabricated framing unit of claim 1 wherein said horizontal and vertical members are manufactured from sheet metal.
3. The prefabricated framing unit of claim 1 wherein said
- 25 upper and lower ends are adapted to prevent rotation of said vertical members beyond a right angle to said horizontal members.
4. The prefabricated framing unit of claim 3 wherein said upper and lower ends are angled to allow for installation on non-parallel floors and ceilings.

- 10 -

5. The prefabricated framing unit of claim 1 further comprising magnetically attachable panels.
6. The prefabricated framing unit of claim 1 wherein said unit comprises four  
5 vertical members.
7. The prefabricated framing unit of claim 1 wherein said unit comprises three vertical members.
- 10 8. A method of constructing a non-load-bearing partition between a floor and a ceiling, comprising:
- a) providing a prefabricated framing unit for constructing a non-load-bearing wall or partition comprising: i) a lower horizontal member; ii) an upper  
15 horizontal member; iii) a plurality of vertical members hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members; wherein each said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, said inner element adapted to slide within said outer  
20 element and parallel to said outer element thereby lengthening or shortening said vertical member, and wherein an upper end of one of said inner and outer elements is hingedly fastened to said upper horizontal member and an upper end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and a lower end of the other of said  
25 inner and outer elements is hingedly fastened to said lower horizontal member and a lower end of said other of said inner and outer elements is free to slide relative to said other of said inner and outer elements;
- b) placing said lower horizontal member in position on said floor;
- c) raising said upper horizontal member to a position with said vertical  
30 members aligned generally vertically;
- d) fastening said lower horizontal member in position on said floor;

- e) raising said upper horizontal member until it contacts said ceiling thereby causing said inner vertical member to slide relative to said outer vertical member;
- f) fastening said upper horizontal member in position to the ceiling; and
- 5 g) fixing relative positions of said outer and inner vertical members.
9. The method of claim 8 comprising the further step of attaching panelling to said framing unit.
- 10 10. The method of claim 9 wherein said panelling comprises panels which have integral magnets.
11. A prefabricated framing unit for constructing a non-load-bearing wall or partition comprising:
- 15 a) a lower horizontal member;
- b) an upper horizontal member;
- c) a plurality of vertical members hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members at spaced locations thereon;
- 20 wherein each said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said vertical member
- wherein said upper and lower ends are adapted to prevent rotation of said vertical
- 25 members beyond a right angle to said horizontal members.
12. The prefabricated framing unit of claim 11 wherein said upper and lower ends are angled to allow for installation on non-parallel floors and ceilings.
- 30 13. A prefabricated framing unit for constructing a non-load-bearing wall or partition comprising:



- 12 -

- a) a lower horizontal member;
- b) an upper horizontal member;
- c) a vertical member hingedly fastened at upper and lower ends thereof respectively to said upper and lower horizontal members at spaced locations thereon;

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wherein said vertical member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said vertical member, and wherein an upper end of one of said inner and outer elements is hingedly fastened to said upper horizontal member and an upper end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and the lower end of the other of said inner and outer elements is hingedly fastened to said lower horizontal member and a lower end of said other of said inner and outer elements is free to slide relative to said other of said inner and outer elements.

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14. A prefabricated floor joist framing unit for constructing a load-bearing floor comprising:

- a) a first horizontal member;
- b) a second horizontal member;
- c) a plurality of telescopic members hingedly fastened at first and second ends thereof respectively to said first and second horizontal members at spaced locations thereon;

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wherein each said telescopic member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, each said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said telescopic member, and wherein a first end of one of said inner and outer elements is hingedly fastened to said first horizontal member and a first end of said other of said inner and outer elements is free to slide relative to said one of said inner and outer elements, and the second end of the other of said inner and outer elements is hingedly fastened to said second horizontal member and

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a second end of said other of said inner and outer elements is free to slide relative to said other of said inner and outer elements.

15. A prefabricated framing unit for constructing a roof truss comprising:

- 5
- a) a telescopic lower horizontal member;
  - b) a folding upper peak member; and
  - c) a plurality of bracing members adapted to be fastened at upper and lower ends thereof respectively to said upper peak member and lower horizontal member at spaced locations thereon;

10 wherein said telescopic lower horizontal member has an adjustable length and comprises an outer element and an inner element within and aligned parallel to said outer element, said inner element adapted to slide within and parallel to said outer element thereby lengthening or shortening said lower horizontal member, and wherein the ends of said telescopic lower horizontal member are hingedly fastened to the ends

15 of said folding upper peak member; and wherein said folding upper peak member comprises first and second elements hingedly connected.

AMENDED SHEET,



17. A prefabricated framing unit substantially as herein described with reference to the accompanying drawings.

5 18. A prefabricated floor joist framing unit as herein described with reference to the accompanying drawings.

19. A telescopic stud as herein described with reference to the accompanying drawings.

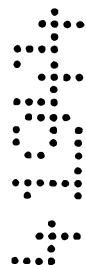
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Dated this 9th day of August 2002

**GLOBAL STEEL INNOVATIONS INC**

By its Patent Attorneys

GRIFFITH HACK



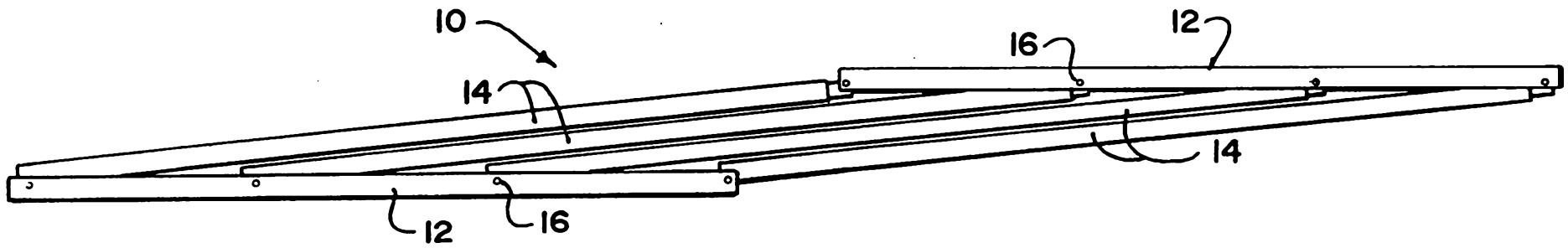


FIG. 1

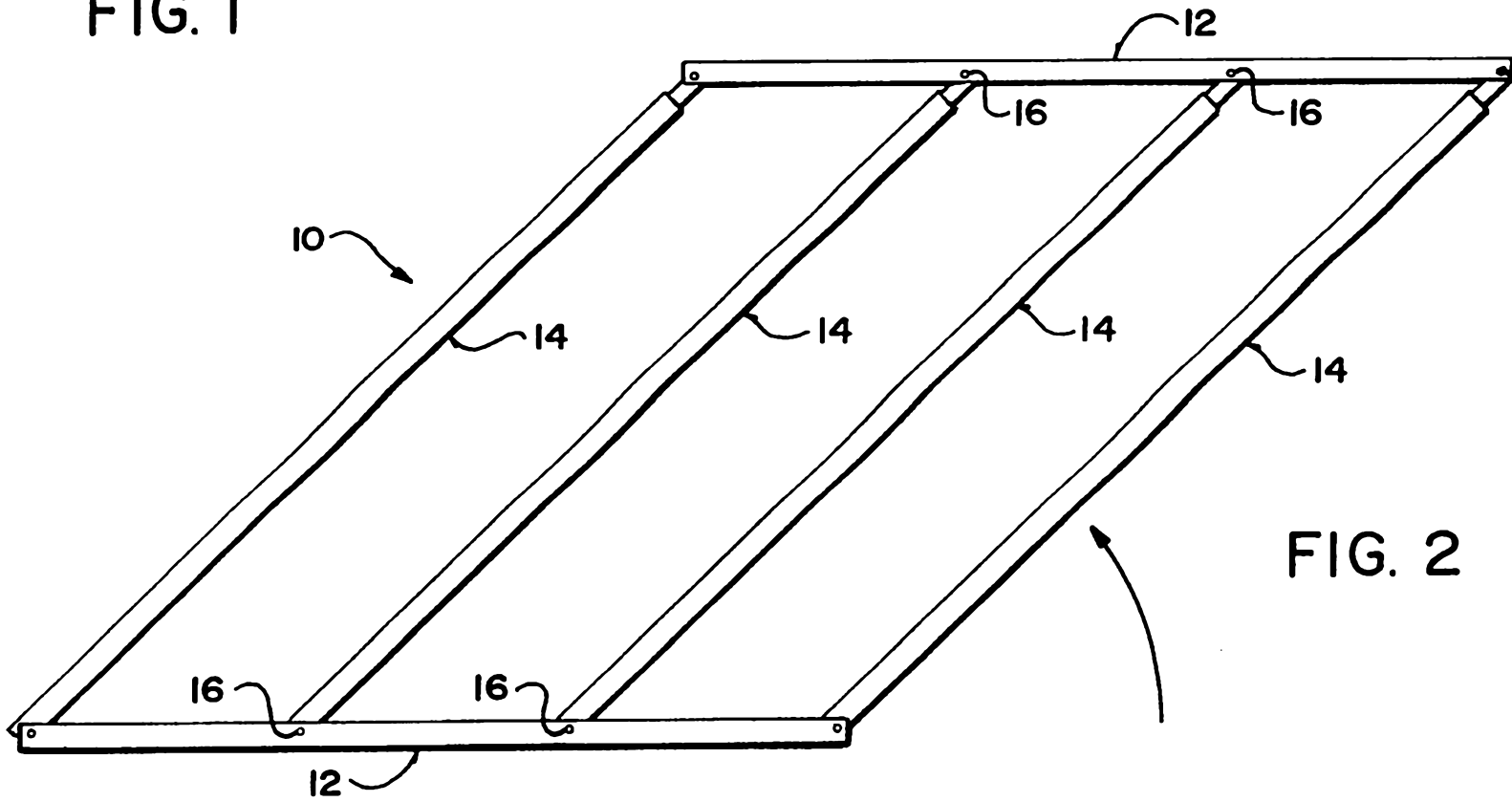


FIG. 2

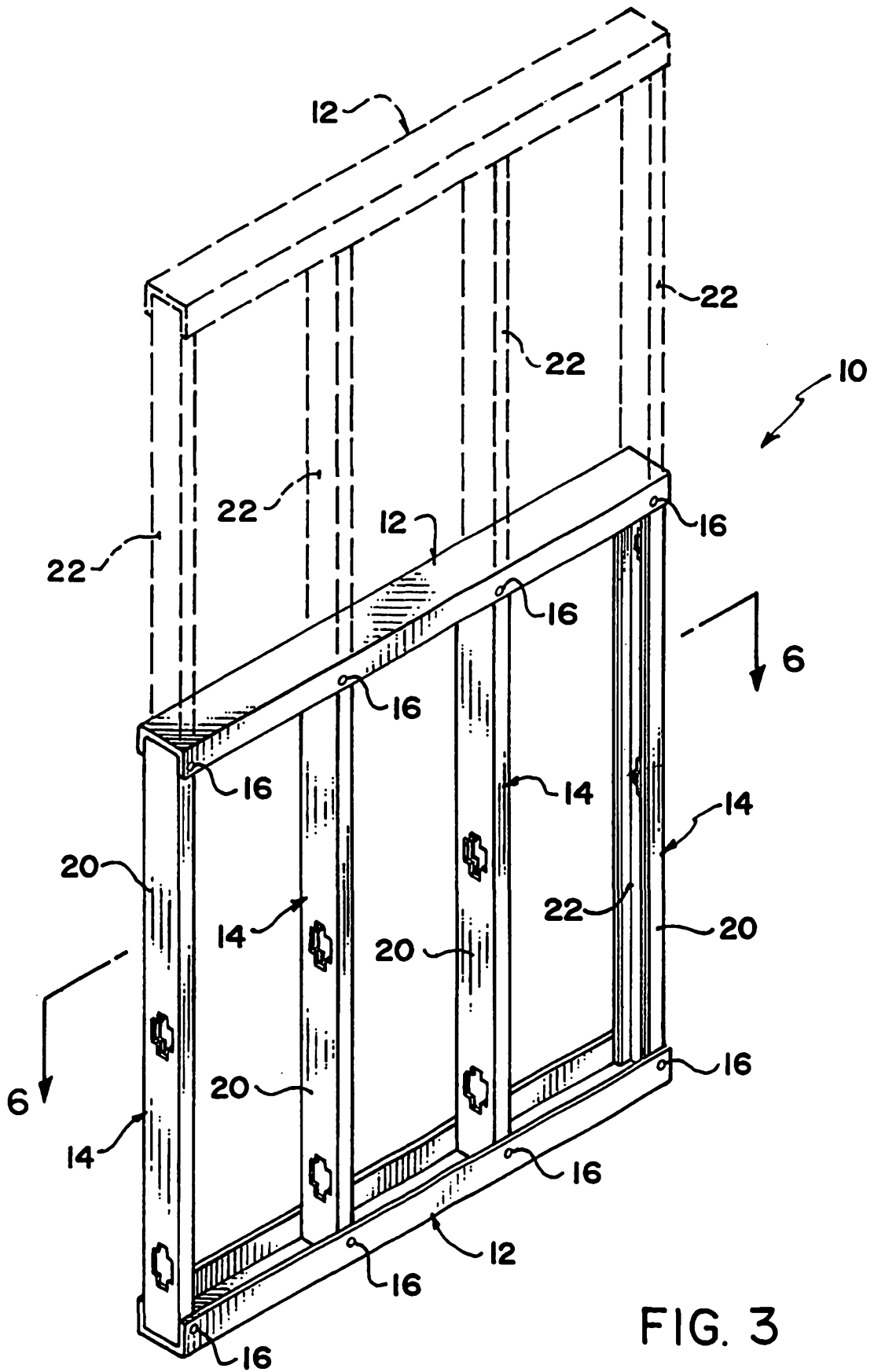


FIG. 3

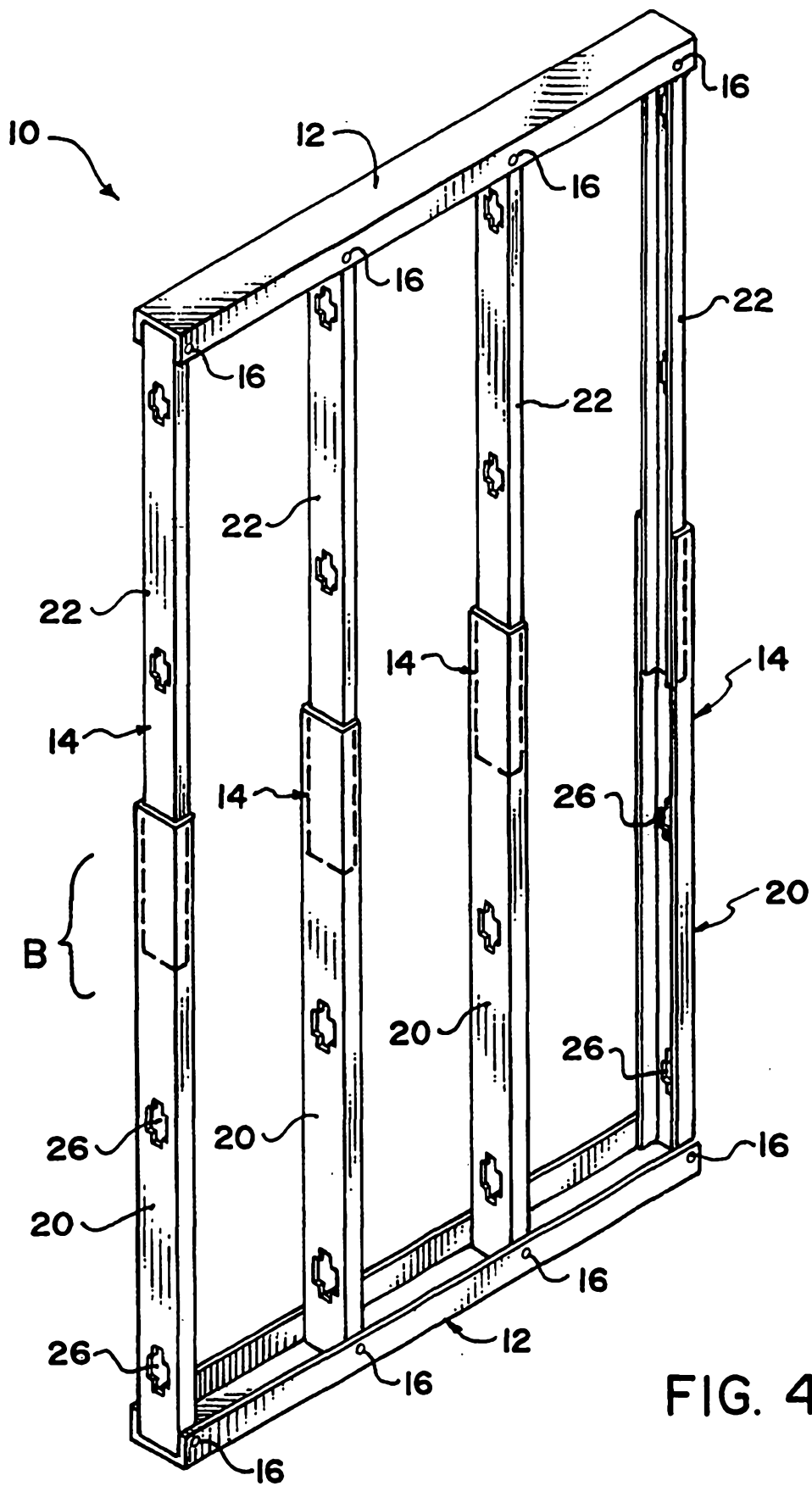


FIG. 4

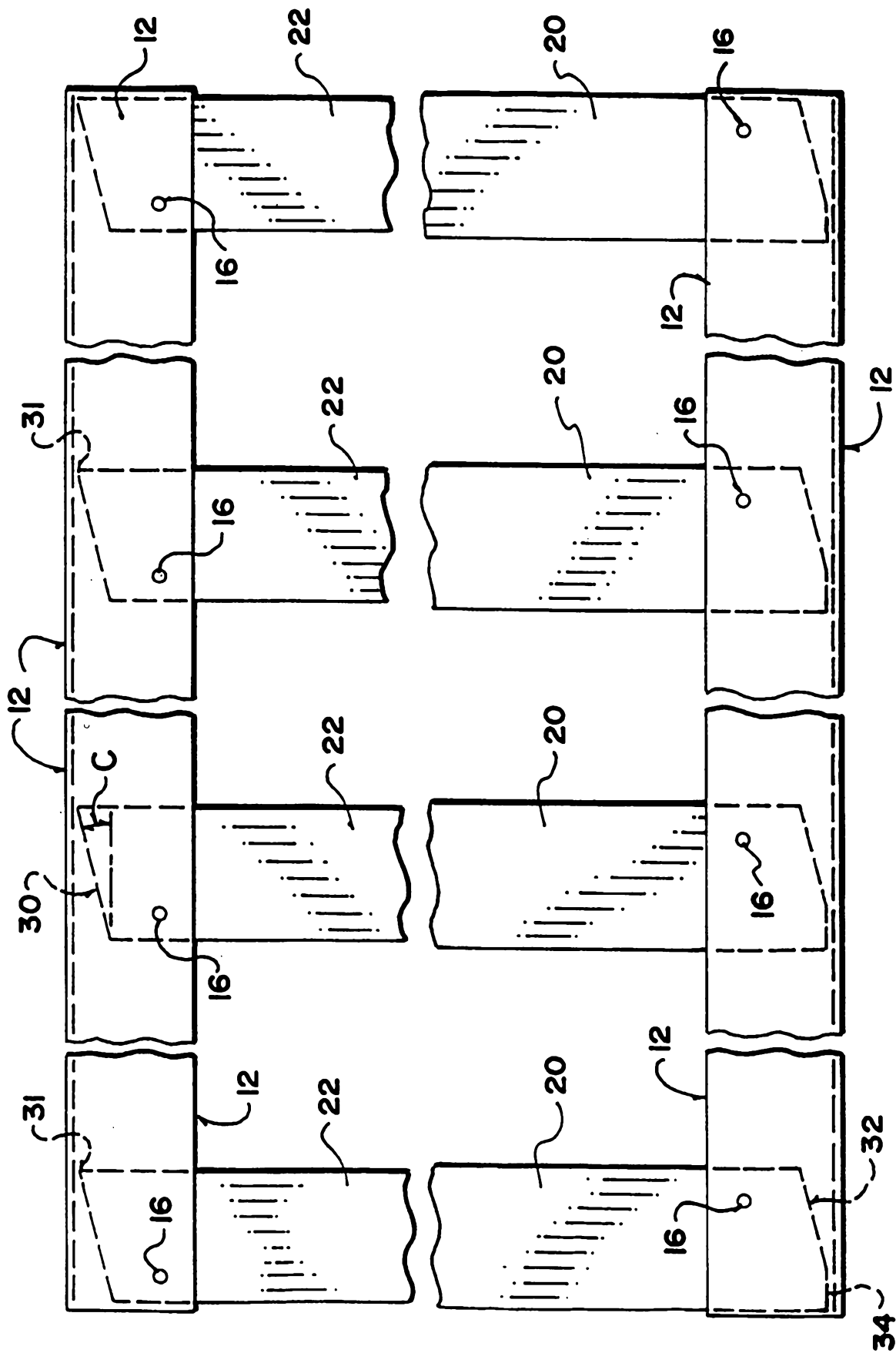


FIG. 5



FIG. 6

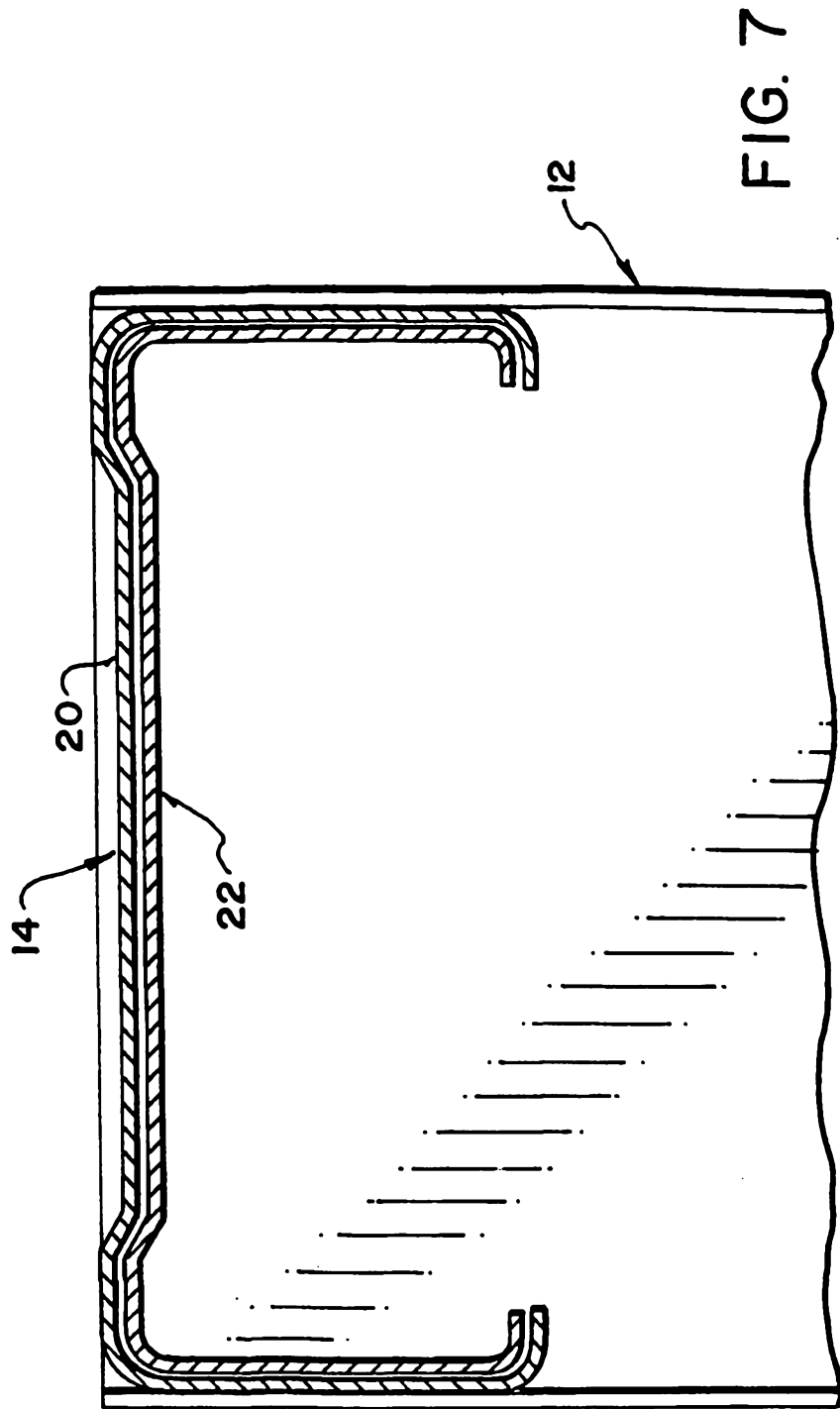
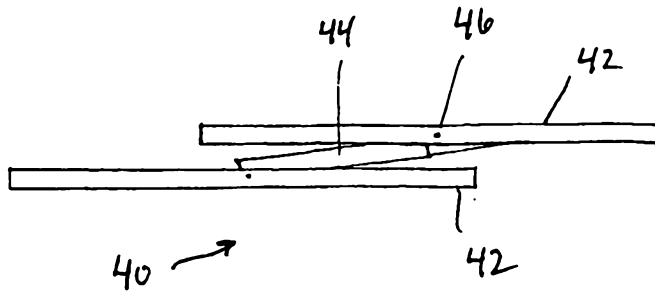


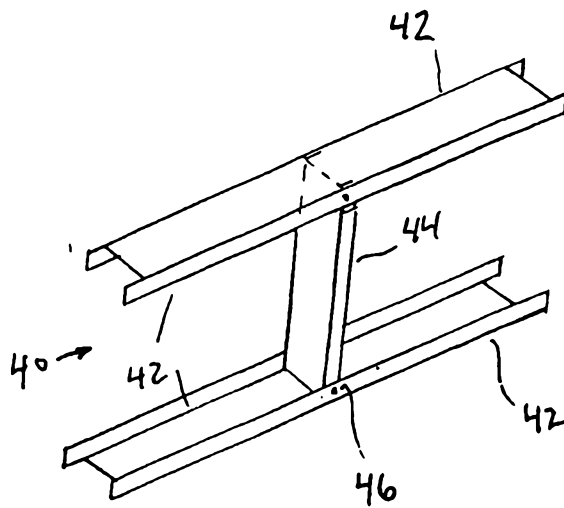
FIG. 7



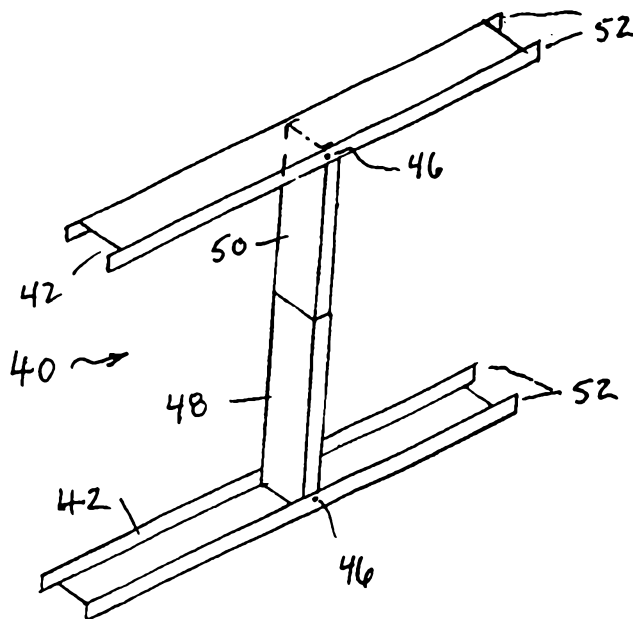
**FIG. 8**

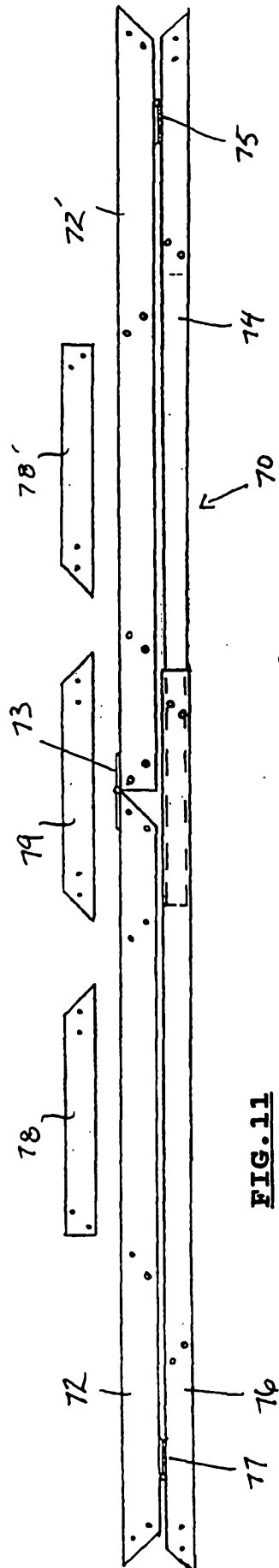


**FIG. 9**

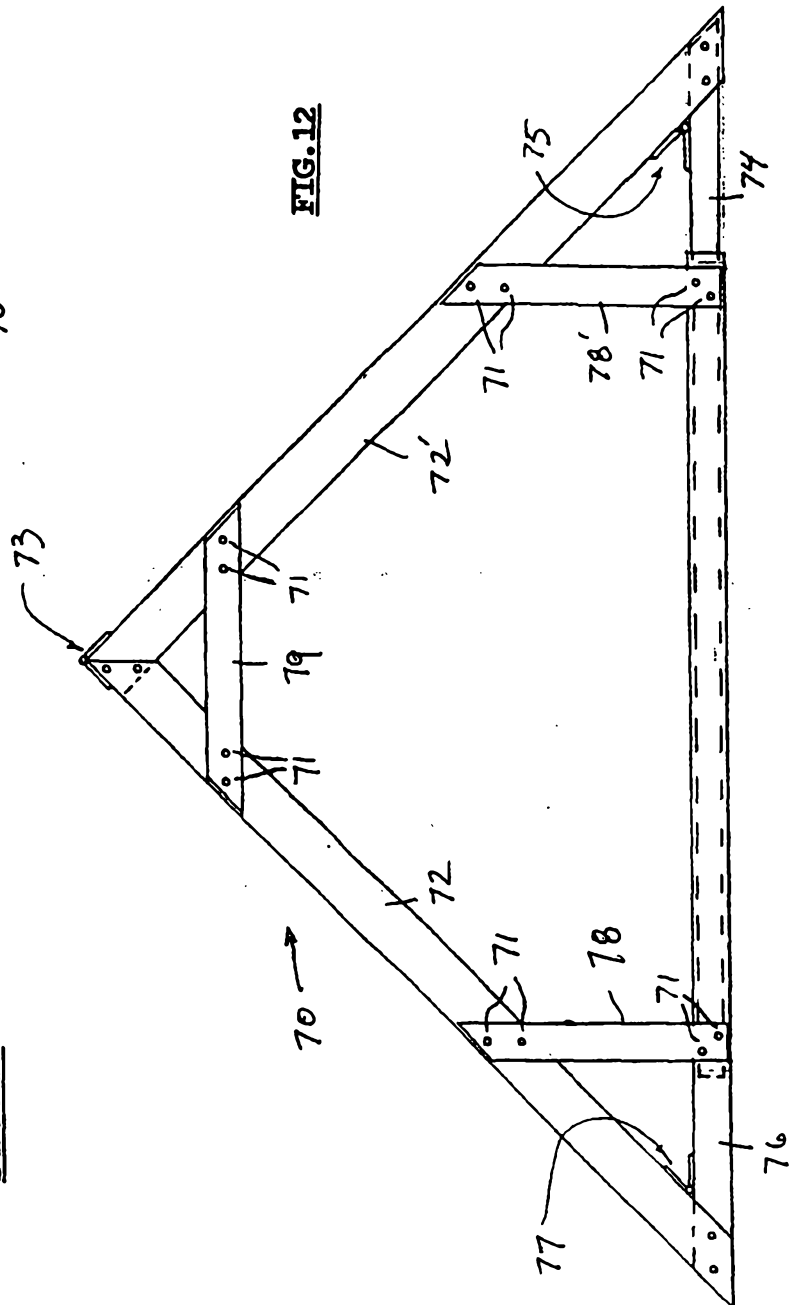


**FIG. 10**

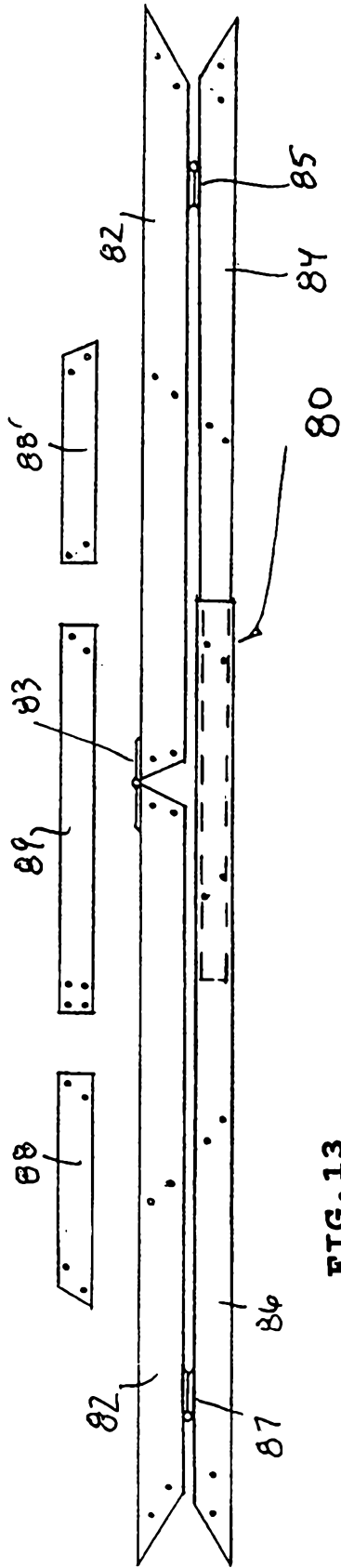




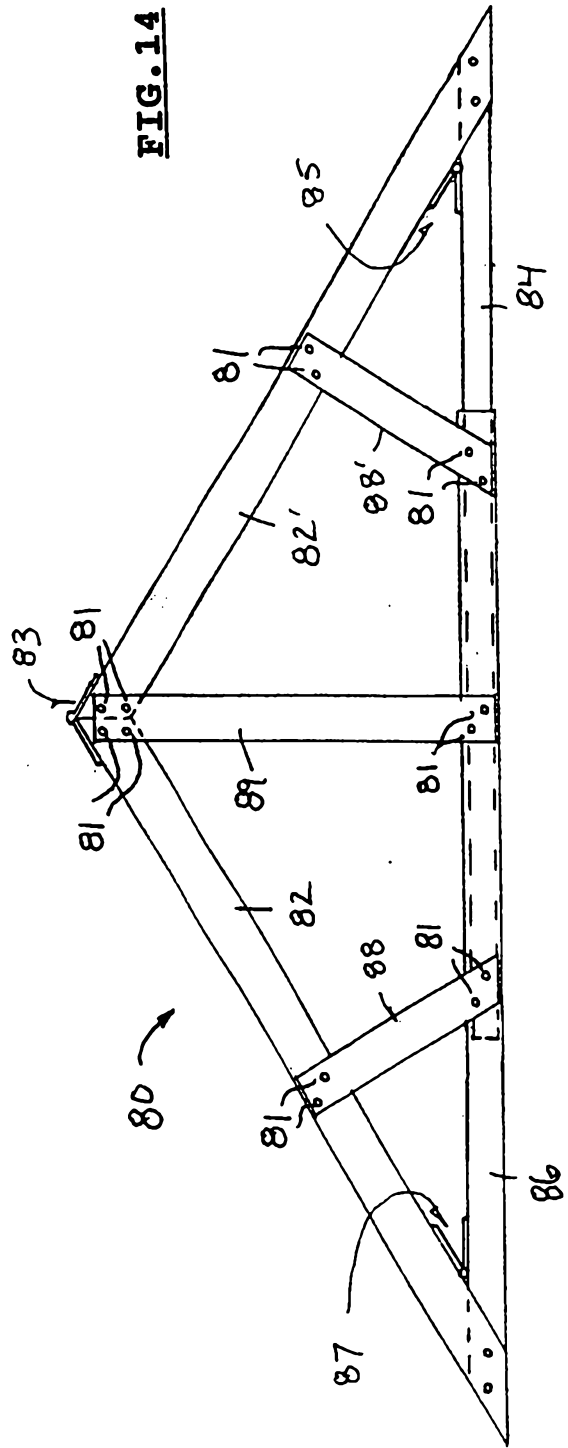
**FIG. 11**



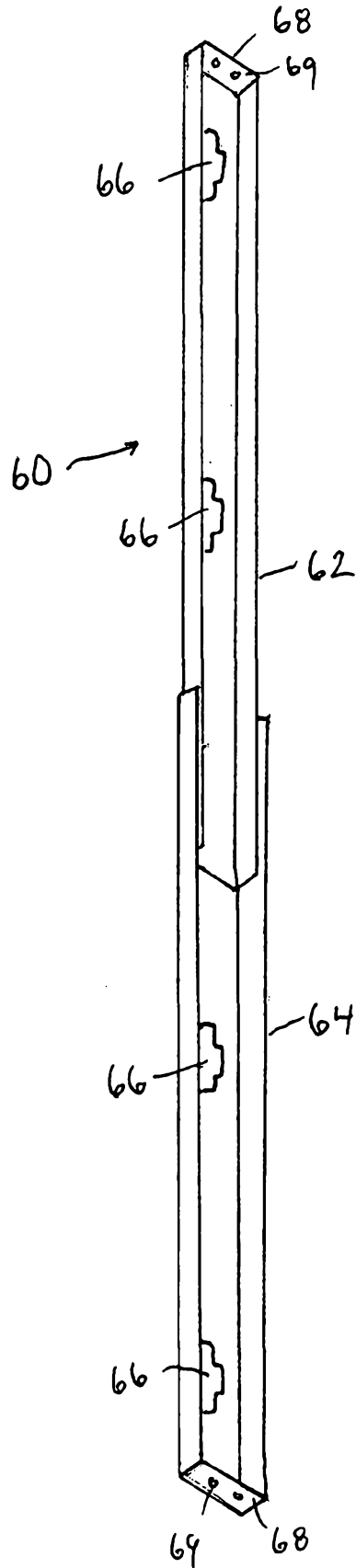
**FIG. 12**



**FIG. 13**



**FIG. 14**



**FIG. 15**