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(54) RECESSED FRAME FOR SECURING TOILET ELEMENTS AND METHOD FOR MANUFACTURING SAME

(57) Recessed frame for clamping of sanitary elements comprising a box of actuation mechanisms (2), an intermediate water tank (3) and a lower structure (4) for supporting and mounting the toilet, the three elements comprising a single one-piece part.

The lower structure (4) integrates a central crossbeam (10') wherein two inclined crossbeams (10) and one exhaust duct (5) which leads into a central area of the central crossbeam (10') flanked by the terminal sections of the inclined crossbeams (10) converge.

Jointly to the central crossbeam (10') and at its bottom there is a bridge (6) consisting of one single piece. Associated with the bridge (6) we find a flange (7) that is adaptable to any diameter of a drain pipe of the sanitary element.

The one-piece part that configures the frame is manufactured in any mouldable material preferably plastic. The manufacture of the one-piece part is carried out by the technique of rotational moulding or else by the technique of injection of the material to be shaped.

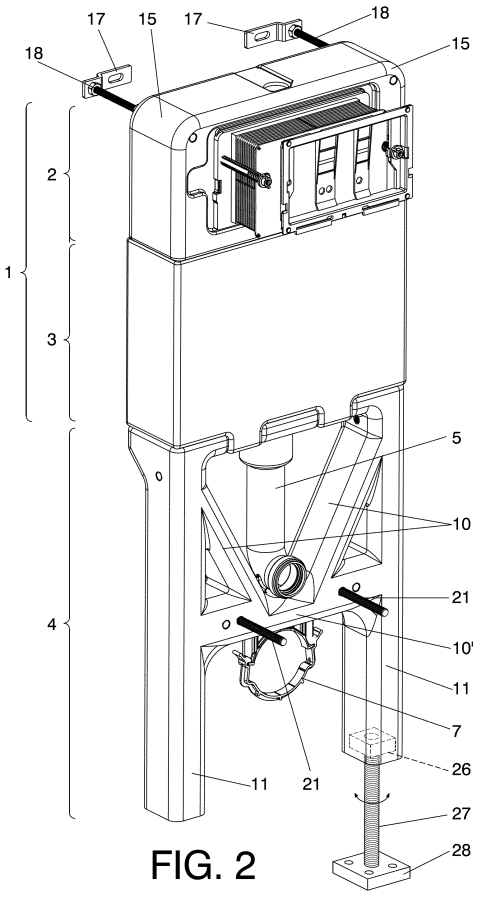


FIG. 2

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Description

Object of the invention

[0001] The present invention relates to a recessed frame for clamping of sanitary elements having as an essential object to achieve a simple structure, made of one single material which reduces the cost of the frame and on which the sanitary elements are installed.

[0002] Based on this premise, the frame of the invention is intended to facilitate the mounting of sanitary appliances with an element of easy handling and assembly, on which are mounted the sanitary appliances in a simple way and with a pleasant aesthetic result.

[0003] The frame is designed to incorporate in a single piece and made of the same material, most of the elements that compose it, i.e. it is designed as a one-piece structure.

Background of the invention

[0004] Currently the use of frames that may be recessed in the construction of bathrooms has developed rapidly due to the simplification and the good finish of construction that is achieved with their use.

[0005] There are different frames that may be recessed in the wall and that provide functionality and a good finish in the installation of sanitary appliances during the construction of bathrooms.

[0006] The frames currently in the market consist of a combination of metal elements, plastic elements and rubber parts, requiring a stage of assembly to be necessary prior to the installation of these frames, what complicates and makes more expensive the frame and consequently the installation of sanitary appliances with this system of frames.

Description of the invention

[0007] To avoid the above drawbacks and to achieve the objectives set out above, the invention consists of a recessed frame for clamping of sanitary elements comprising a box of actuation mechanisms, an intermediate water tank and a lower structure for supporting and mounting the toilet, the three elements mentioned above comprising a single one-piece part.

[0008] In the one-piece part, the lower structure integrates a central crossbeam in which two inclined crossbeams and one exhaust duct which leads into a central area of the central crossbeam flanked by the terminal sections of the inclined crossbeams converge.

[0009] Jointly to the central crossbeam and at its bottom there is a bridge, this bridge consisting of one single piece, and associated with the bridge we find a flange that is adaptable to any diameter of a drain pipe of the sanitary element, attaching the drain pipe through the bridge and flange assembly.

[0010] For the support of the frame on the floor, the lower supporting and mounting structure of the toilet incorporates legs which in turn incorporate a height adjustment mechanism.

[0011] The height adjustment mechanism of the legs comprises runners coaxial with the legs that have two possible embodiments:

- in the first embodiment, the coaxial runners slide through the inside of the legs and are fixed through a threaded element being threaded on a hole located in the legs, such threaded element being secured through a nut located inside of the coaxial runners.
- in the second embodiment, the coaxial runners are threaded rods that are introduced by the lower part of the legs through an insert that has an internal thread where the rod is threaded so that the height adjustment occurs through the rotation of the rod. In this embodiment in the lower end of the rod there is a flat element for support on the floor.

[0012] The upper part of the block, the part of the mechanisms box, has blunt edges, i.e. it has rounded corners to prevent sharp edges and sharp corners.

[0013] The frame includes a discharging device that has a part in the area of the mechanisms box and another one in the area of the water tank since the discharging device allows the emptying of the water from the tank.

[0014] The water tank has at least one inlet and at least one water outlet, which is linked to the water exhaust duct through which the water tank is emptied during the use of the sanitary appliance.

[0015] The one-piece part that configures the frame is manufactured in any mouldable material preferably plastic, zamac, aluminium, etc; also the manufacture of the one-piece part is carried out by the technique of rotational moulding or else by the technique of injection of the material to be shaped.

[0016] In another embodiment of the invention the top elements of the frame (the water tank and the box of actuation mechanisms) are removed, resulting in a frame for mounting of sanitary appliances, wash basins and bidets, comprising one single lower supporting and mounting structure of the toilet, which integrates a central crossbeam wherein two inclined crossbeams converge, a bridge formed by one single piece associated with a flange to adapt it to any diameter of a drain pipe, said drain pipe being attached through the bridge and flange assembly. Said embodiment also includes either of two configurations that are arranged for the height adjustment mechanism of the legs. Moreover, it entails significant savings in materials and costs.

Description of the figures

[0017] To complete the description and to help to a better understanding of the features of the invention, this specification is accompanied, as an integral part of it, by a set of drawings where with illustrative character and

without limitation, the following has been represented:

Figure 1 shows a perspective view of the frame object of the invention.

Figure 2 shows a perspective view of the frame with the elements that are added to configure the final element for mounting toilets. Said view includes a detail on one leg of a possible embodiment of the leg height adjustment system.

Figure 3 shows a front view of the same element referred to in figure 1 with the added elements to the final configuration for toilet assembly. In this figure we find one of the legs sectioned, showing the other embodiment of the leg height adjustment system, including the coaxial runner that is part of said embodiment of the height adjustment mechanism.

Figure 4 shows a front view of the frame designed for mounting wash basins and bidets.

[0018] The numeric references that are reflected in the figures correspond to the following elements:

1.- block;
2.- mechanisms box;
3.- tank;
4.- lower structure
5.- exhaust duct;
6.- bridge;
7.- flange;
8.- threaded cylindrical parts;
9.- anchors;
10.- crossbeams;
10'.-central crossbeam;
11.- legs;
12.- partition wall;
13.- inserts;
14.- height adjustment;
15.- blunt edges;
16.- discharging device;
17.- flat part;
18.- threaded rods;
19.- coaxial runners;
20.- stop;
21.- threaded element;
22.- outlet;
23.- hole;
24.- slot;
25.- nut,
26.- insert,
27.- threaded rod,
28.- flat element.

Description of a preferred embodiment

[0019] The invention is intended to facilitate the mounting of sanitary appliances with an element of easy handling and assembly, with which the sanitary appliances are assembled in a simple way and with a pleasant aesthetic result.

[0020] The frame is designed to include in one single piece and made of the same material, all the elements that compose it, i.e. it is designed as a one-piece structure.

[0021] The frame is designed to facilitate the installation of a toilet in the preferred embodiment of the invention. In this embodiment the frame comprises two main parts that include all the elements that provide it with the subsequent functionality, said parts are the block (1), which consists of a box of actuation mechanisms (2) together with a water tank (3), and a lower structure (4) for supporting and mounting the toilet.

[0022] In the design of the preferred embodiment of the invention the block (1) is located at the upper part of the frame comprising the box of actuation mechanisms (2) and the water tank (3), and it is important to note that at the top, the frame has blunt edges (15), and the sides have been softened to prevent the presence of sharp edges and sharp areas. And finally, located between the block (1) and the pavement, we find the lower structure (4) for supporting and mounting the sanitary element.

[0023] The water tank (3) is a compartment comprising four walls and a floor with a water inlet to fill the tank (3) and, at the bottom of the tank (3) we find a water outlet (22) that connects to the exhaust duct (5) of the water that facilitates the emptying of the tank (3). Within the water tank (3), connecting with the mechanisms box (2) we find a discharging device (16) that allows the emptying of the water tank (3) during the use of the toilet.

[0024] Between the water tank (3) and the floor there is a lower structure (4) for supporting and mounting the toilet, comprising legs (11) that include a height adjustment system (14) of the frame and located between the two legs (11) there is a connection central crossbeam (10') that adds rigidity to the legs (11) together with inclined crossbeams (10) joining the legs (11) by their highest part with the crossbeam (10').

[0025] For the inner separation of the tank (3) and the legs (11) the frame has a partition wall (12) located in the highest area of the lower structure (4) for supporting and mounting the toilet, which prevents the internal flood of the legs (11).

[0026] The lower structure (4) for supporting and mounting the toilet is completely configured by the water exhaust duct (5) extending from the water tank (3) by its bottom and is joined in the middle of the central crossbeam (10'), joining in this way the aforementioned central crossbeam (10') with the water tank (3). At the bottom of the water exhaust duct (5), next to the central crossbeam (10') the installation conventional ducts are connected.

[0027] Attached to the central crossbeam (10') we find the means for mounting the sanitary element, consisting of two horizontal threaded cylindrical parts (8) which are inserted into the central crossbeam (10') and wherein the sanitary appliance is placed.

[0028] At the bottom of the central crossbeam (10') there is a structure that provides stability to the toilet drain

pipe. The structure comprises a single piece bridge (6) and a flange (7) that adapts to any variation of the diameter of the tube configured by the drain pipe.

[0029] For the fixation of the frame to the wall there are, inserted into the corners of the top of the one-piece part of the frame, threaded rods (18) joined to flat pieces (17) for attachment to the wall. The threaded rods (18) together with the flat pieces (17) configure the anchors (9) to the wall.

[0030] To adjust the height of the frame, the legs (11) have a height adjustment mechanism (14) which has two possible configurations:

- the first configuration, comprises inner metal coaxial runners (19) in each leg (11) with the same shape of the legs (11), said coaxial runners (19) have, at the bottom, seat stops (20), that prevent the coaxial runner (19) from getting into the leg (11). Likewise, the coaxial runners (19) also have a slot (24) along each coaxial runner (19) matching the inner area of the frame. The coaxial runner (19) is placed in the desired position and by an inner hole (23) of the leg (11) a threaded element (21) is introduced setting the relative position of the coaxial runner (19) with the leg (11) through a nut (25) located in the interior of the coaxial runner (19), since the threaded element (21) presses on the leg (11) and the nut (25);
- the second configuration, comprises inner metal coaxial runners (19) in each leg (11), said coaxial runners (19) are formed by threaded rods (27) in the lower part of which are located supporting flat elements (28), that in addition to preventing the coaxial runner (19) from getting into the leg (11), are used to provide a strong support of the frame on the floor. Likewise, the height adjustment mechanism (14) has an insert (26), with inside thread, located on the inside of the bottom of the legs (11) for threading the threaded rod (27), allowing, by turning the threaded rod (27), to adjust the relative position of the threaded rod (27) with respect to the leg (11) and therefore fixing the height of the frame with respect to the floor.

[0031] The frame includes inserts (13) that generate threaded holes for the installation of the frame with supports on walls consisting of gypsum plasterboards ("Pladur-type walls).

[0032] The frame can be used to hold any sanitary element with the inclusion or exclusion of the elements comprising the frame that are not required, so except for the installation of a toilet, the water tank (3) is not necessary, so that it would not be included in the frame except for the installation of a toilet. Also the connections of the drains and the installation conventional ducts are different according to each sanitary element to be installed, varying the diameter and the configuration of the various water inlet and outlet elements.

[0033] The frame is made preferably of plastic with rotational moulding techniques, since, in this way, a homogeneous distribution of the plastic in the entire piece is achieved and the thickness of the wall is suitable to withstand mechanical stress that this piece will undergo.

Claims

1. Recessed frame for clamping of sanitary elements comprising three main bodies:

   - one box of actuation mechanisms (2);
   - one intermediate water tank (3);
   - one lower structure (4) for supporting and mounting the toilet, **characterized in that** the three main bodies comprise a single one-piece part wherein the lower structure (4) integrates a central crossbeam (10') wherein two inclined crossbeams (10) and one exhaust duct (5), which leads into a central area of the central crossbeam (10') flanked by the terminal sections of the inclined crossbeams (10), converge.

2. Recessed frame according to claim 1 **characterized in that** the lower structure (4) for supporting and mounting the toilet comprises a bridge (6):

   - formed by one single piece,
   - which is integral to the central crossbeam (10') by the bottom of the aforementioned central crossbeam (10'),
   - while at the same time it is associated with a flange (7) adaptable to any diameter of a drain pipe of the sanitary element, said drain pipe being attached through the bridge (6) and flange (7) assembly.

3. Recessed frame according to claim 1 **characterized in that** the lower structure (4) for supporting and mounting the toilet comprises legs (11) with a height adjustment mechanism (14) of said legs (11).

4. Recessed frame according to claim 3 where the height adjustment mechanism (14) of the legs (11) comprises runners (19) coaxial with the legs (11) that slide through the inside of the legs (11) and are fixed through a threaded element (21) being threaded on a hole (23) located in the legs (11) such threaded element (21) being fixed through a nut (25) located inside of the coaxial runners (19), **characterized in that** the height adjustment mechanism (14) of the lower structure (4) for supporting and mounting is incorporated at the bottom of the one-piece part.

5. Recessed frame according to claim 3 **characterized in that** the height adjustment mechanism (14) of the legs (11) comprises runners (19) coaxial with the legs (11) formed by threaded rods (27), with a flat element (28) coaxial with the threaded rods (27) at

the lower end of the threaded rods (27), that are introduced by the lower part of the legs (11) through an insert (26), with internal thread, that allows threading the threaded rod (27), fixing the relative position of the threaded rod (27) with respect to the leg (11) by turning the threaded rod (27) through the interior of the insert (26).

6. Recessed frame according to claim 1 **characterized in that** the top of the mechanisms box (2) comprises blunt edges (15).

7. Recessed frame according to claim 1 **characterized by** comprising a discharging device (16) located both in the area of the mechanisms box (2) and in the area of the intermediate water tank (3) that allows emptying the water tank (3).

8. Recessed frame according to claim 1 **characterized in that** the water tank (3) comprises at least one water inlet and at least one water outlet (22) to the water exhaust duct (5).

9. Recessed frame according to claim 1 **characterized in that** the one-piece part comprises a mouldable material selected from plastic, zamac and aluminium.

10. Manufacturing process of the recessed frame according to claim 1 **characterized in that** the one-piece part of mouldable material is manufactured using a technique selected from the rotational moulding technique and the technique of plastic injection.

11. Recessed frame for clamping of sanitary elements **characterized by comprising** one single lower structure (4) for supporting and mounting the toilet, integrating a central crossbeam (10') wherein two inclined crossbeams (10) and one bridge (6) formed by one single piece associated with a flange (7) for its adaptation to any diameter of a drain pipe converge, attaching said drain pipe through the bridge (6) and flange (7) assembly, while said frame is designed for mounting parts, wash basins and bidets.

12. Recessed frame according to claim 11 **characterized in that** the supporting lower structure (4) comprises a mouldable material selected from plastic, zamac and aluminium.

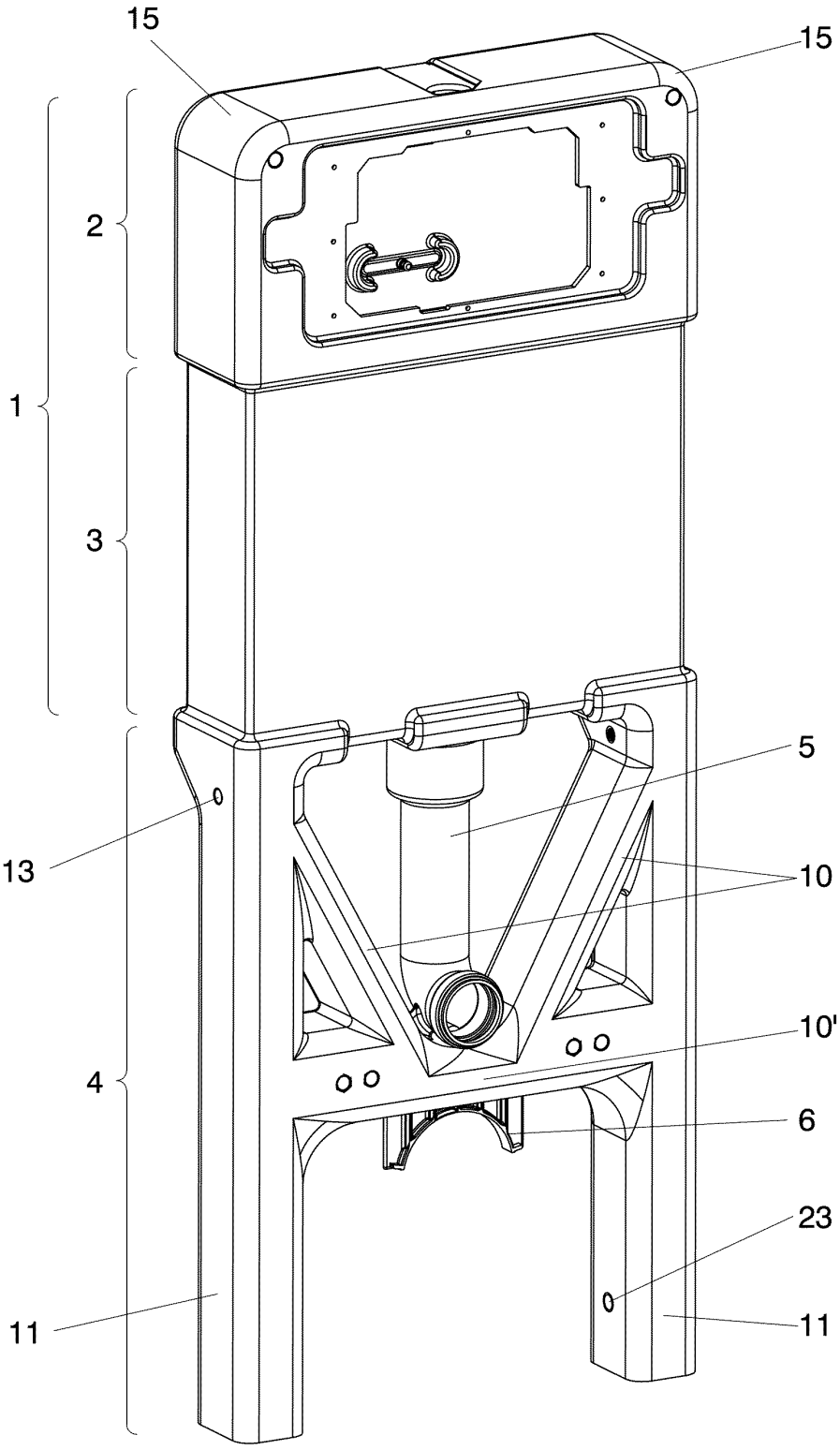


FIG. 1

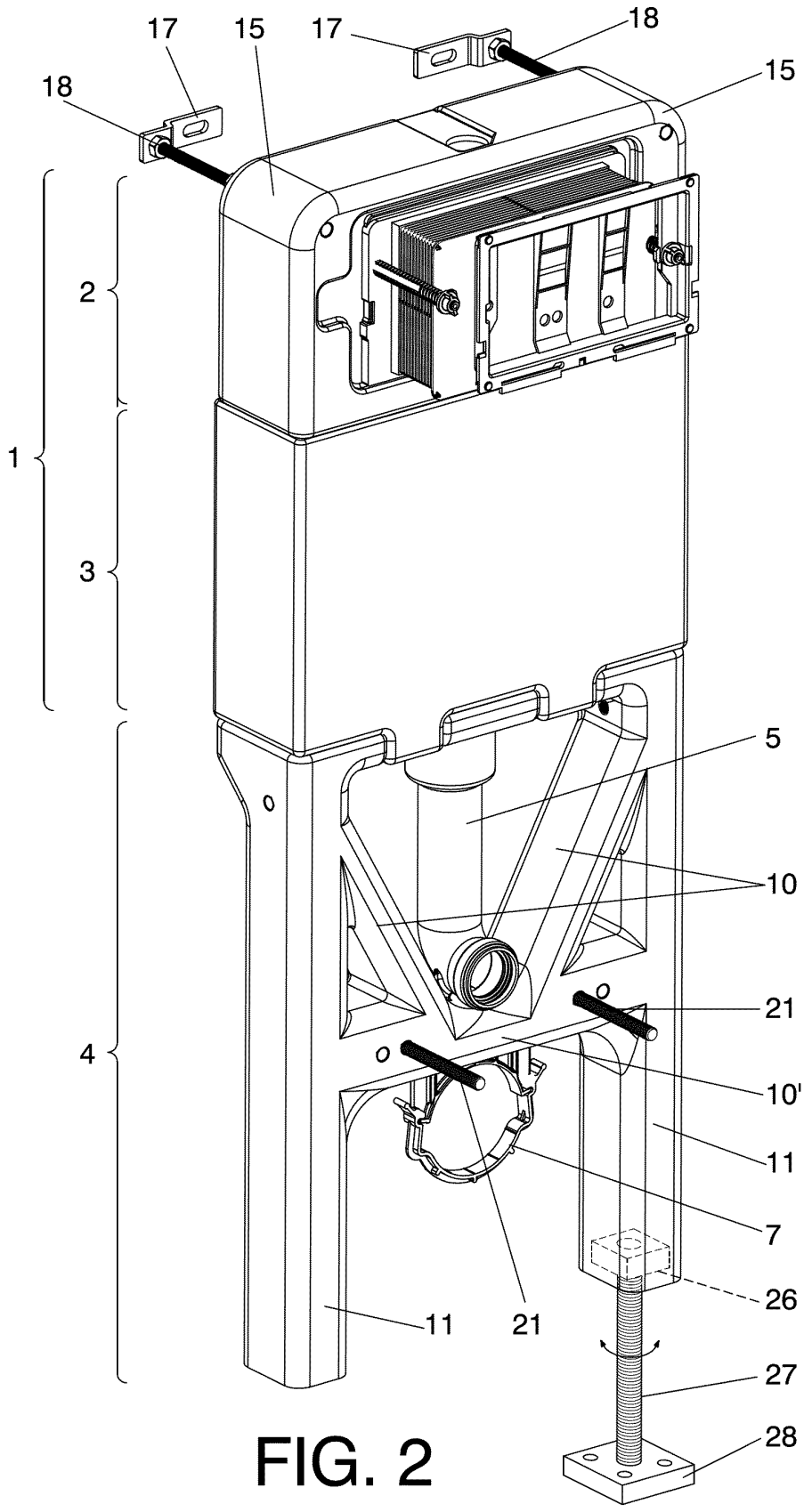


FIG. 2

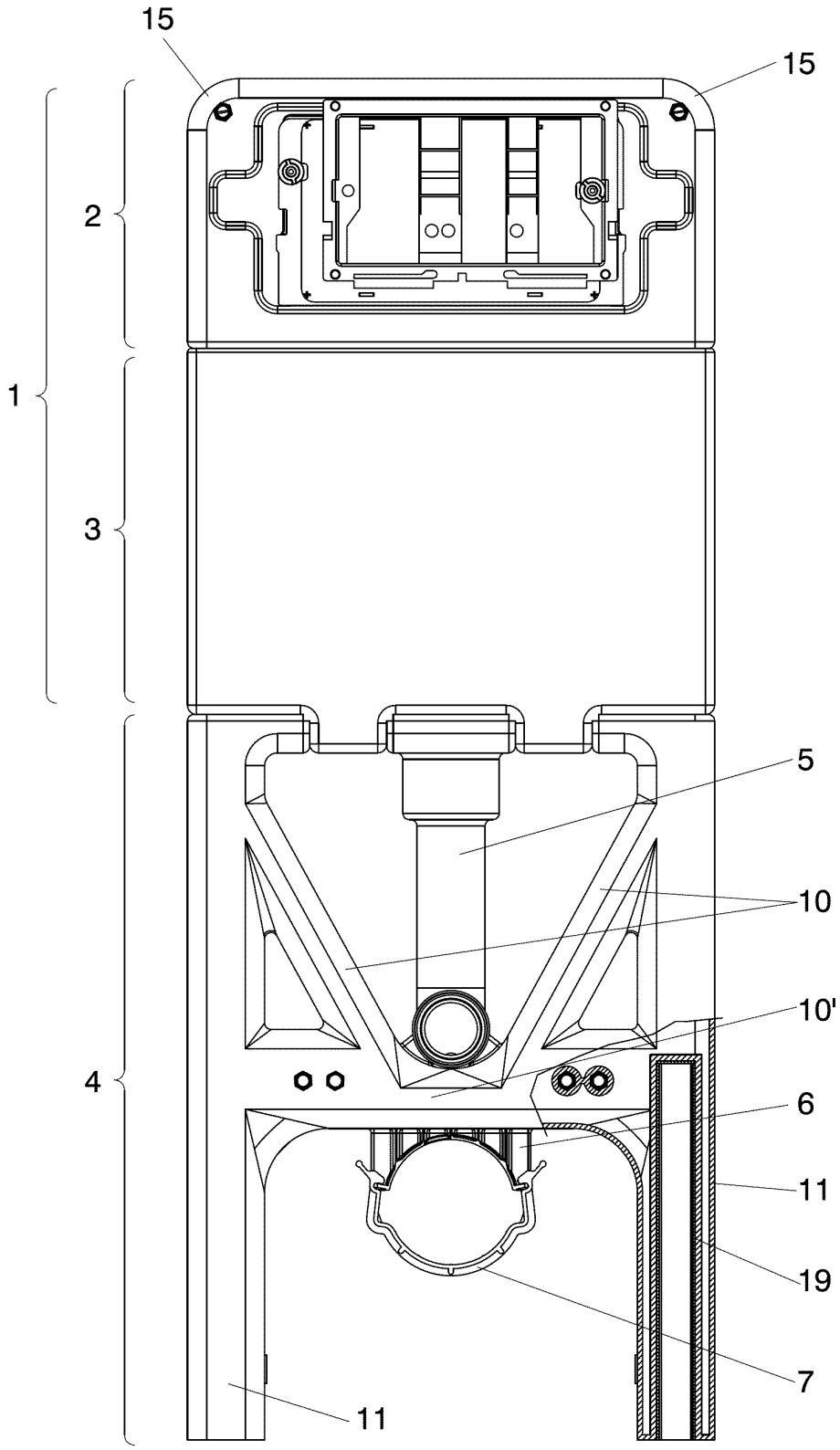


FIG. 3

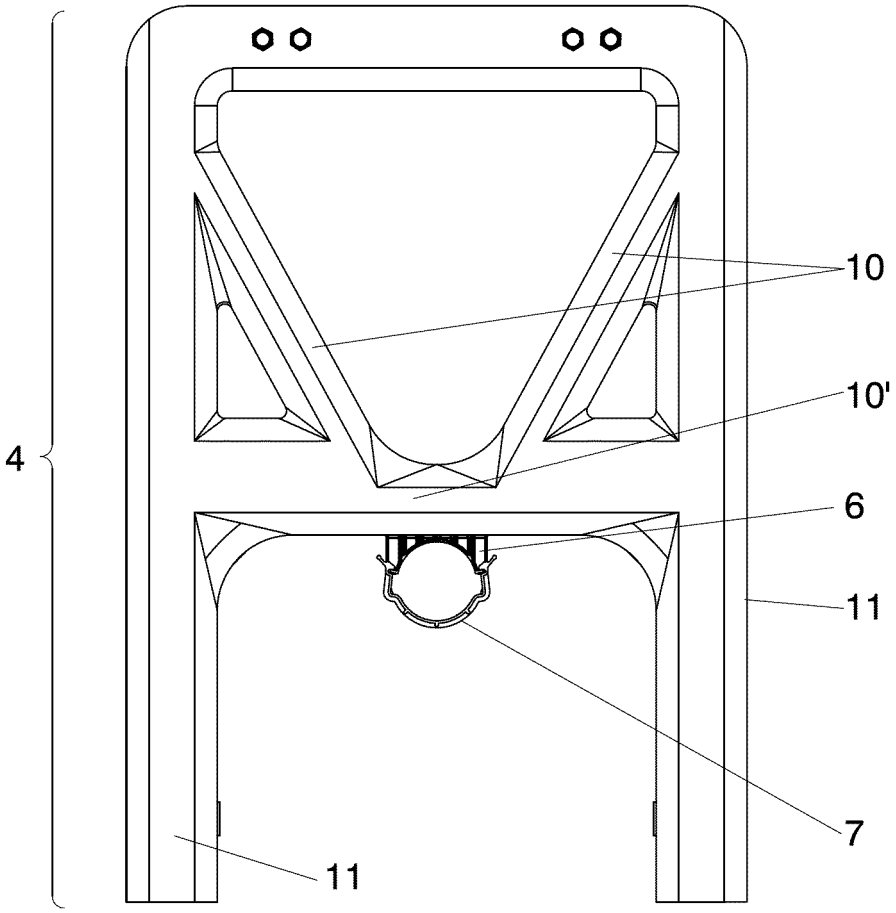


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2012/070370

A. CLASSIFICATION OF SUBJECT MATTER

E03D11/14 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E03D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
30/08/2012	**(11/09/2012)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer J. Angoloti Benavides Telephone No. 91 3495330

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2012/070370

C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of documents, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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