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(54) **APPARATUS FOR SECURING INSULATION
PANELS TO A SUPPORTING STRUCTURE
AND CEILING SUPPORT ASSEMBLY
INCORPORATING THE SAME**

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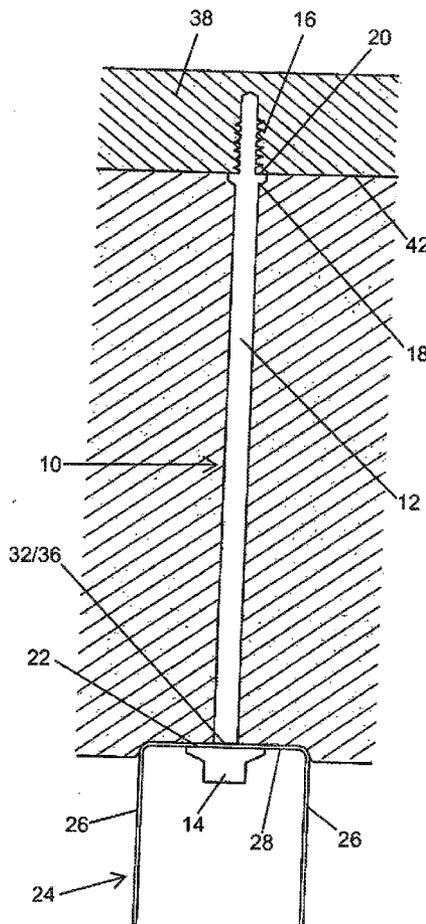
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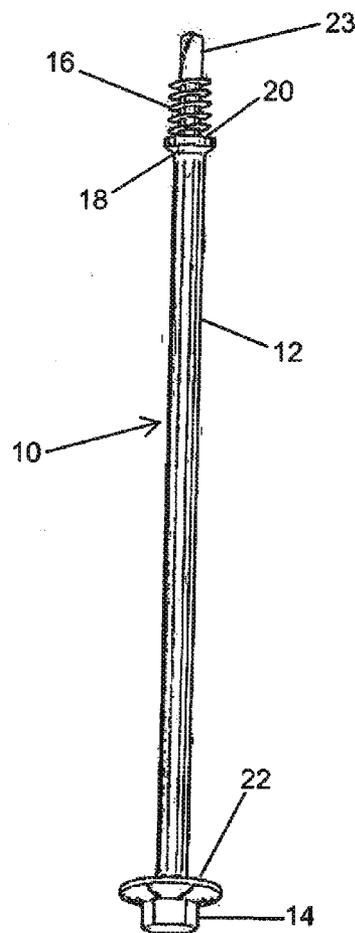
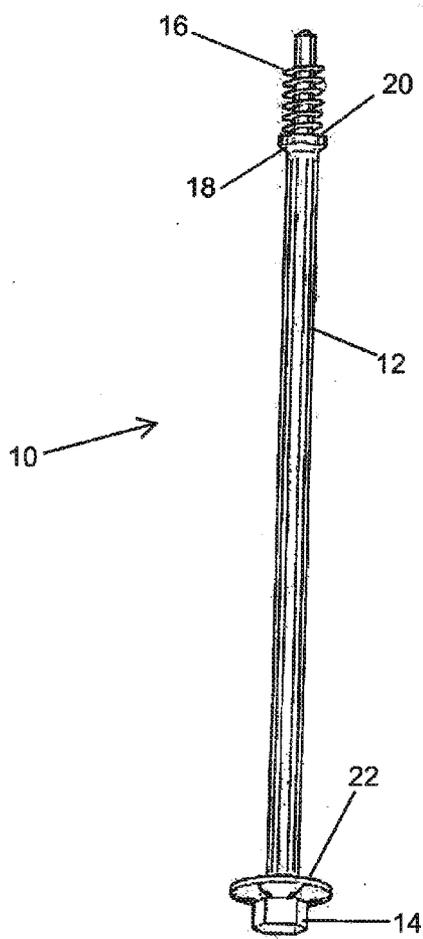
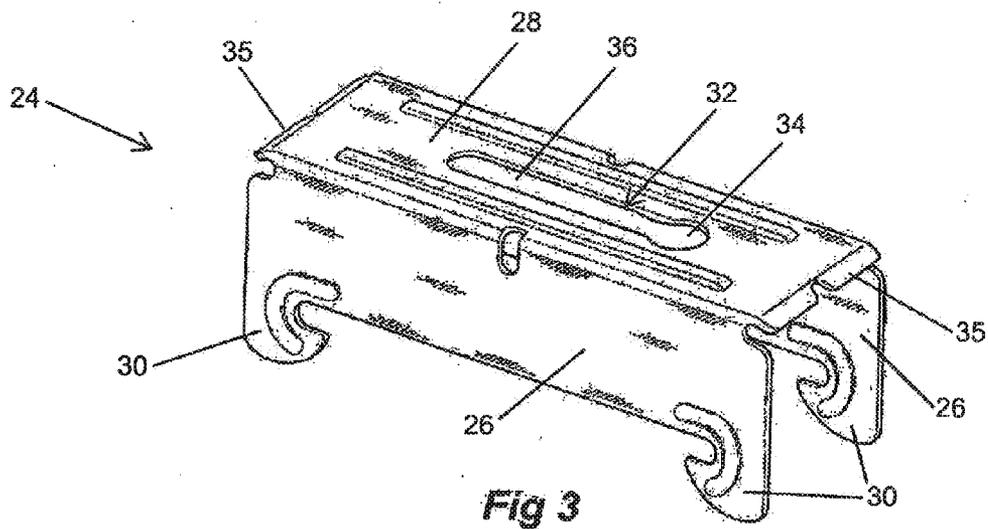
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(57) **ABSTRACT**

An apparatus for securing insulation panels to a supporting structure and having an elongate body and a first end including a tip configured to pierce into the insulation panel and into the supporting structure. The apparatus further includes a depth stop disposed along the elongate body and adjacent said tip the depth stop providing a first abutment surface for a face of said supporting structure and a second end having associated therewith a second abutment surface, whereby a distance between the first abutment surface and the second abutment surface is less than or equal to a minimum thickness of said insulation panels.





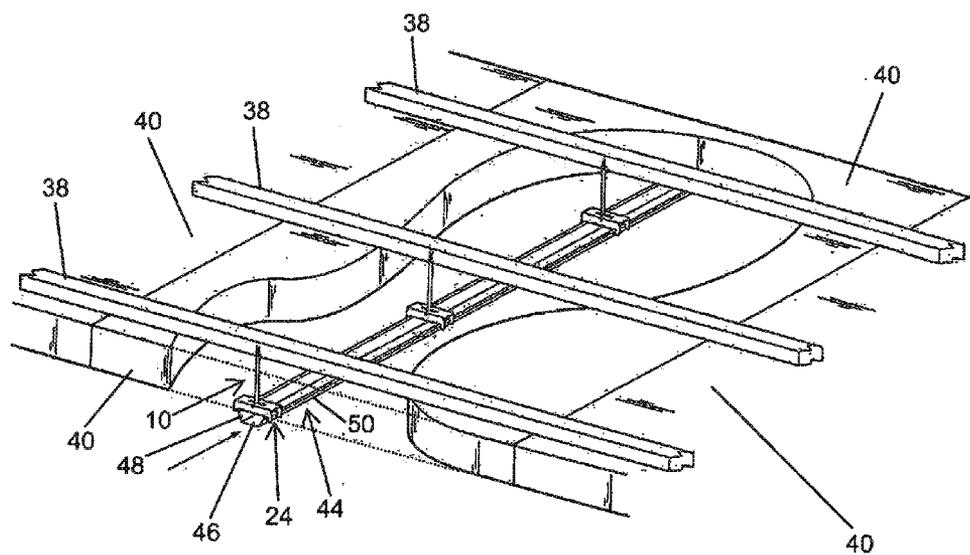


Fig 6

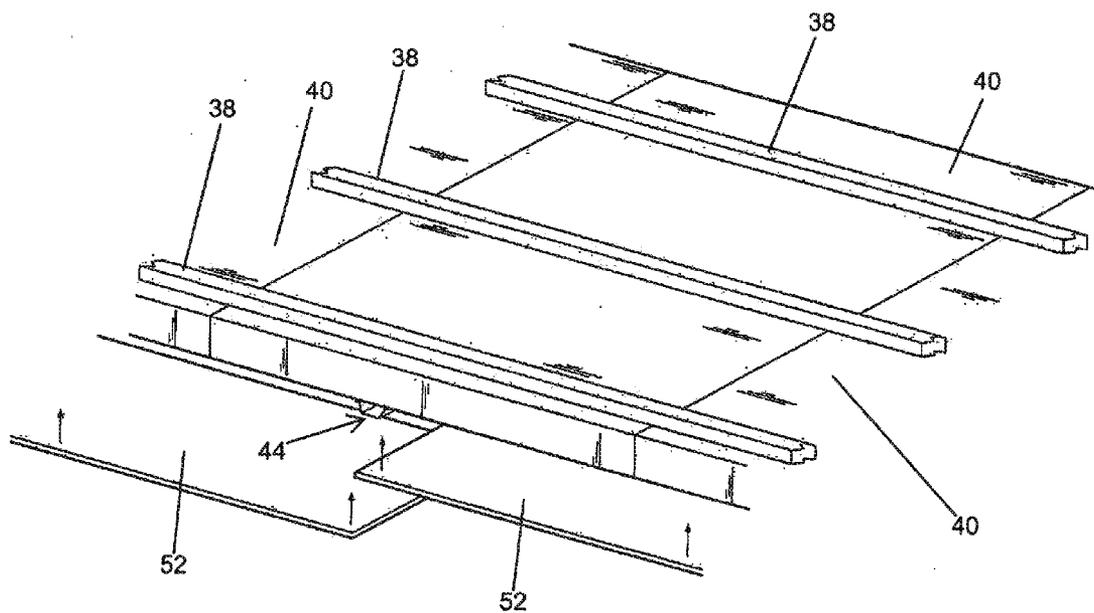


Fig 7

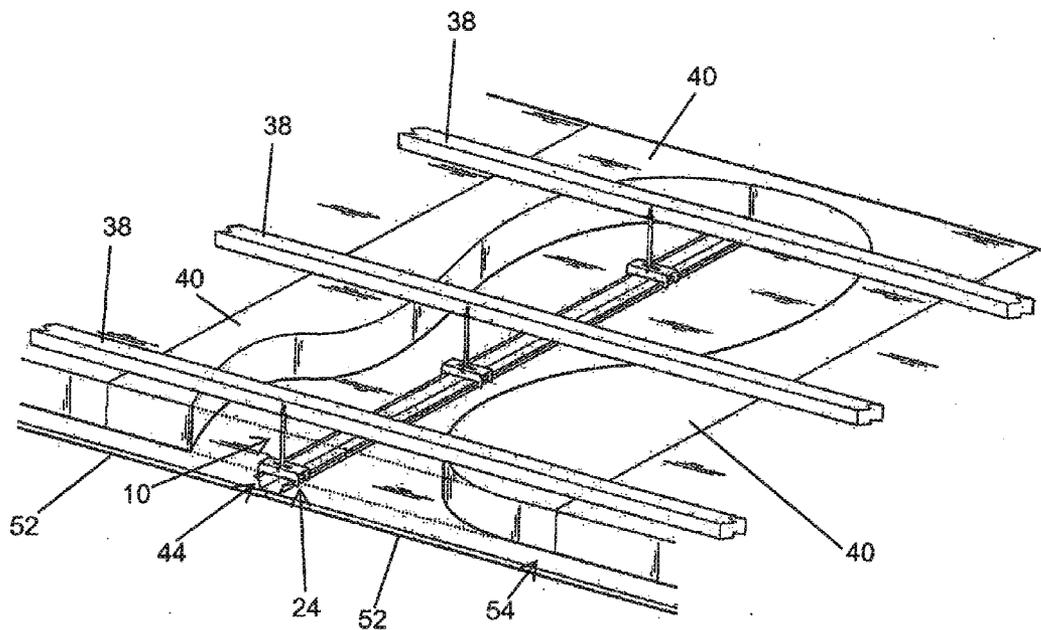


Fig 8

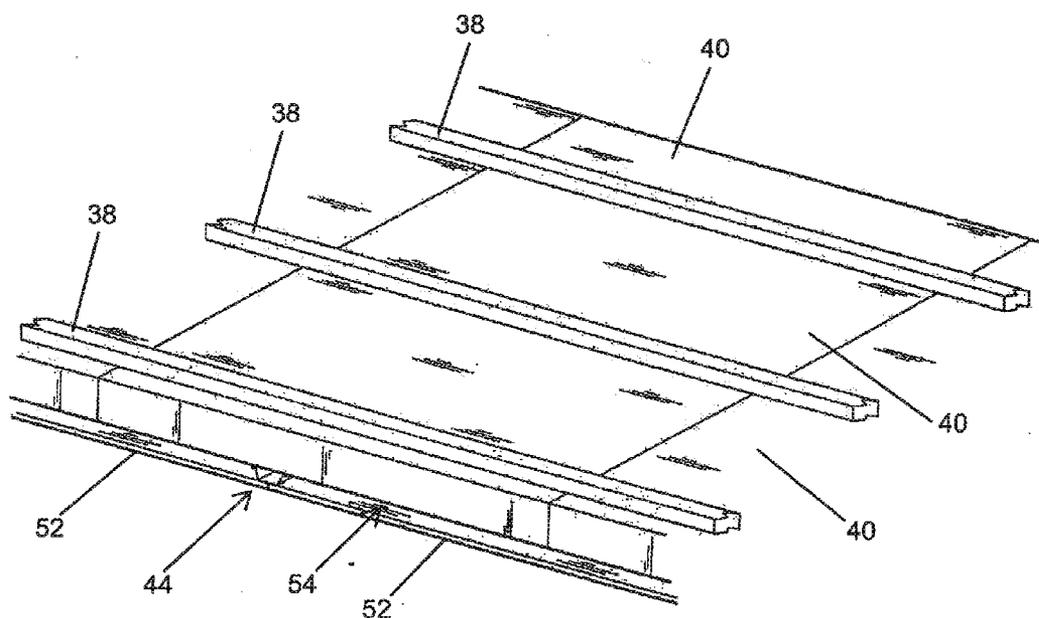


Fig 9

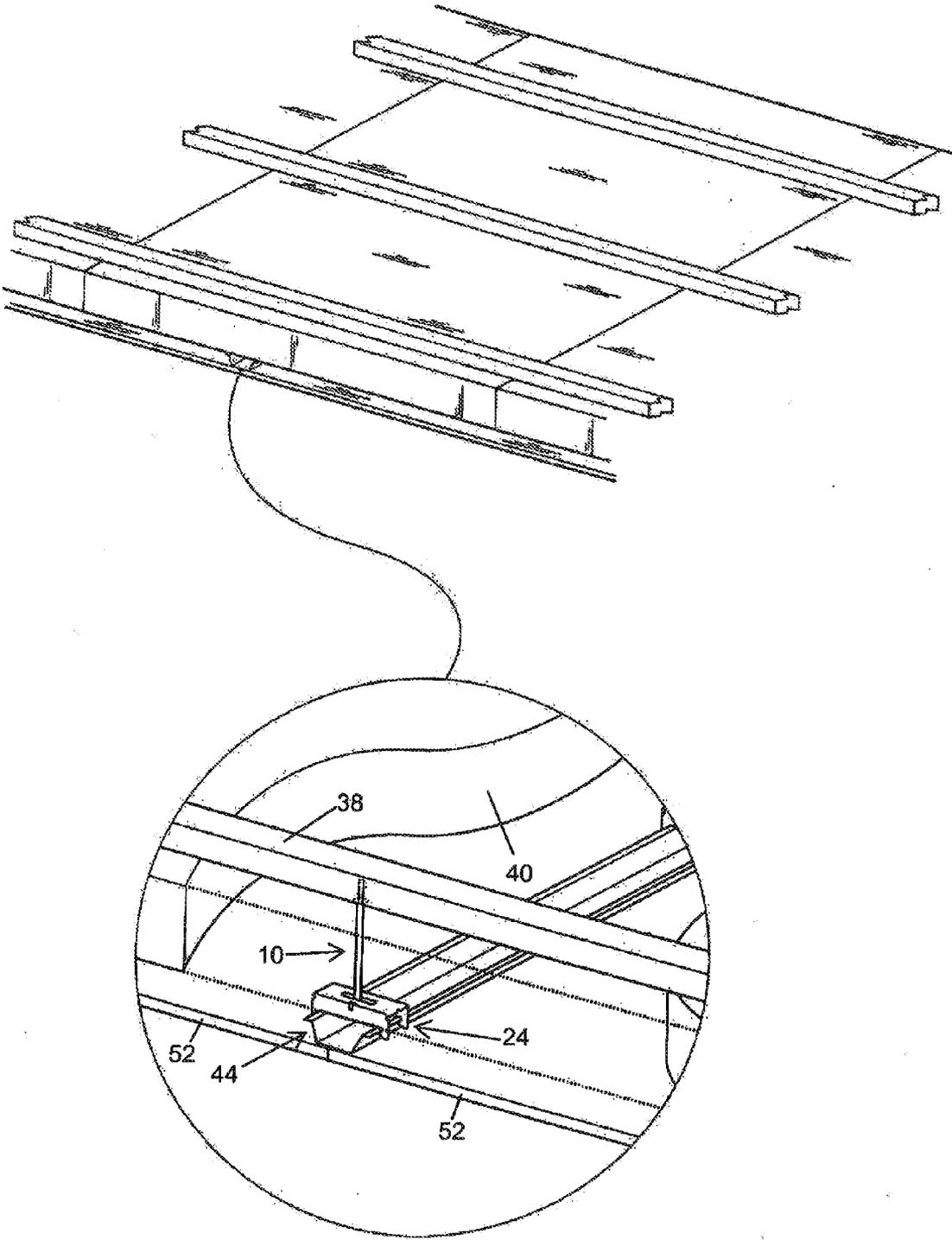


Fig 10

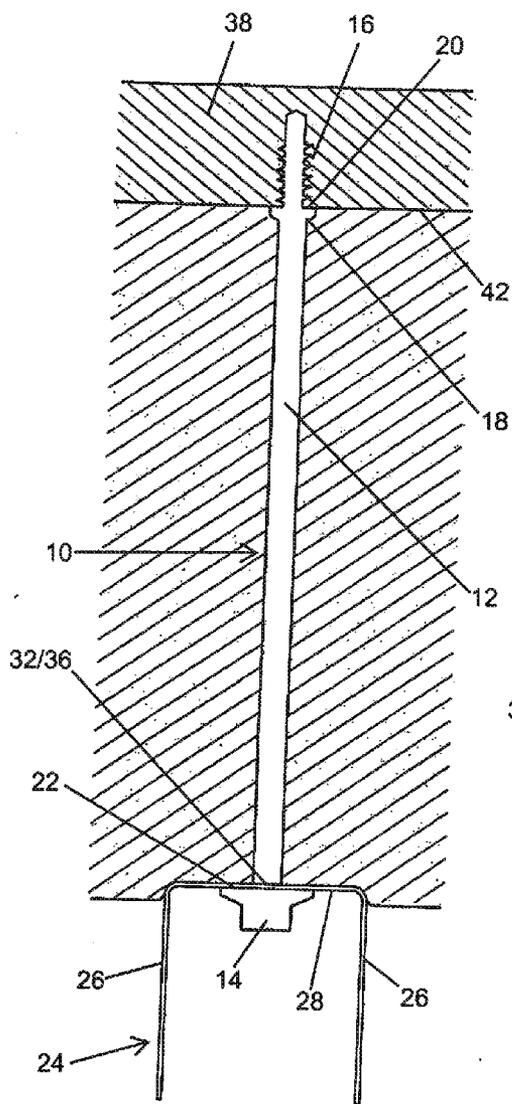


Fig 11a

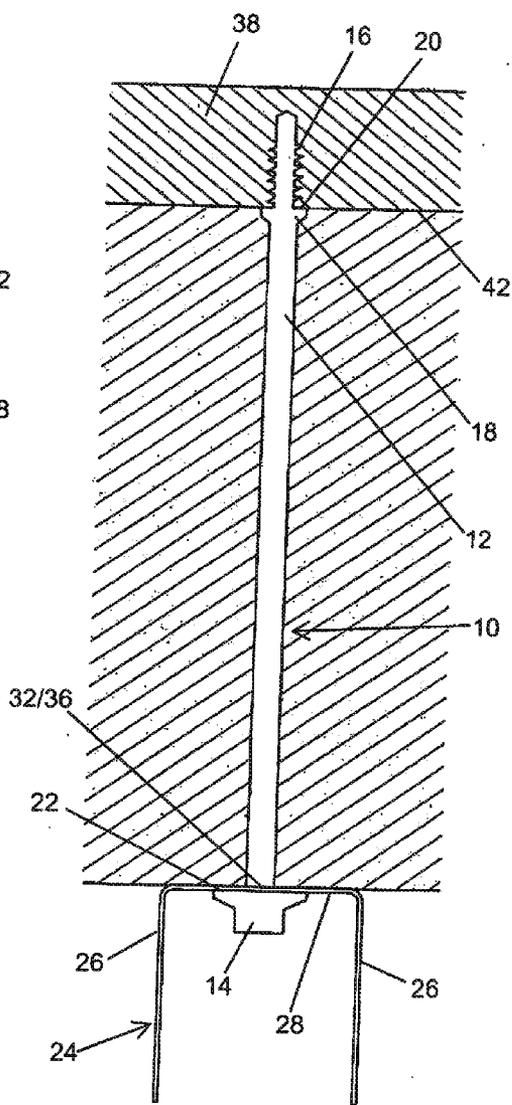


Fig 11b

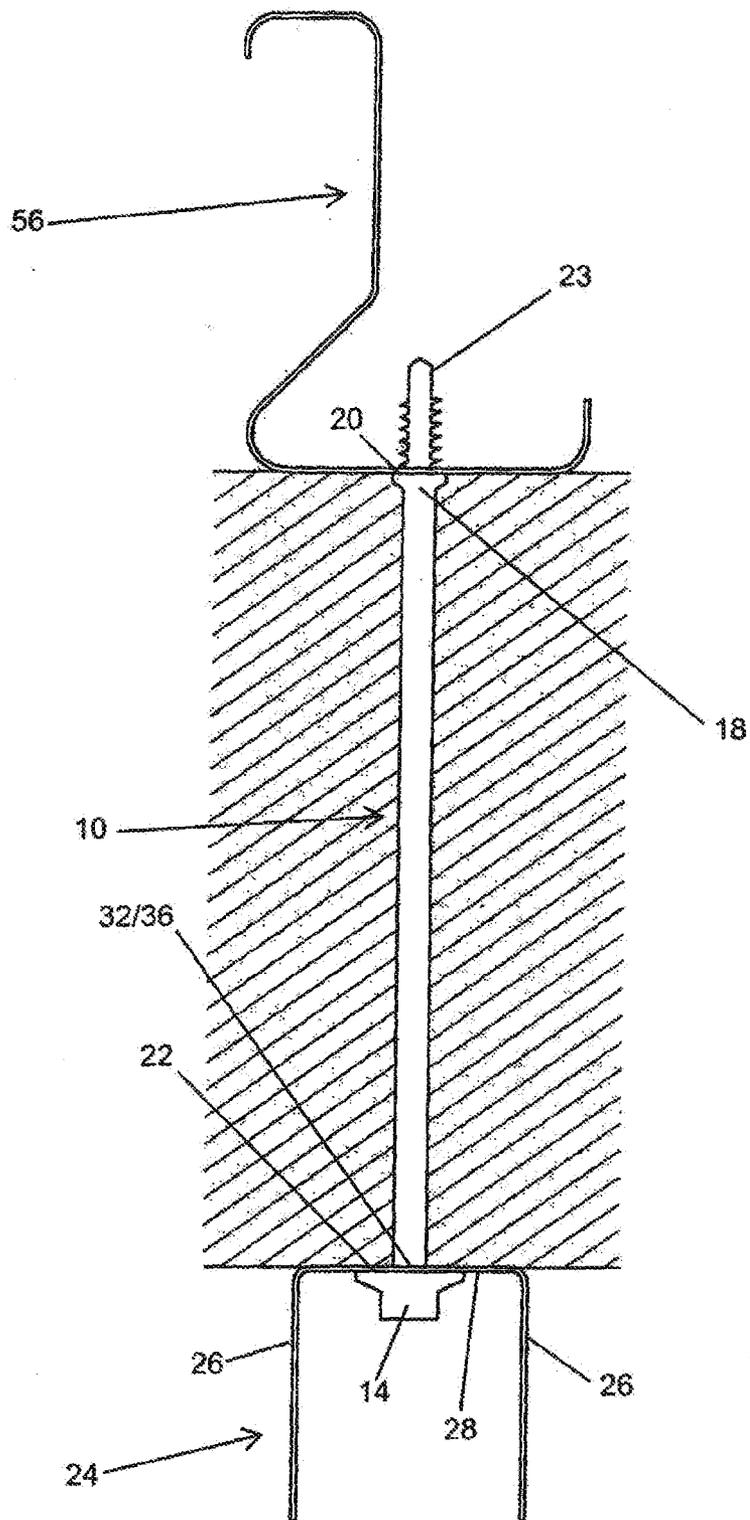


Fig 12

**APPARATUS FOR SECURING INSULATION
PANELS TO A SUPPORTING STRUCTURE
AND CEILING SUPPORT ASSEMBLY
INCORPORATING THE SAME**

[0001] The present invention relates to an apparatus for securing insulation panels to a face of a supporting structure and, in particular, to a screw apparatus adapted to secure expanded polystyrene foam panels directly to roof truss elements. The invention further relates to a ceiling support assembly incorporating the screw apparatus which ensures that the lower face of a plurality of ceiling support battens are disposed at even, level heights ready for ceiling panel attachment.

BACKGROUND OF THE INVENTION

[0002] The purpose of roof insulation is well known in that it provides some level of environmental control in an area inside a home or building. Typically, a home or building will include a roof structure including a plurality of metal or wooden roof trusses which incorporate horizontally extending roof truss sections to which ceiling panels are directly attached. Insulation is usually provided in the form of ceiling batts adapted to be installed between the horizontally extending roof truss beams above the ceiling panels. The batts serve to reduce heat transfer through the roof, improving comfort and energy efficiency.

[0003] In more recent years, the use of rigid cellular insulation (RCI) for providing insulation to walls and roof has become glowingly popular. For example, the present Applicant has been involved in the development of an expanded polystyrene foam structural panel for such purposes. Benefits to using foam panels include being light-weight, having high insulation properties, and being less prone to causing harm and discomfort to installers.

[0004] However, the fixing of foam panels directly to the lower face of horizontal roof truss elements using known fastening means has presented problems. For example, known apparatus for fastening the panels to the roof truss elements often restricts the positioning of panels which makes installation of the panels very cumbersome. This was a result of the panel support apparatus, typically a bracket, being hung from an open edge of the truss section and configured such that the edges of two butting panels were engaged and secured by the support device. The skilled addressee would understand that such a configuration severely limits the positional freedom of the panels.

[0005] Another problem associated with prior art means of securing insulation panels directly to a supporting truss element is that, mounting of ceiling panels there beneath becomes problematic owing to variations in the thickness of the panels. For example, the foam panel height at one end of the room could be different to the foam panel height at an opposite end of the room, thereby increasing the possibility of sloped or uneven ceiling panels.

[0006] There is a general need in the industry for an apparatus/assembly capable of securing insulation panels, such as foam insulation panels, directly to supporting structures such as wall stud or roof truss elements, and in the latter case, ensuring that ceiling panels are fixed at even distances relative to the roof truss chords.

[0007] Any discussions of documents, acts, materials, devices, articles or the like, which has been included in the present specification is solely for the purpose of providing a

context for the present invention. It should not be taken as an admission that any or all of the previous discussion forms part of the prior art base or was common general knowledge in the field of the invention as it existed before the priority date or any of the claims herein.

SUMMARY OF THE INVENTION

[0008] In one aspect, the present invention provides an apparatus for securing insulation panels to a supporting structure, the apparatus including:

[0009] an elongate body;

[0010] a first end including a tip configured to pierce into the insulation panel and into the supporting structure;

[0011] a depth stop disposed along the elongate body and adjacent said tip, said depth stop providing a first abutment surface for a face of said supporting structure; and

[0012] a second end having associated therewith a second abutment surface, whereby a distance between the first abutment surface and the second abutment surface is less than or equal to a minimum thickness of said insulation panels.

[0013] In an embodiment, the second abutment surface is associated with a head portion of the apparatus.

[0014] In an embodiment, the supporting structure is an overhead structural element such as a roof truss element, wherein said face is a lower face of the roof truss element.

[0015] In an alternate embodiment, the supporting structure is an upright element such as a wall stud, wherein said face is an outer face of the wall stud.

[0016] In an embodiment, the insulation panels are rigid cellular insulation (RCI) panels.

[0017] In a further embodiment, the insulation panels are expanded polystyrene foam panels.

[0018] In an embodiment, the apparatus is a screw apparatus whereby the tip is pointed and includes a thread on an outer surface of the apparatus body adjacent the tip, whereby tightening of the apparatus into the panel and into the supporting structure involves screwing the screw apparatus.

[0019] In an embodiment, the head portion is a hexagonal screw head.

[0020] In an embodiment, the depth stop is a shoulder formed integrally with the apparatus body having of a larger cross sectional dimension than the body. The skilled addressee would understand that in having a body of smaller cross sectional dimension to that of the depth stop, manufacturing costs and thermal bridging from the supporting structure is reduced. This is particularly important when the supporting structure is a truss element. such that if the screw apparatus included a heavy metal body of the same or larger cross section than the depth stop, the ability to transfer heat from the truss element would be greater.

[0021] In an embodiment, the screw apparatus including the tip, depth stop, body and head form an integral structure.

[0022] In an embodiment, the tip is configured to screw into solid roof truss element such as a wooden truss section.

[0023] In an alternate embodiment, the tip is configured to screw into a rolled metal truss element.

[0024] In another aspect, the present invention provides an assembly including:

[0025] an apparatus configured for securing insulation panels to an overhead supporting structure in accordance with the above described paragraphs; and

[0026] a bracket including an upper face configured to be sandwiched between the insulation panel and the head portion of the apparatus, the bracket further including

hook means suspended there from for supporting a ceiling support structural member.

[0027] In an embodiment, the bracket is an inverted U-shaped bracket including a longitudinal upper face and two side walls extending downwardly there from.

[0028] In an embodiment, the bracket upper face includes a slot having an opening at one end thereof and a linear portion, the linear portion being of a dimension to accommodate sliding of the apparatus elongate body there along but not allowing for retraction of the depth stop, the opening being of a dimension to allow for insertion of the apparatus including the depth stop.

[0029] In an embodiment, the hook means are in the form of downward extensions of each corner of each side wall into a hook such that each side wall includes two inwardly facing hook sections and each bracket includes four hook sections at lower corners thereof.

[0030] In an embodiment, the ceiling support structural member is a batten including a lower surface to which a ceiling panel is adapted to be fixed, and upright, slightly diverging side walls which terminate in horizontally extending flanges adapted to be supported inside each pair of inwardly facing hook sections.

[0031] In an embodiment, the side walls are compressible such that the width of the batten can be manually decreased in order for the flanges to fit between the hook sections, and then engage inside the hook sections by releasing the side walls to their original form.

BRIEF DESCRIPTION OF THE DRAWINGS

[0032] The present invention will now be described with reference to the accompanying drawings which illustrate exemplary embodiments of the present invention, wherein:

[0033] FIG. 1 is a perspective view of an embodiment of a screw apparatus of the present invention for securing an insulation panel to a roof truss element;

[0034] FIG. 2 is a perspective view of an embodiment of a screw apparatus for securing an insulation panel to a roof truss element according to an alternate embodiment;

[0035] FIG. 3 is a top, perspective view of an embodiment of a ceiling batten support bracket forming part of an assembly of the present invention;

[0036] FIG. 4 is a top, perspective view of a plurality of roof truss elements including insulation panels propped up against a lower face of the roof truss elements to form an insulating layer;

[0037] FIG. 5 is a top, perspective view of the roof truss elements and propped insulation panels of FIG. 4, and assemblies according to an embodiment of the invention whereby each assembly includes a screw apparatus and a ceiling batten support bracket for securing the panels to the roof truss elements and presenting a means of attachment for a plurality of ceiling support battens;

[0038] FIG. 6 is a top, cutaway perspective view of the components shown in FIG. 5 in a fully assembled state, and ceiling support battens supported at right angles to the direction of the roof truss elements by axially aligned and spaced apart ceiling batten support brackets;

[0039] FIG. 7 is a top, perspective view of the components of FIG. 6 in a fully assembled state, and ceiling panels attachable to a lower face of the ceiling support battens;

[0040] FIG. 8 is a top, cutaway perspective view of the components of FIG. 7 in a fully assembled state;

[0041] FIG. 9 is a top, perspective view of the components of FIG. 7 in a fully assembled state;

[0042] FIG. 10 is an enlarged perspective view of an embodiment of an assembly of the invention including a screw apparatus used to secure an insulation panel to a roof truss element and an associated bracket partially supporting a ceiling support batten to which a ceiling panel is attached;

[0043] FIG. 11A is a cross sectional view of an embodiment of an assembly as shown in FIG. 10 whereby the bracket is slightly embedded in the insulation panel;

[0044] FIG. 11B is a cross sectional view of an embodiment of an assembly as shown in FIG. 10 whereby the bracket is flush with a lower face of the insulation panel; and

[0045] FIG. 12 is a cross sectional view of an embodiment of the invention whereby the roof truss elements are rolled metal sections.

DETAILED DESCRIPTION OF EMBODIMENT(S) OF THE INVENTION

[0046] The following detailed description of the invention refers to the accompanying Figures. Although the description includes exemplary embodiments, other embodiments are possible, and changes may be made to the embodiments described without departing from the spirit and scope of the invention. Wherever possible, the same reference numbers will be used throughout the embodiments and the following description to refer to the same and like parts.

[0047] Reference to a “structural element”, “truss element”, “roof truss element” or “wall stud” herein is not intended to limit the invention to any one type, shape or orientation of supporting structure or structural element thereof. For example, in one embodiment, the supporting structure could form part of a roof truss, and thus may include within its scope any type of roof truss element, including rolled steel sections or solid roof truss beams. The invention is not intended to be limited to use of a roof truss element. A truss element may be an upright element such as a wall stud for example. Provided the structure or surface thereof is of a sufficient structural integrity to support multiple components, and presents an attachment face, then it forms a suitable supporting structure as described herein.

[0048] The present invention relates to an apparatus and assembly for securing insulation panels directly to a face of a supporting structure, such as a horizontal roof truss element or an upright wall stud. When secured to an overhead supporting structure, the assembly provides a means for attachment of ceiling panels a spaced distance below the insulating panels. In one aspect, the invention provides an apparatus for securing the insulation panels which overcomes various deficiencies associated with prior art methods of securing the panels. In another aspect, the invention provides an assembly for supporting a plurality of ceiling support battens at a level height.

[0049] According to one embodiment, the apparatus is in the form of a screw apparatus 10 as shown in FIG. 1 including a longitudinal body 12 having a screw head 14 at one end and a threaded section 16 at, or adjacent to, an opposed end. Disposed inwardly of the threaded section 16 is a depth stop 18 in the form of a shoulder providing an abutment surface 20. The threaded section 16 shown in FIG. 1 is of the type for screwing into a solid roof truss element, but the tip of the apparatus 10 could be configured a number of other ways, including for screwing into thin steel sections and the like as described further below.

[0050] The distance between the abutment surface 20 and a flat surface 22 associated with the screw head 14 will be referred to herein as the “critical dimension” of the screw apparatus 10. However, use of the word “critical” should in no way be considered limiting, or interpreted as referencing a preferred embodiment of the invention. In addition, the surface 22 need not necessarily be associated with the screw head, but could be in the form a second depth stop for example.

[0051] A screw apparatus 12 according to an alternate embodiment is shown in FIG. 2 whereby the threaded section 16 includes a “self-drilling” type tip 23 for particular use in screwing into rolled metal elements such as the substantially Z-shaped rolled steel element shown in FIG. 12, as opposed to a conventional thread for drilling into solid truss elements as shown in the other drawings. The assembly for providing an even surface for installation of ceiling panels, according to one embodiment, includes the screw apparatus 10 of FIG. 1 and a ceiling support bracket 24 as shown in FIG. 3.

[0052] The bracket 24 is of an inverted U-shaped, longitudinal dimension including two vertical side walls 26 and an upper wall 28. Each vertical side wall terminates at each lower corner into downwardly extending and inwardly directed hook sections 30 such that there are four hook sections associated with each bracket 24. The hook sections 30 are adapted to suspend and support a ceiling support batten 30 as will be described in more detail below.

[0053] The upper wall 28 includes a longitudinal slot 32 including at one end a circular opening 34 of sufficient dimension to allow for insertion of the screw apparatus body 12 as well as the depth stop 18, and a linear portion 36 of a sufficient dimension to allow for sliding of the body 12, but not large enough to allow for retraction of the depth stop 18. Further, the upper wall 28 terminates at its longitudinal ends in small downwardly sloped ramps 35 which are intended to assist an installer by allowing the bracket 24 to slide sideways more easily during positioning/tightening, as described in more details below.

[0054] The way in which the screw apparatus 10 acts to secure an insulation panel to a supporting structure, and thereby overcome some of the deficiencies associated with prior art methods of doing so, will now be described with reference to FIGS. 4 to 10 which demonstrate step by step the process of installing insulation and ceiling panels to a roof truss in accordance with an embodiment of the present invention. The following paragraphs will also demonstrate how an assembly incorporating both the screw apparatus 10 and the bracket 24 provides for the ceiling panels to be secured at an even height relative to the overhead roof trusses.

[0055] FIG. 4 illustrates three horizontal roof truss elements 38 forming part of three roof truss assemblies (not shown in full) with a plurality of foam insulation panels 40. At this stage of installation, the panels are being held in place ready to be fastened or secured to the overhead roof truss elements, and can be held by a ground prop (not shown), or by one or more installers, although the present invention is not intended to be limited to any one of these means of support.

[0056] In the embodiment shown, the panels include straight side edges which are adapted to abut, but in an alternate embodiment (not shown), the insulation panels could include side edges capable of engaging one another such that sides of the panels may engage with adjacent panels. This

would simplify the installation procedure in that one would no longer need to ensure that every panel is individually propped.

[0057] The next step of insulation is shown in FIG. 5 in which the screw apparatus 10 of FIG. 1 is shown together with the bracket 24 of FIG. 3. This assembly of components is used to secure the insulation panels 40 to the overhead truss elements 38 and, as shown in FIG. 5, the screw apparatus 10 is adapted to be inserted through slot 32 of bracket 24. A fitter would insert the screw apparatus into the rounded opening 34 of the bracket slot 32 until the depth stop 18 is fully inserted, and then slide the screw apparatus 10 along the linear portion 36 to an appropriate position, ensuring that the depth stop can no longer be retracted from the slot.

[0058] Once an installer has partially engaged the screw apparatus 10 with the bracket 24 like so, the screw can be used to pierce the insulation panel by tightening of the screw into the panel surface at a position beneath an overhead roof truss element. The installer continues tightening until the threaded section end of the screw apparatus contacts a lower face 42 of the truss element 38. The installer then would continue to tighten the screw apparatus to thereby pierce the truss element and continue tightening until the depth stop surface 20 abuts the lower face 42 of the truss at which point further tightening will be opposed by the lower face 42. It is at this time that the installer knows that no further tightening is required.

[0059] In one embodiment the critical dimension of the screw apparatus body 12 defined earlier is slightly less than the smallest measured thickness of each insulation panel to ensure that the bracket 24 will always create a tight, rattle-free fit in that the bracket becomes slightly embedded in the foam as shown in FIG. 11a.

[0060] Owing to the nature by which such insulation panels are manufactured, it is estimated that the panel thickness may vary. For example, one panel thickness may vary compared to another panel thickness by up to 3 mm or more. The skilled addressee would understand now why the critical dimension of the screw apparatus is an important factor. If the critical dimension is larger than a maximum thickness of the foam panels, the foam panel will be allowed to rattle which is undesirable. If the critical dimension is the same as the thickness of the foam panel, as shown in FIG. 11b, this may still be adequate. However, in an embodiment that ensures that the panel is secured free of movement, this dimension should be made slightly less than the minimum panel thickness. It is also evident in FIG. 11a how the upper face of the bracket 24 effectively acts as a washer for the screw apparatus 10 in that it provides an abutting surface for the screw head surface 22.

[0061] When the insulation panels are propped in position, the installers are unable to see the overhead truss. However, the approximate position of the truss can be estimated in that they are visible at the edge of the panels and they also align with the wall studs (not shown) that are visible from within the building. This is how the installer will know approximately where to pierce the insulation panel to reach the truss element. Fitters are quite accustomed to lining up assemblies like so and it is not envisaged that this will pose a problem. There are also now devices available to send and provide an audible/visible alarm to indicate where a beam is hidden behind a panel. FIG. 6 illustrates the next step of attaching ceiling support battens to aligned brackets 24 secured beneath the insulation panels. The skilled addressee would understand the importance of having brackets which are secured to the panels in appropriate alignment in order to accommodate a

batten. Each batten **44** is substantially U-shaped with a horizontal base **46** and outwardly diverging, upright side walls **48**. The side walls terminate in substantially horizontal flanges **50** which are the portions dimensioned to be accommodated and secured inside inwardly directed hook sections **30** of each bracket.

[0062] When fixed to the insulation panels, each longitudinal bracket is aligned parallel with the longitudinal overhead roof truss element, and the hook sections **30** thereof are configured such that the battens will be accommodated at right angles to the overhead roof truss elements. The slot **32** in the brackets facilitates the alignment of brackets associated with spaced apart roof truss elements in that spaced apart brackets accommodating a single batten are able to be appropriately aligned with one another just prior to final tightening of the screw apparatus' **10**.

[0063] Alignment of spaced brackets can be achieved any number of ways including by laser alignment or by visible inspection. The configuration of each batten is such that the outwardly diverging side walls can be slightly compressed until the batten is appropriately centered inside the hook sections **30** and then released so that the flanges **50** enter the hook sections and are thereby restricted from downward movement.

[0064] The skilled addressee would appreciate that, in carrying out the abovementioned steps, a plurality of batten support brackets **24** across an entire ceiling are positioned an equal distance away from a lower face of a roof truss element, and battens suspended there from are thus also disposed at an even, level height. The base surface **46** of each batten is then ready to accommodate ceiling panels **52**, such as plasterboard panels, as shown in FIG. 7.

[0065] The panels **52** can be attached to the base surface **46** of each batten using any conventional means, including by using screw fasteners (not shown). FIGS. **8** and **9** show the fully assembled and installed views of each of the prior described components. It can be appreciated, in particular in FIG. **8**, that a clearance is created between the ceiling panels **52** and the foam panels **40** there above. This clearance is equal to substantially the combined height of the engaged bracket **24** and batten **44**.

[0066] In one embodiment, the engaged bracket and batten are dimensioned such that they create an approximately 40 mm air cavity **54** between the underside of the insulation panels and the top surface of the ceiling panels, allowing for fitment of ceiling fixtures and other utilities (not shown).

[0067] FIG. **10** shows an enlarged view of the fully assembled screw apparatus **10** and an assembly including a screw apparatus **10** and a batten support bracket **24** assembly according to an embodiment.

[0068] In one embodiment the thickness of the insulation panels ranges between approximately 113 mm to 115 mm and is constructed of expanded polystyrene foam which allows for the screw to pierce through the panel. In this example embodiment, the critical dimension of the screw apparatus **10** may accordingly be 112 millimeters, that is, slightly less than the minimum thickness of the insulation panel. The skilled addressee would understand that the resulting engagement would be similar to that shown in FIG. **11a** which, as mentioned earlier, shows the bracket slightly embedded into the foam panel. The invention is in no way intended to be limited to the above described dimensions and/or thickness variations.

[0069] As mentioned earlier, the present invention is not intended to be limited to any one type of roof truss element. For example, FIG. **12** illustrates a further embodiment whereby the roof truss element is a substantially Z-shaped rolled steel truss element **56** and the screw apparatus **10** is of the type shown in FIG. **2** adapted for screwing the thickness of steel as shown. As mentioned earlier, it is to be understood that variations to the type of roof truss element and the means of fastening the apparatus **10** to the truss are considered within the scope of the invention. For example, the truss element could indeed be an upright wall stud.

[0070] The present invention thus provides an apparatus **10** which overcomes some of the deficiencies associated with prior art methods of securing insulation panels to a supporting structure such as an underside of horizontally extending roof truss elements, in that an installer can simply prop up the panels and pierce the apparatus through the panel and into the truss without the need to ensure that the insulation panels are positioned or arranged in any particular way. That is, the apparatus **10** need not extend alongside edges of abutting panels in order to support the two adjacent panels as was required in prior art apparatus known to the Applicant.

[0071] In another aspect, the invention provides an assembly including such a screw apparatus **10** in association with a bracket **24** which is clamped to the underside of the foam panel using the aforementioned screw apparatus **10** and configured to provide a support for a plurality of battens extending at right angles to the roof truss elements at even distances from the roof truss elements. That is, a lower surface of each batten provides an even surface across an entire ceiling to which an installer may attach ceiling panels.

[0072] Thus, insulation and ceiling fitters are able to install ceiling insulation panels to a higher degree of screw position flexibility while maintaining a consistent drop height from the roof truss element, or other supporting structure. In addition, the configuration provides a cavity between the insulation panels and the top surface of the ceiling panels, thereby accommodating any required utilities such as electrical wiring.

[0073] The reference to any prior art in this specification is not, and should not be taken as, an acknowledgement or any suggestion that the prior art forms part of the common general knowledge in Australia.

1. An apparatus for securing insulation panels to a supporting structure, the apparatus including:

- an elongate body;
- a first end including a tip configured to pierce into the insulation panel and into the supporting structure;
- a depth stop disposed along the elongate body and adjacent said tip, said depth stop providing a first abutment surface for a face of said supporting structure; and
- a second end having associated therewith a second abutment surface, whereby a distance between the first abutment surface and the second abutment surface is less than or equal to a minimum thickness of said insulation panels.

2. An apparatus as in claim 1 wherein the second abutment surface is associated with a head portion of the apparatus.

3. An apparatus as in claim 1 wherein the supporting structure is an overhead structural element such as a roof truss element, wherein said face is a lower face of the roof truss element.

4. An apparatus as in claim 1 wherein the supporting structure is an upright element such as a wall stud, wherein said face is an outer face of the wall stud.

5. An apparatus as in claim 1 wherein the insulation panels are rigid cellular insulation (RCI) panels.

6. An apparatus as in claim 1 wherein the insulation panels are expanded polystyrene foam panels.

7. An apparatus as in claim 1 wherein the apparatus is a screw apparatus whereby the tip is pointed and includes a thread on an outer surface of the apparatus body adjacent the tip, whereby tightening of the apparatus into the panel and into the supporting structure involves screwing the screw apparatus.

8. An apparatus as in claim 1 wherein the head portion is a hexagonal screw head.

9. An apparatus as in claim 1 wherein the depth stop is a shoulder formed integrally with the apparatus body having of a larger cross sectional dimension than the body.

10. An apparatus as in claim 1 wherein the screw apparatus including the tip, depth stop, body and head form an integral structure.

11. An apparatus as in claim 1 wherein the tip is configured to screw into solid roof truss element such as a wooden truss section.

12. An apparatus as in claim 1 wherein the tip is configured to screw into a rolled metal truss element.

13. An assembly including:

an apparatus configured for securing insulation panels to an overhead supporting structure in accordance with the above described paragraphs; and

a bracket including an upper face configured to be sandwiched between the insulation panel and the head por-

tion of the apparatus, the bracket further including hook means suspended there from for supporting a ceiling support structural member.

14. An assembly as in claim 13 wherein the bracket is an inverted U-shaped bracket including a longitudinal upper face and two side walls extending downwardly there from.

15. An assembly as in claim 14 wherein the bracket upper face includes a slot having an opening at one end thereof and a linear portion, the linear portion being of a dimension to accommodate sliding of the apparatus elongate body there along but not allowing for retraction of the depth stop, the opening being of a dimension to allow for insertion of the apparatus including the depth stop.

16. An assembly as in claim 13 wherein the hook means are in the form of downward extensions of each corner of each side wall into a hook such that each side wall includes two inwardly facing hook sections and each bracket includes four hook sections at lower corners thereof.

17. An assembly as in claim 13 wherein the ceiling support structural member is a batten including a lower surface to which a ceiling panel is adapted to be fixed, and upright, slightly diverging side walls which terminate in horizontally extending flanges adapted to be supported inside each pair of inwardly facing hook sections.

18. An assembly as in claim 17 wherein the side walls are compressible such that the width of the batten can be manually decreased in order for the flanges to fit between the hook sections, and then engage inside the hook sections by releasing the side walls to their original form.

* * * * *