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(54) **Adjustable mounting apparatus for sanitary fittings**

Regulierbares Montageelement für Sanitärgegenstände

Elément de montage ajustable pour articles sanitaires

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(56) References cited:
**FR-A- 1 275 970 FR-A- 2 044 243
GB-A- 2 076 035 GB-A- 2 315 501**

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Description

[0001] THIS INVENTION concerns adjustable mounting apparatus for sanitary fittings.

[0002] For more than 100 years the traditional method of installing sanitary fittings such as a toilet bowl, bidet or pedestal wash basin is by attaching the fitting to the floor or other supporting surface, usually with screws. Due to the confined space, difficulty of position and awkwardness of fixing caused by the many different types and conditions of floor surfaces which they encounter, installers of such fittings do not like fixing sanitary products and like even less removing and replacing the same, a process which they believe should be relatively simple and straightforward.

[0003] One difficulty arises from the use of conventional screws as effective fasteners. A fastener such as a wood screw is designed to tighten and secure correctly and effectively when two surfaces are pulled together making direct surface to surface contact and ideally without the aid of supplementary fixing devices such as masonry plugs and the like.

[0004] The inherent design of the pedestal base or foot of a toilet, bidet or wash basin stand does not enable straightforward, effective and secure fixing to a floor surface owing to the fact that there is a large void between the floor surface and the countersunk aperture in the base region of the fitting. This void, combined with, in many cases, an uneven floor surface, and the fact that the sanitary fitting base surface is rarely exactly flat, creates stability and fixing problems which are both time consuming and costly.

[0005] A further difficulty, particularly on cement and composite floors which are commonly used in modern constructions, is the almost impossible task of successfully and correctly lining up the angle of the hole to be drilled and plugged because the installer cannot see past the fitting and is thus working totally blind.

[0006] Wooden floors, especially plywood, chipboard and other types of compressed wood products used in modern building, particularly in bathrooms and toilets, create other serious problems. After time, unless pre-treated correctly, such flooring can become softened by the ingress of atmospheric moisture or actual water splash. This problem is very prevalent in caravans and static homes where the interior atmosphere may be damp. Thus, it is not possible to maintain or obtain a secure fixing for the sanitary fittings.

[0007] In most countries, the waste is discharged through a P-bend or an S-bend on the toilet bowl which is then connected by a flexible coupling to a pipe leading to the external wall of the building to connect externally to a vertical waste pipe.

[0008] Document GB-A-2315501 describes a mounting apparatus for sanitary fittings comprising a base plate which may be screwed or otherwise fixed to the floor surface, and having several upstanding formations each with an aperture to receive a screw introduced

through an aligned aperture in the base region of the sanitary fitting. Such apparatus is design to match one type or model of sanitary fitting so that the apertures in the upstanding formations align accurately with the apertures in the fitting, and thus cannot be used universally with fittings of different manufacture, shape and size.

[0009] Document FR-A-2044243 discloses an adjustable mounting apparatus for a sanitary fitting and comprising a pair of brackets mounted on a retaining member which may be secured to a floor, the brackets having upstanding parts each with a single aperture to receive a fastener passing through the wall of the sanitary fitting. The apparatus relies upon alignment of the apertures in the sanitary fitting and those in the brackets and thus does not overcome the aforementioned problem of accurately locating the mounting apparatus.

[0010] It is an object of the present invention to provide apparatus by means of which the aforementioned problems are substantially avoided, and installation of a sanitary fitting can be achieved universally, accommodating different sanitary wear manufacturers' products.

[0011] According to the present invention, there is provided, an adjustable mounting apparatus for a sanitary fitting comprising two fixing brackets one or each of which is adjustably mounted with respect to the other on a retaining member, each bracket having at least one first formation for receiving at least one first fastener to enable the bracket to be secured to a supporting surface, and at least one second formation receiving at least one second fastener to enable the sanitary fitting to be secured to the bracket, the apparatus being adapted to be located beneath and concealed by a part of the fitting to be mounted on the supporting surface; characterised in that each bracket has an upstanding boss; in that each boss includes said second formation in the form of a close array of inclined bores each having a part to be located above the level of the supporting surface such as to enable alignment of at least one of said bores with an aperture in a sanitary fitting to be secured to the bracket; and in that the retaining member is a bar of adjustable length slidably mounted with respect to at least one of the brackets.

[0012] This apparatus provides a great many advantages and benefits in its application. The major problems of creating a secure base for the fixing of a toilet bowl are immediately overcome. The assembled mounting apparatus is quickly and securely fastened to the supporting surface without the need to use the heavy and awkward-to-handle toilet bowl as a template. The apparatus is universally adaptable for the fixing of sanitary fittings of many different designs.

[0013] Once the apparatus is secured to the supporting surface, attachment of the sanitary fitting is a simple, straightforward procedure. The apparatus has another exceptional advantage in that it facilitates simple, straightforward plumbing maintenance by allowing ready removal of the toilet bowl for maintenance, plumbing, decorating and the laying of new floor surfaces such

as ceramic tiles. Upon completion of the maintenance work, the toilet bowl is simply replaced on the apparatus in exactly the same position, an advantage which is not attainable using traditional methods of fixing sanitary fittings.

[0014] The apparatus can be fastened to the supporting surface in its correct position in advance of delivery of the sanitary fitting, which is particularly advantageous in large building projects such as housing estates, hotels and hospitals, resulting in greatly reduced installation time and cost.

[0015] The apparatus may comprise three separate parts which may be manufactured as plastics mouldings. This is very convenient and economical for mass production.

[0016] Typically, the first formation will comprise a plurality of holes or slots through which fasteners such as screws may be passed for attachment to the supporting surface. This arrangement permits a wide variety of fasteners to be used, to suit a particular installation.

[0017] The second formation may be comprised of a plurality of holes, each having a plain bore, so that the fasteners, such as ordinary wood screws, will form their own thread.

[0018] An embodiment of the invention will now be described in detail, by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 is a plan view of a mounting apparatus according to a first embodiment of the invention;

Fig. 2 is a part sectional elevation of the apparatus shown in Fig. 1, having a toilet bowl mounted upon it;

Fig. 3 is a plan view of a mounting apparatus according to a second embodiment of the invention;

and Fig. 4 is part sectional elevation of the apparatus shown in Fig. 3 having a toilet bowl mounted upon it.

[0019] With reference to the drawings, adjustable mounting apparatus for mounting a sanitary fitting is, in this embodiment, adapted for mounting a pedestal type toilet bowl 14. Such a toilet bowl has a supporting pedestal part which is supported by a wall 16 of ceramic material defining an internal and empty void 26. The bottom surface 12 of the wall 16 engages a floor surface 18 on which the bowl is mounted. The floor is rarely level. A plurality of fastening holes 5 (in this case two) are provided which extend through the wall 16 close to its bottom surface 12, and spaced apart around the circumference of the pedestal base region.

[0020] In accordance with the invention an adjustable mounting apparatus comprises three separate components each formed by injection moulding of plastics material, and preferably white in colour for light reflective

purposes. The components consist of two fixing brackets 2 and the retaining member in the form of a bar 4 of adjustable length. The components may be assembled by sliding the ends of the bar 4 into cut-out formations 32 on the underside of each fixing bracket 2. The cut-out 32 may be of dovetailed formation thus slidably to retain the bracket 2. The cut-outs 32 may extend part way across the width of each bracket 2 or alternatively may extend throughout its width.

[0021] It will be seen that the bar 4 is notched as at 24 throughout much of its length which can thus be adjusted by snapping off the unwanted end regions of the bar 4 so that the assembled apparatus is adjusted to its required overall length thus to fit closely within and extend fully across the base of the toilet bowl 14 as shown in Figs. 2 and 4.

[0022] Each bracket 2 consists of a first formation in the form of a base plate 22 having a pair of elongated spaced slots 6 therein for receiving a fastener such as a wood screw 8 for attachment of the brackets to the floor 18. If required, further screws 20 may be inserted through a central region of the bar 4 again for attachment to the floor 18. The slots 6 afford limited linear adjustment of each bracket 2 with respect to the bar 4 to provide fine adjustments of the overall width or length of the apparatus so that it may match exactly, the internal dimensions of the base region of the toilet bowl pedestal.

[0023] Each bracket 2 further comprises a second formation in the form of an upstanding boss 28 defining an array of inclined plain bores 10 which when the apparatus is assembled with a pedestal shall enable at least one of the bores 10 in each boss 28 to become aligned with an adjacent fastening hole 5 extending through the wall 16 of the pedestal in its base region. Thus, screws 30 may be inserted through the holes 5 to become threadably engaged within the most adjacent of the bores 10 in the bosses 28.

[0024] In use, to install a toilet bowl using the mounting apparatus of the invention, a first step is to establish a predetermined correct position for the mounting apparatus on the floor 18. This may be achieved by marking on the floor surface a predetermined distance from the inner surface of the external wall through which the waste pipe is to pass.

[0025] Next, the assembled mounting apparatus which is first adjusted in size to match the toilet bowl is placed in position and secured by screws 8 and 20.

[0026] The toilet bowl 14 is then placed over the pre-fixed mounting apparatus and connected via a flexible coupling to a pipe leading through the external wall of the building to connect externally to a vertical waste pipe. When these connections have been made the toilet bowl 14 is finally fixed and secured by inserting screws 30 through holes 5 into the holes 10 of the mounting apparatus. The screws form their own threads by displacing the plastics material of the brackets 2.

[0027] It will be appreciated that the apparatus may

be used to secure other types of sanitary fittings such as a bidet or a pedestal wash basin. Any variation in the width or other dimensions of individual sanitary fittings is accommodated by the sliding engagement of the brackets 2 on the bar 4, and the overall length adjustment of the latter. The provision of the array of bores 10 in the fixing brackets ensure that there will always be alignment of at least one bore with each fixing hole 5 of the fitting. Still further slight adjustment may be accommodated if necessary by releasing one or both of the screws 8 in one or both of the brackets and moving same before re-tightening in a different position.

[0028] Referring now to Figs. 3 and 4 a different arrangement of the bores 10 may be provided such that they extend towards the side walls of the bosses 28 in order to align with the fixing holes 5 of a different kind of pedestal where these holes are provided adjacent the bottom end of an upright wall formation.

[0029] When it is required to install a pedestal having more than two fixing holes 5, a further such mounting apparatus may be provided to align with the additional fixing holes.

Claims

1. Adjustable mounting apparatus for a sanitary fitting comprising two fixing brackets (2) one or each of which is adjustably mounted with respect to the other on a retaining member (4), each bracket (2) having at least one first formation (6) for receiving at least one first fastener (8) to enable the bracket to be secured to a supporting surface, and at least one second formation (10) receiving at least one second fastener (30) to enable the sanitary fitting to be secured to the bracket, the apparatus being adapted to be located beneath and concealed by a part of the fitting to be mounted on the supporting surface; **characterised in that** each bracket has an up-standing boss (28); **in that** each boss (28) includes said second formation in the form of a close array of inclined bores (10) each having a part to be located above the level of the supporting surface such as to enable alignment of at least one of said bores (10) with an aperture in a sanitary fitting to be secured to the bracket (2); and **in that** the retaining member is a bar (4) of adjustable length slidably mounted with respect to at least one of the brackets (2).
2. Adjustable mounting apparatus according to Claim 1, in which the brackets (2) are formed from plastics.
3. Adjustable mounting apparatus according to Claim 1 or Claim 2, in which the or each first formation (6) comprises an aperture through which a first fastener (8) may be passed to secure it to the supporting surface.

4. Adjustable mounting apparatus according to Claim 1, in which each inclined bore (10) is a plain bore to receive a screw threadedly engaged therein.
5. Adjustable mounting apparatus according to Claim 1, in which the bar (4) includes a plurality of snap-off formations for adjustment of its length.
6. Adjustable mounting apparatus according to Claim 5 in which the bar (4) is slidably located in recesses within the brackets (2).
7. A sanitary installation comprising a sanitary fitting (14, 16) in combination with adjustable mounting apparatus according to any preceding claim, in which the adjustable mounting apparatus is secured to a supporting surface (18), and the sanitary fitting is secured to the adjustable mounting apparatus.
8. A sanitary installation according to Claim 7, in which a sealing means is provided to form a liquid-tight seal between the sanitary fitting and the supporting surface.
9. A sanitary installation according to Claim 7 or Claim 8, in which the sanitary fitting (14, 16) is a toilet bowl or a bidet, or a hand wash basin.
10. A method of installing a sanitary fitting, comprising the steps of securing to a supporting surface adjustable mounting apparatus according to any one of Claims 1 to 7; securing the sanitary fitting to the adjustable mounting apparatus; and connecting the sanitary fitting to water supply and waste services.

Patentansprüche

1. Einstellbare Befestigungsvorrichtung für ein Sanitärteil, mit zwei Befestigungsböcken (2), von denen einer oder jeder in Bezug auf den anderen an einem Halteteil (4) einstellbar befestigt ist, wobei jeder Bock (2) wenigstens eine erste Formation (6) hat zum Empfangen von wenigstens einem ersten Befestigungselement (8), damit der Bock an einer tragenden Fläche befestigt werden kann, und wenigstens eine zweite Formation (10), die wenigstens ein zweites Befestigungselement (30) empfängt, damit das Sanitärteil an dem Bock befestigt werden kann, wobei die Vorrichtung dafür ausgebildet ist, unter dem Sanitärteil angeordnet und durch einen Teil des Sanitärteils verdeckt zu werden, welches auf der tragenden Fläche befestigt werden soll, **dadurch gekennzeichnet, dass** jeder Bock einen nach oben vorstehenden Vorsprung (28) hat, dass jeder Vorsprung (28) die zweite Formation in Form einer engen Anordnung von geneigten Bohrungen

(10) aufweist, die jeweils einen Teil haben, der oberhalb der Höhe der tragenden Oberfläche anzuordnen ist, um so das Ausrichten von wenigstens einer der Bohrungen (10) mit einer Öffnung in einem an dem Bock (2) zu befestigenden Sanitärteil zu gestatten, und dass das Halteteil eine Stange (4) von einstellbarer Länge ist, die in Bezug auf wenigstens einen der Böcke (2) einstellbar befestigt ist.

2. Einstellbare Befestigungsvorrichtung nach Anspruch 1, bei welcher die Böcke (2) aus Kunststoff gebildet sind. 10
3. Einstellbare Befestigungsvorrichtung nach Anspruch 1 oder Anspruch 2, bei welcher die oder jede erste Formation (6) eine Öffnung aufweist, durch die ein erstes Befestigungselement (8) hindurchgeführt werden kann, um es an der tragenden Fläche zu befestigen. 15
4. Einstellbare Befestigungsvorrichtung nach Anspruch 1, bei welcher jede geneigte Bohrung (10) eine glatte Bohrung ist zum Empfangen einer Schraube mit Gewindeeingriff. 20
5. Einstellbare Befestigungsvorrichtung nach Anspruch 1, bei welcher die Stange (4) eine Vielzahl von abtrennbaren Formationen zum Einstellen ihrer Länge aufweist. 25
6. Einstellbare Befestigungsvorrichtung nach Anspruch 5, bei welcher die Stange (4) in Ausnahmen innerhalb der Böcke (2) verschiebbar angeordnet ist. 30
7. Sanitärinstallation mit einem Sanitärteil (14, 16) in Kombination mit der einstellbaren Befestigungsvorrichtung nach einem der vorhergehenden Ansprüche, bei welcher die einstellbare Befestigungsvorrichtung an einer tragenden Fläche (18) befestigt ist und das Sanitärteil an der einstellbaren Befestigungsvorrichtung befestigt ist. 35
8. Sanitärinstallation nach Anspruch 7, bei welcher eine Dichteinrichtung vorgesehen ist, um eine flüssigkeitsdichte Abdichtung zwischen dem Sanitärteil und der tragenden Fläche zu bilden. 40
9. Sanitärinstallation nach Anspruch 7 oder 8, bei welcher das Sanitärteil (14, 16) eine Toillatenschüssel oder ein Bidet oder ein Handwaschbecken ist 45
10. Verfahren zum Installieren eines Sanitärteils, beinhaltend die Schritte Befestigen einer einstellbaren Befestigungsvorrichtung nach einem der Ansprüche 1 bis 7 an einer tragenden Fläche, Befestigen des Sanitärteils an der einstellbaren Befestigungsvorrichtung und Verbinden des Sanitärteils mit 50

Wasserversorgungs- und -entsorgungsleitungen.

Revendications

1. Appareil de montage ajustable pour un équipement sanitaire comprenant deux supports de fixation (2) un ou chacun est monté de manière ajustable par rapport à l'autre sur un élément de retenue (4), chaque support (2) ayant au moins une première formation (6) pour recevoir au moins un premier élément de fixation (8) pour permettre au support d'être fixé à une surface de support, et au moins une seconde formation (10) recevant au moins un second élément de fixation (30) pour permettre à l'équipement sanitaire d'être fixé au support, l'appareil étant adapté pour être situé en-dessous et être dissimulé par une partie de l'équipement à monter sur la surface de support ; **caractérisé en ce que** chaque support a une projection verticale (28); **caractérisé en ce que** chaque projection (28) comprend ladite seconde formation sous la forme d'un réseau serré d'alésages inclinés (10), chacun définissant une partie à situer au-dessus du niveau de la surface de support de manière à permettre un alignement d'au moins un desdits alésages (10) avec une ouverture dans un équipement sanitaire à fixer au support (2) ; **et en ce que** l'élément de retenue est une barre (4) de longueur ajustable montée de manière coulissante par rapport à au moins un des supports (2). 5
2. Appareil de montage ajustable selon la revendication 1, dans lequel les supports (2) sont formés à partir de plastique. 10
3. Appareil de montage ajustable selon la revendication 1 ou 2, dans lequel la ou chaque première formation (6) comprend une ouverture à travers laquelle un premier élément de fixation (8) peut être introduit pour le fixer à la surface de support. 15
4. Appareil de montage ajustable selon la revendication 1, dans lequel chaque alésage incliné (10) est un alésage lisse pour recevoir une vis engagée en prise filetée à l'intérieur. 20
5. Appareil de montage ajustable selon la revendication 1, dans lequel la barre (4) comprend une pluralité de formations désengageables pour un ajustement de sa longueur. 25
6. Appareil de montage ajustable selon la revendication 5, dans lequel la barre (4) est située de manière coulissante dans des évidements dans les supports (2). 30
7. Installation sanitaire comprenant un équipement sanitaire (14, 16) en combinaison avec un appareil 35

de montage ajustable selon l'une quelconque des revendications précédentes, dans laquelle, l'appareil de montage ajustable est fixé à une surface de support (18) et l'équipement sanitaire est fixé à l'appareil de montage ajustable.

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8. Installation sanitaire selon la revendication 7, dans laquelle des moyens d'étanchéification sont prévus pour former un joint étanche au liquide entre l'équipement sanitaire et la surface de support.

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9. Installation sanitaire selon la revendication 7 ou 8, dans laquelle l'équipement sanitaire (14, 16) est une cuvette de toilette ou un bidet ou un lavabo.

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10. Procédé pour installer un équipement sanitaire, comprenant les étapes de fixer à une surface de support l'appareil de montage ajustable selon l'une quelconque des revendications 1 à 7 ; de fixer l'équipement sanitaire à l'appareil de montage ajustable ; et de connecter l'équipement sanitaire à des services d'alimentation en eau et d'évacuation des eaux usées.

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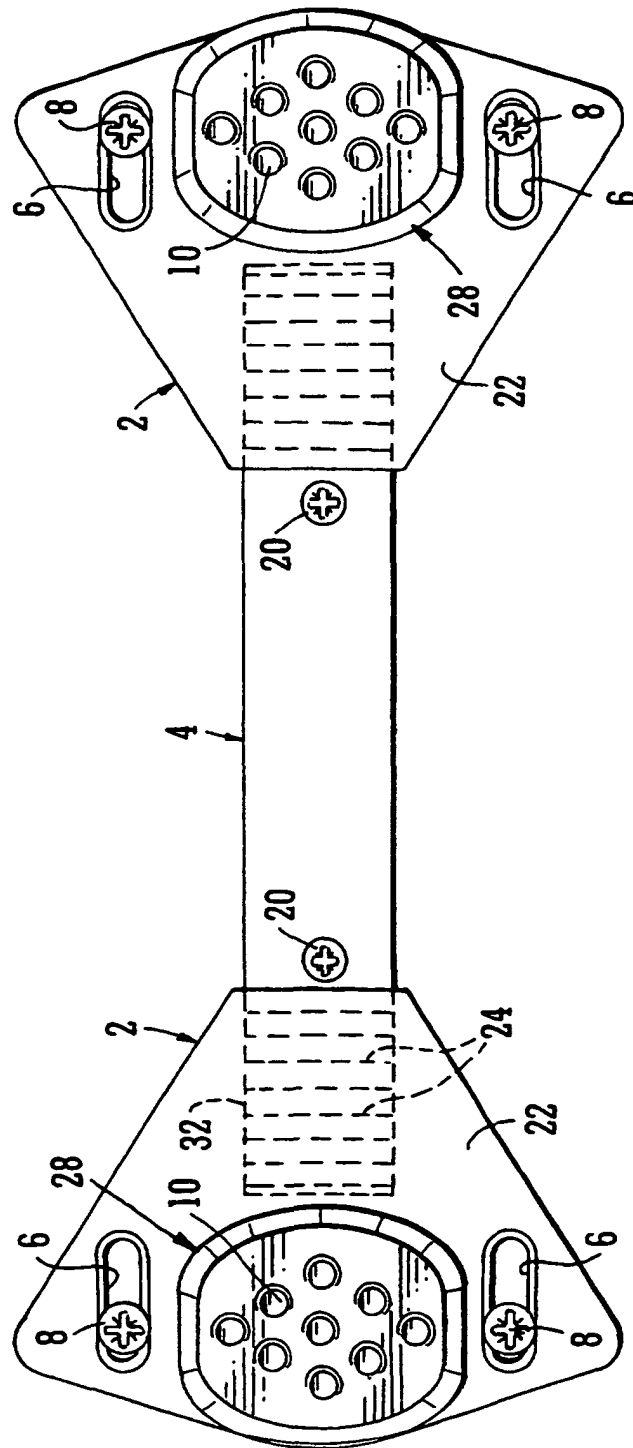


FIG. 1

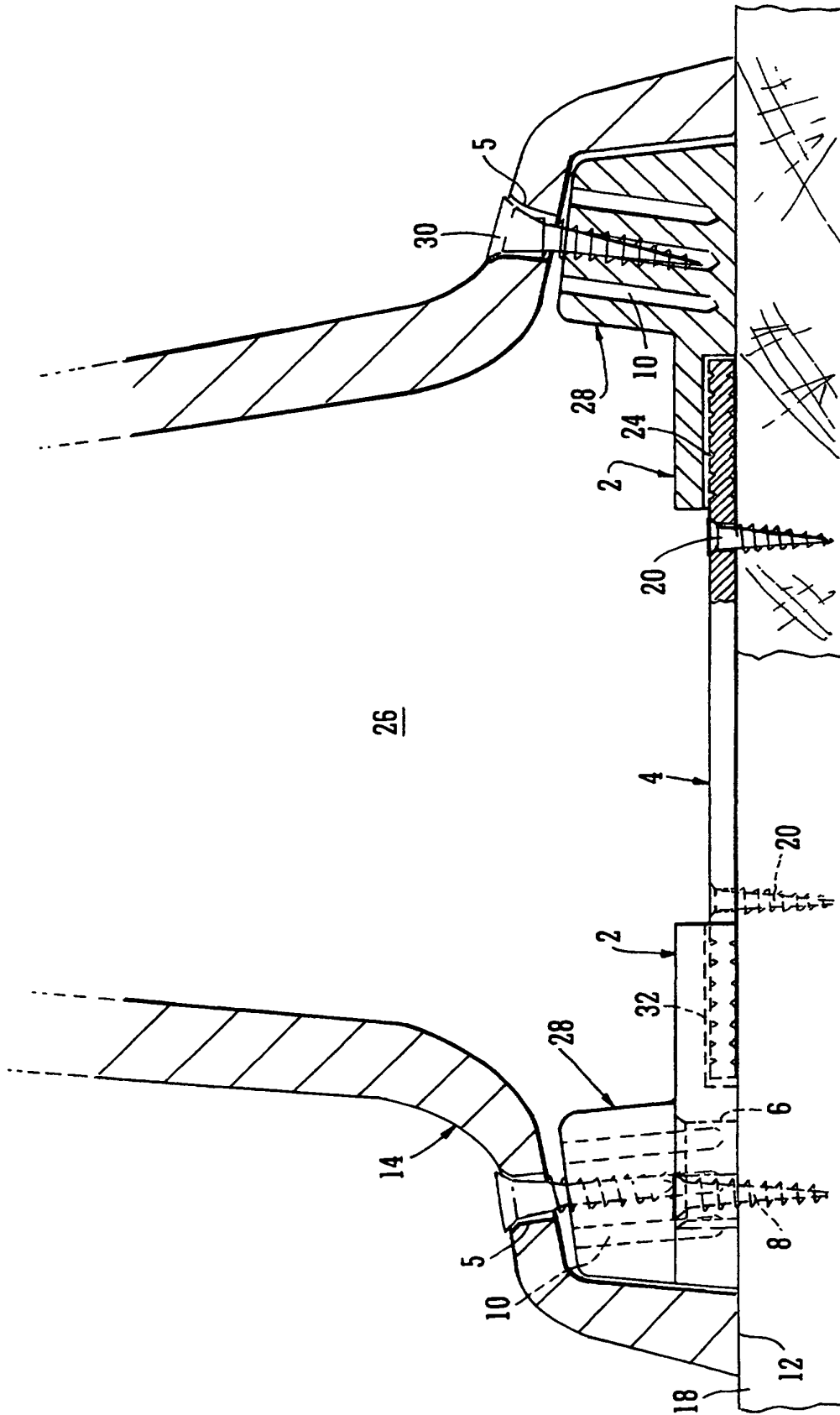


FIG. 2

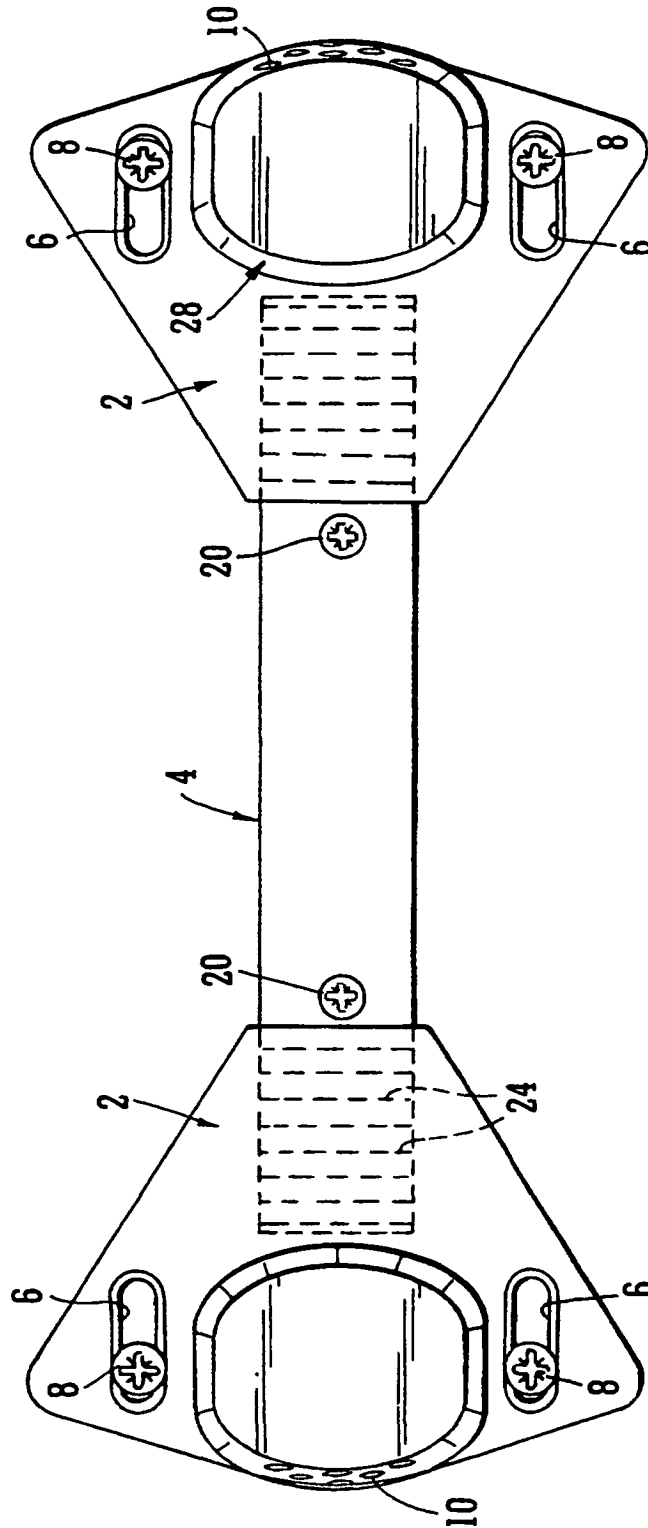


FIG. 3

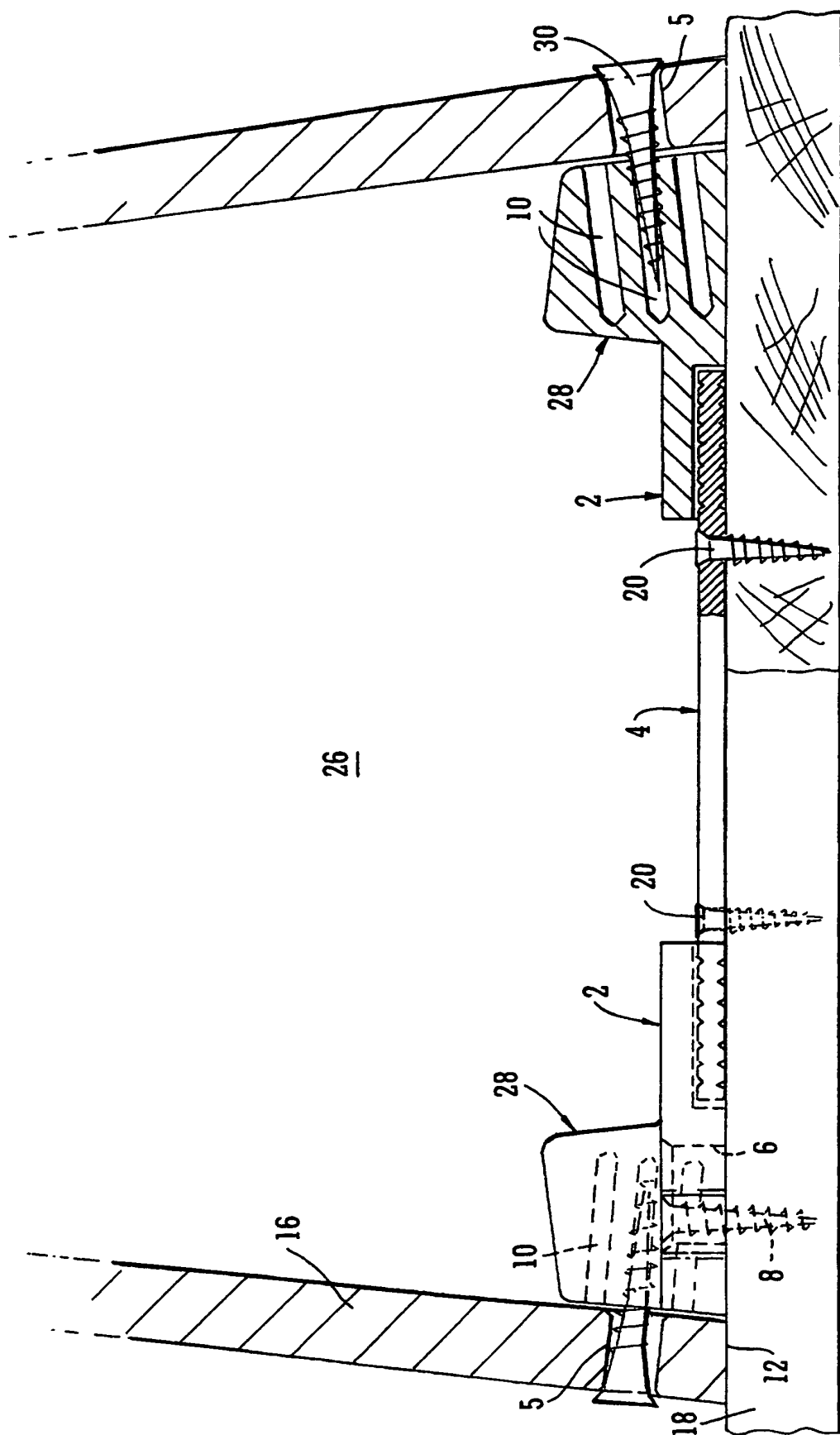


FIG. 4