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**Datasheet for the decision  
of 6 February 2015**

**Case Number:** T 0653/12 - 3.2.03

**Application Number:** 08788524.0

**Publication Number:** 2203608

**IPC:** E03D11/02

**Language of the proceedings:** EN

**Title of invention:**

RIMLESS TOILET WITH FLUSH WATER DISTRIBUTION APPARATUS

**Applicant:**

Ideal Standard International BVBA

**Headword:**

**Relevant legal provisions:**

EPC Art. 54, 56, 84, 123(2)

**Keyword:**

Novelty - (yes)  
Inventive step - (yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

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Case Number: T 0653/12 - 3.2.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.03**  
**of 6 February 2015**

**Appellant:** Ideal Standard International BVBA  
(Applicant) Chaussée de Wavre 1789 bte 15  
1160 Brussels (BE)

**Representative:** Albutt, Anthony John  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 31 October 2011  
refusing European patent application No.  
08788524.0 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** G. Ashley  
**Members:** C. Donnelly  
I. Beckedorf

## **Summary of Facts and Submissions**

I. The appeal lies from the decision of the examining division dated 31 October 2011, refusing European patent application no. 08 788524.0.

In its decision, the examining division held that the subject-matter of claims 1, 8 and 9 of the main request lacked an inventive step starting out from either US 5 715 544 (D1) or GB 2 431 937 (D4) as the most relevant prior art. Further, it considered that the subject-matter of claim 9 of the main request did not meet the requirements of Article 84 EPC. It also found that the subject-matter of claims 1 and 8 of the auxiliary requests did not meet the requirements of Article 123(2) and that, even if it did, the requirements of Article 56 would still not be fulfilled.

II. The following state of the art is cited in the contested decision:

D1: US 5 715 544;

D2: US 6 397 405;

D3: GB 2 203 178;

D4: GB 2 431 937.

III. The applicant (hereinafter: the "appellant") filed a notice of appeal against this decision in due time and form.

IV. In a communication dated 11 November 2014, pursuant to Article 15(1) RPBA annexed to the summons to oral proceedings, the Board informed the appellant of its provisional opinion.

V. Oral proceedings were held on 6 February 2015. At the conclusion of the discussions, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the set of claims filed as the (new) main request during the oral proceedings with accompanying documents (annex B to the minutes).

VI. Claim 1 according to the **main request** reads:

"A toilet comprising:

a rimless toilet bowl (1);

a first and a second water inlet (5,6), an inner surface of the bowl comprising a first and second circumferentially extending water ledge (7,8), each ledge being located adjacent to a respective one of said water inlets and arranged to guide water in a substantially horizontal direction around at least a portion of the inner circumference of the bowl, each ledge being provided with an upper surface on which the water is supported and carried, and each ledge having a first width proximate a respective inlet and a second smaller width at a distal end of the ledge; and

a third inlet (14) arranged in use to allow a volume of flushing water which is less than the volume passing through the first and second water inlets to rinse a portion of the inner surface below said third inlet, wherein the first and second water inlets are arranged in use to direct at least 90% of the water flowing into the toilet as a pair of substantially horizontally opposing water streams from the rear of the bowl along the upper surface of each respective ledge, such that the pair of water streams collide at the front of the bowl to form a generally rear-wardly directed plume of water for flushing the toilet."

VII. Appellant's arguments

D1 fails to provide any disclosure with respect to the amount of water directed around the bowl. Furthermore, since the ledges in the bowl of D1 are angled downwards towards the front of the bowl, water cannot flow as a pair of substantially horizontally opposing water streams along the upper surface of each respective ledge. Furthermore, the ledges in D1 are wider towards the front of the toilet which would prevent the formation of a downward plunging plume.

The device disclosed in D4 is not rimless and does not have any ledges along which water flows since the zones delimited by the slope discontinuity lines are not analogous with the ledges required by claim 1.

The formation of a rear-wardly directed plume of water is an essential aspect of the invention. The creation of this plume by directing at least 90% of the water as a pair of substantially horizontally opposed streams in combination with ledges which are wider towards the water inlet to the rear of the toilet is of key importance to the invention. The rear-wardly directed plume is a very efficient way of forcing waste through the drain since the water retains its high momentum.

Taking D4 as the most relevant art, the skilled person has no motivation to remove the rim, provide ledges for guiding the water to the front of the bowl, or direct at least 90% of the water entering the bowl along the ledges.

## **Reasons for the Decision**

### *1. Basis for the amendments, Article 123(2) EPC*

1.1 Claim 1 as maintained is essentially based on claims 1,2,8 and 11 of the published application. The formation of a generally rearwardly directed plume of water for flushing the water is disclosed at paragraph 1 of page 9 of the application as published. The disclosure that the first and second water inlets are arranged in use to direct at least 90% of the water flowing into the toilet is made at the sentence bridging pages 9 and 10 of the application.

1.2 The further feature introduced into claim 1 during the oral proceedings of :

"each ledge having a first width proximate a respective inlet and a second smaller width at a distal end of the ledge"

is disclosed at page 7, lines 20 to 22 of the description as published.

Thus, the requirements of Article 123(2) EPC are met.

### *2. Clarity, Article 84 EPC*

The system claim 8 has been amended to be in agreement with the wording used in the apparatus claims 1 to 7. Thus, the objection raised by the examining division no longer applies.

3. *Novelty, Inventive step, Articles 54, 56 EPC*

3.1 In the toilet disclosed in D4 the upper bowl zone 17 is not equivalent to a ledge. D4 also does not give a specific value for the percentage volume of water entering through the inlets 29 and 30 and provides little detail about the relative size of the openings referring to a "main quantity" and a "minor quantity" (see page 2, lines 18 to 24). D3 does not relate to a rimless toilet and does not disclose guiding ledges. In D2, flushing takes place on alternate sides (such that a collision of opposing horizontal streams does not take place) and there is no disclosure of a third outlet.

Accordingly, in the Board's opinion, the most relevant prior art is disclosed in US 571554 (D1).

3.2 The meaning of the term "substantially horizontal" is defined at page 4, lines 18 to 21 of the published application as being "not limited to a purely horizontal flow of water but to a generally horizontal flow such that, in use, water is directed around the inner surface of the bowl to meet and collide at the opposing side of the bowl." In view of this and the disclosure in D1 at column 3, lines 49 to 50 "that the oppositely directed water paths eventually meet one another", the Board does not accept the appellant's reasoning that D1 does not disclose a pair of substantially horizontally opposing water streams.

3.3 D1 also provides a disclosure with respect to the amount of water directed around the bowl since at column 3, line 65 to column 4, line 1 of D1 it is stated that:

"Testing has further found that an aperture area of five to seven times the slot area will produce the desired water velocities and volume distribution to clean the bowl".

The slot area corresponds to that of the third water inlet and the aperture area to that of the first and second water inlets. Aperture areas of five to seven times the slot area correspond approximately to an aperture area of between 73.5% and 87.5% of the total inlet area.

However, the Board accepts the appellant's argument that it is not possible to deduce from these figures that in use at least 90% of the volume of water passes into the horizontally opposed streams, particularly in view of the disclosure at column 4, lines 4 to 6 of D1, where it is stated that "The velocity of the downwardly directed water will be greater than the velocity of the laterally directed water."

3.4 In view of this, D1 is considered to disclose:

A toilet comprising:

a rimless toilet bowl (1);

a first and a second water inlet (90 - see column 3, lines 42 to 44), an inner surface of the bowl

comprising a first and second circumferentially

extending water ledge (22), each ledge being located

adjacent to a respective one of said water inlets and arranged to guide water in a substantially horizontal

direction around at least a portion of the inner

circumference of the bowl, and each ledge being

provided with an upper surface on which the water is supported and carried (see column 3, lines 44 to 50);

and



a third inlet (88) arranged in use to allow a volume of flushing water which is less than the volume passing through the first and second water inlets to rinse a portion of the inner surface below said third inlet (see column 3, lines 58 to 66), wherein the first and second water inlets are arranged in use to direct the water flowing into the toilet as a pair of substantially horizontally opposing water streams from the rear of the bowl along the upper surface of each respective ledge, such that the pair of water streams collide at the front of the bowl (see column 3, lines 44 to 50) to form a generally rear-wardly directed plume of water for flushing the toilet.

3.5 The subject-matter of claim 1 according to the main request differs therefrom by:

- each ledge having a first width proximate a respective inlet and a second smaller width at a distal end of the ledge; and in that

- the first and second water inlets are arranged in use to direct at least 90% of the water flowing into the toilet.

3.6 The combined technical effect of these two features is to increase the amount of water reaching the front of the toilet resulting in a more powerful downward plume where the width of the ledge is reduced since the water gains momentum in its passage along the ledge.

3.7 The objective problem to be solved can therefore be seen to be one of improving the flushing efficiency and thereby reducing water consumption.

- 3.8 The available prior art provides no suggestion or hint towards such a combination of features. D2 discloses a toilet with ledges having a first width proximate a respective inlet and a second smaller width at a distal end of the ledge (see column 2, lines 59 to 61). However, as remarked above, since in the toilet of D2 flushing takes place alternately on each side it cannot provide a hint to the skilled person that a powerful flushing plume can be produced by the collision of two opposing streams at the front of the bowl since it teaches away from this idea.
- 3.9 Also, faced with solving this problem it would not be obvious for the skilled person to modify the toilet of D1 in the manner proposed in claim 1 since it is counter-intuitive to come up with the idea of displacing the main flushing plume to the front of the bowl away from where the flushing action is immediately required and towards a point where it may inconvenience the user.
- 3.10 Consequently, the subject-matter of claim 1 of the main request is considered to involve an inventive step and meet the requirements of Article 56 EPC.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division with the order to grant a patent on the basis of the following documents:  
  
claims 1 to 7 filed as the (new) main request during the oral proceedings (annex B of the minutes),  
  
description pages 1 to 21 as filed during the oral proceedings (annex B of the minutes),  
  
figures 1 to 8 as originally filed.

The Registrar:

The Chairman:



C. Spira

G. Ashley

Decision electronically authenticated