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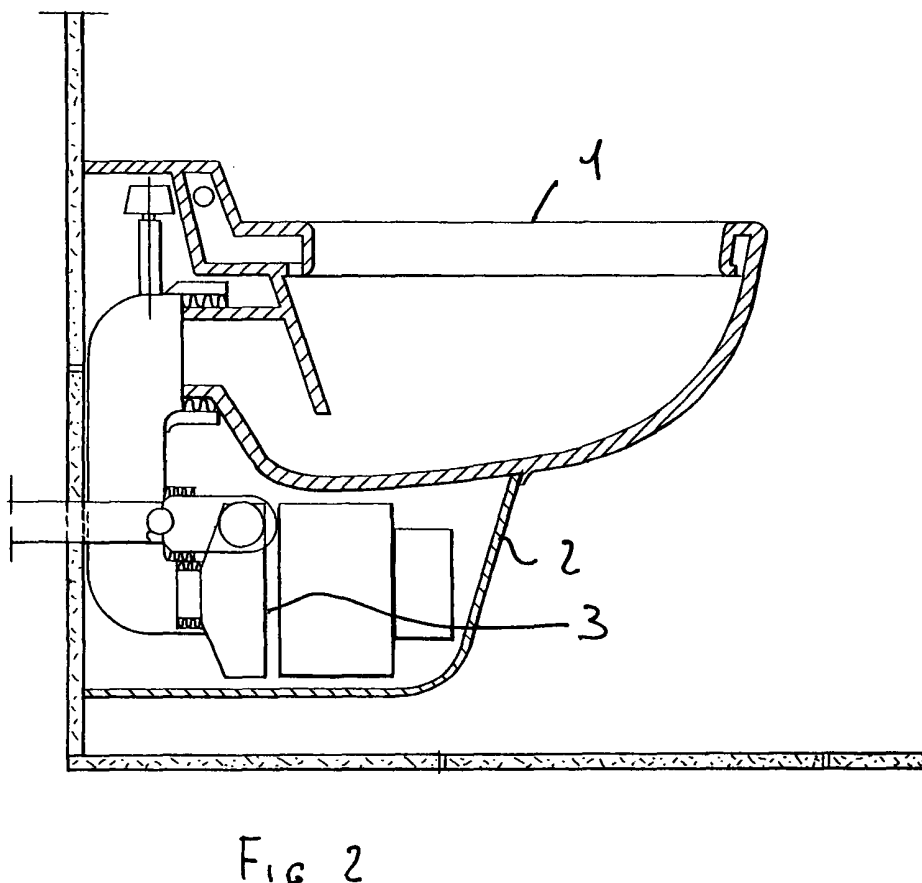
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(54) Sanitary appliance made up of two detachable units

(57) This invention relates to a sanitary appliance (1) fitted with a grinding device and pump allowing the waste water and shredded waste to pass through small pipes connecting the appliance to the drain pipe, wherein the

grinding device, pump and other operating systems and assemblies are housed inside a removable unit (2) fastened to and underneath the appliance (1); the invention also relates to other means (4,5) for properly fitting the unit (2) to the appliance (1).



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Description

State of the art

[0001] Sanitary appliances fitted with grinding devices and water-pumping systems are increasingly widespread, which devices, however, are generally installed behind the sanitary appliances inside a generally rectangular-shaped case.

[0002] The simpler models feature operating mechanisms that are integral with the waste pipe and, as rule, it is necessary to remove the sanitary appliance before cleaning, unclogging or performing any other maintenance operation on it, by disconnecting the waste pipes and connections with the other appliances; this operation may be carried out only by a plumber and is expensive and time-consuming.

[0003] In the more recent and expensive models, the device is made up of two units:

- a fixed unit housing the container collecting the waste water from the sanitary appliances, and
- a removable unit containing the pumping, grinding and control systems.

Description of the invention

[0004] The above mentioned version unquestionably speeds up maintenance operations and reduces the cost of the grinding device/pump, but it does not solve the problem of its poor design and unappealing appearance and hardly fits in with the sanitary appliances.

[0005] This invention relates to a grinding device and pump, and related systems, which are housed inside a unit installed beneath the toilet bowl; the unit is designed and shaped so as to fit in harmoniously with the sanitary appliance, it is well-designed and pleasant to look at.

[0006] The invention also provides for a quick-fit system for connecting the device to both the appliance and the waste pipes.

[0007] The contact surface between the unit and the upper edge of the appliance is fitted with a guiding device, or similar means, for properly installing the unit and fastening it to the appliance.

[0008] Other means for fastening the unit to the appliance are provided at the back of the unit and may consist, for example, of threaded screws for securing the unit to the appliance or brackets or supports integral therewith.

Description of the Drawings

[0009] A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows an axonometric view, from below, of the appliance fitted with the invention.

Figure 2 shows a cross-section from the side of the

appliance fitted with the invention.

Figure 3 shows a cross-section from the front of the appliance fitted with the invention.

Detailed description of the preferred embodiment

[0010] Referring to the above mentioned drawings the sanitary appliance (1) is fitted at the bottom with a unit (2) housing the set of mechanical / hydraulic / electrical systems (3), which include, *inter alia*, the pump, grinding device, pressure switch and the other devices for operating the assembly.

[0011] The waste inlet and outlet pipes - which may be of any diameter - can be quickly and easily connected and disconnected for speedy maintenance of the grinding device.

[0012] The unit (2) is shaped so as to fit in harmoniously underneath the sanitary appliance (1) and to cover and contain the entire device assembly (3).

[0013] For rapidly installing the unit (2) in its position underneath the sanitary appliance (1), holes are provided (3) and (4) for the fastening devices of the unit (2) to the sanitary appliance (1); such fastening devices may be either screws or bayonet catches, or other known means, such as an expansion lock.

[0014] Along the contact surface between the unit (2) and the sanitary appliance (1), preferably at the front, another fastening means (5) has been provided for securing the front of the unit (2) and also for properly positioning the unit (2) to the sanitary appliance (1).

[0015] As previously mentioned, the shape and size of the unit (2) varies according to the shape of the sanitary appliance, so as to constitute a harmonious whole that does not reveal the presence of a grinding device/pump underneath the appliance.

[0016] The material and colour scheme too are such as to render the unit/appliance assembly as uniform as possible.

Claims

1. Improvements to a grinding device and pump for sanitary appliances wherein the electrical, hydraulic and mechanical systems and assemblies (3) operating the grinding device and pump are housed inside a unit (2) installed underneath the appliance (1), which unit (2) is shaped in such a manner as to fit in harmoniously with the appliance (1) and is provided with suitable means for fastening thereto.
2. Improvements to a grinding device and pump for sanitary appliances as claimed in Claim 1 wherein the unit (2) features fastening means (4), at the back, which may be screws, etc., for securing the unit (2) to the appliance (1).
3. Improvements to a grinding device and pump for

sanitary appliances as claimed in the preceding Claims wherein the waste water inlet pipe to the grinding device and outlet pipe from the device to the drain pipe are of the quick-fit type, for a speedy connection or disconnection.

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4. Improvements to a grinding device and pump for sanitary appliances as claimed in the preceding Claims wherein fastening devices (5) are provided along the contact surface between the unit (2) and the appliance (1), for properly fitting the unit (2) and securing it to the appliance (1).

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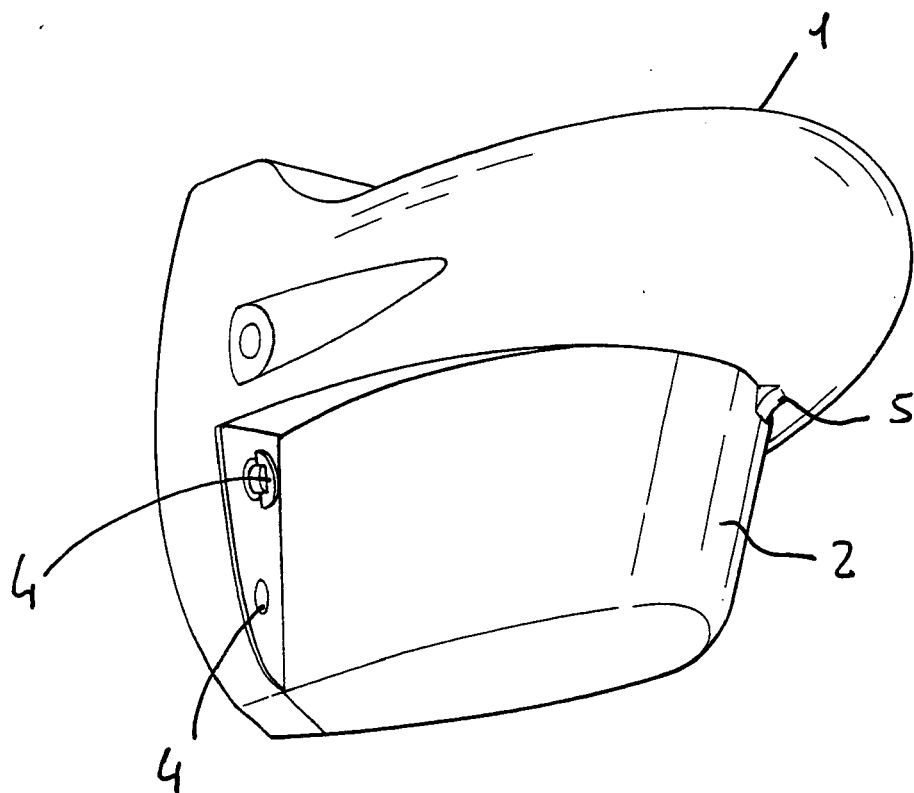
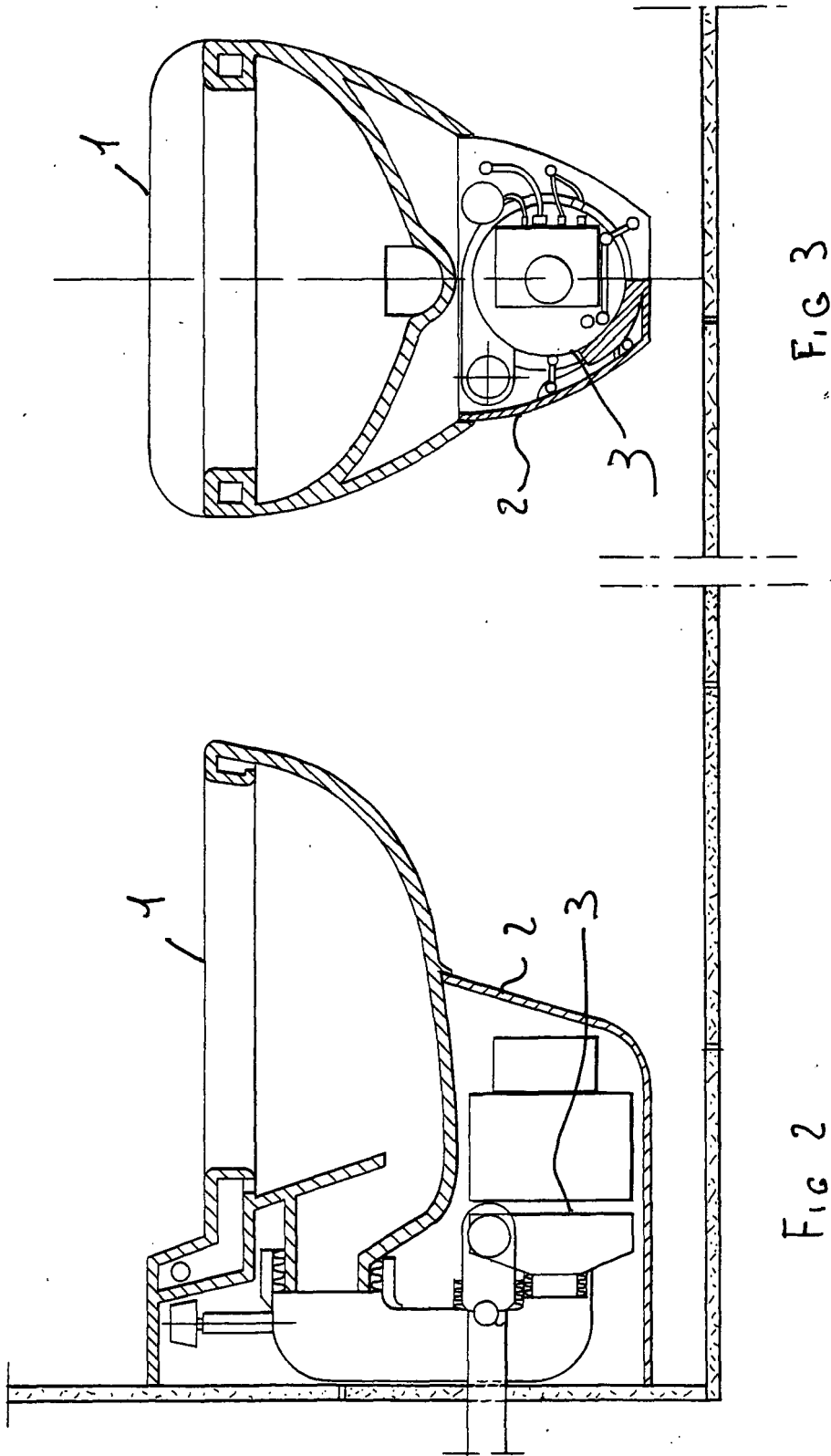


FIG 1





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 42 5072

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 3 878 569 A (PEIRISH JR ALFRED J ET AL) 22 April 1975 (1975-04-22) * figures 1,2 * * column 3, line 4 - line 10 * -----	1-4	INV. E03D9/10 A47K11/04 E03D11/02 E03D11/13 A47K11/02
A	US 3 939 500 A (MILLER MARSHALL W ET AL) 24 February 1976 (1976-02-24) * figure 5 * -----	2,4	
A	FR 2 415 447 A (LANTELME JEAN PAUL [FR]) 24 August 1979 (1979-08-24) * figures 1,2 * -----	4	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			E03D A47K
Place of search		Date of completion of the search	Examiner
Munich		11 May 2007	Isailovski, Marko
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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EPO FORM 1503.03.82 (P04C01)

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

EP 07 42 5072

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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11-05-2007

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 3878569	A	22-04-1975	CA	1011054 A1	31-05-1977

US 3939500	A	24-02-1976	BR	7409972 A	25-05-1976
			CA	990451 A1	08-06-1976
			DE	2459968 A1	03-07-1975
			FR	2255431 A1	18-07-1975
			GB	1477494 A	22-06-1977
			JP	50096037 A	30-07-1975
			NL	7416701 A	24-06-1975
			SE	404388 B	02-10-1978
			SE	7413930 A	23-06-1975

FR 2415447	A	24-08-1979	NONE		
