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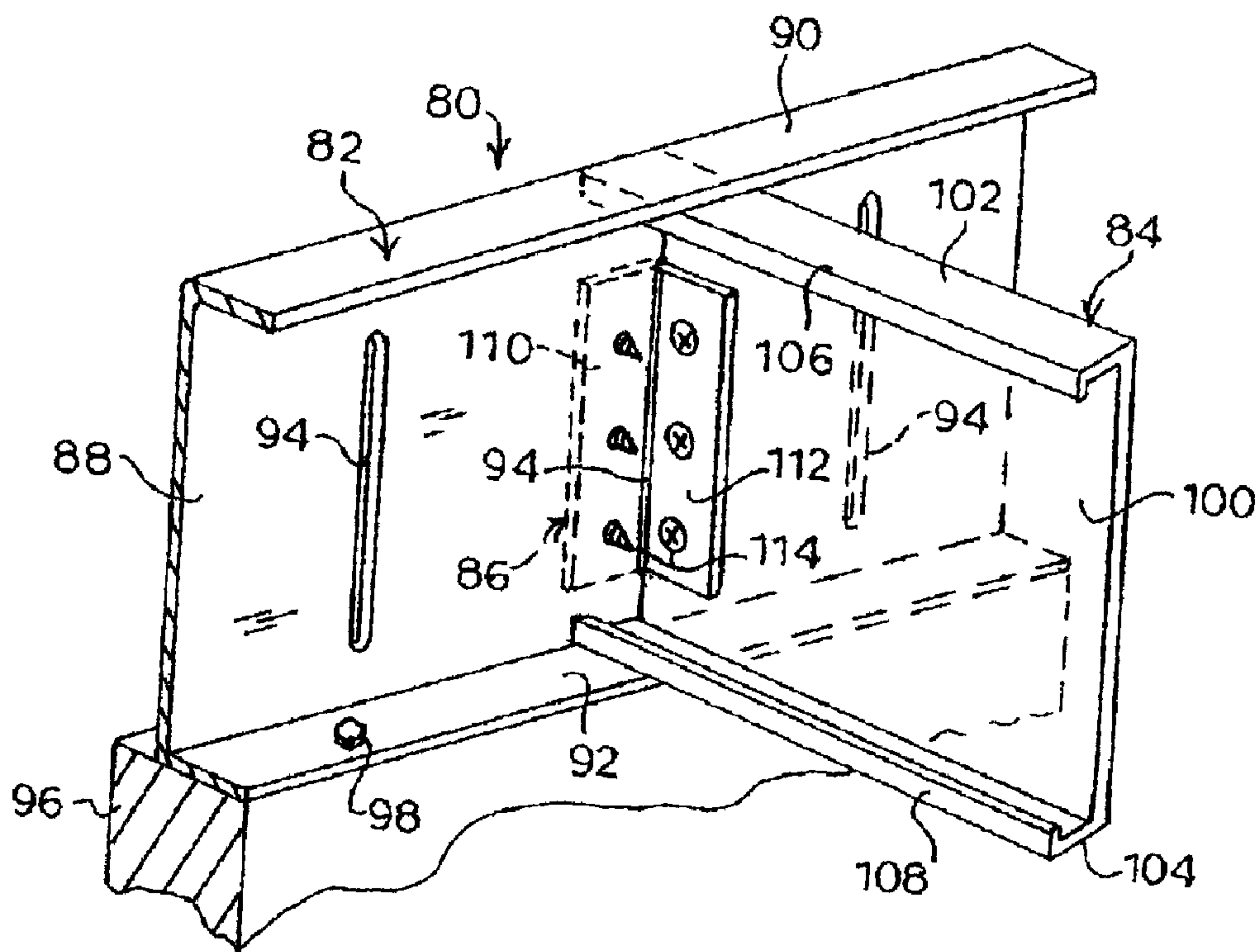
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(54) Title: JOIST SUPPORT



(57) Abrégé/Abstract:

A structural member for supporting joists to be attached to the member. The structural member may be in the form of a rim track member, may be cold-formed light gauge steel, and includes a web. The rim track member includes longitudinally spaced, vertical slots through the web. Elongated mounting members, such as clips, are inserted through the slots and are attached to the rim track member and a corresponding joist such that the joist is mounted to the rim track member. One arm of the clip is fastened to the back side of the rim track member, and the other arm of the clip is fastened to the joist. A floor support system may include rim track members supported by walls, joists spanning between the rim track members, and elongated mounting members. The slots in the rim track members may be spaced in conformance with standard construction industry practice.

JOIST SUPPORT

ABSTRACT

A structural member for supporting joists to be attached to the member. The structural member may be in the form of a rim track member, may be cold-formed light gauge steel, and includes a web. The rim track member includes
5 longitudinally spaced, vertical slots through the web. Elongated mounting members, such as clips, are inserted through the slots and are attached to the rim track member and a corresponding joist such that the joist is mounted to the rim track member. One arm of the clip is fastened to the back side of the rim
10 track member, and the other arm of the clip is fastened to the joist. A floor support system may include rim track members supported by walls, joists spanning between the rim track members, and elongated mounting members. The slots in the rim track members may be spaced in conformance with standard construction industry practice.

JOIST SUPPORT

BACKGROUND

The present invention relates to the field of structural members, and more particularly concerns joist support members, including but not limited to those referred to as rim tracks for use in metal floor support systems.

Traditional floor systems are made of wood. There is generally a member, referred to as a rim board, which is positioned on top of a wall around the perimeter of a room or at desired locations of floor support in a building. Joists bear on the wall, span between the rim boards, and are fastened to the rim boards at spaced intervals. The joist spacing is usually consistent, such as 12 inches, 16 inches, or 24 inches. Fastening is most often done with nails, preferably from the opposite side of the rim board, but if the opposite side of the rim board is not accessible, toe nailing the joist to the rim board is necessary. Alternatively, a joist hanger, for which there are numerous designs, may be used to attach the joist to the rim board, but this adds expense to the installation.

As an alternative to wood framing and floor systems, cold-formed light gauge steel has relatively recently come into use. Such steel floor systems include a member that is referred to as a rim track and performs the function of a wood rim board. Often the rim track is a C-shaped member, though the cross-sectional shape may vary. Joists, which also may vary in shape but are most commonly also C-shaped in cross-section, span between rim tracks and are fastened to the rim tracks at spaced intervals. Though the structural characteristics of the steel members may be varied as desired based on specification of the shape, thickness, and grade of steel, to conform to traditional construction standards and practice the spacing is usually the same as is used for wood.

The exact design of the rim tracks and joists may vary; for example, there may be penetrations through both to allow passage of utility lines, there may embossed portions for reinforcing, or there may be integral features of the rim track that allow fastening of the joist to the rim track. With the exception of rim tracks including integral features for fastening joists, such as spaced tabs, conventional wood rim boards and steel rim tracks require measurement and marking of the spacing on the component to allow correct placement of the joists. Conventional rim tracks and joists may be fastened using clips, or L-shaped angle members. Associated measurement and marking along the rim track must be done with care at significant expense for the labor involved in constructing the system. Rim tracks with integral tabs require special tooling and care in forming the tabs and bending them to the desired angle. They also require more space to ship than rim tracks with a completely planar web, are generally more difficult to ship, and require care to avoid undesired bending of tabs.

Accordingly, there exists a need for a rim track that facilitates installation of joists and is relatively simple to fabricate. Ideally the rim track will have characteristics that do not require particularly complex roll forming, punching, and bending equipment, and that provide for efficient shipping.

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SUMMARY

In accordance with an embodiment of the present invention, a structural member for supporting joists is provided. The structural member includes a web having a central longitudinal axis and a substantially planar profile. The structural member includes a plurality of longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web. The edges of the web that define the slots extend no more than 1/2 inch from the planar profile of the web, and may be substantially flush with the planar profile of the web.

In accordance with another embodiment of the present invention, another structural member for supporting joists is provided. The structural member includes a web having a central longitudinal axis. There is a plurality of longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web. The web is substantially free of joist attachment tabs, and may be substantially free of any type of tabs.

In accordance with another embodiment of the present invention, a floor support system is provided. The floor support system includes a plurality of joists, a rim track member, and elongated mounting members. The rim track member includes a web having a central longitudinal axis and includes longitudinally spaced slots through the web that are substantially perpendicular to the longitudinal axis of the web. The elongated mounting members are for mounting the joists to the rim track member. Each mounting member includes a first arm and a second arm separated by an interior angle, and each arm has an interior face and an exterior face. The first arm extends through a corresponding slot and is fastened to an end of a joist. The second arm is fastened to the rim track member web, and the second arm interior face abuts the rim track member web.

In accordance with another embodiment of the present invention, a floor support system is provided. The floor support system includes a plurality of joists, a rim track member, and means for mounting the joists to the rim track member. The rim track member includes a web having a central longitudinal axis and includes longitudinally spaced slots through the web that are substantially perpendicular to the longitudinal axis of the web. Each means for mounting extends through a corresponding slot and is fastened to an end of a joist.

In accordance with another embodiment of the present invention, a floor support system is provided, including a first wall with a top surface, a second

5 wall spaced from the first wall and also with a top surface, a first rim track member, a second rim track member, a plurality of joists, and elongated mounting members. The first and second rim track members each include a web having a central longitudinal axis and include longitudinally spaced slots through the web. The slots are substantially perpendicular to the longitudinal axis of the web. The slots in the second rim track member are substantially aligned with the slots in the first rim track member. The plurality of joists has two ends and extends between the substantially aligned slots in the first and second rim track members. The elongated mounting members are for mounting the joists to each rim track member. Each mounting member includes a first arm and a second arm separated by an interior angle, and each arm has an interior face and an exterior face. The first arm extends through a corresponding slot and is fastened to an end of one of the plurality of joists. The second arm is fastened to the rim track member web, and the second arm interior face abuts the rim track member web.

20 In accordance with another embodiment of the present invention, a method of making a joist support member includes providing a structural member including a web having a central longitudinal axis and a substantially planar profile. A plurality of longitudinally spaced slots is formed through the web. The slots are substantially perpendicular to the longitudinal axis of the web. The edges of the web that define the slots extend no more than 1/2 inch from the planar profile of the web, and may be substantially flush with the planar profile of the web.

25 In accordance with another embodiment of the present invention, a method of assembling a joist support apparatus is provided. A joist support member is provided that includes a web having a central longitudinal axis and a substantially planar profile. The joist support member further includes a plurality of longitudinally spaced slots through the web, with the slots substantially perpendicular to the longitudinal axis of the web. An elongated

mounting member is provided, including a first arm and a second arm separated by an interior angle. Each arm has an interior face and an exterior face. One arm is inserted through a corresponding slot, and one arm is fastened to the joist support member web such that the interior face of the arm being fastened abuts the joist support member web.

In accordance with another embodiment of the present invention, a method of assembling a joist support system is provided. A joist support member is provided that includes a web having a central longitudinal axis and a substantially planar profile, and a plurality of longitudinally spaced slots through the web. The slots are substantially perpendicular to the longitudinal axis of the web. A joist and an elongated mounting member are provided. The elongated mounting member includes a first arm and a second arm separated by an interior angle. Each arm has an interior face and an exterior face. One arm is inserted through a corresponding slot. One arm is fastened to the joist support member web such that the interior face of the arm being fastened abuts the joist support member web. The remaining arm is fastened to an end of a joist.

In accordance with another embodiment of the present invention, a method of constructing a floor system is provided. The method includes constructing spaced apart first and second walls each having a top surface. A first rim track member is disposed on the top surface of the first wall and a second rim track member is disposed on the top surface of the second wall. The first and second rim track members each include a web having a central longitudinal axis and including longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web. The rim track members are positioned such that corresponding slots are substantially aligned. First and second elongated mounting members are provided, each including a first arm and a second arm separated by an interior angle. An arm of the first elongated mounting member is inserted into a slot in the first rim track member, and an arm of the first elongated mounting member is fastened to the first rim

track web. An arm of the second elongated mounting member is inserted into a slot in the second rim track member. This slot is substantially aligned with the slot in the first rim track member in which the first elongated mounting member is disposed. An arm of the second elongated mounting member is fastened to
5 the second rim track web. A joist, having first and second ends, is positioned such that the joist extends between the first and second elongated mounting members. The first end of the joist is fastened to an arm of the first elongated mounting member, and the second end of the joist is fastened to an arm of the second elongated mounting member.

10 Features and advantages of the present invention will become more apparent in light of the following detailed description of some embodiments thereof, as illustrated in the accompanying figures. As will be realized, the invention is capable of modifications in various respects, all without departing from the invention. Accordingly, the drawings and the description are to be
15 regarded as illustrative in nature, and not as restrictive.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1 and 2 are perspective views of prior art rim track and joist connections.

FIG. 3 is a perspective view of a rim track and joist connection in
20 accordance with an embodiment of the present invention.

FIGS. 4 and 5 are perspective views of rim track and connection member assembly methods of the rim track and joist of FIG. 3 in accordance with embodiments of the present invention.

FIG. 6 is a perspective view of a floor support system including the rim
25 track and joist connection of FIG. 3.

FIG. 7 is a perspective view of a member for use in the rim track and connection member assembly of FIG. 3 in accordance with an embodiment of the present invention.

DESCRIPTION

5 In the Figures herein, unique features receive unique reference numerals, while features that are the same in more than one drawing receive the same reference numerals throughout. Further, certain terms of orientation may be used, such as "front," "back," "interior," "top," "bottom," "left," "right," "vertical," and "horizontal." These terms are generally for convenience of
10 reference, and should be so understood unless a particular embodiment requires otherwise.

The scope of the invention is not intended to be limited by materials listed herein, but may be carried out using any materials that allow construction and operation. Materials and dimensions depend on the particular application.
15 In general the materials of the components may be metal, and in particular may include cold-formed light gauge steel, which may or may not include a surface treatment such as galvanizing. All dimensions discussed herein are by way of example.

The present invention will be described in terms of specific, example
20 embodiments. It is to be understood that the invention is not limited to the example embodiments disclosed. It should also be understood that not every feature of the devices or methods described are necessary to implement the invention as claimed in any particular one of the appended claims. Various elements, steps, processes, and features of various embodiments of devices
25 and processes are described in order to fully enable the invention. It should also be understood that throughout this disclosure, where a process or method is shown or described, the steps of the method may be performed in any order

or simultaneously, unless it is clear from the context that one step depends on another being performed first.

Referring now to the drawings, a prior art rim track and joist assembly 20 is shown in FIG. 1. The assembly 20 includes a rim track 22, a joist 24, and a clip 26 that is used to mount the joist 24 to the rim track 22. The rim track 22 is C-shaped and includes a central web 28, an upper leg 30 that extends perpendicularly from the top edge of the web 28, and a lower leg 32 that extends perpendicularly from the bottom edge of the web 28 in the same direction as the upper leg 30. In general there are not penetrations through the web 28 other than for fasteners. The rim track 22 rests on top of a wall 34, and may be fastened to the wall 34 periodically with fasteners 36, such as screws or other anchors, through the lower leg 32. The wall 34 may be, for example, block, concrete, or steel or wood framing.

The joist 24 is also C-shaped and includes a central web 38, an upper leg 40 that extends perpendicularly from the top edge of the web 38, and a lower leg 42 that extends perpendicularly from the bottom edge of the web 38 in the same direction as the upper leg 40. The joist 24 is mounted to the rim track 22 with the clip 26, which is an elongated mounting member that is an L-shaped angle (bent at 90 degrees) with two arms 44, 46 and an interior angle between the two arms 44, 46. One arm 44 of the clip 26 is fastened to the front side of the web 28 of the rim track 22 and the other arm 46 of the clip 26 is fastened to the back side of the joist web 38. When reference is made herein to the front side of the rim track, joist, or their respective webs, it should be understood that the front side is the side towards which the legs extend. Conversely, when reference is made herein to the back side of the rim track, joist, or their respective webs, it should be understood that the back side is the side away from which the legs extend. As alternatives to the configuration shown in FIG. 1, the arm 46 attached to the joist 24 could be attached to the back side of the joist web 38 with the joist legs 40, 42 extending in the opposite direction from

that shown, to the front side of the joist web 38 with the joist 24 in the orientation shown, or to the front side of the joist web 38 with the joist legs 40, 42 extending in the opposite direction from that shown. For ease of installation the bottom edge of the clip 26 may rest on the rim track bottom leg 32 or the
 5 joist bottom leg 42. Fasteners 48 such as screws or other anchors may be used to fasten the joist 24 to the rim track 22 via the clip 26.

Another prior art rim track and joist assembly 50 is shown in FIG. 2. The assembly 50 includes a rim track 52 and a joist 54 mounted to the rim track 52. The rim track 52 is C-shaped and includes a central web 58, an upper leg 60
 10 that extends perpendicularly from the top edge of the web 58, and a lower leg 62 that extends perpendicularly from the bottom edge of the web 58 in the same direction as the upper leg 60. There are openings 63 made through the web 58 to form tabs 64, which are integral with the web 58 and are bent at a 90 degree angle to the web 58. Uses for such integral tabs 64 may include joist
 15 attachment. Integral joist attachment tabs 64 may include holes 66 for fasteners 68. Rib stiffeners 69 are provided. The rim track 52 rests on top of a wall 70, and may be fastened to the wall 70 periodically with fasteners 72, such as screws or other anchors, through the lower leg 62. The wall 70 may be, for example, block, concrete, or steel or wood framing.

20 The joist 54 is also C-shaped and includes a central web 74, an upper leg 76 that extends perpendicularly from the top edge of the web 74, and a lower leg 78 that extends perpendicularly from the bottom edge of the web 74 in the same direction as the upper leg 76. The joist 54 is mounted to the rim track 52 with the integral joist attachment tab 64. The integral joist attachment tab 64
 25 is shown to be attached to the back side of the joist 54. Other similarly formed tabs, not used for joist attachment, could be provided.

FIG. 3 shows a rim track and joist assembly 80 in accordance with an embodiment of the present invention. The assembly 80 includes a rim track 82,

a joist 84, and a clip 86 that is used to mount the joist 84 to the rim track 82. The rim track 82 is C-shaped and includes a central web 88, an upper leg 90 that extends perpendicularly from the top edge of the web 88, and a lower leg 92 that extends perpendicularly from the bottom edge of the web 88 in the same direction as the upper leg 90. There are longitudinally spaced, vertical slots 94 in the web 88. The rim track 82 rests on top of a wall 96, and may be fastened to the wall 96 periodically with fasteners 98 through the lower leg 92.

The joist 84 is also C-shaped and includes a central web 100, an upper leg 102 that extends perpendicularly from the top edge of the web 100, and a lower leg 104 that extends perpendicularly from the bottom edge of the web 100 in the same direction as the upper leg 102. The joist shown has a vertical lip 106, 108 running along each leg 102, 104, and generally has a closed web 100, except where there may be penetrations. Instead of the closed-web joist 84 as shown, a joist that is an open web truss could be provided, so long as it has a solid end piece to allow attachment to the clip 86. The joist 84 is mounted to the rim track 82 with the clip 86, which has two arms 110, 112. One arm 110 of the clip 86 is fastened to the back side of the web 88 of the rim track 82, and the other arm 112 of the clip 86 extends through the slot 94 and is fastened to the front side of the joist web 100. Alternatively, the arm 112 attached to the joist 84 could be attached to the front side of the web 100 with the joist legs 102, 104 extending in the opposite direction from that shown, to the back side of the joist web 100 with the joist 84 in the orientation shown, or to the back side of the web 100 with the joist legs 102, 104 extending in the opposite direction from that shown. The interior face of the arm 110 that is attached to the rim track web 88, which is the face of the clip 86 proximate to the interior angle formed by the two arms 110, 112, abuts the back side of the rim track web 88.

As a further alternative configuration, joists 84 could be attached to the backside of the rim track web 88. Such a configuration would equate to the

assembly of FIG. 3, for example, with the top web 90 and bottom web 92 extending in the opposite direction from that shown.

Fastening of clips 86 to the rim track 82 and joists 84 may be done with fasteners 114 such as screws, which may be self-tapping, bolts, pneumatic
 5 pins, or other means known to one of ordinary skill in the art. The clips may be pre-punched or pre-drilled if necessary or desired based on the anchor type. Pneumatic pins may expedite installation and assembly time, and specific pins may be selected by one of ordinary skill in the art. Pneumatic pins generally have a pointed end, a head, and a knurled shaft with spiral grooves. The force
 10 delivered by a pneumatic tool causes the pin to penetrate the steel, and the steel is forced outward to create a hole. The steel contracts around the pin, which is held in place by the grooves. Although three fasteners 114 are shown in FIG. 3, the number may vary depending on the design and application as determined by one of ordinary skill in the art.

15 The vertical slots 94 in the rim track 82 may be, in one embodiment, longitudinally spaced along the rim track 82 at 8-inch intervals. This allows joist attachments at 8, 16, and 24-inch intervals (or other multiples of 8 inches) in accordance with conventional practice. No marking of the spacing and location for the clips 86 is required, as the slots 94 automatically locate the joists 84.
 20 The following dimensions and gauges are all exemplary and may vary with the design and as selected by one of ordinary skill in the art. Dimensions of the slots 94 may be, for example, about 8 inches in height and 1/4 inch in width, centered on a 16 gauge (0.0635 inches) thick rim track 82 with a 12-1/4 inch depth. The legs 60, 62 of the rim track 82 may extend 1-1/4 inches from the
 25 web 88. The joist 84 may be 16 gauge, have a 12 inch depth, have legs 102, 104 that extend 1-5/8 inch from the joist web 100, and have 1/2 inch lips 106, 108. The clips 86 may also be 16 gauge, may have a length of about 8 inches, and may have arms 110, 112 that are 2-1/2 inches.

The slots 94 may be punched in the rim track web 88. While there may be some deformed material around the edge of the slot 94, in general and depending on the equipment used it may be expected that this deformed material will protrude no more than about 1/2 inch from the web 88, and there may be no detectable deformation at all or the deformation may not be readily ascertainable to the eye. Accordingly, the edges of the slots 94 may be substantially flush with the planar profile of the rim track web 88. To allow the clips 86 to be flush with the back of the rim track web 88, the slots 94 may be punched from the back side to the front side to cause the deformation to be on the front side of the rim track web 88. The centered position of the slots 94 on the rim track web 88 allows for ease of centering the clips 86; in the conventional installation of FIG. 1, the clip 86 may rest on the top surface of the rim track bottom leg 92, and centering the clip 86 on the web 88 would require additional effort.

FIG. 4 shows a portion of a rim track embodiment in accordance with the present invention. When the back of the rim track 82 is accessible, the arm 112 of the clip 86 that will be connected to the joist 84 may be inserted directly through the slot 94. FIG. 5 shows one way to insert the clip 86 when the back of the rim track 82 is not accessible. The arm 110 of the clip 86 that will be attached to the rim track 82 is inserted through the slot 94, and then the clip 86 is rotated so that that arm 110 abuts the back side of the rim track web 88. Alternatively, the clip 86 may be inserted in advance of placement of the rim track 82 such that the back of the rim track 82 is accessible for installation of the clip 86.

FIG. 6 shows a floor 140 and floor support system 142. The system 142 includes two rim tracks 82 supported by two walls 96. Although the walls 96 are shown as solid, they may be a variety of types as previously discussed. Joists 84 span between the rim tracks 82 and are mounted to the rim tracks 82 at each end with clips 86. The clips 86 in this embodiment are angles and extend

through the vertical slots 94 in the rim tracks 82. Each clip 86 has one arm 110 fastened to the back of the rim track web 88 and the other arm 112 fastened to the front of the joist web 100, as in FIG. 2, with fasteners 78. Also as previously discussed, the orientation of the joist 84 and the side of attachment of the clip
5 86 relative to the joist 84 may vary as determined by one of ordinary skill in the art. The joists 84 may include large penetrations 144 for elements such as ductwork and plumbing, and smaller penetrations 146 for elements such as electrical conduit and wiring. Small holes (not shown) may be provided to accommodate wire brackets for holding insulation in place. Blocking members
10 148 may be provided between the joists 84 for lateral stability.

Instead of being a C-shaped joist 84, the joist could be Z-shaped or a tube (a hollow rectangular section). In addition, rather than being L-shaped, the clips could be T-shaped. As shown in FIG. 7, with a T-shaped clip 150 there would be three arms 152, 154, 156 with two arms 152, 154 extending 180
15 degrees from each other and the third arm 156 at a 90 degree angle to each of the other arms 152, 154. The linearly aligned arms 152, 154 would be fastened to the back of the rim track 82. If desired to accommodate other angular alignments of rim tracks and joist, the angles of either two-armed or three-armed clips could vary from 90 degrees.

20 Specific embodiments of an invention are described herein. One of ordinary skill in the art of structural building design will recognize that the invention has other applications in other environments. In fact, many embodiments and implementations are possible. For example, the present invention could be applied to different structural members, other than for
25 support of loads other than building floors, and for materials other than steel. In addition, the recitation "means for" is intended to evoke a means-plus-function reading of an element in a claim, whereas, any elements that do not specifically use the recitation "means for," are not intended to be read as means-plus-function elements, even if they otherwise include the word "means." The

following claims are in no way intended to limit the scope of the invention to the specific embodiments described.

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE
PROPERTY OR PRIVILEGE IS CLAIMS ARE DEFINED AS FOLLOWS:**

1. A structural member for supporting joists, comprising:
 - a web having a central longitudinal axis and a substantially planar
5 profile; and
 - a plurality of longitudinally spaced slots through the web
substantially perpendicular to the longitudinal axis of the web,
wherein the edges of the web that define the slots extend no more than 1/2 inch
from the planar profile of the web.
- 10 2. The structural member of claim 1, wherein the edges of the web that
define the slots are substantially flush with the planar profile of the web.
3. The structural member of claim 1, wherein the slots are adapted to
receive elongated mounting members for attaching the ends of joists to the
web.
- 15 4. The structural member of claim 1, wherein the plurality of slots are
longitudinally spaced at approximately consistent intervals.
5. The structural member of claim 1, wherein the width of the slots is less
than or equal to about 1/2 inch.
6. The structural member of claim 1, wherein the width of the slots is less
20 than or equal to about 1/4 inch.
7. The structural member of claim 1, wherein the width of the slots is no
more than about 1/4 inch greater than the thickness of the mounting members.

8. The structural member of claim 1, further comprising an upper leg and a bottom leg integrally formed with the web and extending in the same direction substantially perpendicular from the web.
9. A structural member, comprising:
- 5 a web having a central longitudinal axis; and
a plurality of longitudinally spaced slots through the web
substantially perpendicular to the longitudinal axis of the web,
wherein the web is substantially free of joist attachment tabs.
10. The structural member of claim 9, wherein the web is substantially free of tabs.
11. The structural member of claim 9, wherein the slots are adapted to receive the elongated mounting members for attaching the ends of joists to the web.
12. The structural member of claim 9, wherein the plurality of slots are
15 longitudinally spaced at approximately consistent intervals.
13. The structural member of claim 9, wherein the width of the slots is equal to or less than about 1/2 inch.
14. The structural member of claim 9, wherein the width of the slots is equal to or less than about 1/4 inch.
- 20 15. The structural member of claim 9, wherein the width of the slots is no more than about 1/4 inch greater than the thickness of the mounting members.
16. The structural member of claim 9, further comprising an upper leg and a bottom leg integrally formed with the web and extending in the same direction substantially perpendicular from the web.

17. A floor support system comprising:
a plurality of joists;
a rim track member including a web having a central longitudinal axis and including longitudinally spaced slots through the web
5 substantially perpendicular to the longitudinal axis of the web; and
elongated mounting members for mounting the joists to the rim track member, each mounting member including a first arm and a second arm separated by an interior angle, wherein each arm has an interior face and an exterior face, the first arm extends through a
10 corresponding slot and is fastened to an end of a joist, the second arm is fastened to the rim track member web, and the second arm interior face abuts the rim track member web.
18. The floor support system of claim 17, wherein the plurality of slots are longitudinally spaced at approximately consistent intervals.
- 15 19. The floor support system of claim 17, wherein the rim track member is includes an upper leg and a bottom leg integrally formed with the web and extending in the same direction substantially perpendicular from the web.
20. The floor support system of claim 17, wherein the web is substantially free of tabs.
- 20 21. The floor support system of claim 17, wherein the web is substantially free of joist attachment tabs.
22. The floor support system of claim 17, wherein the mounting member is an angle.
23. The floor support system of Claim 17, wherein the mounting member is
25 an angle with an interior angle of approximately 90 degrees.

24. The floor support system of claim 17, wherein the mounting member is T-shaped and further comprises a third arm at a 180 degree angle relative to the second arm.

25. A floor support system comprising:

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a plurality of joists;

a rim track member including a web having a central longitudinal axis and including longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web; and

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means for mounting the joists to the rim track member; wherein each means for mounting extends through a corresponding slot and is fastened to an end of a joist.

26. A floor support system comprising:

a first wall including a top surface;

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a second wall spaced from the first wall and including a top surface;

a first rim track member disposed on the top surface of the first wall and including a web having a central longitudinal axis and including longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web;

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a second rim track member disposed on the top surface of the second wall and including a web having a central longitudinal axis and including longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web and substantially aligned with the slots in the first rim track member;

25

a plurality of joists each having two ends and extending between the substantially aligned slots in the first and second rim track members; and

elongated mounting members for mounting the joists to each rim track member, each mounting member including a first arm and a

second arm separated by an interior angle, wherein each arm has an interior face and an exterior face, the first arm extends through a corresponding slot and is fastened to an end of one of the plurality of joists, the second arm is fastened to the rim track member web, and the
5 second arm interior face abuts the rim track member web.

27. A method of making a joist support member, comprising:

providing a structural member including a web having a central longitudinal axis and a substantially planar profile; and
forming a plurality of longitudinally spaced slots through the web
10 substantially perpendicular to the longitudinal axis of the web, wherein the edges of the web that define the slots extend no more than 1/2 inch from the planar profile of the web.

28. The method of making a joist support member of claim 27, wherein the plurality of longitudinally spaced slots are formed by punching.

15 29. The method of making a joist support member of claim 27, wherein the edges of the web that define the slots are substantially flush with the planar profile of the web.

30. A method of assembling a joist support apparatus, comprising:
providing a joist support member including a web having a central
20 longitudinal axis and a substantially planar profile, and including a plurality of longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web;
providing an elongated mounting member including a first arm and a second arm separated by an interior angle, wherein each arm has an
25 interior face and an exterior face;
inserting one arm through a corresponding slot; and

fastening one arm to the joist support member web such that the interior face of the arm being fastened abuts the joist support member web.

31. The joist support apparatus assembly method of claim 30, wherein the
5 arm inserted into the slot is the first arm, and the second arm is fastened to the joist support member web such that the second arm interior face abuts the joist support member web.

32. The joist support apparatus assembly method of claim 30, wherein the
arm inserted into the slot is the first arm, and the first arm is fastened to the joist
10 support member web such that the second arm interior face abuts the joist support member web.

33. The joist support assembly method of claim 32, further comprising rotating the elongated mounting member such that the first arm interior face abuts the joist support member web.

15 34. A method of assembling a joist support system, comprising:
providing a joist support member including a web having a central longitudinal axis and a substantially planar profile, and including a plurality of longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web;
20 providing a joist;
providing an elongated mounting member including a first arm and a second arm separated by an interior angle, wherein each arm has an interior face and an exterior face;
inserting one arm through a corresponding slot;
25 fastening one arm to the joist support member web such that the interior face of the arm being fastened abuts the joist support member web; and

fastening the remaining arm to an end of a joist.

35. The joist support system assembly method of claim 34, wherein the arm inserted into the slot is the first arm, and the second arm is fastened to the joist support member web such that the second arm interior face abuts the joist support member web.

36. The joist support system assembly method of claim 34, wherein the arm inserted into the slot is the first arm, and further comprising rotating the elongated mounting member such that the first arm interior face abuts the joist support member web, wherein the first arm is fastened to the joist support member web.

37. A method of constructing a floor system, comprising:
constructing a first wall including a top surface;
constructing a second wall spaced from the first wall and including a top surface;
disposing a first rim track member on the top surface of the first wall, the first rim track member including a web having a central longitudinal axis and including longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web;
disposing a second rim track member on the top surface of the second wall, the second rim track member including a web having a central longitudinal axis and including longitudinally spaced slots through the web substantially perpendicular to the longitudinal axis of the web;
positioning the first and second rim track members such that corresponding slots are substantially aligned;
providing first and second elongated mounting members, each including a first arm and a second arm separated by an interior angle;
inserting an arm of the first elongated mounting member into a slot in the first rim track member;

fastening an arm of the first elongated mounting member to the first rim track web;

5 inserting an arm of the second elongated mounting member into a slot in the second rim track member that is substantially aligned with the slot in the first rim track member in which the first elongated mounting member is disposed;

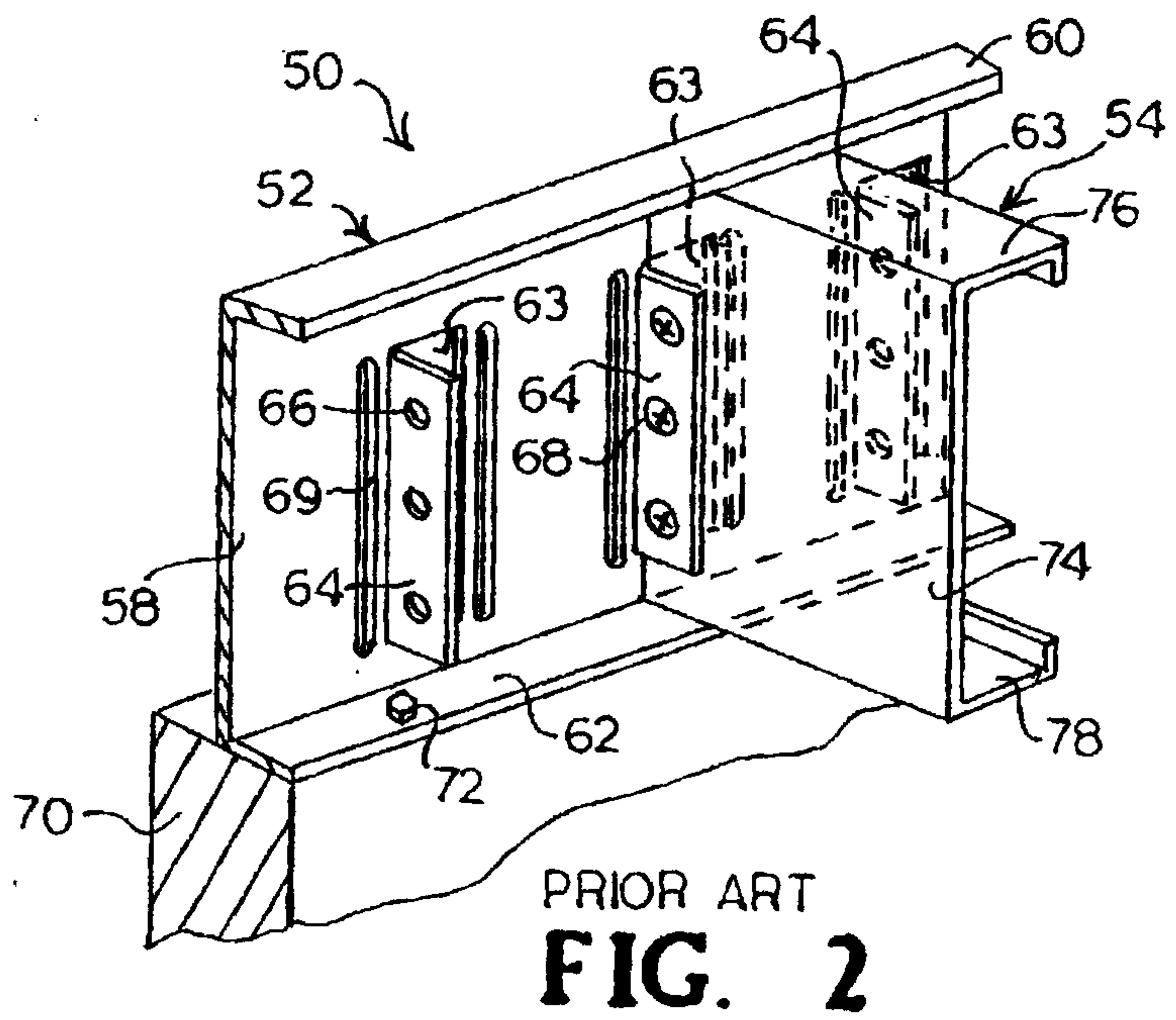
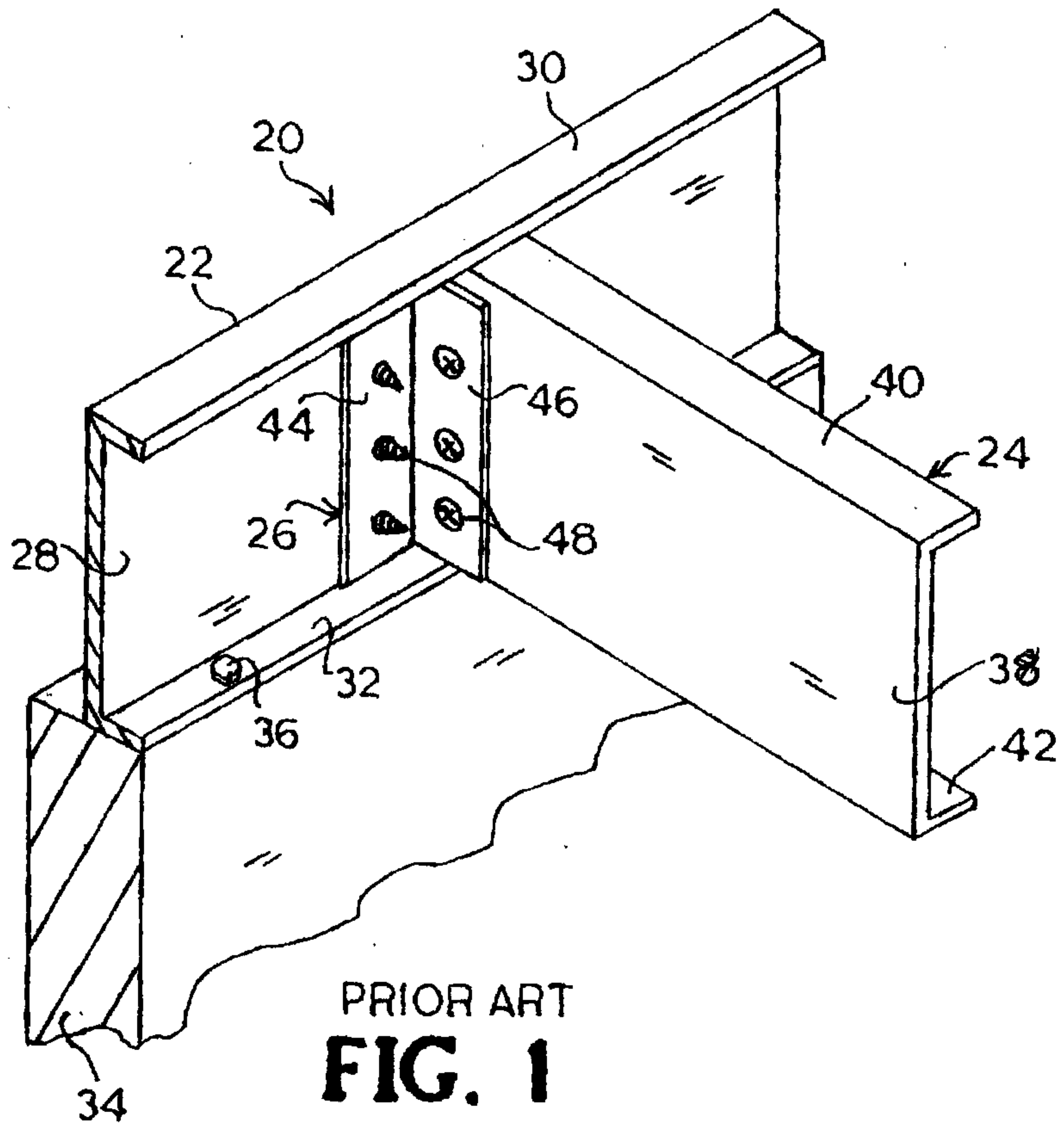
fastening an arm of the second elongated mounting member to the second rim track web;

10 positioning a joist, having first and second ends, such that the joist extends between the first and second elongated mounting members;

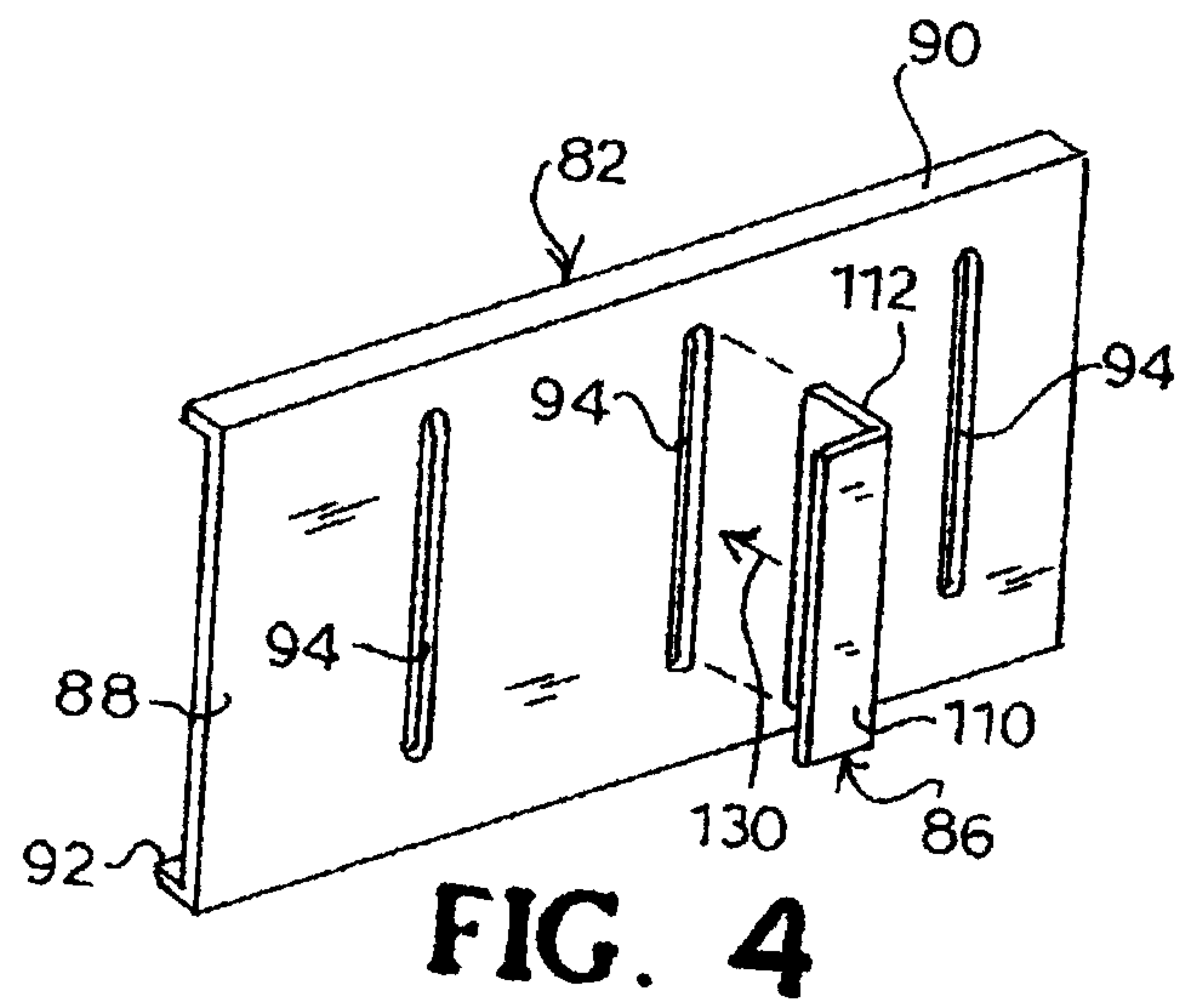
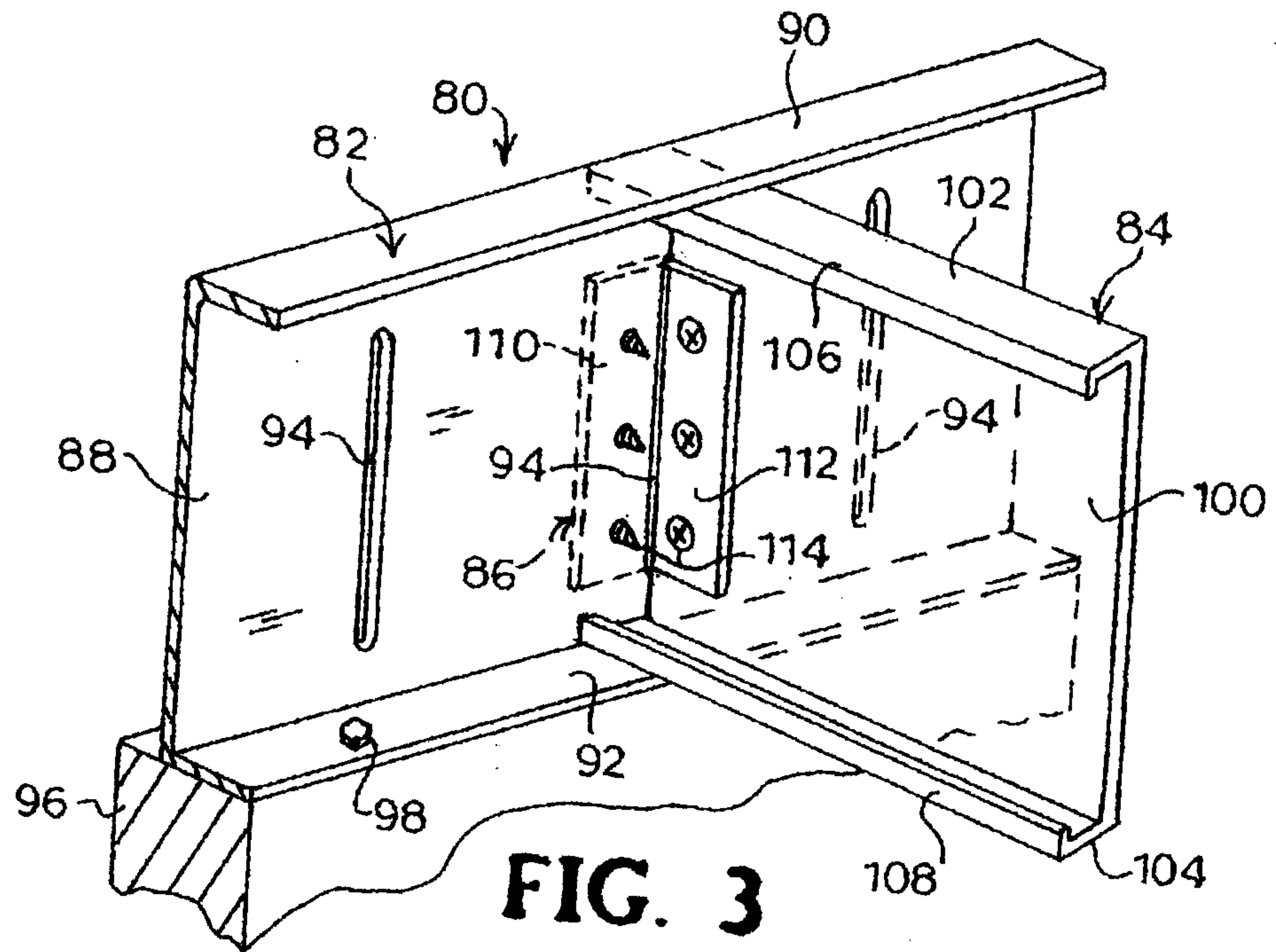
fastening the first end of the joist to an arm of the first elongated mounting member; and

fastening the second end of the joist to an arm of the second elongated mounting member.

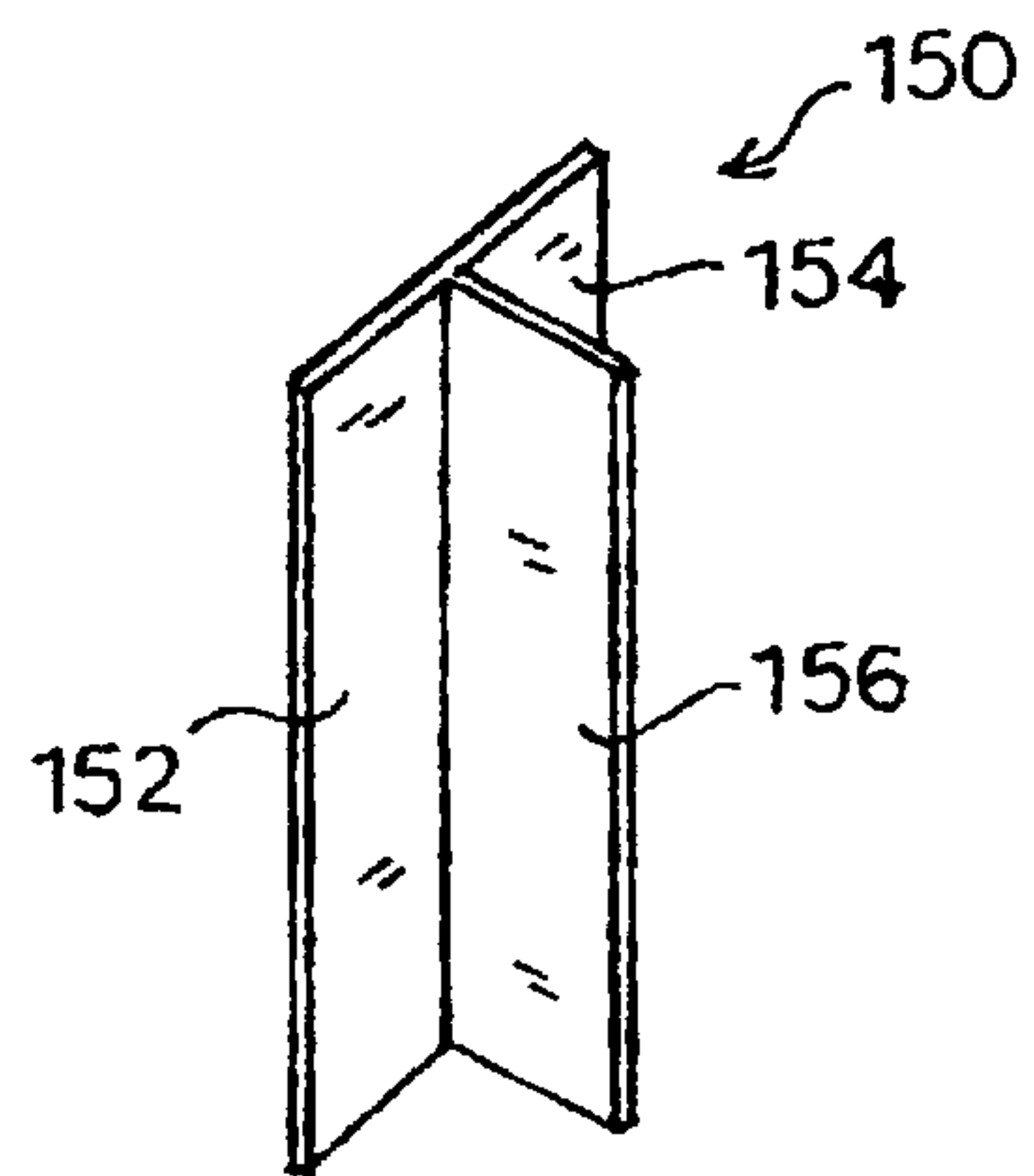
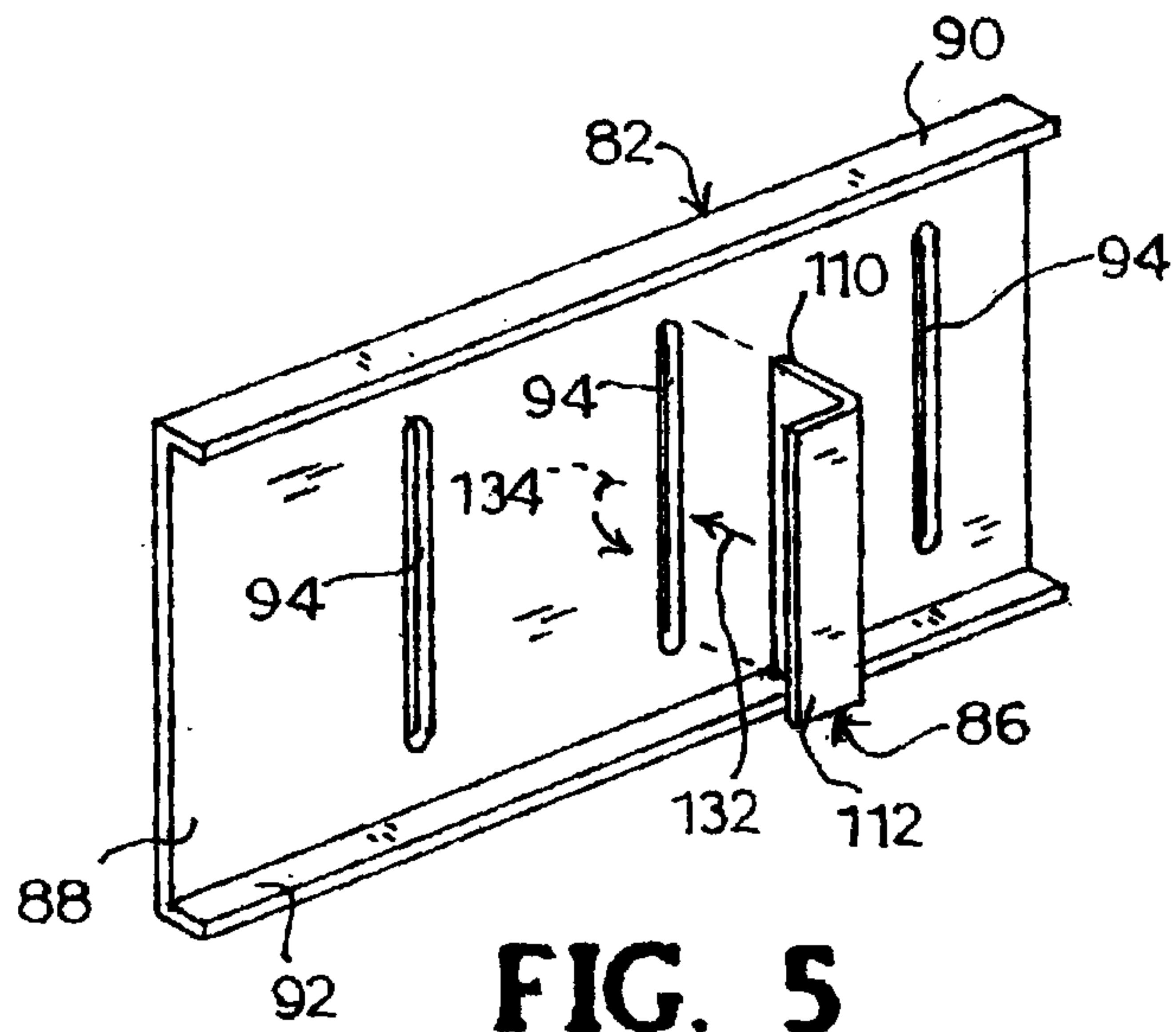
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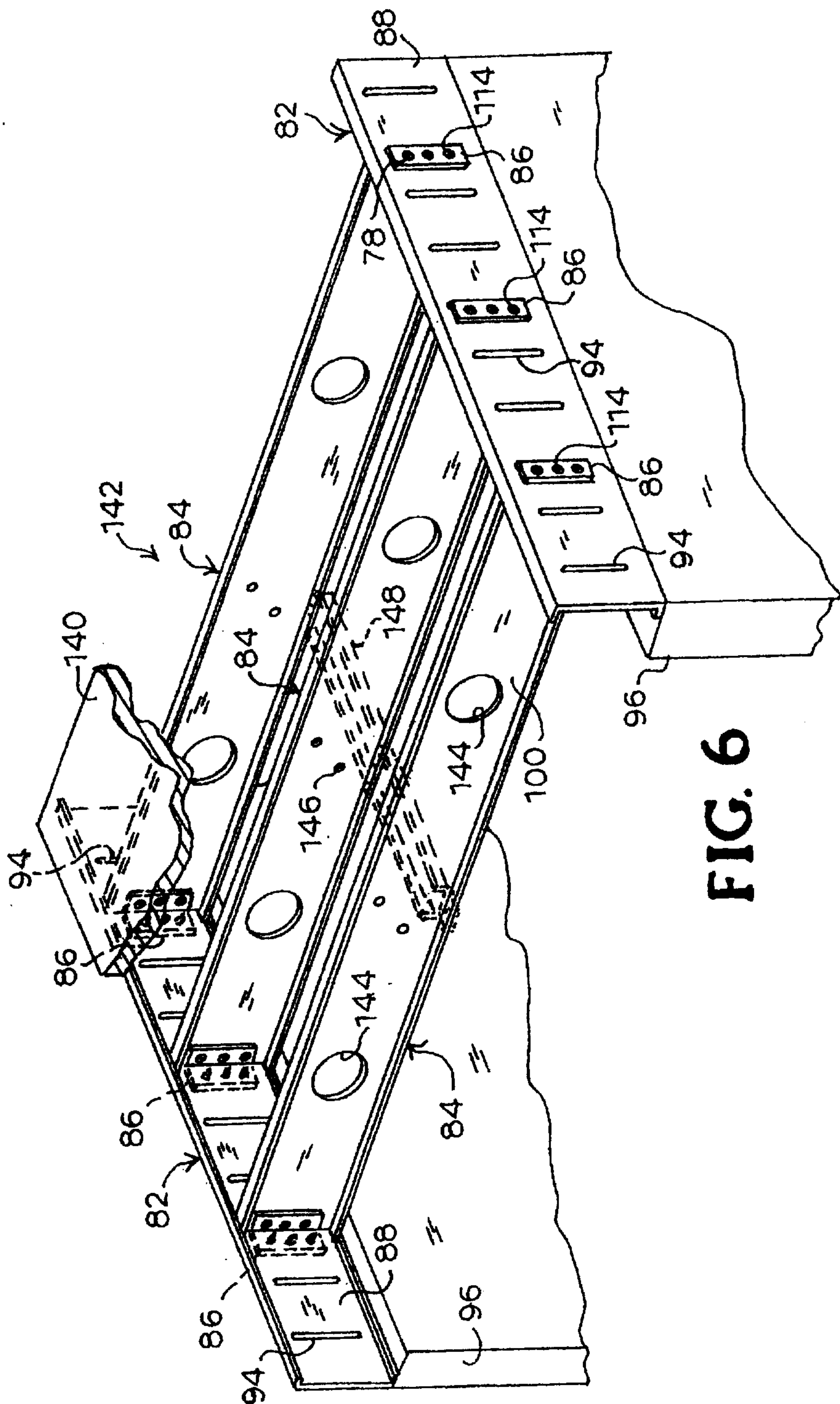


FIG. 6

