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(71) Applicant: **Oliveira & Irmao S.A.**
3800 Aveiro (PT)

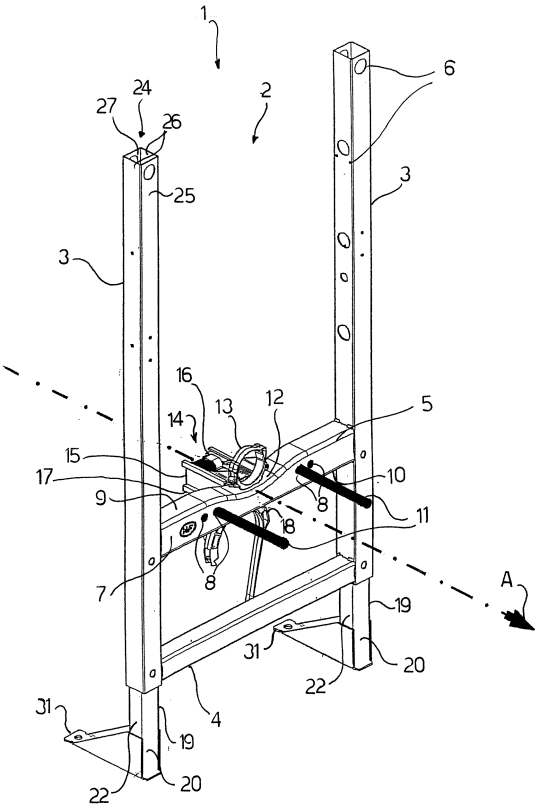
(72) Inventors:
- **Moura de Oliveira, Antonio Manuel**
  3800-25 Aveiro (PT)
- **Matos Vieira, Hélder Manuel**
  3830-730 Gafanha da Nazaré (PT)
- **Almeida Grácio, José Joaquim**
  Depart.de Engenh.Mec.
  3810-193 Aveiro (PT)
- **de Matos Corte-Real, Daniela**
  Dep.Engenh.Mec.
  3810-193 Aveiro (PT)
- **Valente de Almeida, João Paulo**
  3750-146 Águeda (PT)

(74) Representative: **Jorio, Paolo et al**
Studio Torta S.r.l.
Via Viotti, 9
10121 Torino (IT)

(54) Self-supporting recessed installation structure for sanitary fixtures

(57) A self-supporting recessed installation structure (1) for sanitary fixtures is defined by a frame (2) having two posts (3); at least one cross member (5); two brackets (11) for supporting a sanitary fixture, and which project from the cross member (5) in a predetermined direction (A); and two legs (19) extending from the bottom of the posts (3) and connected integrally and perpendicularly to respective supporting plates (31); the supporting plates (31) extend in a direction substantially opposite the predetermined direction (A) in which the brackets (11) of the frame (2) extend, and are substantially the same width as the legs (19); and two reinforcing members (35) extend vertically upwards from each supporting plate (31), and are defined by respective parallel, substantially trapezoidal reinforcing plates (39) fixed integrally to respective opposite lateral walls (22, 23) of a leg (19).

Fig.1



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Description

[0001] The present invention relates to a self-supporting recessed installation structure for sanitary fixtures, in particular suspended sanitary fixtures.

[0002] Sanitary fixture recessed installation structures normally comprise a metal frame fitted with various structural elements, functional components, and anchors by which to fix the frame to a supporting wall.

[0003] Depending on the application for which they are used, structures come in different sizes and versions. For example, to install conventional sanitary fixtures designed to rest on the floor, the recessed installation structures are anchored to a normally supporting wall, whereas, to install suspended sanitary fixtures, self-supporting recessed installation structures are used. For safety reasons, self-supporting structures must be capable of supporting loads of up to 400 kg, which means the total thickness of self-supporting recessed installation structures for sanitary fixtures (i.e. including the size of the components fitted to the structure, such as a flush tank, U-bend, etc.) is much greater than that of a non-self-supporting installation structure. Normally, this thickness is compatible with the usual thickness of masonry walls, but not always with that of lightweight or mixed type walls, in which case, recesses must be formed in the rear wall, thus creating serious aesthetic and plumbing problems.

[0004] Moreover, known self-supporting structures employ a four-legged structure supporting the frame on the floor, and which is fairly complicated to produce. Each post, in fact, has two legs: one leg which is a vertical extension of the post, and an L-shaped leg projecting perpendicularly from the post; and the free ends of the two legs are welded to a supporting plate normally extending inwards of the frame and having floor anchoring holes.

[0005] It is an object of the present invention to provide a solution to the aforementioned drawbacks of the known art, in particular by providing a self-supporting recessed installation structure for sanitary fixtures, which is slimmer, and which in particular is extremely easy to produce and assemble, while at the same time being highly efficient and reliable.

[0006] According to the present invention, there is provided a self-supporting recessed installation structure for sanitary fixtures, in particular suspended sanitary fixtures, and which comprises a frame having two posts; at least one cross member; two brackets for supporting a sanitary fixture, and which project from said cross member in a predetermined direction; and two legs extending from the bottom of the posts and connected integrally and perpendicularly to respective supporting plates; the structure being characterized in that said supporting plates project perpendicularly from respective bottom ends of the legs in an opposite direction to the brackets; and in that each supporting plate has at least one reinforcing member connected integrally to a leg of the frame.

[0007] The structure according to the invention therefore solves the aforementioned drawbacks, in particular, by providing recessed installation structures which are slimmer, and which at the same time are strong, reliable, and cheap and easy to produce.

[0008] A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a schematic view in perspective of a self-supporting recessed installation structure for sanitary fixtures in accordance with the invention;
Figure 2 shows a schematic view in perspective of a detail of the Figure 1 structure;
Figure 3 shows a schematic top plan view of the Figure 2 detail.

[0009] Number 1 in Figure 1 indicates as a whole a self-supporting recessed installation structure for sanitary fixtures, in particular for suspended sanitary fixtures (lavatories, urinals, sinks, bidets, etc.). In the example shown, structure 1 is a self-supporting recessed installation structure for a suspended lavatory.

[0010] Structure 1 comprises a U-shaped frame 2 made, for example of metal section, and comprising two posts 3, a bottom cross member 4, and a top cross member 5. Posts 3 have holes 6 by which to anchor and fix a known flush tank (not shown) or other functional components to the walls by means of known connecting members (not shown for the sake of simplicity).

[0011] Top cross member 5, e.g. made of metal section, has a substantially U-shaped cross section, and comprises a front wall 7 having fastening points 8; and two, respectively top and bottom, sides 9, 10 substantially perpendicular to wall 7. Fastening points 8 are defined by openings or holes for the insertion of sanitary fixture supports and relative fastening members. More specifically, in Figure 1, two of the four fastening points 8 are engaged by two substantially parallel brackets 11 projecting frontwards from frame 2 in a predetermined direction (A) perpendicular to cross member 5. Providing additional holes enables adaptation of cross member 5 to different sanitary fixture models available on the market.

[0012] In a central portion of top side 9, cross member 5 has a dip 12 supporting a collar 13, which is fitted and gripped about a pipe of the flush tank (not shown). Collar 13 is fitted to an adjustable fastening device 14, in particular of the type described in Patent Applications n. MI2004A002511 and MI2004A002509, to which the reader is referred for a detailed description of device 14.

[0013] Very briefly, device 14 substantially comprises a supporting member 15 fixable releasably to cross member 5 by a click-on fastener; and two independent connecting assemblies 16 and 17, located on opposite sides of supporting member 15 to fix respective separate pipes, e.g. a flush pipe and a lavatory drain pipe (not shown).

[0014] Connecting assemblies 16 and 17 are fitted to supporting member 15 by means of a system of slide-

ways up to an adjustable position corresponding to a click.

[0015] Connecting assembly 16 is connected integrally to collar 13, for insertion of the flush pipe of the flush tank, and connecting assembly 17 is connected integrally to a second collar 18, for insertion of the lavatory drain pipe.

[0016] With reference also to Figure 2, structure 1 also comprises two legs 19 extending vertically from respective bottom ends of posts 3.

[0017] Each leg 19, defined, for example, by a hollow metal section with a closed (e.g. square or rectangular cross section), comprises a front wall 20, a rear wall 21, and two lateral walls 22 and 23.

[0018] Posts 3 are also advantageously defined by hollow metal sections, e.g. with a closed, square or rectangular cross section, and legs 19 are inserted telescopically inside respective longitudinal seats 24 formed inside posts 3.

[0019] Each seat 24 is formed by a front wall 25, two lateral walls 26, and a rear wall 27; and lateral walls 26 are parallel to each other and perpendicular to front wall 25 and rear wall 27.

[0020] The height of legs 19 (and therefore the off-floor height of structure 1) is adjustable by sliding legs 19 vertically, inside respective seats 24, with respect to frame 2, and securing legs 19 in the desired position to frame 2 in any known manner, e.g. using known screws (not shown) inserted inside respective holes.

[0021] Legs 19 are connected integrally to respective floor plates 31 projecting perpendicularly from respective bottom ends of legs 19.

[0022] Plates 31 are generally quadrangular - in particular, substantially rectangular - and are substantially the same width as legs 19 (measured between lateral walls 22, 23).

[0023] Each plate 31 extends, with respect to frame 2, in the opposite direction to brackets 11, i.e. in the opposite direction to the direction (A) in which brackets 11 extend. In other words, plates 31 extends rearwards from frame 2, and brackets 11 extend frontwards from frame 2.

[0024] Each plate 31 has a connecting end 32, to which respective leg 19 is fixed integrally, e.g. by means of weld beads 33; two sides 34, from which respective reinforcing members 35 extend upwards; and a free end 36.

[0025] With reference also to Figure 3, each plate 31 has two floor anchoring holes 37, 38. Hole 37 is located close to free end 36 of plate 31, and hole 38 is located in an intermediate position between connecting end 32 and free end 36.

[0026] Each reinforcing member 35 projects perpendicularly upwards from a plate 31, and rests on a side of a leg 19. In the example shown, two reinforcing members 35 extend vertically upwards from each plate 31, and are connected integrally to the relative leg 19.

[0027] More specifically, reinforcing members 35 are defined by respective substantially flat plates 39, e.g. metal plates substantially in the form of a right-angle trapezium, and extend upwards, parallel to each other, from respective sides 34 of a plate 31.

[0028] Each plate 39 comprises a base 40, an oblique side 41, a vertical side 42, and a horizontal side 43.

[0029] Base 40 of each plate 39 is connected integrally to respective side 34 of plate 31, and vertical side 42 and horizontal side 43 are both fixed to lateral wall 22, 23 of leg 19, e.g. by means of weld beads 44.

[0030] Each reinforcing member 35 therefore has a flat fastening portion 45 fixed integrally (e.g. welded) to a lateral wall 22, 23 of a leg 19; and a connecting portion 46 decreasing in cross section towards plate 31.

[0031] The configuration of legs 19, and specifically of reinforcing members 35, provides for increasing the mechanical strength of structure 1 with no drastic increase in the depth or thickness of structure 1 itself.

[0032] Clearly, changes may be made to the structure as described herein without, however, departing from the scope of the accompanying Claims.

Claims

1. A self-supporting recessed installation structure (1) for sanitary fixtures, in particular suspended sanitary fixtures, and which comprises a frame (2) having two posts (3); at least one cross member (5); two brackets (11) for supporting a sanitary fixture, and which project from said cross member (5) in a predetermined direction (A); and two legs (19) extending from the bottom of respective posts (3) and connected integrally and perpendicularly to respective supporting plates (31); the structure (1) being **characterized in that** said supporting plates (31) project perpendicularly from respective bottom ends of the legs (19) in an opposite direction to the brackets (11); and **in that** each supporting plate (31) has at least one reinforcing member (35) connected integrally to a leg (19) of the frame (2).

2. A structure as claimed in Claim 1, **characterized in that** the supporting plates (31) are substantially the same width as the legs (19).

3. A structure as claimed in Claim 1 or 2, **characterized in that** each reinforcing member (35) rests on a side of a leg (19) .

4. A structure as claimed in one of Claims 1 to 3, **characterized in that** each reinforcing member (35) projects perpendicularly upwards from a supporting plate (31), and comprises a fastening portion (45) fixed integrally to a lateral wall (22, 23) of a leg (19); and a connecting portion (46) decreasing in cross section towards the supporting plate (31).

5. A structure as claimed in one of Claims 1 to 4, **characterized in that** two reinforcing members (35) ex-

tend vertically upwards from each supporting plate (31).

6. A structure as claimed in Claim 5, **characterized in that** said reinforcing members (35) are defined by respective vertical parallel reinforcing plates (39).

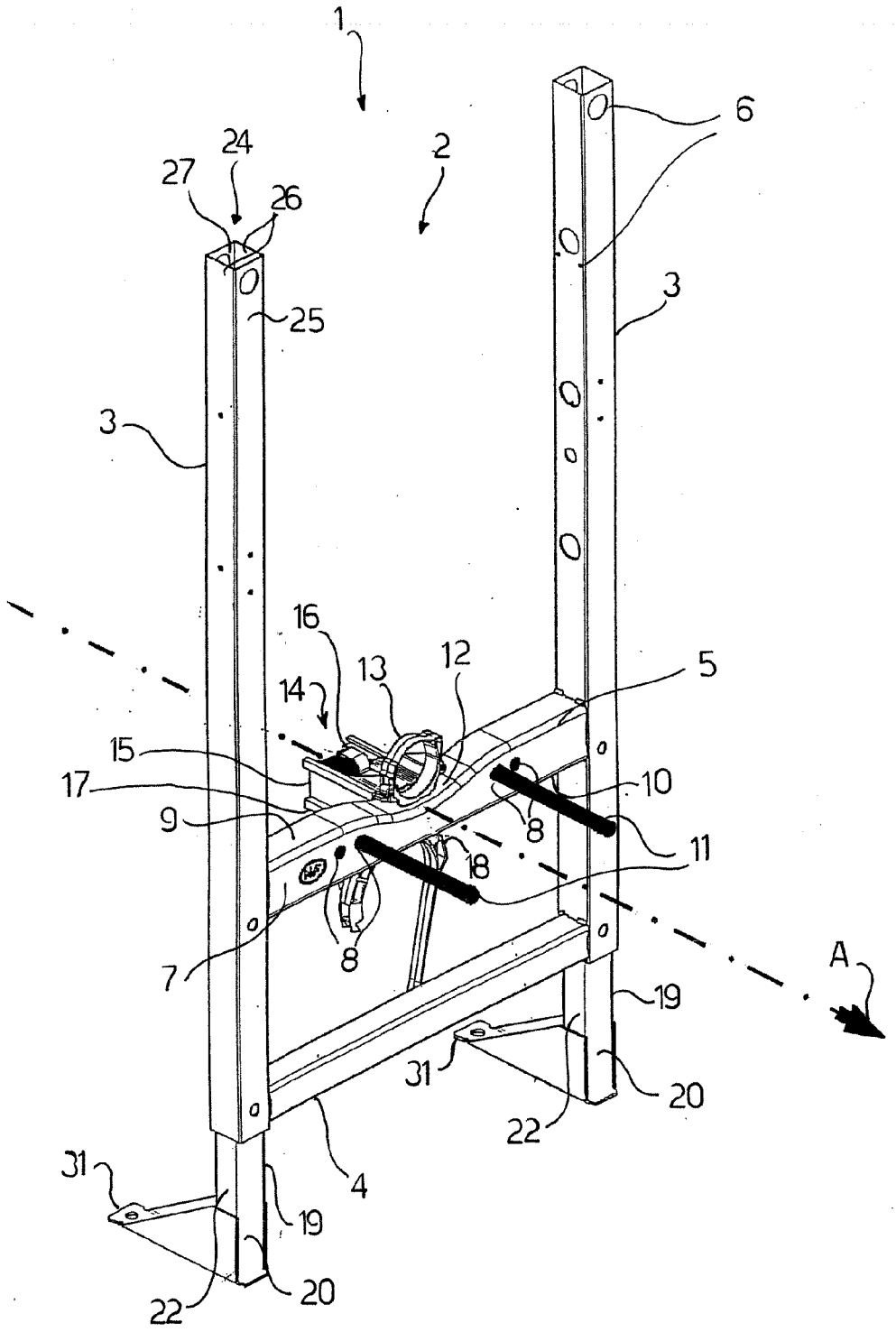
7. A structure as claimed in Claim 6, **characterized in that** the reinforcing plates (39) are substantially trapezoidal.

8. A structure as claimed in Claim 6 or 7, **characterized in that** the reinforcing members (35) in each pair of reinforcing members (35) are fixed integrally to respective opposite lateral walls (22, 23) of a leg (19).

9. A structure as claimed in one of the foregoing Claims, **characterized in that** each supporting plate (31) has at least two floor anchoring holes (37, 38).

10. A structure as claimed in Claim 9, **characterized in that** a first anchoring hole (37) in each supporting plate (31) is located close to a free end (36) of the supporting plate (31), opposite a connecting end (32) connecting the leg (19) to the supporting plate (31); and a second anchoring hole (38) is located in an intermediate position between the connecting end (32) and the free end (36) of the supporting plate (31).

Fig.1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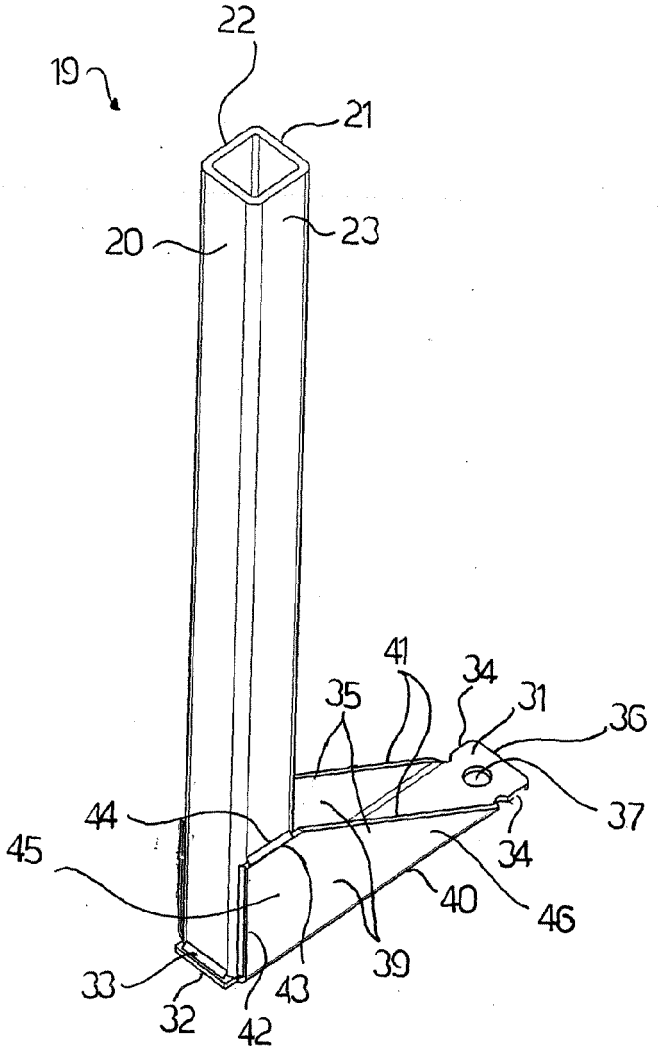
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Fig. 2

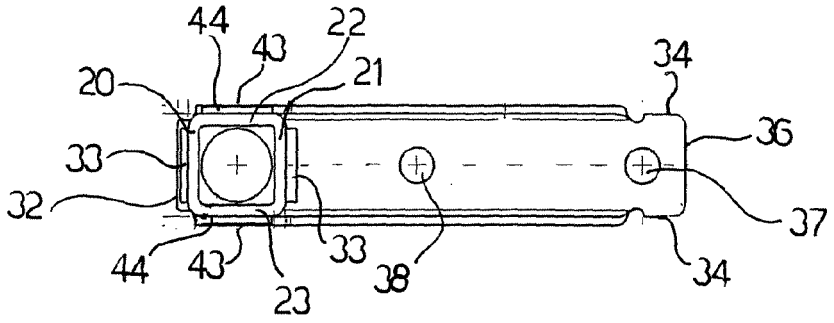
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Fig.3