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(71) Applicant and

(72) Inventor (for all designated States except US): **HUBBE, Peter, Warren** [US/US]; 49 Winter Street, Hopkinton, MA 01748 (US).

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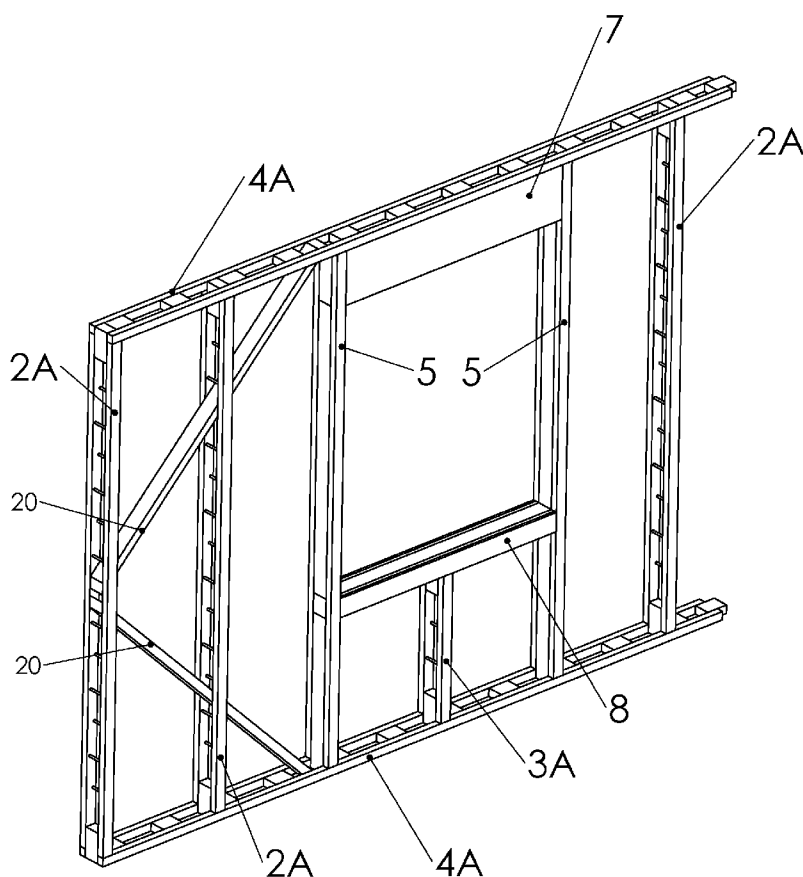
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(54) Title: SEPARATED MEMBER WOOD FRAMING



(57) Abstract: A family of manufactured framing assemblies primarily constructed of wood products that fit together to produce a wall with superior thermal characteristics, reduced wood content, improved straightness, reduced labor requirements, and other benefits when compared with conventional wood frame construction. Framing assemblies including wall stud assemblies and top and bottom plate assemblies that are each composed of two separated chords firmly connected by a combination of connecting members that include pegs and/or blocks. King jack stud assemblies replace 2 studs on each side of a window, door, or other opening and have slots to receive the core extending from a horizontal support assembly. Horizontal support assemblies with superior thermal characteristics include a header assembly and a window base assembly. Nails, adhesives, press fit, and other methods are used as desired for attachment.

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SEPARATED MEMBER WOOD FRAMING

CROSS-REFERENCE TO RELATED APPLICATIONS

This Application claims the benefit of provisional patent application Ser. No. 60/782998 filed 2006 Mar 16 by the present inventor, the disclosure of which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION—PRIOR ART

Stick built framing for residential and light construction has traditionally been done with lumber in dimensions such as 2"x4", 2"x6", 2"x8", 2"x10", and 2"x12". As the cost of heating and cooling buildings has risen and environmental concerns have grown, the need to produce well insulated buildings has taken on a new priority. Standard stick frame construction has a weakness in that the insulating value of the wooden framing member itself is 3 to 6 times less than insulation installed in the "bay" between members. This weakness can account for 10 percent of the cost of heating and cooling in a typical building.

In the past several decades, a variety of new products competing with or improving stick built construction have evolved. These products include laminated veneer lumber, laminated beams, laminated strand lumber, parallel strand lumber, wood I beams used as joists and

rafters, truss joists also referred to as open web joists, engineered roof trusses, and manufactured wall studs designed for straightness and strength.

Framing structures with conventional lumber has several shortcomings. We have considered the poor insulating quality of solid wood framing. In addition, the amount of forest resources needed to produce wood used in buildings framed with conventional lumber is significant. The associated environmental impact and costs of harvesting wood are real considerations. The weight of conventional lumber used in stick framing buildings affects the laborers who handle the materials and erect the structure. Conventional lumber often is delivered warped and bent and only gets worse when exposed to weather and job site conditions. A significant amount of labor goes into drilling conventional lumber to run wires and piping. It is difficult at best to run air ducts through conventional lumber.

Today's engineered lumber products improve upon conventional lumber in a number of ways but have some of their own weaknesses. In general these products cost more than conventional lumber. Depending on the engineered product the weight ranges from significantly less to slightly more than conventional lumber. Depending on the application, thermal bridging of engineered lumber products may or may not be better than conventional lumber. Drilling is required for running wire runs piping in some engineered lumber products while others do have open spaces for wiring and plumbing. There are limitations of size and placement of holes to run air handling ducts through framing members of some engineered lumber products.

SUMMARY

The present invention addresses the issue of energy efficiency in the construction of homes and other wood framed buildings. A basic premise of the present invention is to create framing members with separated chords that are firmly connected to each other in a fashion that allows an insulating material to fill the void between the separated chords as well as the "bays" between the framing elements. Additional advantages flow from this starting point.

By using two separated chords rather than a solid wood framing element, the present invention reduces the wood content of framing members by 20 to 40 percent. This reduction in the wood content required for a structure is an environmental benefit that fits with today's emphasis on green building.

By improving energy efficiency while reducing the amount of wood resources needed, the present invention is a natural fit with the goals of building green. Rating systems for green buildings such as Leadership in Energy and Environmental Design commonly referred to as LEED are becoming widely recognized. The framing system of present invention should fit easily into these green building rating systems. A structure built with the present invention should achieve a better rating than one built with conventional methods.

The dimensions of the present invention do not need to conform to standards for dimensional lumber, but may be designed to maximize an attribute or some combination of attributes. It is natural to match some standard construction dimensions such as wall thickness where standards for doors and windows exist. For builders who are interested in reaching a goal of super insulated construction, the present invention can be adapted to create thicker walls with greater space for installing insulation. These thicker walls are ideal for a developing category of ultra efficient homes described as Zero Net Energy Homes. With passive solar features as well as solar electric and solar thermal systems, these homes aim to create as much energy as they use.

The present invention provides properties strength, straightness and improved thermal performance with less material, less weight, and potentially lower cost when compared with today's lumber products. The separated members of the present invention offer reduced labor

required for running wires, pipe, air conditioning, etc. when compared to some engineered lumber products.

The present invention is a natural fit for structures completely designed and engineered with computer software. With every framing element defined and modeled, combined with the manufactured nature of framing members, job specific parts can be produced and kited together so that every element lines up with other parts and fits into an integrate whole where almost all field measuring and cutting is eliminated. In other words, the framing members go together like pieces of a Lego kit. The amount of time required to build a house or other structure will be reduced. Walls can be diagonally braced on the internal sides of the separated members without a requirement for notching.

Further objects and advantages will become apparent from a consideration of the ensuing description and drawings.

In accordance with the present invention, wood framing assemblies comprising of two separated parallel wood framing members that are securely fastened together with a limited amount of connecting material; king jack stud assemblies comprising of two separated parallel wood framing members that are securely fastened together with connecting material that when assembled with header assembly and window base assembly as needed provide continuous structural material between the chords from a header assembly to the base; and header and window base assemblies comprising of solid cores sandwiched by foam which is sandwiched by face board. Assemblies of this invention form a system of framing used to construct a wood framed building.

DRAWINGS--Figures

FIG. 1 is a perspective view of a wall section showing features of the present invention.

FIG. 2A is a perspective view of a wall stud with alternating pegs and ends with extending blocks.

FIG. 2B is an enlarged view of Fig 2A.

FIG. 3A is a perspective view of a short wall stud with alternating pegs and a top end with a block and a bottom with an extending block.

FIG. 3B is an exploded view of Fig 3A.

FIG. 4A is a perspective view of bottom or top plates with blocks.

FIG. 4B is an enlarged view of Fig 4A showing a receiving end.

FIG. 4C is an enlarged view of Fig 4A showing an extending end.

FIG. 5 is a perspective view of a king jack window stud with a base extension.

FIG. 6 is a perspective view of a king jack door stud with a base extension.

FIG. 7 is a perspective view of a header.

FIG. 8 is a perspective view of a window base.

FIG. 9 is a perspective view a cylindrical peg.

FIG. 10 is a perspective view an octagonal peg.

FIG. 11 is a perspective view of a square peg with octagonal ends.

FIG. 12 is a perspective view of a short cylindrical peg.

FIG. 13 is a perspective view of a wall stud with alternating pegs and ends with blocks.

FIG. 14 is a perspective view of a wall stud with blocks.

FIG. 15A is a perspective view of a wall stud with finger jointed blocks.

FIG. 15B is an end view of Fig 15A.

FIG. 16A is a perspective view of a wall stud with board blocks.

FIG. 16B is an end view of Fig 16A.

FIG. 17A is a perspective view of a wall stud with alternating board blocks.

FIG. 17B is an enlarged view of Fig 17A.

DRAWINGS--Reference Numerals

20	diagonal brace	22	stud chord
24	cylindrical peg	26	extending block
28	short stud chord	30	standard block
32	plate chord	34	lower jack block
36	upper jack block	38	full jack block
40	header core	42	header foam
44	header face	46	window base core
48	window base foam	50	window base face
52	octagonal peg	54	square peg with octagonal ends
56	short cylindrical peg	58	finger jointed block
60	board block		

DETAILED DESCRIPTIONS OF INVENTION

Embodiments of wood framing assemblies of wall studs, short wall studs, and top and bottom plates; king jack stud assemblies; header and window base assemblies; and parts of the present invention are illustrated in Fig 1 - Fig 17. For the reader's reference, the figures shown in this application have been created to match the thickness of a conventionally framed wall using 2" x 6" lumber which is nominally 5.5" in the dimension that determines wall thickness. The present invention is not limited to a specific wall thickness or other dimension but can be adjusted to meet any desirable characteristics such as strength, thermal performance, and the ability to accept fasteners.

Fig 1 shows an exterior wall section of a house or other structure that includes an opening for a window. Fig 1 is made up of wood framing assemblies shown in Fig 2A, Fig 3A, Fig 4A, that are a wall stud assembly, a short wall stud assembly, and a top or bottom plate assembly respectively; a king jack stud assembly shown in Fig 5; horizontal support assemblies including a header assembly shown in Fig 7 and a window base assembly shown in Fig 8; and of parts that are two diagonal braces 20. The diagonal braces 20 strengthen the wall. The numbering 2A, 3A, 4A, 5, 7 and 8 on Fig 1 refer to the assemblies shown in Fig 2A, Fig 3A, Fig 4A, Fig 5, Fig 7 and Fig 8 respectively. The assemblies fit together with extensions on wall studs (Fig 2A, Fig 3A) and king jack stud assemblies (Fig 5) mating with open slots in top and bottom plate assemblies (Fig 4); and extensions on a header assembly (Fig 7) and on a window base assembly (Fig 8) mating with open slots in king jack stud assemblies (Fig 5). The mating of stud and plate assemblies is optimized so that every stud assembly's extension, extending block 26 or jack block 34, 38, comes in contact with a plate assembly's two plate chords 32 as well as a plate assembly's standard block 30. This allows for rapid assembly that reduces the need to measure and offers three mating surfaces for connecting wall studs and plates together. The next paragraph extends this mating method to an additional application before returning to the flow of this section.

The method for mating between stud and plate assemblies described in the previous paragraph where the attachment of extensions allows for defined fastening locations and three surfaces that mate can be transferred to be used with the mating of floor joists and floor joist assemblies with extensions to center beam assemblies. An example of a center beam

assembly with a receiving feature is a wood product center beam constructed as a double I beam with blocks that fit in between the top and bottom chords on the sides of the double I beam, that come flush with the edge of the chords, and offer a vertical surface for mating extensions of joists and joist assemblies to the center beam assembly. To make the bottom chord of double I center beam secure enough to carry loading of floor joists, mending plates could be used to tie blocks to both chords.

Fastening methods used to connect studs to plates would likely be different than used with conventional wood framing. Smaller diameter nails, screws, staples, pre-drilled holes for screws, and adhesives may all be used. Additionally pegs similar to those described in the present invention may be used in pre-drilled holes to tie studs to plates as well as king jack studs to a header and a window base in a fashion similar to pegged post and beam construction.

Several features of the present invention are easily seen in Fig. 1. Blown or sprayed insulation will fill in the open voids of wall stud assemblies (Fig. 2A, Fig. 3A) and the open voids of top and bottom plate assemblies (Fig. 4). These same voids reduce the drilling required for wiring and piping. Wires, pipes, and small air ducts can be routed through top and bottom plate assemblies (Fig. 4).

A king jack stud assembly (Fig. 5) replaces two studs, a king stud and a jack stud, with a single combination stud. By replacing two studs with one support, the present invention reduces the amount of wood used in a wall thereby improving the thermal characteristics of the wall. In addition, using less wood is an environmental benefit that has value in building green. The separated stud chords 22 of a king jack stud assembly play the role of a standard king stud that goes from bottom plate to top plate while the blocks 34, 36 between the stud chords 22 play the role of a standard jack stud in holding up a header assembly (Fig. 7). The king jack stud assembly of Fig. 5 has a slot to receive an extension of a window base assembly (Fig. 8). The header assembly (Fig. 7) and the window base assembly (Fig. 8) have insulating foam 42, 48 that bring them to a thermal efficiency in line with the rest of the wall assembly when insulated.

A wood framing assembly has the basic functionality of a conventional wood framing members such as wall studs, wall top plates and bottom plates, joists, and rafters. Wood

framing assemblies include wall stud assemblies, short wall stud assemblies, and top and bottom wall plate assemblies that are shown in the present invention as well as floor joist assemblies and rafter assemblies.

A wall stud assembly with extending blocks **26** is shown in Fig 2A. Fig 2B shows an enlarged view of one end of Fig 2A. This wall stud assembly is composed of two separated stud chords **22** secured together by cylindrical pegs **24** that alternate from side to side and extending blocks **26**. Cylindrical pegs **24** are set into holes drilled in the inner surfaces of the chords, with the inner surfaces of the chords being the surfaces of the two chords that face each other, and the outer surfaces being opposite the inner surfaces and determining the depth of the wall stud. The cylindrical pegs alternate from side to side producing a stud with greater stiffness than a similar construction with pegs spaced in a single row. The use of adhesives is expected to be a preferred method of enhancing the attachment of pegs in holes.

By drilling holes with a drill bit that produces a flat surface at the base of the holes, and drilling with reference to the outer surface of a chord, the depth of the wall stud is determined by the length of the pegs and the thickness of the material between the hole bases and the outer surfaces of the chords.

Two surfaces of the extending blocks **26** are in contact with to the inner surfaces of the stud chords **22** and are attached to them. The stud chords **22** are drilled to accept cylindrical pegs **24** by themselves as well as cylindrical pegs **24** that pass through and are optionally fastened with adhesive to extending blocks **26**. An exploded view of a short stud assembly of Fig 3B shows these features in greater detail. The extending blocks **26** provide an extension for mating these studs to top and bottom plate assemblies shown in Fig 4. The use of adhesives is expected to be a preferred method of enhancing the attachment of blocks to chords.

A short window stud assembly with a base extension is shown in Fig 3A. An exploded view of this assembly is shown in Fig 3B. This window stud assembly is composed of two separated short chords **28** secured together by wooden cylindrical pegs **24** and an extension block **26** at the base and a standard block **30** at the top. The short chords **28** are drilled to accept cylindrical pegs **24** by themselves and cylindrical pegs **24** that pass through an extending block **26** and a standard block **30**.

A plate assembly that can be used either as a top plate or a bottom plate is shown in Fig 4A. Fig 4B shows an enlarged view of the end of Fig 4A with a recessed standard block 30 that is set up to mate with an extension of wall stud assembly. Fig 4C shows an enlarged view of the other end of Fig 4A that is set up to mate with another plate assembly's end as shown in Fig 4B. This plate assembly is composed of two separated long chords 32 secured together by standard blocks 30. The standard blocks 30 could include the incorporation of pegs as shown in Fig 3B. Standard blocks 30 and extending blocks 32 may be made of strand lumber products to take advantage of its ability to receive nails without splitting and its ability to hold nails that are driven several directions because of their absence of distinct wood grain. The next five paragraphs include explanations and concepts before returning to the flow of this section.

An alternate way to secure blocks is to nail them place by nailing through chords. To maximize the capability to transfer shear through a wooden block with wood grain running in the long direction of the wood framing assembly, nails from both sides of the stud would penetrate more than half way through blocks if deemed necessary. Blocks constructed of strand lumber products that do not have grain orientation like conventional lumber have greater ability to transfer shear forces without splitting and may not require nails or cylindrical pegs to carry shear forces through the block. An alternate method of fastening blocks is to insert double ended nails into blocks and press the chords on the blocks after applying adhesive. This would minimize any splitting of chords due to nailing.

A block consists of a material with two surfaces that contact the inner surfaces of two chords or features cut into the surfaces of two chords and determine the distance between the two chords, wherein the surfaces may be smooth or rough cut and features may include continuous slots, intermittent slots, milled slots that end abruptly, and finger joints. Beyond the two surfaces that contact the chords the shape of a block is not defined. The preferred shape is expected to be a rectangular solid. Preferred materials for blocks are expected to be solid wood, strand lumber products, and laminated wood. Other materials may be used for blocks.

Chords may have one or more rough cut surfaces.

Chords of may be made of finger jointed wood. Two layers of finger jointed wood adhered together may provide an optimum value engineered chord where two layers adhered together enhances strength of chords by joining wood with different grain and by re-enforcing weak spots present in one of the layers. Laminated layers may include solid wood, veneer, and strand board products. Preferred materials for chords are expected to be solid wood, laminated wood and finger jointed wood. Other materials may be used for chords.

Expanding the idea of using two layers of wood adhered together to create a chord, the layer that includes the outer surface of a chord could be wider than the layer that includes the inner surface of a chord. This geometry of a chord with a wide upper layer could be particularly beneficial in producing floor joist and rafter assemblies that can be spaced widely apart from the next floor joist or rafter assembly. An example would be floor joists spaced on 24 inch centers rather than on 16 inch centers.

A king jack window stud assembly with base extension is shown in Fig 5. This king jack window stud assembly is composed of two separated stud chords 22, a lower jack block 34 with a built in base extension, and an upper jack block 36. The lower jack block 34 and upper jack block 36 are attached in place. Pegs 24, 52, 56 assembled in holes in stud chords 22 and into the blocks 34, 36 or using nails as described previously can be added as determined by engineered requirements. This king jack window stud assembly is used to frame a window opening and is used in conjunction with bottom and top plate assemblies as shown in Fig 4, a header assembly as shown in Fig 7, and a window base assembly as shown in Fig 8.

A king jack door stud assembly is shown in Fig 6. This king jack door stud assembly is composed of two separated stud chords 22 and a full jack block 38 that extends beyond the base of the stud cords 22. The full jack block 38 is attached in place. Nails through the stud chords 22 into the block or cylindrical pegs 24 assembled into holes in the chords and block can be added as determined by engineering requirements. This king jack door stud assembly is used to frame a door opening and is used in conjunction with a top and bottom plate assemblies as shown in Fig 4 and a header assembly as shown in Fig 7. This stud can also be used for windows in conjunction with a window support.

The king jack stud assemblies of Fig 5 and Fig 6 each replace 2 studs using conventional lumber. Both the king jack stud assemblies of Fig 5 and Fig 6 may be produced without extensions to be used with conventional top and bottom plates. The following paragraph defines a vertical king jack stud.

A vertical king jack stud can be a king jack stud assembly or a solid piece of wood or wood product that may have the geometric features of the king jack assemblies of Fig 5 or Fig 6 or may have features that properly support a variety of headers and extensions of header assemblies.

The header assembly of Fig 7 mates with king jack window stud assembly shown in Fig 5. The header assembly is composed of a load bearing wood product header core 40 with header foam 42 attached with adhesive to both sides of the header, and header face 44 attached with adhesive to the exposed side of the header foam. The header core 40 may be made of laminated strand lumber. The header foam 42 may be extruded foam. The header face 44 may be oriented strand board. The thickness of the header core is shown to be the full width of the jack blocks of Fig 5 and Fig 6. This thickness may be reduced to allow a greater thickness of foam board while still meeting structural requirements. Thinner core extensions could be built up with solid wood products to create the same size extensions as the original header shown in Fig 7. Header core extensions could be reduced in height to allow room for an extending block 26 to be added to the top of a king jack stud if desired.

The window base assembly of Fig 8 mates with king jack stud assemblies shown in Fig 5 and Fig 6. The window base assembly is composed of a load bearing wood product window base core 46 with window base foam 48 attached with adhesive to both sides of the core and window base face 50 attached with adhesive to the exposed side of the window base foam 48. The window base core 46 may be made of laminated strand lumber. The construction of the window base assembly is the same as the header assembly of Fig 7 and could be modified as described for the header assembly.

A cylindrical peg 24 is shown in Fig 9. A potentially cost effective octagonal peg 52 shown in Fig 9 approximates a cylindrical peg 24 and could be inserted and additionally attached with adhesive into a round hole. A square peg with octagonal ends 54 is shown in Fig 7B. This peg and could be inserted and additional attached with adhesive into a round

hole while maximizing the cross sectional area of exposed peg. If desired the peg could be stepped so that the square cross section is enlarged relative to the octagonal ends.

A short cylindrical peg 56 is shown in Fig 12. This short cylindrical peg would be used as an alternate to a cylindrical peg connect blocks with chords if it is determined that blocks will not split due to shear stress using this peg. A short octagonal alternate would also work here.

Pegs 24, 52, 54, 56 may be made out of a different species of wood than the chords 22, 28, 32, 62 of the present invention. The chords 22, 28, 32, 62 would likely be made of pine spruce or fir, while the pegs may be made of pine, spruce, fir, poplar or a hardwood. In addition the cylindrical peg 24 could be formed as a strand lumber product.

Pegs may be made out of materials other than wood including metal, plastic, and other materials. Pegs may be driven into chords without drilling if the composition of the peg allows it. The nature of a peg is that the ends of a peg preferable are able to be assembled into a drilled hole in a chord or be driven into a chord with a single penetration.

Holes drilled in the chords 22, 28, 32 to accept pegs 24, 52, 54, 56 can be used to set the dimension of a wood framing assembly from the outer surface of one chord to the outer surface of a second connected chord. These holes are drilled with to have flat bottom holes whose depth is referenced to the outer surface of the chords. In this fashion a peg of know length will produce a wood framing assembly of the desired depth.

A wall stud shown in Fig 13 is similar to the wall stud of Fig 2 but has blocks where Fig 2 has extending blocks. A wall stud without extensions would be used with a conventional top and bottom plate. This wall stud is composed of two separated wooden stud chords 22 secured together by wooden cylindrical pegs 24 and wooden blocks 30 that are attached in place. This wall stud assembly is designed to be connected to top and bottom plates made of solid wood such as conventional 2" x 6" lumber.

The next four wall studs shown in Fig 14, Fig 15, Fig 16, and Fig 17A are all shown with standard blocks 30, but all four could be configured to include extending blocks 26 if desired.

A wall stud with separated standard blocks 30 along the major axis is shown in Figure 14. The stud chords 22 are drilled to accept cylindrical pegs 24 that pass through blocks 28 in the manner shown in Fig 3B. As described earlier alternates may be used in place of these pegs.

A wall stud with separated finger jointed blocks 58 along the major axis is shown in Figure 15. The stud chords 22 are intermittently or continuously slotted to accept finger jointed blocks 58. Finger jointed blocks are attached with adhesive in place. The preferred orientation of wood grain of the finger jointed blocks 58 is wood grain that runs from a first chord to a second chord.

A wall stud with separated board blocks 60 is shown in Figure 16. The stud chords 22 are intermittently or continuously slotted to accept board block 60. The strength of the connection between

A wall stud with board blocks 58 that alternate from side to side is shown in Figure 17. The stud chords 22 have slots of similar dimension to the board block 58. The standard blocks 30 at the ends of this stud are similar to the blocks of Fig 13. This wall stud has advantages of the stiffness gained by the use of alternating side to side pegs of wall studs of Fig 2 and Fig 13 combined with enhanced stiffness of board blocks 58. This stud assembly as well as some of the other stud assemblies could be tailored to produce long stud assemblies strong enough to be used to produce tall walls.

In addition this stud assembly as well as some of the other stud assemblies could be tailored to produce joist and rafter assemblies. Starting with the wall stud of Fig 17, the board blocks 58 could be modified to be trapezoidal with a long side and a short side that are parallel to each other and mate with slots in chords wherein the long side would mate with chord of the load bearing side of the assembly. The spacing of the trapezoidal blocks could be tailored to allow for the passage of piping including drainage piping through the assembly in many places along the length of the assembly and allow for the passage of air ducts near the center of the assembly.

ADVANTAGES

From the descriptions above, a number of advantages of my separated member wood framing system become evident:

The thermal break in the wall studs and top and bottom plates provides space for insulation. Damp spray cellulose insulation and spray in place foam products can be used to insulate the open bays and in between the separated chords of the wall studs. The king-jack studs do not have a thermal break but instead reduce the cross sectional area of thermally conducting wood when compared to conventional framing. The insulating design of the header and window base keep the thermal efficiency of the wall high.

The separated chords provide easy passages for wire, conduit, and piping. Potable water piping and heat piping and ductwork with a small cross sectional area can be kept from the cold by creating an insulated cavity. This can be done using an adhesive to attach foam board to the inside of exterior sheathing in bays where pipes will run. Ductwork such as used in high velocity air systems can be routed through top plates and into walls with either no modification or minor modifications to top plate and stud design.

This manufactured framing will produce consistently straight and true walls enhancing the construction buildings including window and door installation and plaster and drywall installation and finish.

Labor savings will occur in the assembly of walls built of the present invention. The reduced weight of the wall will be beneficial in assembly. The time required to drill holes for wire and pipe runs will be reduced.

The reduced amount of wood used in the wall is an environmentally desirable outcome of the present invention.

The process of constructing with this method fits very well with computer aided house and building design where entire structures can be optimized. This approach may be used to deliver pre-engineered framing members for "kit" framed homes or developments where minimal cutting of framing members is needed.

CLAIMS: I claim:

1. A wood framing assembly comprising a first chord having outer and inner surfaces; a second chord having outer and inner surfaces; wherein said outer surface of said second chord is substantially parallel to said outer surface of said first chord and spaced apart therefrom; and a plurality of separated connecting members between the said inner surfaces of said first and second chords.
2. The wood framing assembly of claim 1, wherein said connecting members are positioned substantially in a straight line.
3. The wood framing assembly of claim 1, wherein said connecting members are not positioned in a straight line.
4. The wood framing assembly of claim 1, wherein the spacing between any two adjacent said connecting members is substantially uniform.
5. The wood framing assembly of claim 1, wherein the spacing between any two adjacent said connecting members is not uniform.
6. The wood framing assembly of claim 1, wherein said connecting members are secured to said first and second chords with adhesive.
7. The wood framing assembly of claim 1, wherein said connecting members are nailed to said first and second chords.
8. The wood framing assembly of claim 1, wherein said chords comprise drilled holes and said connecting members comprise a plurality of connecting pegs inserted into said drilled holes in said chords.
9. The wood framing assembly of claim 1, wherein said connecting members comprise a plurality of connecting pegs inserted into said chords without drilling.
10. The wood framing assembly of claim 1, wherein said connecting members comprise a plurality of connecting blocks attached to said chords.
11. The wood framing assembly of claim 10, wherein said chords and said blocks comprise drilled holes and using pegs inserted into holes in said blocks and said chords.

12. The wood framing assembly of claim 10, wherein said chords and said blocks comprise finger joints, and said blocks are attached to said chords via said finger joints.
13. The wood framing assembly of claim 10, wherein said chords comprise slots and said blocks are adapted to extend into said slots.
14. A horizontal support assembly comprising of a center load bearing wood product core having opposite sides; a first insulating foam layer having opposite surfaces, where one surface is affixed to one of said side of said core; a second insulating foam layer having opposite surfaces, where one surface is affixed to the opposite said side of said core; a first wood product face layer affixed to the opposite surface of said first foam layer; a second wood product face layer affixed to the opposite surface of said second foam layer.
15. A wall comprising: a first horizontal wood framing assembly, a second horizontal wood framing assembly, a plurality of vertical wood framing assemblies, between said first and second horizontal wood framing assemblies. First and second horizontal wood frame assemblies comprise of blocks.
16. A wall 15 further comprising: a diagonal brace fastened to inner surfaces of chords of a plurality of wood framing assemblies
17. A wall 15 further comprising: a horizontal support assembly.
18. A wall 15 further comprising: a vertical king jack stud comprises slots positioned in said vertical king jack stud and a horizontal support assembly with ends of said core of said support assembly that extend beyond the remaining portions of said support assembly and wherein said end of said horizontal support assembly is positioned in said slot of said vertical king jack stud.
19. A wall of 15 wherein a connecting member is placed between said chords of said vertical wood framing assembly, such that it extends beyond said chords of said vertical wood framing assembly, such that said vertical connecting member is adapted to fit between said chords of said horizontal wood framing assembly.
20. A wall of 19, wherein said extended connecting member contacts a connecting member of said horizontal wood framing assembly.

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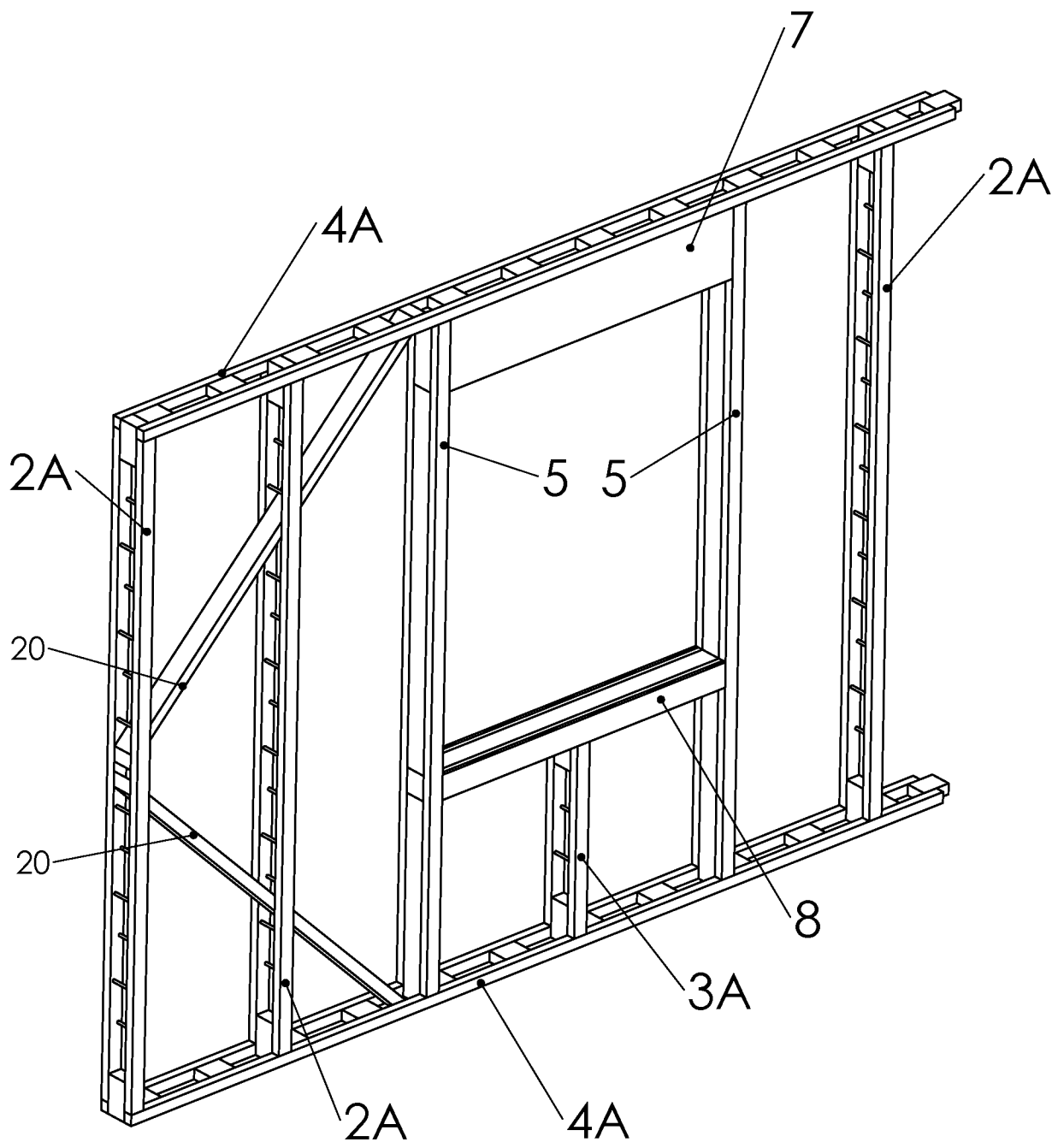


FIG. 1

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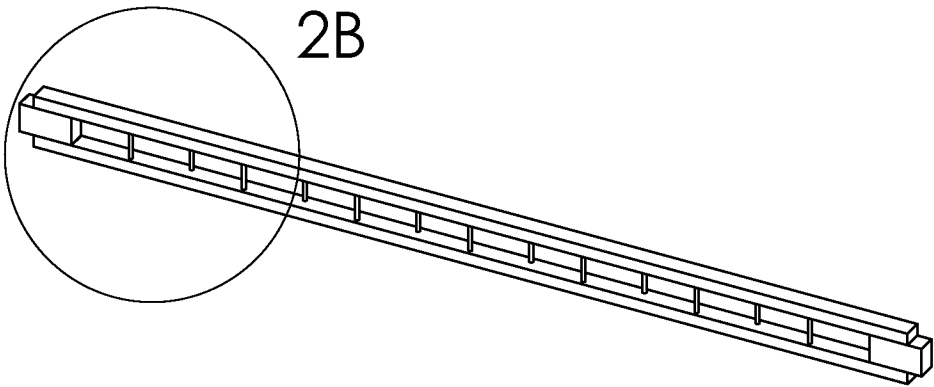


FIG. 2A

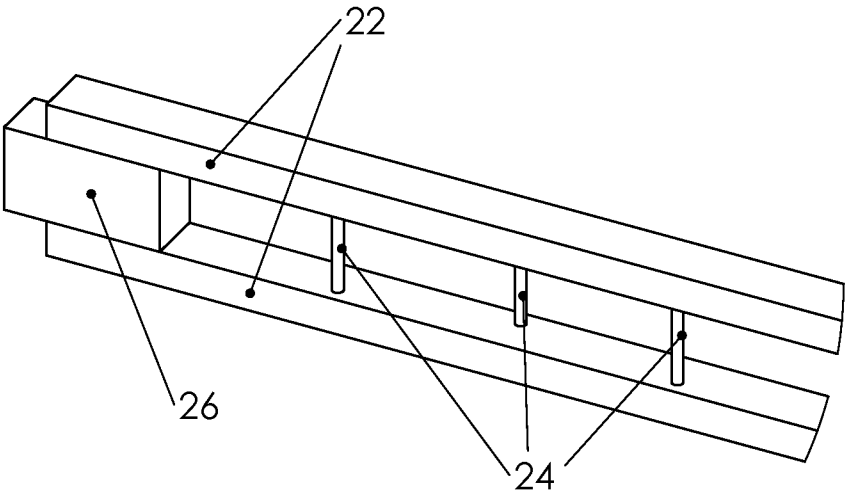


FIG. 2B

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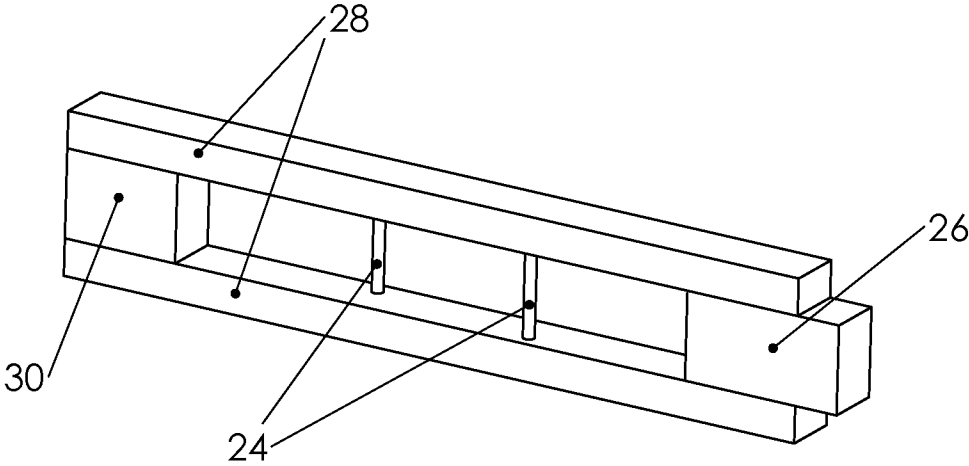


FIG. 3A

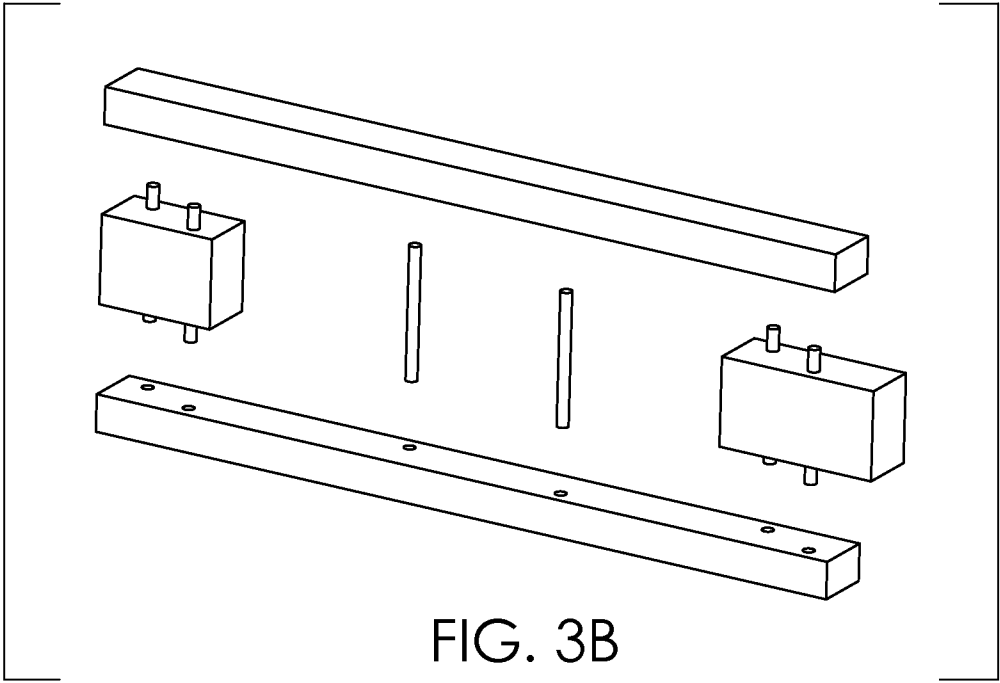
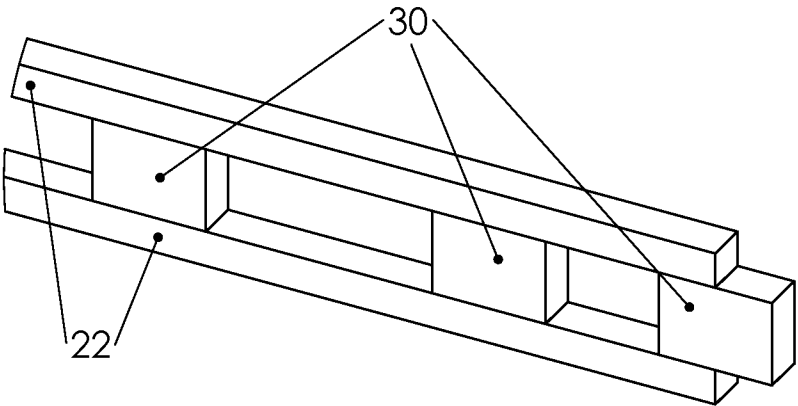
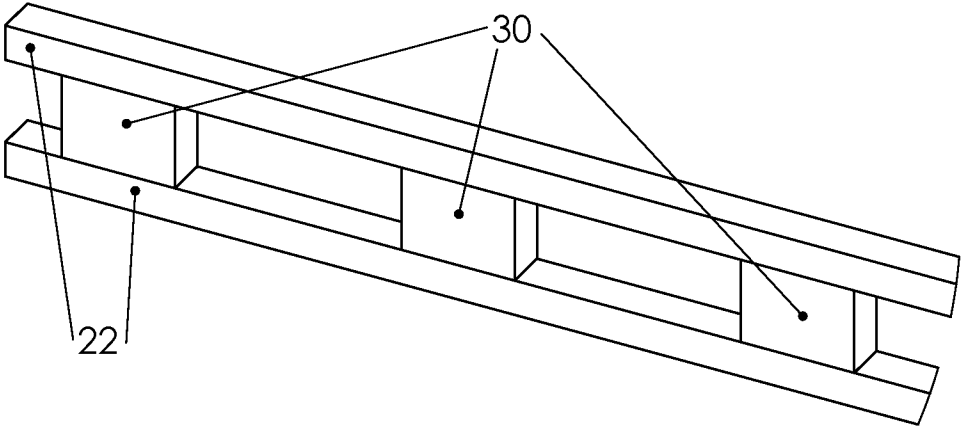
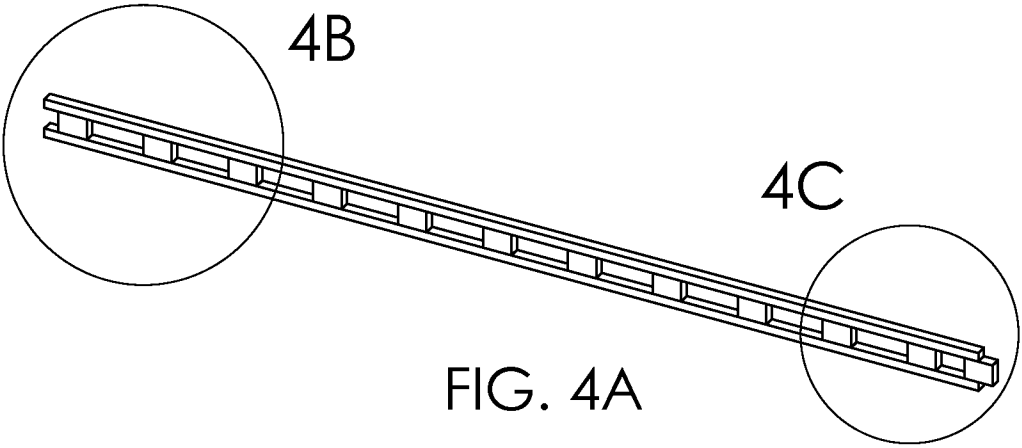


FIG. 3B

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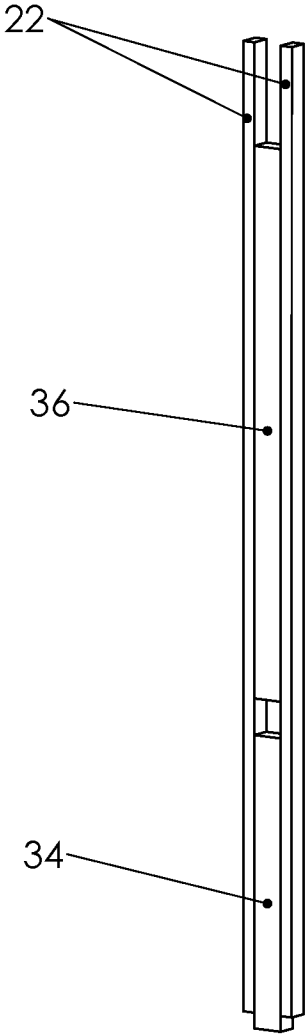


FIG. 5

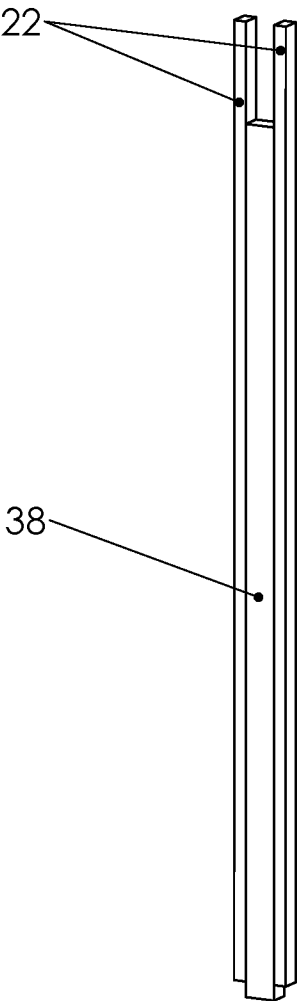


FIG. 6

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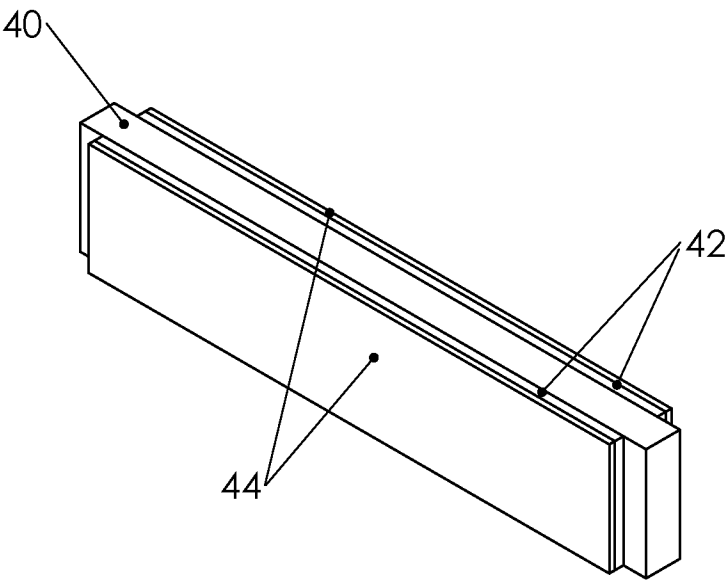


FIG. 7

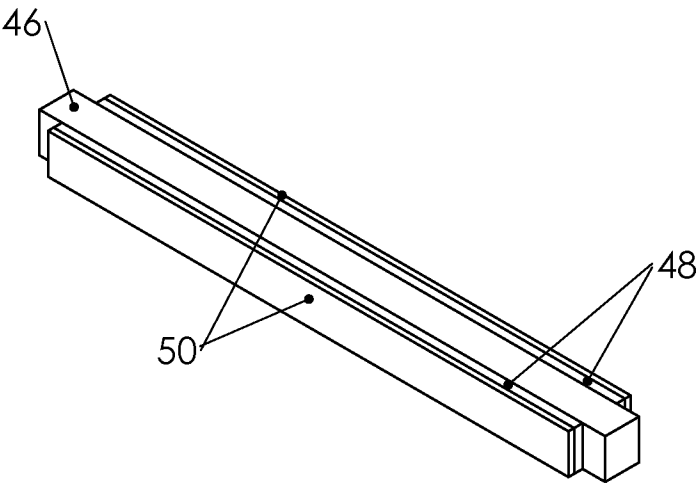


FIG. 8

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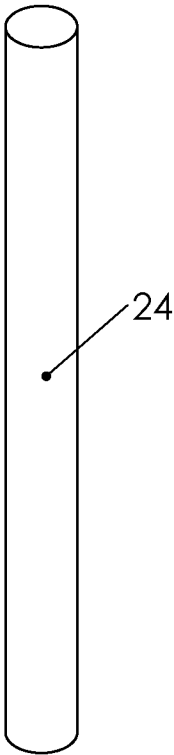


FIG. 9

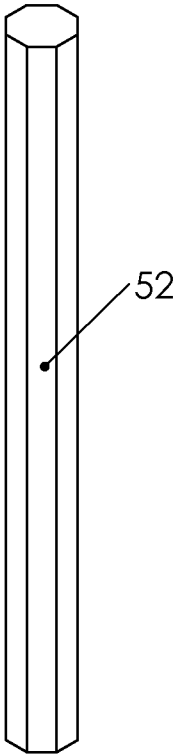


FIG. 10

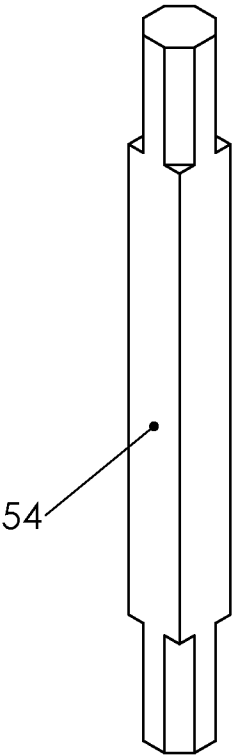


FIG. 11

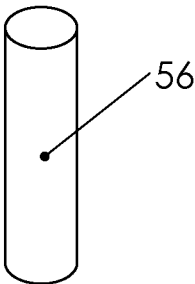


FIG. 12

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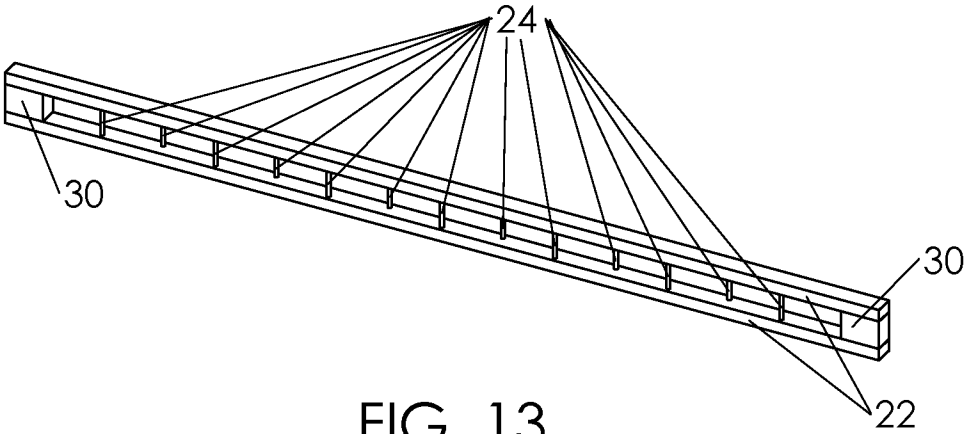


FIG. 13

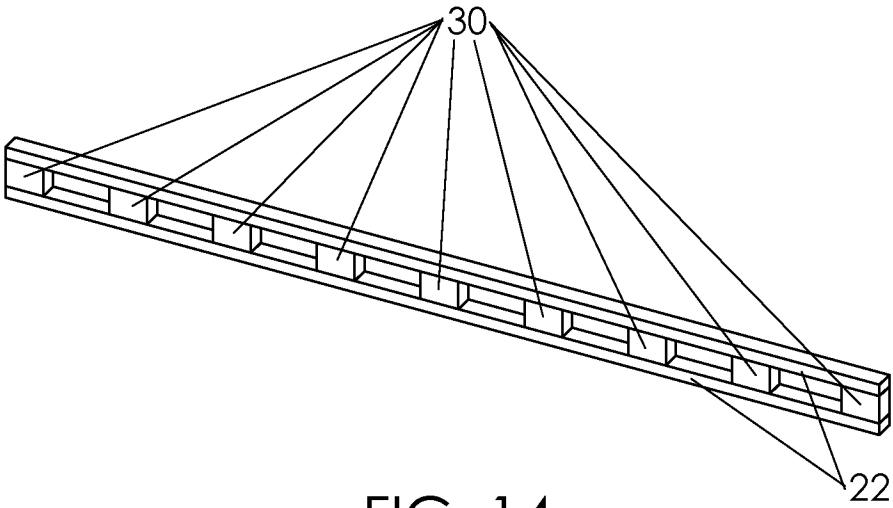


FIG. 14

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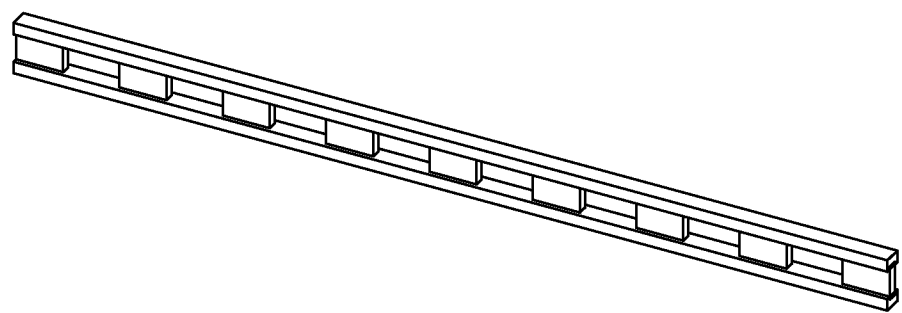


FIG. 15A

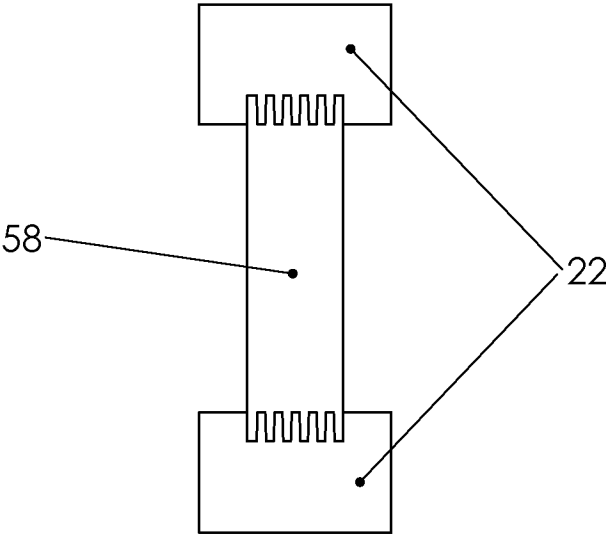


FIG. 15B

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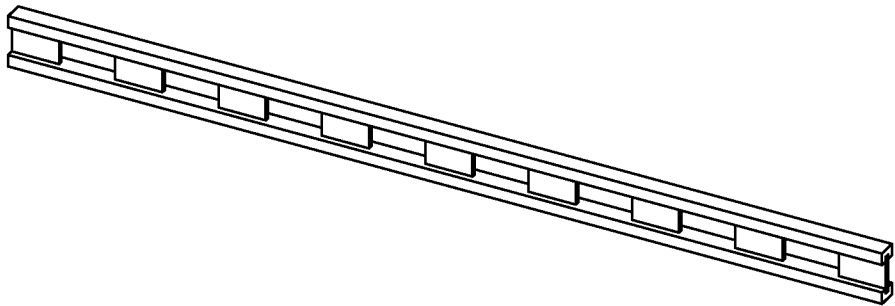


FIG. 16A

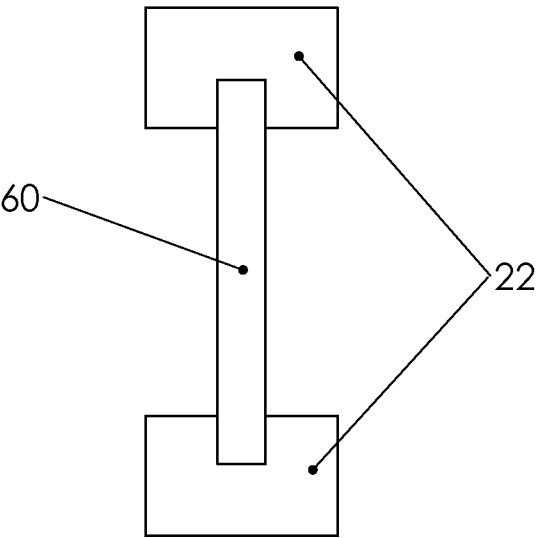


FIG. 16B

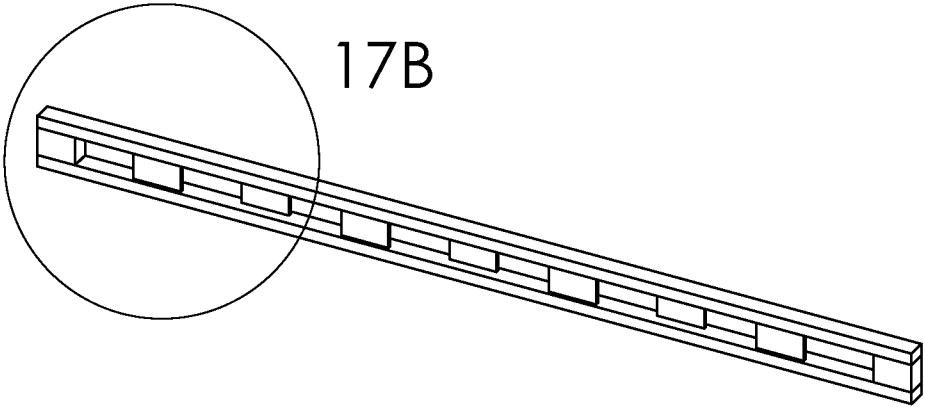


FIG. 17A

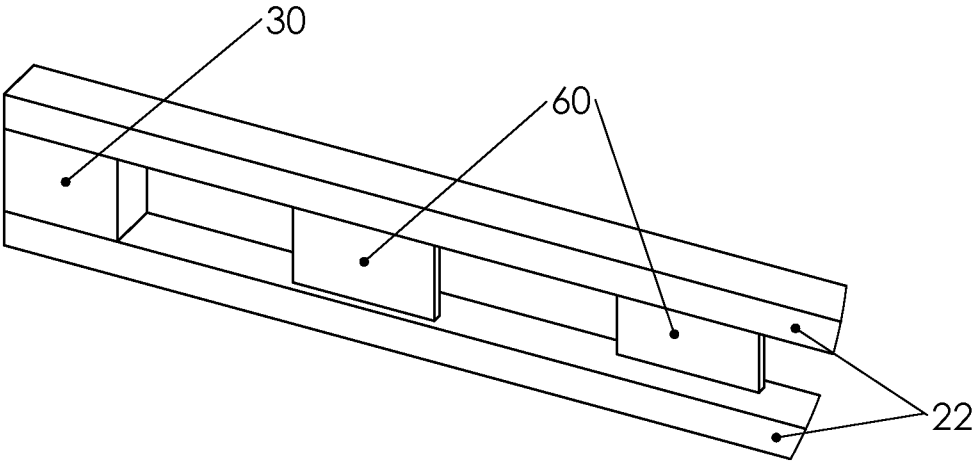


FIG. 17B