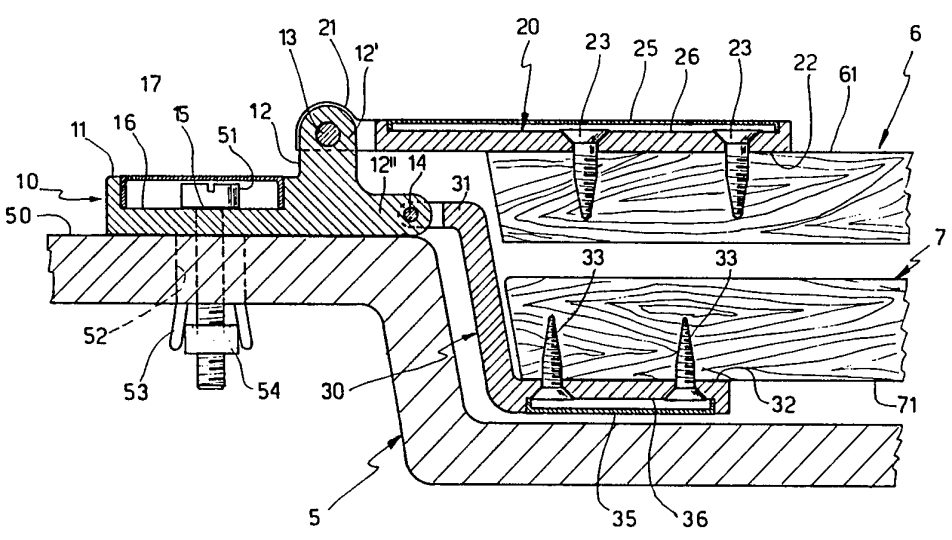


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(21) International Application Number: PCT/IT93/00059 (22) International Filing Date: 10 June 1993 (10.06.93) (30) Priority data: RE92U000061 9 July 1992 (09.07.92) IT (71) Applicant (for all designated States except US): IDEAL STANDARD SPA [IT/IT]; Via Ampère, 102, I-20131 Milano (IT). (72) Inventor; and (75) Inventor/Applicant (for US only) : FRETTOLI, Domenico [IT/IT]; Via del Molino, 45, I-25127 Brescia (IT). (74) Agent: CORRADINI, Corrado; Via Dante Alighieri, 4, I-42100 Reggio Emilia (IT).		(81) Designated States: AT, AU (Petty patent), BB, BG, BR, CA, CH, CZ, DE, DE (Utility model), DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: IMPROVED HINGE DEVICE FOR SECURING THE SEAT AND LID TO A WATER CLOSET PAN  (57) Abstract The device comprises a first part (10) with a first portion (11) of platform to be fixed onto the upper rear surface (50) of the water closet pan (5), and a second portion (12) joined to the first portion (11); a second part (20) of platform, to be fixed to the lid (6) and having its rear edge hinged to the second portion (12) of the first part (10) by a first pin (13) of horizontal axis; and a third part (30) of platform, to be fixed to the seat (7) and having its rear edge hinged to the second portion (12) of the first part (10) by a second pin (14) of horizontal axis; the second pin (14) lies in a position lower than and to the front of the first pin (13); the hinge device is intended to be fixed in a position in the vertical plane of symmetry of the pan (5), and acts as the only securing means for the seat (7) and lid (6).		

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Description

Improved hinge device for securing the seat and lid to a water closet pan

Technical field

This invention relates to hinge devices for securing the corresponding seat and lid to water closet pans.

5 Background art

For this purpose it is known to use two hinge devices fixed to the upper rear part of the pan, each of them comprising a single pin by which the device is hinged both to the lid and to the seat.

10 The object of the present invention is to improve said known securing devices in such a manner as to satisfy the following various requirements: that the hinge device be a single device to be fitted in a position in the vertical plane of symmetry of the pan, that it be able to simultaneously secure the seat and lid to the pan, and that it be of particularly pleasing appearance.

15

Disclosure of invention

This and further objects are attained by the device of the invention as characterised in the claims.

20 The invention is described in detail hereinafter with reference to the accompanying figures, which illustrate one embodiment thereof.

Figure 1 is a section on the vertical plane of symmetry of the device of the invention, shown fitted to a pan, a seat and a lid.

Figure 2 is a perspective view of the hinge device of Figure 1.

25 The hinge device of the invention, indicated overall by 1 in the figures, is intended to be fixed to a water closet pan 5 in a position in the vertical plane of symmetry of the pan 5, and acts as the only securing means for the lid 6 and seat 7.

30 The device 1 comprises a first part 10 with a first portion 11 of plate form to be fixed onto the upper rear surface 50 of the pan 5, and a second portion 12 joined to the first portion 11.

The device 1 also comprises a second part 20 of plate form to be

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fixed to the lid 6, and a third part 30, also of plate form, to be fixed to the seat 7. The second part 20 has its rear edge hinged to the second portion 12 of the first part 10 by a first pin 13 of horizontal axis. The third part 30 has its rear edge hinged to
5 the second portion 12 of the first part 10 by a second pin 14 of horizontal axis. The second pin 14 lies in a geometrical position which is lower than and to the front of the first pin 13.

The second portion 12 of the part 10 comprises two opposing vertical walls 121, external to which there project the end
10 portions of the two pins 13 and 14. The rear edge of each part 20 and 30 comprises two rearwardly projecting flanges, indicated respectively by 21 and 31, which embrace the portion 12 of the part 10 and comprise cylindrical seats to receive said end portions of the two pins 13 and 14.

15 The portion 12 comprises a first upwardly extending projection 12', the upper end region of which comprises the seat for the pin 13, and a second horizontally forward extending projection 12", the front end region of which comprises the seat for the pin 14. The first portion 12' joins the second portion 12" at a right
20 angle with respect to a section taken on the vertical plane of symmetry.

The first part 10 is fixed onto the surface 50 of the pan 5 by usual means, such as so-called "expansion screws", ie screws 51 the shank of which passes through a respective hole 15 provided in
25 the portion 11 and a respective hole 52 provided in the pan 5, and is inserted through an expansion plug 53 which is inserted into the hole 52 and expanded and hence rendered rigid with the hole 52 by tightening a lower nut 54 screwed onto the shank of the screw 51.

30 The second part 20 is of flat plate form and is fixed with its lower face 22 against the upper surface 61 of the lid 6 by screws 23 which pass through holes 24 provided in the part 20.

The third part 30 is in the form of a plate bent to L-shape and is fixed with the upper face 32 of its end portion against the lower
35 surface 71 of the seat 7 by screws 33 which pass through holes 34 provided in the part 30.

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The upper face 26 of the part 20, where the holes 24 are provided, and the lower face 36 of the part 30, where the holes 34 are provided, are slightly recessed and are covered with suitable covers 25 and 35 respectively for the aesthetic purpose of
5 covering the heads of the screws 23 and 33 respectively.

The upper face 16 of the portion 11, where the holes 15 are provided, is also slightly recessed and is covered with a cover 17 for the aesthetic purpose of covering the heads of the screws 51. The sectional profile (Figure 1) of the part 30 is such as to
10 match the profile of the upper surface of the pan 5, so that when the seat 7 has been hinged by the device 1, it is parallel to the pan 5 and slightly spaced from the upper rear surface thereof. The device of the invention enables the lid 6 and seat 7 to be fitted to the respective pan 5 in a simple and rational manner, in
15 that it is a single device and can be fitted to the pan by simple screws.

In addition, the appearance of the pan with its fitted seat and lid is particularly pleasing, by virtue of the device of the invention.

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Claims

1. An improved hinge device for securing the seat and lid to a water closet pan, characterised by comprising:

- a first part (10) with a first portion (11) of plate form to be fixed onto the upper rear surface (50) of the water closet pan (5), and a second portion (12) joined to the first portion (11);
- a second part (20) of plate form, to be fixed to the lid (6) and having its rear edge hinged to the second portion (12) of the first part (10) by a first pin (13) of horizontal axis;
- a third part (30) of plate form, to be fixed to the seat (7) and having its rear edge hinged to the second portion (12) of the first part (10) by a second pin (14) of horizontal axis, said second pin (14) lying in a position lower than and to the front of the first pin (13);
- said hinge device being intended to be fixed in a position in the vertical plane of symmetry of the pan (5), and acting as the only securing means for the seat (7) and lid (6).

2. A device as claimed in claim 1, characterised in that:

- said second portion (12) of the first part (10) comprises two opposing vertical walls (121), external to which there project the end portions of said two pins (13 and 14);
- said second part (20) and third part (30) each comprise, on their rear edge, two rearwardly projecting flanges (21, 31) which embrace the second portion (12) of the first part (10) and comprise the seats for receiving said end portions of the two pins (13 and 14).

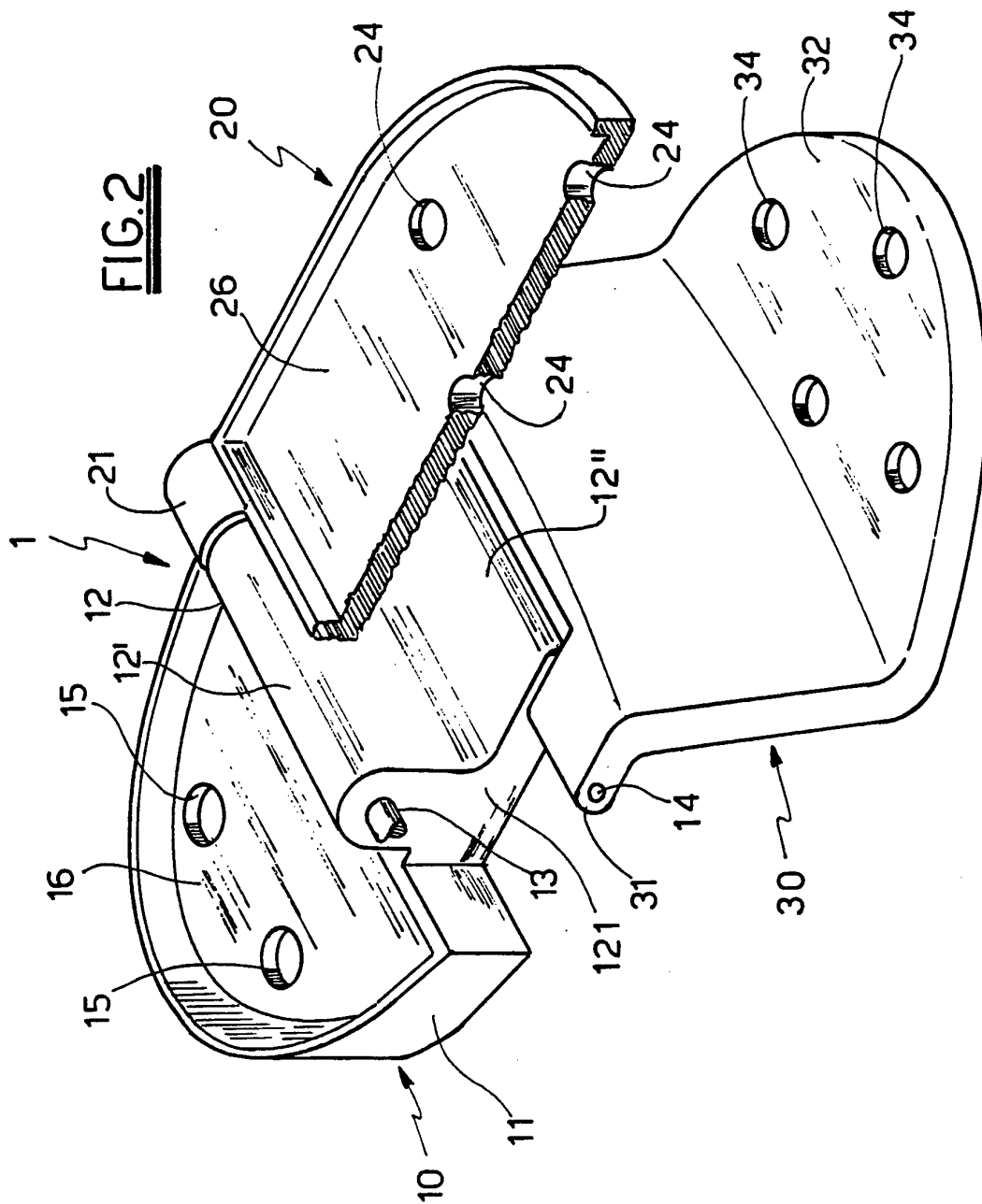
3. A device as claimed in claim 1, characterised in that:

- said second part (20) is of flat plate form and is fixed with its lower face (22) against the upper surface (61) of the lid (6);
- said third part (30) is in the form of a plate bent to L-shape and is fixed with the upper face (32) of its end portion against the lower surface (71) of the seat (7);
- covers (17, 25, 35) are provided to cover the upper face (16,

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26) of the first part (10) and second part (20) and the lower face (36) of the third part (30).

4. A device as claimed in claim 2, characterised in that said
- 5 second portion (12) of the first part (10) comprises a first upwardly extending projection (12') defining the seat for the first pin (13), and a second horizontally forward extending projection (12'') defining the seat for the second pin (14), the first portion (12') joining the second portion (12'') at a right
- 10 angle.



INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 93/00059

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC Int.Cl. 5 A47K13/12		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	A47K	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP,A,0 225 427 (KOHLER CO) 16 June 1987 see figure 3 ---	1,2,4
Y	FR,A,2 354 021 (WITRECO PLAST AB) 30 December 1977 see figures ---	1,2
A		3
Y	EP,A,0 349 025 (IDEAL STANDART S.R.L.) 3 January 1990 see figure 1 ---	1,2
A		4
A	US,A,4 467 481 (GINSBURG) 28 August 1984 see figures -----	1,3
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IV. CERTIFICATION		
Date of the Actual Completion of the International Search 02 SEPTEMBER 1993		Date of Mailing of this International Search Report 17.09.93
International Searching Authority EUROPEAN PATENT OFFICE		Signature of Authorized Officer HUBEAU M.G.

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
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