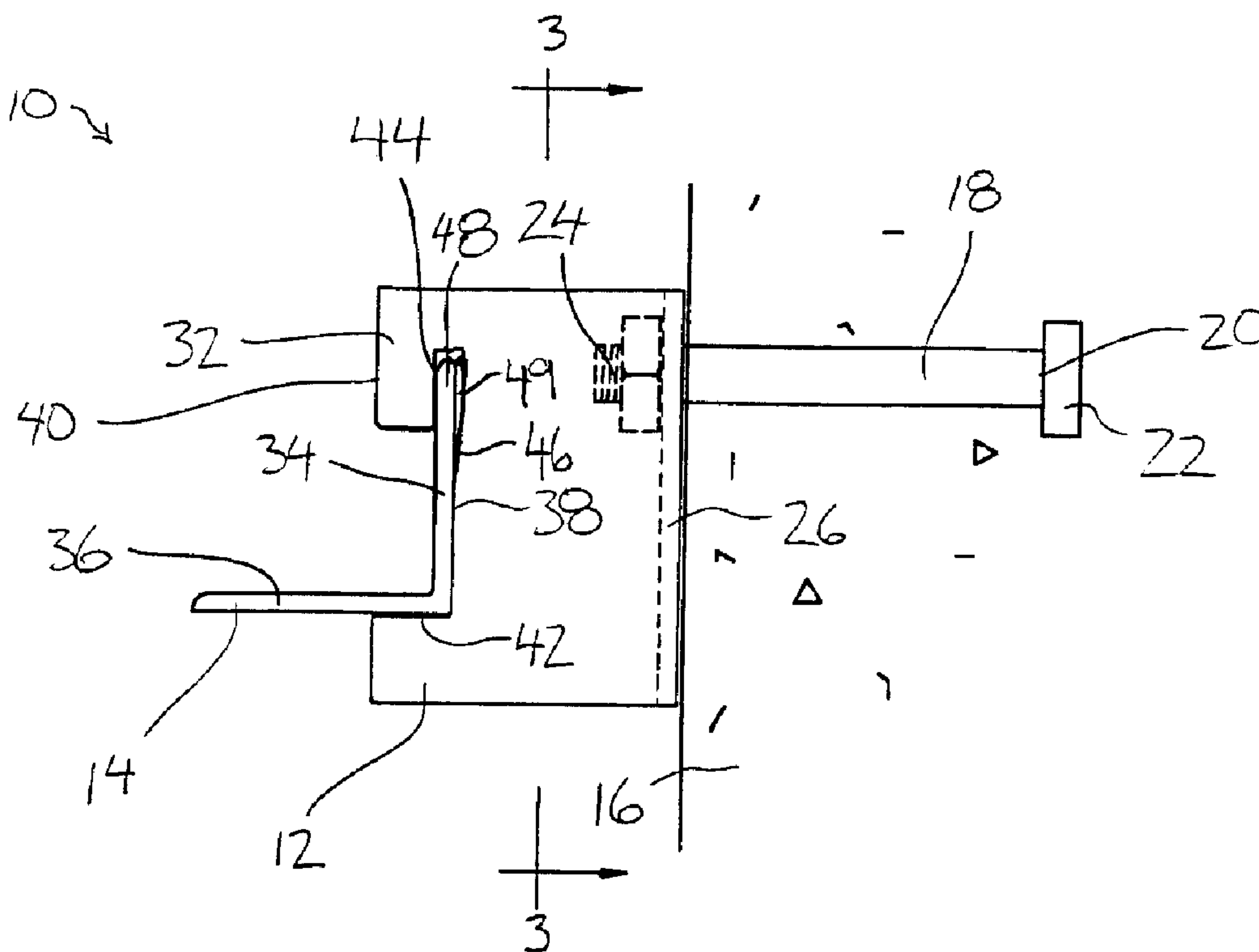




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(54) Titre : SYSTEME D'ANCRAGE DE BRIQUES
 (54) Title: BRICK ANCHOR SYSTEM



(57) Abrégé/Abstract:

An anchoring element for anchoring a conventional brick support to a wall such that bricks may be supported thereon. The brick support has an L-shaped cross section includes a supporting flange for supporting bricks and a mounting flange for mounting the supporting flange to extend laterally outward from the wall. The anchoring element is a U-shaped steel channel which include an elongate fastener slot in a base plate of the channel for mounting the base plate adjacent the wall. A pair of side plates extend vertically outward from the wall to form the sides of the U-shaped channel. Each side plate includes a recessed channel in an outward edge thereof defining a shoulder for supporting the supporting flange of the brick support thereon. A receiving slot in the recessed channel receives the mounting flange therein for securing the supporting flange in a horizontal orientation.

ABSTRACT

An anchoring element for anchoring a conventional brick support to a wall such that bricks may be supported thereon. The brick support has an L-shaped cross section includes a supporting flange for supporting bricks and a mounting flange for mounting the supporting flange to extend laterally outward from the wall. The anchoring element is a U-shaped steel channel which include an elongate fastener slot in a base plate of the channel for mounting the base plate adjacent the wall. A pair of side plates extend vertically outward from the wall to form the sides of the U-shaped channel. Each side plate includes a recessed channel in a outward edge thereof defining a shoulder for supporting the supporting flange of the brick support thereon. A receiving slot in the recessed channel receives the mounting flange therein for securing the supporting flange in a horizontal orientation.

BRICK ANCHOR SYSTEM

FIELD OF THE INVENTION

This invention relates to anchoring systems for bricks and more particularly to an anchor system for anchoring a brick support to a wall.

5 BACKGROUND

When mounting bricks on the face of a wall structure, it is common to support the first row of bricks on a steel support which extends laterally outward from the wall structure. The steel support must first be mounted on the wall before any brick laying can commence. This is commonly accomplished by welding the steel
10 support to a steel anchoring system embedded in the wall. Welding however is an expensive and time consuming task requiring specialised labour.

The use of brackets for mounting a brick support to a wall is disclosed in co-pending Canadian Application No. 2,254,510, filed on November 25, 1998. The present invention is concerned with certain improvements to brackets for mounting a
15 steel brick support onto a wall structure.

SUMMARY

According to one aspect of the present invention there is provided a brick anchor system for supporting bricks to be mounted on a wall wherein the brick anchor system comprises:

20 an anchoring bracket extending outwards from the wall and including a receiving slot therein;

threaded fastening means for threadably securing the anchoring bracket to the wall;

a support element comprising:

25 a mounting flange for engaging into the receiving slot in the anchoring bracket; and

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a supporting flange connected to the mounting flange and extending laterally away from the wall for supporting bricks thereon; and

an elongate fastener slot in the anchoring bracket for receiving the threaded fastening means therethrough such that the bracket can be fastened to the wall within a range of positions relative to the wall corresponding to different positions of the fastener within the slot.

In this arrangement the relative location of the anchoring elements remains adjustable by positioning the threaded fasteners within the elongate fastener slots for accommodating any irregularities in the wall or any misalignment between adjacent anchoring elements. Once the brick support is then securely fastened to the wall by tightening the fasteners any further vertical displacement of the anchoring elements is inhibited by the resistance of lateral movement of the anchoring elements relative to the brick support due to the arrangement of the fastener slot.

The elongate fastener slot preferably extends in an inclined direction which is angularly offset from a vertical axis extending across the anchoring bracket.

The threaded fastening means may comprise at least one bolt anchor embedded into the wall such that a threaded bolt may be inserted through a respective aperture in the anchoring bracket and secured within each of the bolt anchors in the wall.

Preferably there is provided at least two anchoring brackets mounting the support element thereon, the anchoring brackets each having an elongate fastener slot therein for receiving the threaded fastening means therethrough, the fastener slots being angularly offset from vertical in opposing directions.

There may be provided a shim plate mounted between the anchoring bracket and the wall such that a spacing between the support element and the wall is adjustable by replacing the shim plate with an additional shim plate having a different

thickness.

A recessed channel may be provided in a forward end of the support member defining a shoulder for supporting the supporting flange of the brick support thereon such that the supporting flange extends laterally outward from the wall.

5 When a recessed channel is provided, the receiving slot preferably extends upward from a rearward edge of the recessed channel for receiving the mounting flange of the brick support therein such that the supporting flange is secured in a lateral orientation on the shoulder of the bracket.

10 According to a further aspect of the present invention there is provided a brick anchor system for supporting bricks to be mounted on a wall wherein the brick anchor system comprises:

 an anchoring bracket extending outwards from an inner end adjacent the wall to an outer end spaced from the wall and including a receiving slot therein;

15 threaded fastening means for threadably securing the anchoring bracket to the wall; and

 a support element comprising:

 a mounting flange for engaging into the receiving slot in the anchoring bracket; and

20 a supporting flange connected to the mounting flange and extending laterally outward from the wall for supporting bricks thereon;

 the receiving slot comprising:

 a first portion extending inward substantially horizontally from the outer end of the bracket defining a shoulder for supporting the supporting flange thereon; and

25 a second portion extending upward from the first portion defining a substantially vertical rearward edge being spaced from the wall for guiding the

mounting flange into the second portion of the receiving slot.

The arrangement of the anchoring bracket which supports the brick support spaced from the wall allows the insulation to be continuous along the surface of the wall, behind the brick support. This dramatically reduces the effect of thermal bridging. The substantially vertical orientation of the rearward edge being spaced
5 from the wall is able to guide the mounting flange into the receiving slot without gouging any sheets of rigid insulation which are mounted on the surface of the wall around the anchoring bracket behind the brick support.

There may be provided an elongate fastener slot in the anchoring
10 bracket for receiving the threaded fastening means therethrough such that the bracket can be fastened to the wall within a range of positions relative to the wall corresponding to different positions of the fastener within the slot.

The threaded fastening means preferably comprises at least one bolt anchor embedded into the wall such that a threaded bolt may be inserted through a
15 respective aperture in the anchoring bracket and secured within each of the bolt anchors in the wall.

The elongate fastener slot may extend in an inclined direction which is angularly offset from a vertical axis extending across the anchoring bracket.

Preferably there is provided at least two anchoring brackets mounting
20 the support element thereon, the anchoring brackets each having an elongate fastener slot therein for receiving the threaded fastening means therethrough, the fastener slots being angularly offset from vertical in opposing directions.

There may be provided a shim plate mounted between the anchoring bracket and the wall such that a spacing between the support element and the wall is
25 adjustable by replacing the shim plate with an additional shim plate having a different thickness.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, which illustrate an exemplary embodiment of the present invention:

Figure 1 is a side elevational view of the anchoring element shown
5 bolted to a wall and supporting a brick support thereon;

Figure 2 is a top plan view of the anchoring element;

Figure 3 is a cross sectional view along the line 3-3 of Figure 1; and

Figure 4 is a side elevational view of the brick anchor system of Figure 1
showing the anchoring bracket mounted with bolt anchors embedded in the wall;

10 DETAILED DESCRIPTION

Referring to the accompanying drawings, there is illustrated a brick
anchoring system generally indicated by reference numeral 10. The brick anchoring
system 10 includes a plurality of anchoring brackets 12 which are arranged to anchor
a brick support 14 to a wall structure 16, each anchoring bracket using a bolt 18 for
15 securement to the wall.

A first end 20 of each bolt 18 having a head 22 thereon, is embedded
into the wall structure. The threaded end 24 of the bolt extends laterally outward past
a surface of the wall structure.

The anchoring bracket 12 is a steel channel which is generally U-
20 shaped in cross section. The base of the U-shaped channel is formed by a rear plate
26 which is generally rectangular in shape.

A fastener slot 28 is formed in the rear plate 26 for receiving the
threaded end of the bolt. Threading a nut onto the bolt will engage the rear plate
adjacent to the wall and secure the anchoring bracket in place.

25 The fastener slot 28 is an elongate aperture in the rear plate which
extends along an inclined axis 29 which is angularly offset from a vertical axis 30

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extending across the plate member in a left hand configuration shown in Figure 3. The inclined axis 29 is offset 22.5 degrees from the vertical axis 30. Alternatively, in a right hand configuration the fastener slot appears as indicated by reference numeral 31, being offset 22.5 degrees from the vertical axis in the opposite direction. The upright plate can thus be fastened to the wall at numerous locations relative to the wall corresponding to different positions of the bolt within the slot.

A pair of side plates 32 extend from respective sides of the rear plate 26 in a direction away from the wall to form the sides of the U-shaped channel. The side plates are generally rectangular in shape and lie in respective vertical planes.

The side plates 32 are arranged to support the brick support 14 thereon. The brick support 14 includes a mounting flange 34 which engages the anchoring bracket 12 and a supporting flange 36 which is arranged to support bricks thereon. The mounting flange 34 and the supporting flange are mounted at right angles to form an L-shaped channel made of steel.

The side plates 32 each include a recessed channel 38 in a forward edge 40 thereof. The recessed channel 38 defines a horizontal shoulder 42 at a bottom end for supporting the supporting flange 36 of the brick support thereon such that the supporting flange extends substantially horizontally outward from the wall.

A receiving slot 44 extends upward from a rearward edge 46 at a top end of the recessed channel 38. The receiving slot 44 slidably receives an edge portion 48 of the mounting flange 34 therein such that the brick support 14 remains secured to the anchoring bracket 12 when the weight of numerous bricks are stacked on the supporting flange 36.

The rearward edge 46 extends upward substantially vertically for the most part. An upper portion of the rearward edge 46 along the receiving slot 44 extends upward at a slight rearward incline for accommodating the edge portion 48 of

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the mounting flange as it is inserted therein. A wedge shaped shim 49 is inserted between the mounting flange 34 and the rearward edge 46 as required to tightly engage the mounting flange against a forward edge 50 of the receiving slot. The supporting flange will thus support a load while the mounting flange is engaged in the
5 receiving slot.

In use, a plurality of the anchoring brackets are horizontally spaced across a wall using a chalk line and a measuring tape. The anchoring brackets are mounted in an alternating arrangement from the left hand configuration with the fastener slot appearing as shown by reference numeral 28 to the right hand
10 configuration with the fastener slot appearing as shown by reference numeral 31. The brackets are mounted along the wall such that each anchoring bracket having a left hand orientation is adjacent an anchoring bracket having a right hand orientation.

A brick support in the form of a standard size shelf angle is mounted across the wall on the anchoring brackets. The anchoring brackets are first bolted to
15 the wall by securing the bolts loosely by hand. The brick support is then mounted on the anchoring brackets by inserting a edge portion 48 of the mounting flange 34 upward into the receiving slot 44 of each anchoring bracket at an incline and then by pivoting the supporting flange 36 inward until the mounting flange engages the rearward edge 46 of the recessed channel 38. The rearward edge 46 prevents the
20 brick support from being further pivoted within the recessed channel as the weight of the bricks is applied to the brick support. The bolts are then tightened snugly and the wedge shaped shims 49 are inserted as required.

Until the nuts on the respective bolts are tightened, the relative height of each anchoring bracket is adjustable by sliding the anchoring bracket laterally along
25 the brick support as the anchoring bracket is moved upward or downward relative to the bolt extending from the wall. This lateral movement of the anchoring bracket

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relative to the brick support with the adjustment in height is due to the inclination of the fastener slot from the vertical.

Once the nuts are tightened on the bolts the brick support is secured to the wall structure and bricks may be supported thereon. The inclination of the fastener slot from the vertical acts to inhibit vertical displacement of the anchoring bracket along the mounting bolt through the resistance of the lateral movement of the anchoring bracket along the brick support. Having anchoring brackets of opposing orientation mounted adjacent to each other further restricts the entire brick anchor system from shifting positions relative to the wall once the bolts are tightened.

In this arrangement the relative location of the anchoring brackets remains adjustable as the brick support is mounted thereon for accommodating irregularities in the wall or misalignment between adjacent anchoring brackets. Once the brick support is then securely fastened to the wall further vertical displacement of the anchoring brackets is inhibited by the resistance of lateral movement of the anchoring brackets relative to the brick support due to the arrangement of the fastener slot.

A wall structure 60 using the brick anchor system 10 is illustrated in Figure 4 wherein the bolts for mounting the anchoring brackets have not been embedded into the concrete as shown in Figure 1. The wall structure 60 includes a foundation 62 supporting a reinforced concrete slab 64 thereon. A plurality of concrete blocks 66 form an upright portion of the wall structure. The anchoring brackets 12 are mounted horizontally spaced along the outer face of the wall structure using bolt anchors 68 which are received in bores drilled into the concrete slab 64.

The use of embedded bolts for mounting the anchoring brackets as shown in Figures 1 to 3 operates similarly to the use of bolts which are received in embedded bolt anchors. Instead of tightening the nuts on the ends of the bolts for

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securing the anchoring brackets, the bolts are simply tightened into their respective anchors which are received in bores in the concrete wall.

A shim plate 70 which is substantially similar in size to the anchoring bracket, mounts between each anchoring bracket and the outer face of the wall for
5 evenly engaging the concrete surface and for spacing each anchoring bracket from the wall as desired to accommodate for irregularities in the outer face of the wall.

The brick support 14 is secured to the anchoring brackets 12 as described previously. A continuous metal flashing 72 is supported on the brick support and connects to a continuous flexible flashing 74 which extends over the brick
10 supports and connects to a vapour barrier membrane 76 on the outer face of the wall.

Sheets of rigid insulation 78 are mounted over top of the membrane 76 on the outer face of the wall. The arrangement of the anchoring bracket which supports the brick support spaced from the wall allows the insulation to be continuous along the surface of the wall, behind the brick support. This dramatically reduces the
15 effect of thermal bridging. The substantially vertical orientation of the rearward edge being spaced from the wall is able to guide the mounting flange into the receiving slot without gouging any sheets of rigid insulation which are mounted on the surface of the wall around the anchoring bracket.

The rigid insulation 78 is of a thickness which allows an air space 80 to
20 be incorporated into the wall structure between the insulation and the brick facing 82 mounted on the brick support. Concrete block shear connectors 84 are mounted within wall of concrete blocks and mounts wall ties 86 thereon for connection to the brick facing 82.

The anchoring brackets 12 are made in a variety of sizes each
25 corresponding to a desired thickness of the rigid insulation 78 and air space 80 located between the outer face of the wall and the brick facing. In this arrangement, a

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standard size of brick support 14 may be used regardless of the spacing between the brick facing and the face of the wall desired for insulation.

The anchor system can also be used for supporting masonry veneer, thin granite veneer, large stone panels or pre-cast concrete in place of the bricks.

5 Once the brick support 14 is secured to the wall and properly shimmed, a significant load can be mounted on the brick support.

While one embodiment of the present invention has been described in the foregoing, it is to be understood that other embodiments are possible within the scope of the invention. The invention is to be considered limited solely by the scope
10 of the appended claims.

CLAIMS

1. A brick anchor system for supporting bricks to be mounted on a wall wherein the brick anchor system comprises:

at least a first anchoring bracket extending outwards from the wall and including a receiving slot therein, the receiving slot having a fixed configuration;

fastening means for securing the first anchoring bracket to the wall;

a support element comprising:

a mounting flange for slidably engaging into the receiving slot in the first anchoring bracket; and

a supporting flange connected to the mounting flange and configured to extend laterally outward from the wall and longitudinally parallel to the wall a sufficient distance for supporting a row of bricks thereon; and

an elongate fastener slot in the at least one anchoring bracket for receiving the fastening means therethrough such that the first anchoring bracket can be fastened to the wall within a range of positions relative to the wall corresponding to different positions of the fastener within the elongate fastener slot.

2. The brick anchor system according to claim 1 wherein the fastening means comprises at least one bolt anchor embedded into the wall such that a threaded bolt may be inserted through a respective aperture in the first anchoring bracket and secured within each of the bolt anchors in the wall.

3. The brick anchor system according to claim 1 or 2 wherein the elongate fastener slot extends in an inclined direction which is angularly offset from a vertical axis extending across the first anchoring bracket.

4. The brick anchor system according to claim 1, 2 or 3 wherein there is provided at least a second anchoring bracket mounting the support element thereon,

the second anchoring bracket having an elongate fastener slot therein for receiving the fastening means therethrough, the fastener slot of the first and second anchoring brackets each being angularly offset from vertical, wherein the fastener slot of the first anchoring bracket is offset from the vertical in an opposing direction to the fastener slot of the second anchoring bracket.

5. The brick anchor system according to any one of claims 1 through 4 wherein there is provided a shim plate mounted between the first anchoring bracket and the wall such that a spacing between the support element and the wall is adjustable by replacing the shim plate with an additional shim plate having a different thickness.

6. The brick anchor system according to any one of claims 1 through 5 wherein there is provided a recessed channel in a forward end of the first anchoring bracket defining a shoulder for supporting the supporting flange of the support element thereon such that the supporting flange extends laterally outward from the wall.

7. The brick anchor system according to claim 6 wherein the receiving slot of the first anchoring bracket extends upward from a rearward edge of the recessed channel for receiving the mounting flange of the support element therein such that the supporting flange is secured in a lateral orientation on the shoulder of the bracket.

8. A brick anchor system for supporting bricks to be mounted on a wall wherein the brick anchor system comprises:

at least first and second anchoring brackets extending outwards from the wall and including a receiving slot therein;

fastening means for securing the first anchoring bracket to the wall;

a support element comprising:

a mounting flange for engaging into the receiving slot in the first

anchoring bracket; and
a supporting flange connected to the mounting flange and configured to extend laterally outward from the wall and longitudinally parallel to the wall a sufficient distance for supporting a row of bricks thereon; and
an elongate fastener slot in each one anchoring bracket for receiving a fastening means therethrough such that each anchoring bracket can be fastened to the wall within a range of positions relative to the wall corresponding to different positions of the fastener within the elongate fastener slot, the fastener slot of the first and second anchoring brackets each being angularly offset from vertical, wherein the fastener slot of the first anchoring bracket is offset from the vertical in an opposing direction to the fastener slot of the second anchoring bracket.

9. The brick anchor system according to claim 8 wherein the fastening means comprises at least one bolt anchor embedded into the wall such that a threaded bolt may be inserted through a respective aperture in the first anchoring bracket and secured within each of the bolt anchors in the wall.

10. The brick anchor system according to claim 8 or 9 wherein the elongate fastener slot extends in an inclined direction which is angularly offset from a vertical axis extending across the first anchoring bracket.

11. The brick anchor system according to any one of claims 8 through 10 wherein there is provided a shim plate mounted between the first anchoring bracket and the wall such that a spacing between the support element and the wall is adjustable by replacing the shim plate with an additional shim plate having a different thickness.

12. The brick anchor system according to any one of claims 8 through 11 wherein there is provided a recessed channel in a forward end of the first anchoring

bracket defining a shoulder for supporting the supporting flange of the support element thereon such that the supporting flange extends laterally outward from the wall.

13. The brick anchor system according to claim 12 wherein the receiving slot of the first anchoring bracket extends upward from a rearward edge of the recessed channel for receiving the mounting flange of the support element therein such that the supporting flange is secured in a lateral orientation on the shoulder of the bracket.

14. A brick anchor system for supporting bricks to be mounted on a wall wherein the brick anchor system comprises:

at least a first anchoring bracket extending outwards from the wall and including a receiving slot therein;

fastening means for securing the first anchoring bracket to the wall;

a support element comprising:

a mounting flange for engaging into the receiving slot in the first anchoring bracket; and

a supporting flange connected to the mounting flange and configured to extend laterally outward from the wall and longitudinally parallel to the wall a sufficient distance for supporting a row of bricks thereon; and

an elongate fastener slot in the at least one anchoring bracket for receiving the fastening means therethrough such that the first anchoring bracket can be fastened to the wall within a range of positions relative to the wall corresponding to different positions of the fastener within the elongate fastener slot, wherein there is provided a recessed channel in a forward end of the first anchoring bracket defining a shoulder for supporting the supporting flange of the support element thereon such that the supporting flange extends laterally outward from the wall.

15. The brick anchor system according to claim 14 wherein the fastening

means comprises at least one bolt anchor embedded into the wall such that a threaded bolt may be inserted through a respective aperture in the first anchoring bracket and secured within each of the bolt anchors in the wall.

16. The brick anchor system according to claim 14 or 15 wherein the elongate fastener slot extends in an inclined direction which is angularly offset from a vertical axis extending across the first anchoring bracket.

17. The brick anchor system according to claim 14, 15 or 16 wherein there is provided at least a second anchoring bracket mounting the support element thereon, the second anchoring bracket having an elongate fastener slot therein for receiving the fastening means therethrough, the fastener slot of the first and second anchoring brackets each being angularly offset from vertical, wherein the fastener slot of the first anchoring bracket is offset from the vertical in an opposing direction to the fastener slot of the second anchoring bracket.

18. The brick anchor system according to any one of claims 14 through 17 wherein there is provided a shim plate mounted between the first anchoring bracket and the wall such that a spacing between the support element and the wall is adjustable by replacing the shim plate with an additional shim plate having a different thickness.

19. The brick anchor system according to claim 14 wherein the receiving slot of the first anchoring bracket extends upward from a rearward edge of the recessed channel for receiving the mounting flange of the support element therein such that the supporting flange is secured in a lateral orientation on the shoulder of the bracket.

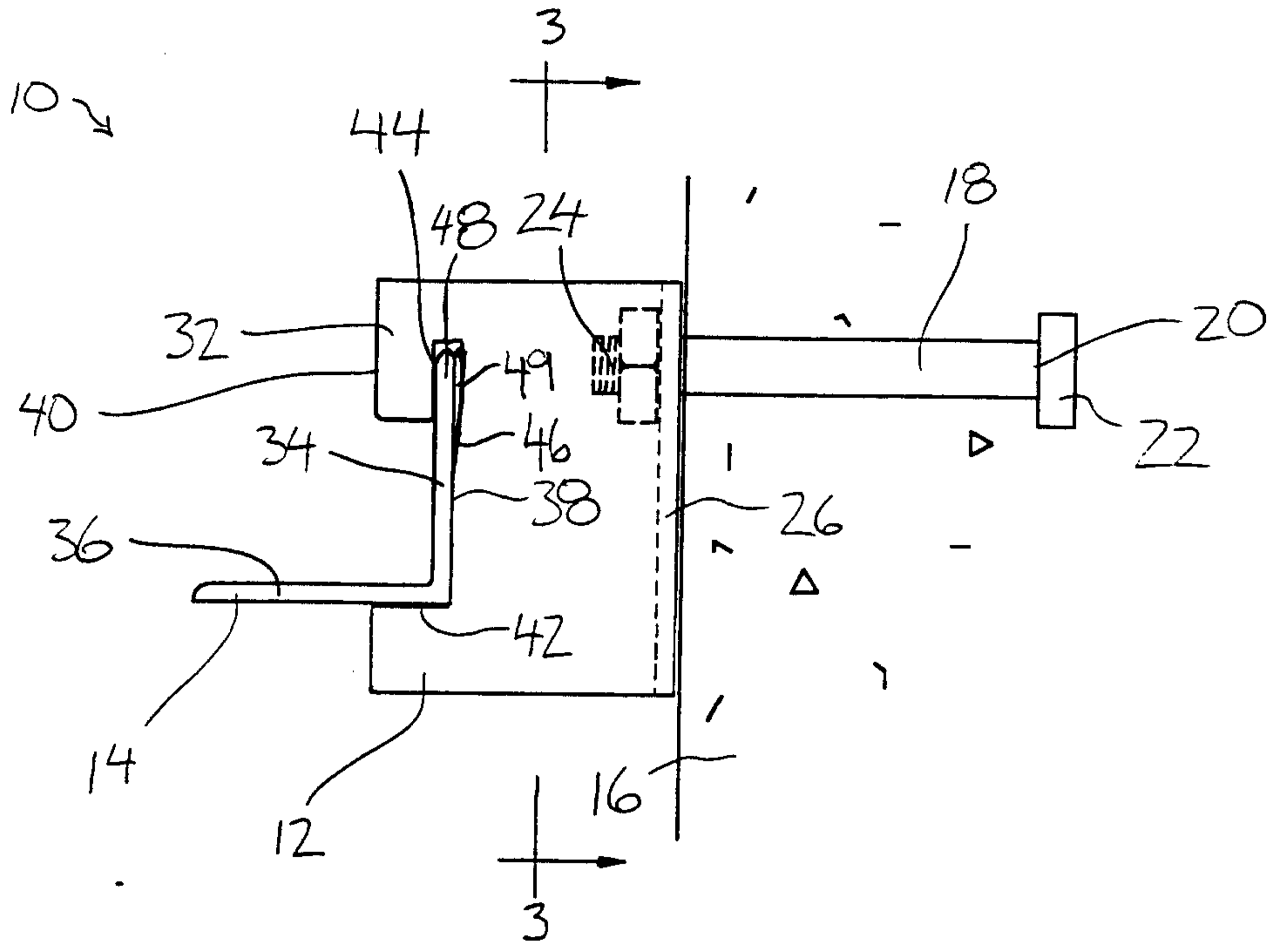


FIG. 1

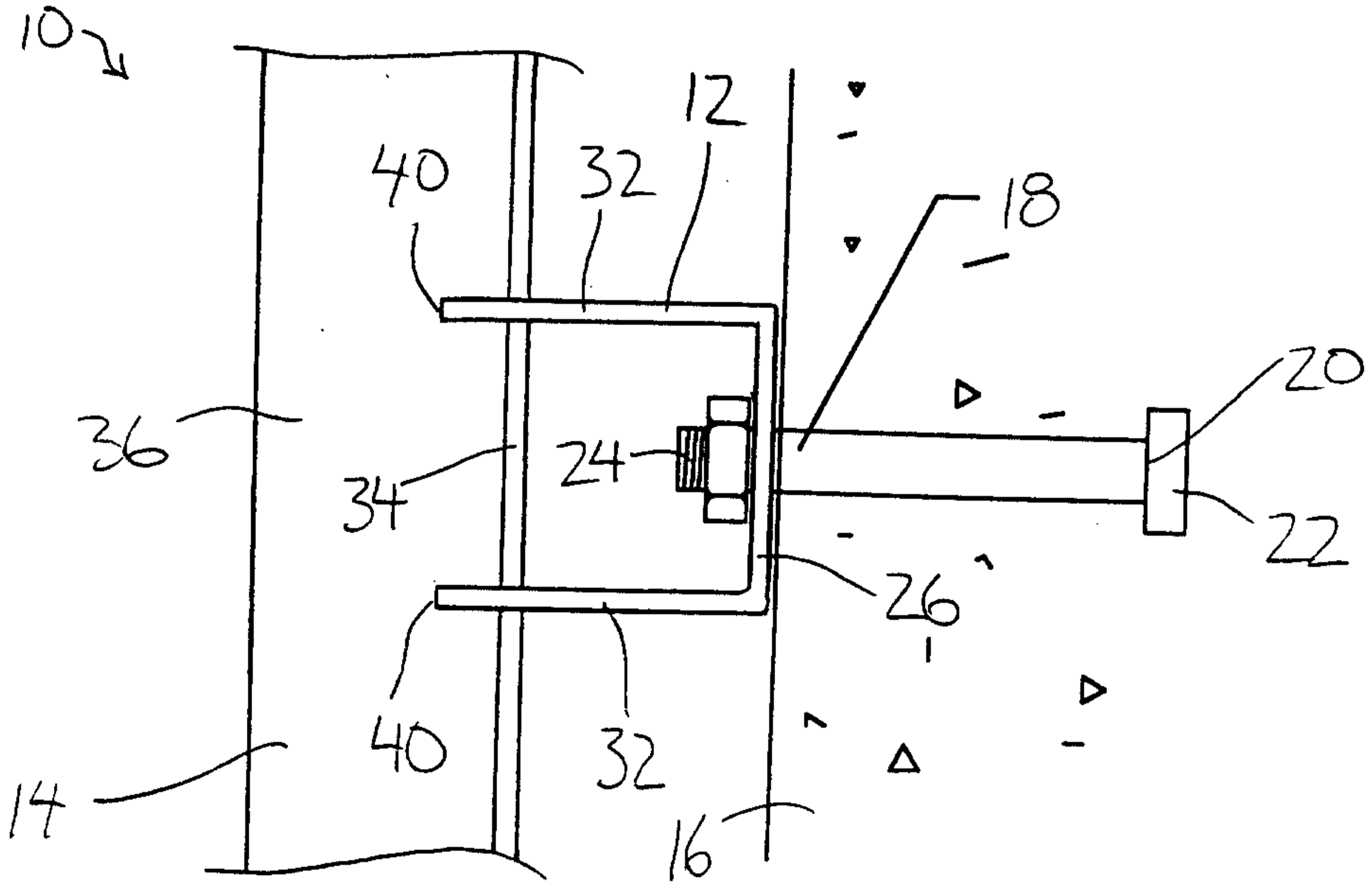


FIG. 2

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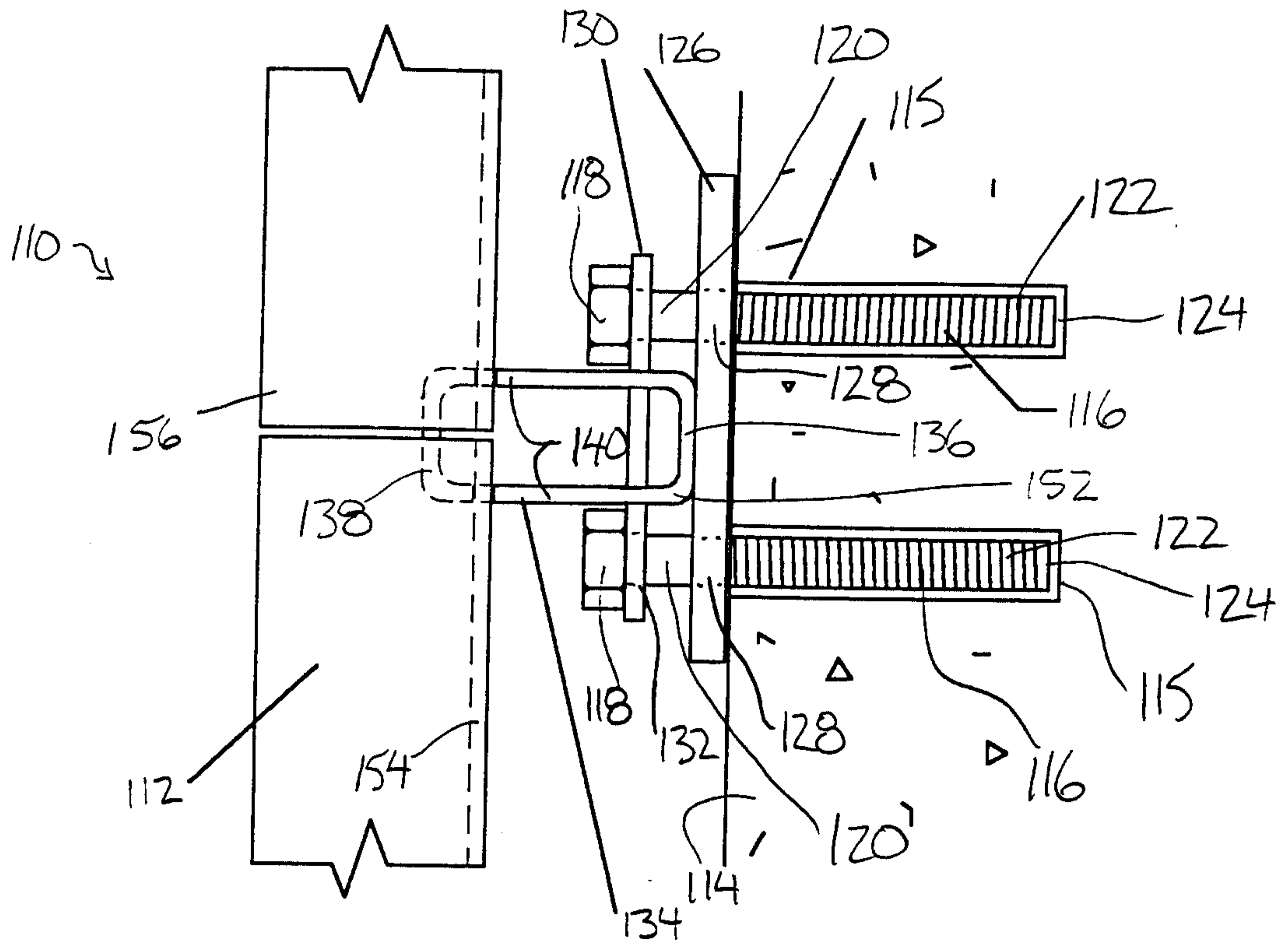


FIG. 5

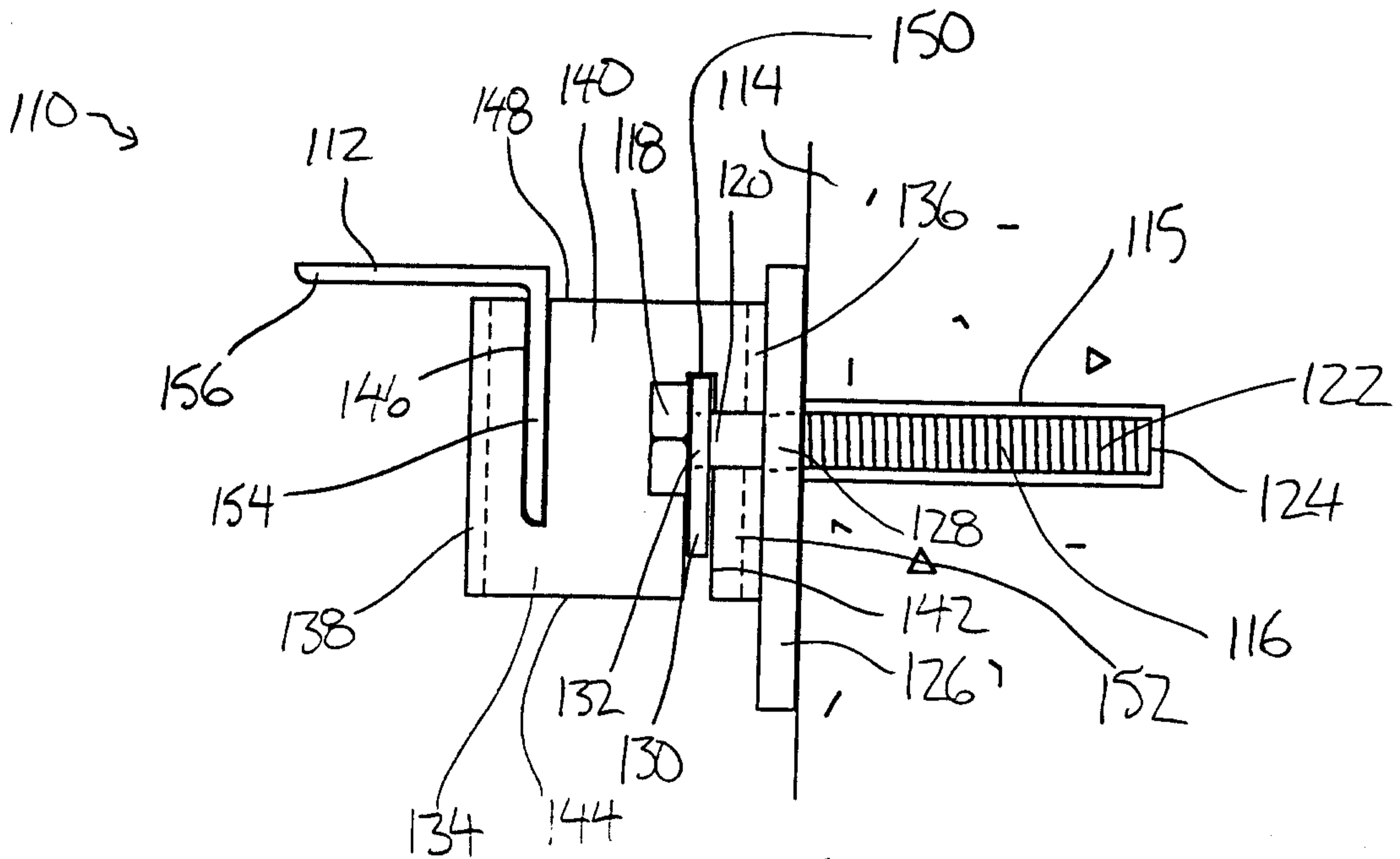


FIG. 6

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