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(54) Terminal box for water installation and an expansion member therefore

(57) The present invention relates to a terminal box (18) for water installation and of the type being adapted for wall flush mounting and comprising at least one inlet terminal (24) for a PEX-pipe and at least one outlet terminal (26) for a water tap or the like, said terminal box (18) being provided with a number of expansion members (22,34), by means of which said terminal box (18) may be fixed in a mounting hole (2) provided in a brick wall or a concrete wall. It is hereby obtained a new and improved terminal box by means of which it is possible to obtain a more easier and quicker fixation of the terminal box in correct position in the mounting hole, without the need of using any external fixing bar or the like.

It is furthermore disclosed an expansion member (34) for use - by way of example - in connection with a terminal box (18) for wall flush mounting for water installation, comprising two wedges (30) of similar slope arranged such that the thin end of the wedges (30) overlies, and that both wedges (30) are interconnected by means of a screw (32) available for operation from the front side of the outermost wedge (30).

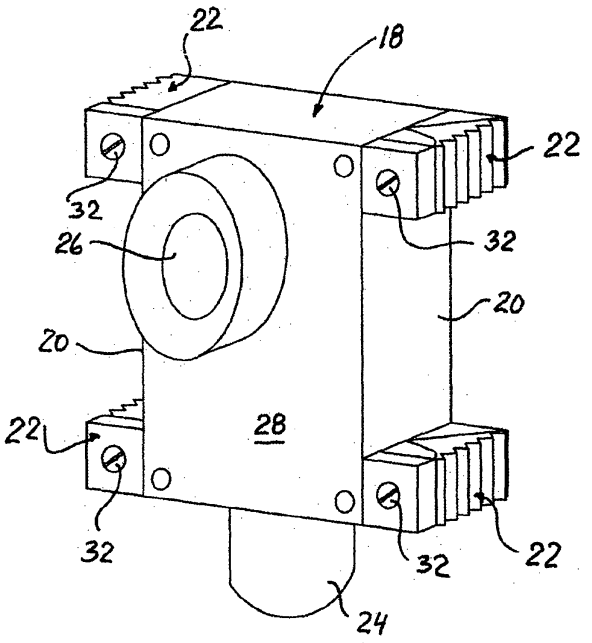

Fig. 3

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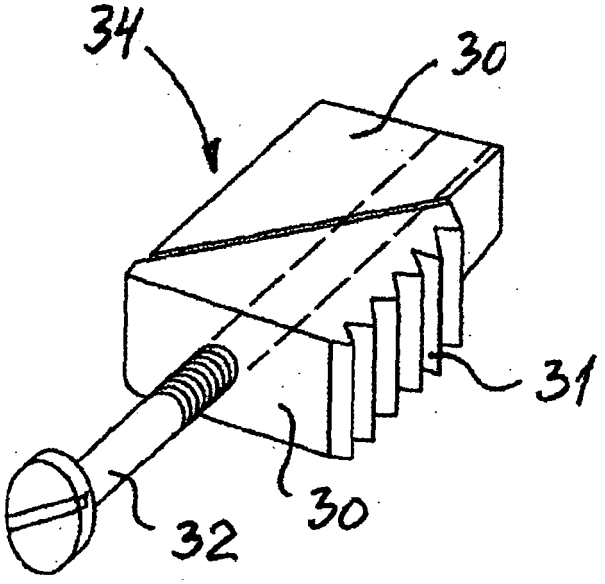

Fig. 5

Description

Field of the Invention

[0001] The present invention relates to a terminal box for water installation and of the type indicated in the preamble of claim 1.

[0002] The invention also relates to an expansion member for use - by way of example - in connection with a terminal box for wall flush mounting for water installation.

Background of the Invention

[0003] For water installations as well as for heating installations which is build-in in brick or concrete walls is often made use of PEX-pipes in connection with special terminal boxes.

[0004] During the preparation of the building-in of a terminal box for hidden water installation a rectangular mounting hole is cut the brick wall or concrete wall by means of a cutting tool and a chisel. Normally the rectangular hole is made by cutting two mutually parallel vertical grooves and two mutually horizontal grooves in such a way that the distances between the respective vertical and horizontal grooves determine the width and the height of the hole, Then the central part of the brick wall between the grooves is removed by mean of a chisel and a hammer. Hereby is made a hole with smote sides, however the bottom part of the hole is rather rough and uneven, which means that it can be rather difficult to fix the terminal box inside the hole in a correct position.

[0005] In order to be able to fix such terminal boxes in correct position in relation to the wall surface, it is known to provide the terminal box with a special external fixation bar adapted to be fastened to the wall surface at opposite sides of the mounting hole by screws. In other words one have to marked up and to drill holes for screw plugs in correct positions and such works may be rather time consuming. Another disadvantage is that the subsequent plaster work for building-in the terminal box is made difficult by the presence of the fixing bar.

Object of the Invention

[0006] On that background it is the purpose of the invention to provide a new and improves terminal box of the introductory indicated type, by means of which it will be possibly to obtain a more easier and quicker fixation of the terminal box in correct position in the mounting hole, without the need of using any external fixing bar or the like.

Description of the Invention

[0007] The terminal box according to the invention is characterized in being provided with a number of expansion members, by means of which said terminal box may be fixed in a mounting hole provided in a brick wall or a concrete wall. By simple provisions is hereby obtained a new and improved terminal box by means of which it will be possibly to obtain a more easier and quicker fixation of the terminal box in correct position in the mounting hole, without the need of using any external fixing bar or the like.

[0008] Appropriately, the terminal box according to the invention may be such adapted, that it is provided with one of said expansion members at opposite sides.

[0009] Advantageously, the terminal box according to the invention may be such adapted, that it is provided with two of said expansion members at opposite sides.

[0010] The terminal box according to the invention may furthermore be such adapted, that the expansion members are integrated with said terminal box at opposite sides thereof.

[0011] With particular advantages the terminal box according to the invention may be such provided, that each of said expansion members comprises two wedges of similar slope arranged such that the thin end of the wedges overlies, and that both wedges are interconnected by means of a screw available for operation from the front side of the terminal box.

[0012] Appropriately, the terminal box according to the invention is such adapted, that the outermost of said wedges is provided with a corrugated surface for engagement against an inside of a said mounting hole.

[0013] In order to integrate said expansion members with the terminal box according to the invention it may appropriately be such provided, that the outermost of said wedges is connected to a front part of said terminal box by means of a flexible, thin wall part.

[0014] The invention also relates to an expansion member for use - by way of example - in connection with a terminal box for wall flush mounting for water installation.

[0015] The expansion member according to the invention is characterized in; that it comprises two wedges of similar slope arranged such that the thin end of the wedges overlies, and that both wedges are interconnected by means of a screw available for operation from the front side of the outermost wedge.

[0016] Appropriately, the expansion member according to the invention may be such adapted, that the outermost of said wedges is provided with a corrugated surface for engagement against by way of example an inside of a mounting hole.

[0017] Furthermore the expansion member according to the invention may be such provided, that each wedge having a retaining means preferable in the form of a dovetail rib and groove - as by way of example disclosed in GB-A-2404388. In use the retaining means keeps the two wedges together while allowing movement along the line of greatest slope.

Description of the Drawing

[0018] The invention is described in more details in the following with reference to the accompanying drawing, in which:-

Fig. 1 shows a perspective view of an embodiment for a mounting hole for a terminal box according to the invention as provided in a brick wall or concrete wall,

Fig. 2 shows a perspective view of a known PEX-pipe terminal box for wall flush mounting for water or heating installation,

Fig. 3 shows a perspective view of an embodiment for a terminal box according to the invention,

Fig. 4 shows an enlarged perspective view of an upper corner part of the terminal box shown in Fig. 2,

Fig. 5 shows a perspective view of an embodiment for a loose expansion member according to the invention,

Fig. 6 shows a perspective view of another embodiment for a terminal box being provided with another embodiment for expansion members according to the invention - seen from the top side of the terminal box,

Fig. 7 shows a perspective view of a terminal box cf. Fig. 6 during the fixation in a mounting hole in a wall, and

Fig. 8 shows the terminal box cf. Fig. 6 after the fixation/mounting in the wall.

Detailed Description of the Invention

[0019] Fig. 1 illustrates an embodiment for a mounting hole 2 for a PEX-pipe terminal box (Fig. 3) according to the invention, where the mounting hole is made by means of a groove cutting tool - by way of example an angle grinder. With mutual distance two vertical, parallel grooves 4 are cut forming the vertical inside walls 6 of the mounting hole 2, while two horizontal, parallel grooves 8 are cut to form the height of the mounting hole 2. Afterwards the brick or concrete material between the vertical grooves 4 and the horizontal grooves 8 forming the horizontal inside walls 10 is removed by means of a chisel and a hammer, whereby the bottom part 12 of the mounting hole 2 becomes rather rough and uneven. Finally at the lower horizontal inside wall 10 is cut a central vertical the groove 14 for the PEX-pipe to be connected to an inlet terminal of the terminal box.

[0020] Fig, 2 shows a known or prior art terminal box 16. From the outer configuration or shape of this it is easy to understand that may be very difficult or time consuming to get this known terminal box 16 correct positioned for wall flush mounting in a mounting hole like the mounting hole 2.

[0021] Otherwise, by the embodiment for a terminal box 18 shown in Fig. 3, it is easy to understand, that this terminal box 18 is designed for easy fixation in a mounting hole 2 as shown in Fig. 1. For that purpose the terminal box 18 is at both vertical sides 20 at the corner parties provided with four expansion members 22 being designed to fixation the terminal box 18 alone by engagement with the vertical inside walls 6 of the mounting hole 2. In other words the rough and uneven bottom part 12 of the mounting hole 12 has no importance or meaning at all for the correct and easy fixation of the terminal box 18 inside the mounting hole 2.

[0022] The terminal box 18 has a lower inlet terminal 24 for an inlet PEX-pipe connection and an outlet terminal 26 for the connection to a valve member or the like of a water installation. As seen more clearly in Fig. 4 the expansion members 22 may be easily operated from a front side 28 of the terminal box 18 by means of a simple screw driver.

[0023] Fig. 4 shows in details that each of the expansion members 22 comprises two wedges 30 of similar slope arranged such that the thin end of the wedges 30 overlies, and that both wedges 30 are interconnected by means of a through-going screw 32 available for operation from the front side 28 of the terminal box 18. When turning the screw 32 clockwise, the wedges 30 are engaging more and more with each other and the width of the expansion member 22 is increased until safe engagement against the vertical inside walls 6 is achieved and the terminal box 18 is positioned in correct fixation within the mounting hole 2. The outermost wedge 30 is provided with a corrugated surface 31 for engagement against by way of example an inside of a mounting hole.

[0024] As furthermore shown in Fig. 4 the expansion member 22 is connected or integrated with the terminal box 18 by means of a thin, flexible wall part 33 extending between the outermost wedge 30 and the corner part of the front side 28 of the terminal box 18.

[0025] During the development of the terminal box 18 according to the invention it was decided also to provide for loose expansion members 34 as shown in Fig. 5, so that in a transition period until terminal boxes 18 with integrated expansion members 22 are available in the market, the fixation principle according to the invention may be used for the fixation by loose expansion members 34. And therefore the said loose expansion members 34 being a part of the present invention.

[0026] The loose expansion members 34 may be provided with attachment means for quick and easy connection to the outside walls of a known terminal box similar to that terminal box 16 shown in Fig. 2.

[0027] Figs. 6-8 show a known terminal box 36 during the fixation/mounting in a mounting hole 38 by means of

a pair of loose expansion members 40 according to the present invention. In Fig. 6 is shown how existing lateral protruding, horizontal ribs 42 are used for the receiving of an inner part 44 of the expansion member 40 in such a manner, that a forwardly closed, elongate slot 46, provided in an inner edge of said inner part 44, fits on said rib 42, so that said inner part 44 can be placed on said rib 42 and be fixed behind a circular front part 48 of the terminal box 36. Opposite the elongate slot 46, said inner part 44 has an inclined edge or wedge part 50, along which a loose expansion part 52 may be displaced, as an inner edge part 54 thereof is provided with an elongate slot fitting on said wedge part 50.

[0028] The expansion part 52 is connected to the inner part 44 by means of a screw 56, which may be operated from the front side of the terminal box 36 (Fig. 7) by means of a screwdriver in order to activate the expansion members 40 by displacement of the expansion part 52 along the wedge part 50. Opposite said inner edge part 54 the expansion part 52 has a corrugated edge surface 58 adapted to engage with an inside, verti-cal wall part of the mounting hole 38. The width of which should be about 70 mm, while the depth of the mounting hole 38 should be about 45 mm.

[0029] The expansion member according to the invention may utilize any type of expansion system - by way of example the expansion member may consist of an oval or eccentric member being attached to the respective outsides of the terminal box and being adapted to be turned from the front side thereof by means of a tool engaging in a notch or the like.

[0030] Otherwise the expansion members may consist of pieces of flexible tube being attached to the opposite outsides of the terminal box and being provided with a cone-shaped member adapted to be forced into said pieces of flexible tube for the fixation of the terminal box against the predominantly vertical inside walls of a mounting hole with said inside walls furthermore being predominantly parallel.

[0031] Even for temporary fixation of door and/or window frames in the construction sector use may be made of either loose expansion members or integrated expansion members according to the present invention.

[0032] Finally it should be mentioned that the expansion principle according to the invention using either loose expansion members 34 or integrated expansion members 22 may be used more generally for the purpose of fixation of other types of boxes, mountings and the like between two predominantly vertical or horizontal sides or surfaces.

Claims

1. A terminal box (18) for water installation and of the type being adapted for wall flush mounting and comprising at least one inlet terminal (24) for a PEX-pipe and at least one outlet terminal (26) for a water tap or the like, **characterized in** being provided with a number of expansion members (22), by means of which said terminal box (18) may be fixed in a mounting hole (2) provided in a brick wall or a concrete wall.

2. A terminal box according to claim 1, **characterized in, that** it is provided with one of said expansion members (22) at opposite sides.

3. A terminal box (18) according to claim 1, **characterized in, that** it is provided with two of said expansion members (22) at opposite sides.

4. A terminal box (18) according to claim 1, **characterized in, that** the expansion members (22) are integrated with said terminal box (18) at opposite sides thereof.

5. A terminal box (18) according to any of the preceding claims, **characterized in, that** each of said expansion members (22) comprises two wedges (30) of similar slope arranged such that the thin end of the wedges (30) overlies, and that both wedges (30) are interconnected by means of a screw (32) available for operation from the front side of the terminal box (18).

6. A terminal box (18) according to claim 5, **characterized in, that** the outermost of said wedges (30) is provided with a corrugated surface (31) for engagement against an inside of a said mounting hole (2).

7. A terminal box (18) according to claim 5, **characterized in, that** the outermost of said wedges (30) is connected to a front part of said terminal box (18) by means of a flexible, thin wall part (33).

8. An expansion member (34) for use - by way of example - in connection with a terminal box for wall flush mounting for water installation, **characterized in, that** it comprises two wedges (30) of similar slope arranged such that the thin end of the wedges (30) overlies; and that both wedges (30) are interconnected by means of a screw (32) available for operation from the front side of the outermost wedge.

9. An expansion member (34) according to claim 8, **characterized in, that** the outer-most of said wedges (30) is provided with a corrugated surface (31) for engagement against by way of example an inside of a mounting hole (2).

10. An expansion member according to claim 8, **characterized in, that** each wedge having a retaining means preferable in the form of a dovetail rib and groove.

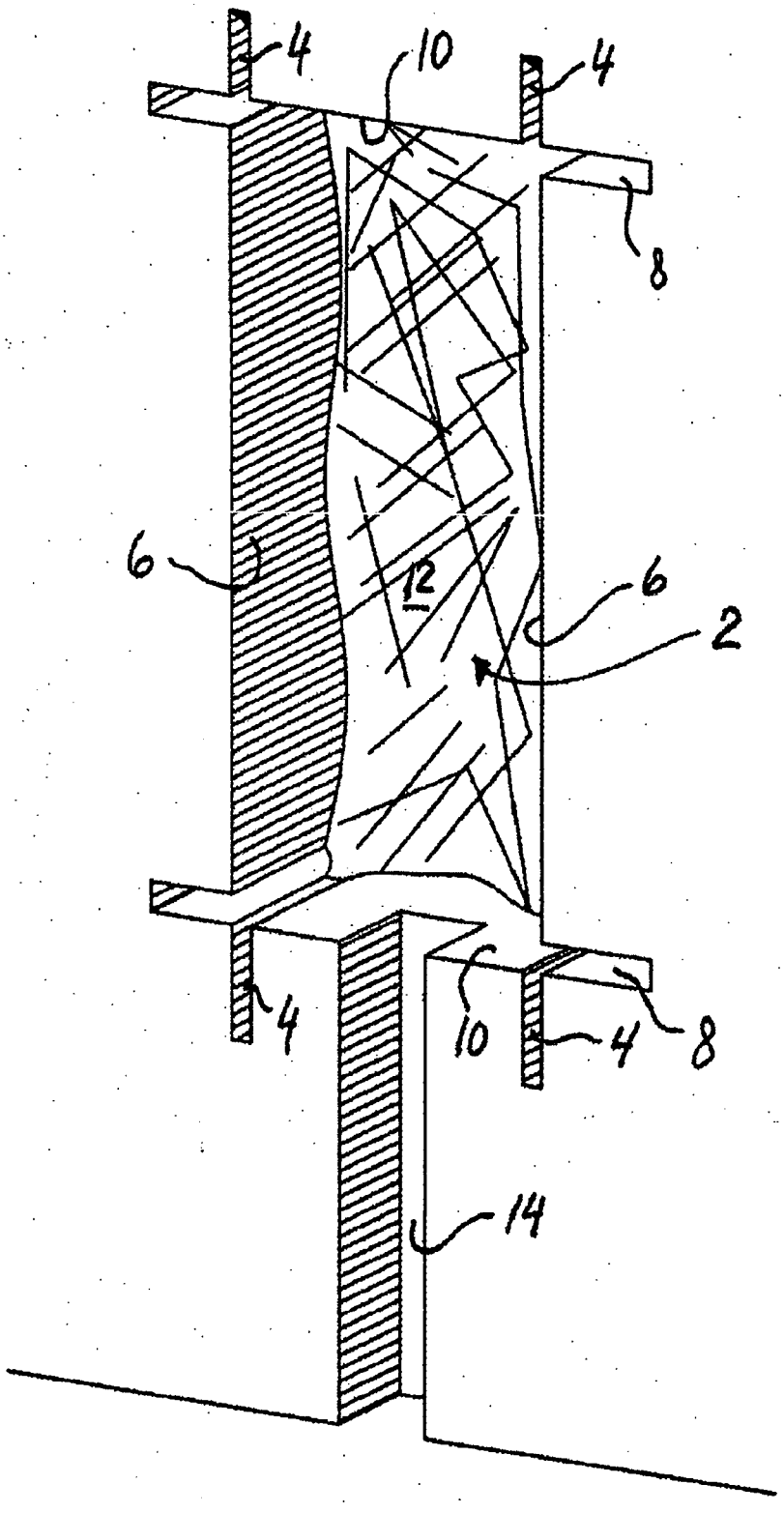

Fig. 1

PRIOR ART

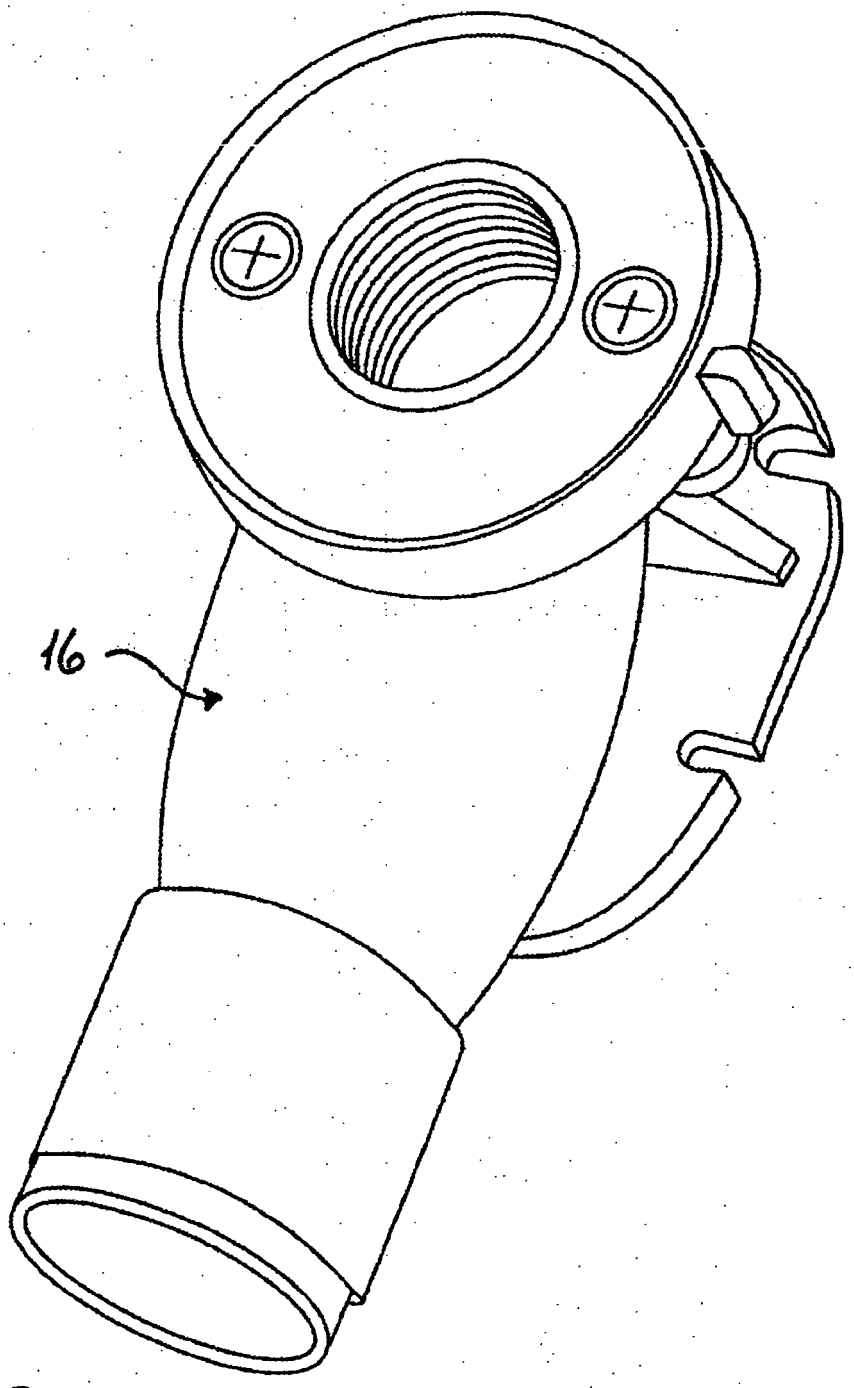

Fig. 2

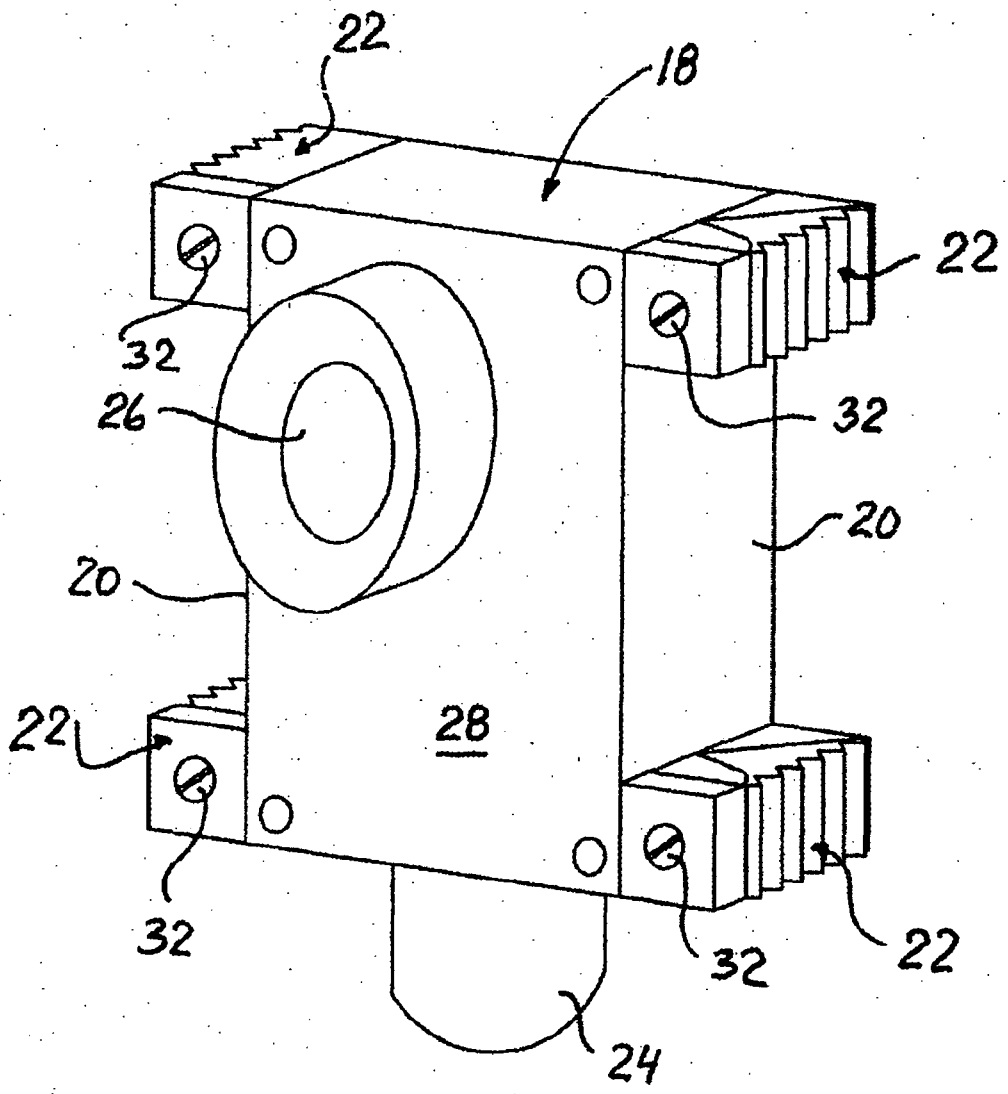

Fig. 3

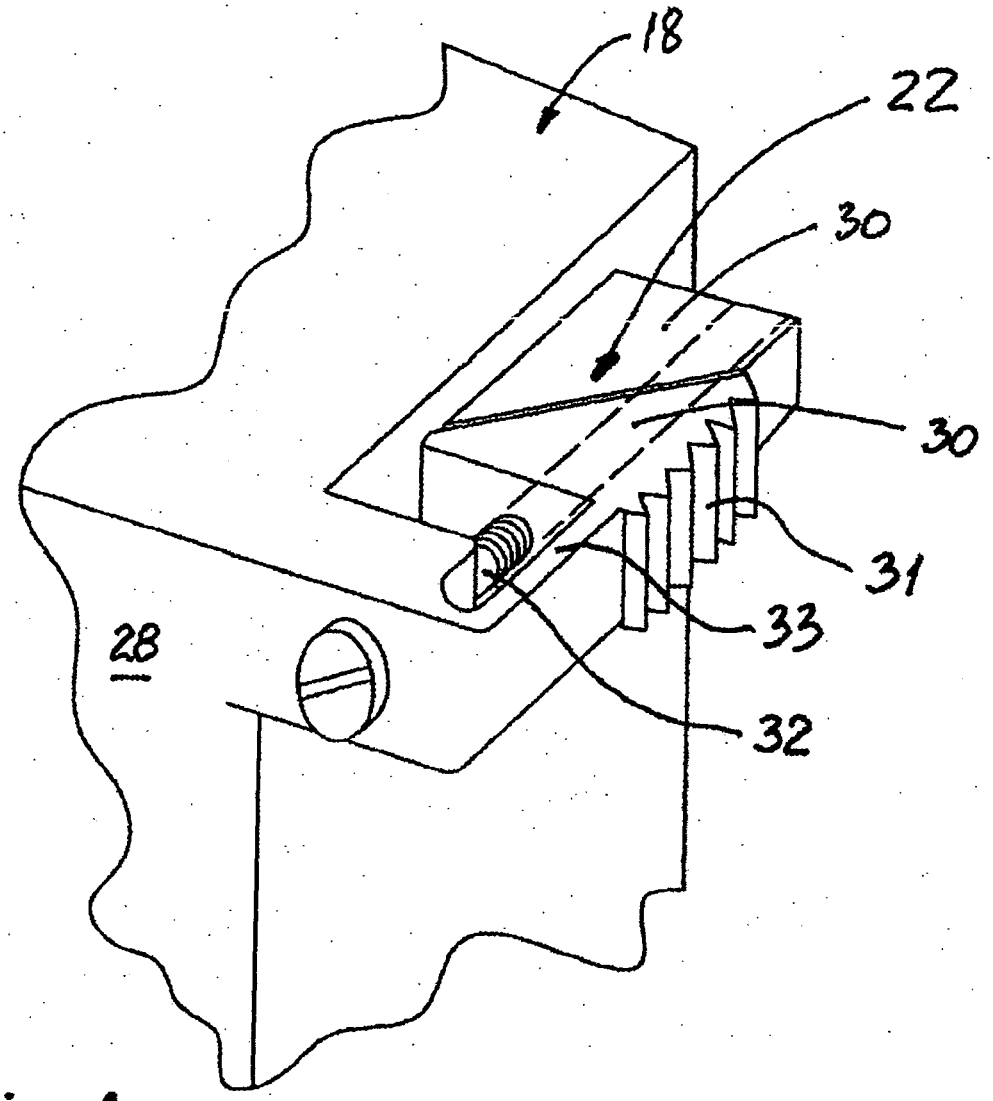

Fig. 4

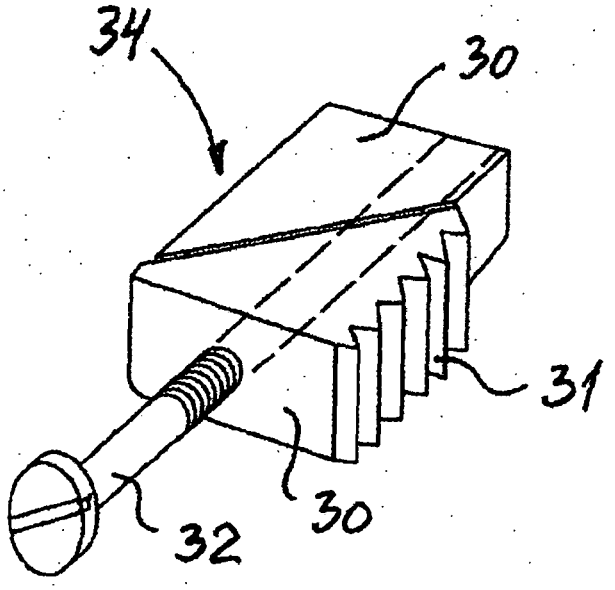

Fig. 5

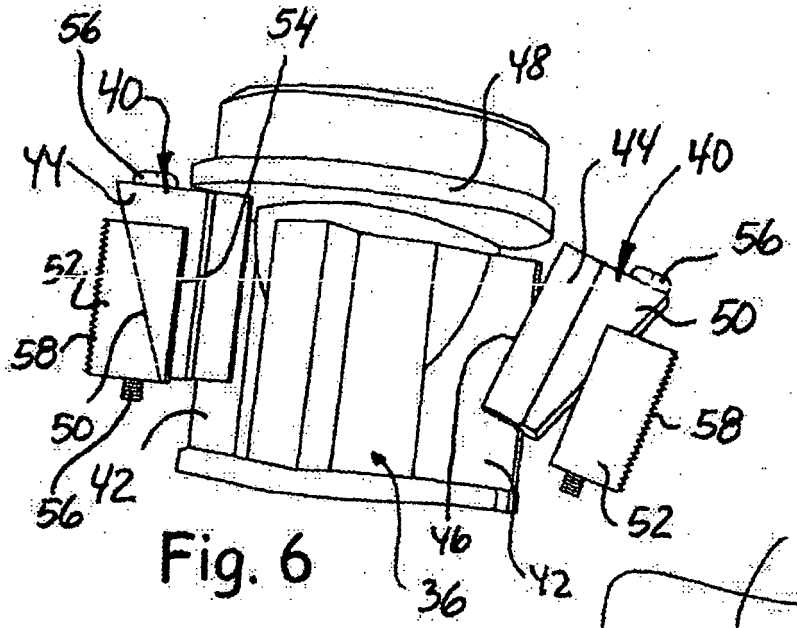

Fig. 6

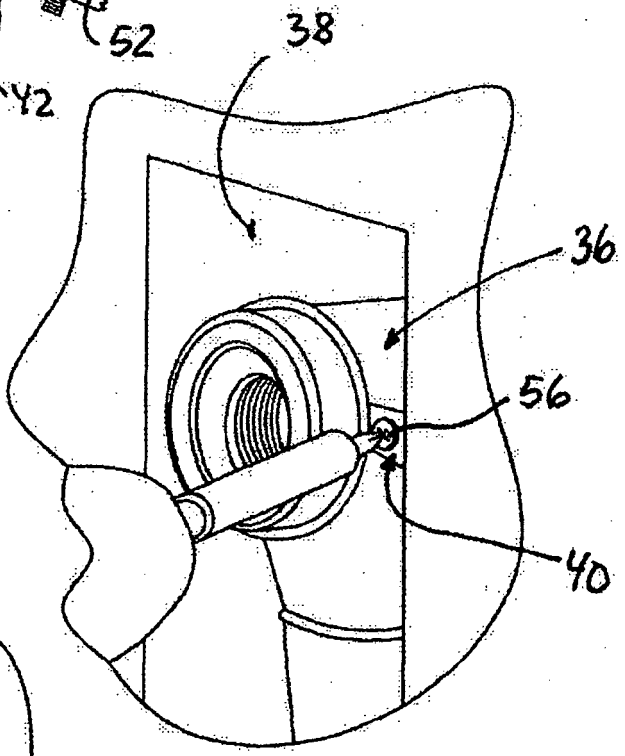

Fig. 7

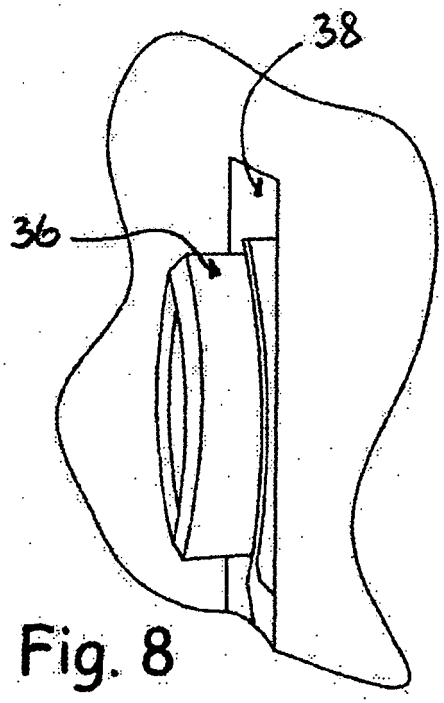

Fig. 8

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Application Number
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	8 December 2006	Isailovski, Marko

CATEGORY OF CITED DOCUMENTS

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