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D E C I S I O N
of 18 December 2000

Case Number: T 0527/98 - 3.2.4

Application Number: 91916148.9

Publication Number: 0547117

IPC: A63C 19/10

Language of the proceedings: EN

Title of invention:
Water ride attraction

Patentee:
LIGHT WAVE, LTD.

Former Opponent:
Lotec BV

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Claim 1 - novel and inventive"

Decisions cited:
-

Catchword:
-



Case Number: T 0527/98 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 18 December 2000

Appellant: LIGHT WAVE, LTD.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 3 April 1998
revoking European patent No. 0 547 117 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: C. A. J. Andries
Members: M. G. Hatherly
H. Preglau

Summary of Facts and Submissions

I. European patent No. 0 547 117 was revoked by the opposition division's decision dispatched on 3 April 1998.

On 6 May 1998 the proprietor filed an appeal and paid the appeal fee, filing the statement of grounds on 3 August 1998.

II. The following documents were cited in the opposition proceedings:

D1: EP-B-0 096 216

D2: DE-A-3 445 976

D3: US-A-3 598 402

D4: WO-A-83/04375

D5: US-A-4 905 987

D6: DE-A-2 714 223

D7: "Surfing-Pool" als Skipistensimulator, Dr. Ing. Otto Frenzl, "Sport + Bäder + Freizeit-Bauten" 4/77, Krammer-Verlag

D8: "Surfing im Labor, die Strömungsmechanik des Wellenreitens", pages 21 to 26, Hans Hornung, DFVLR-Nachrichten, Heft 32 (February 1981)

III. In its decision the opposition division found the subject-matter of claim 1 of each of the requests then

on file to lack novelty or inventive step over D1.

Following written arguments in the appeal proceedings from the appellant (proprietor) and the opponent, oral proceedings were held on 18 December 2000. These were attended by the appellant but not by the opponent (who had been duly summoned but had announced by letter of 24 November 2000 that he would not attend). In accordance with Rule 71(2) EPC the proceedings were continued without him. Moreover a letter from him dated 15 December 2000 withdrawing his opposition was filed at the EPO before the oral proceedings but did not reach the board until after the oral proceedings.

- IV. During these oral proceedings the appellant filed new patent documents forming the basis of a sole request and containing the following claim 1:

"A water ride attraction in which water flows on an incline, comprising a generally containerless inclined riding surface (3), and means for generating a sheet flow of water (8) directed upon the inclined riding surface (3), the flow of water (8) substantially conforming to the inclined riding surface (3), wherein at least a portion of the inclined riding surface (3) increases in height in the direction of the flow of water (8) upon the riding surface, the riding surface (3) being containerless such that boundary layer induced subcritical flow and associated flow disturbance along the periphery of the riding surface (3) are eliminated, the riding surface (3) being configured without lateral water constraints to permit the removal of lower velocity water from the riding surface."

V. The appellant requested that the decision under appeal be set aside and the patent be maintained in the following version:

Claims: 1 to 26 filed during the oral proceedings;

Description: columns 1, 2, 5, 6, 21, 22, 45 and 46 filed during the oral proceedings, columns 3, 4, 7 to 20 and 23 to 44 as granted; and

Figures: 1 to 32 as granted

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments*
 - 2.1 Claim 1 filed during the oral proceedings contains all the features of the granted claim 1 and additionally that:

- there are **means for generating a sheet** flow of water

The means for generating the flow are derived from page 26, line 36 to page 27, line 1 of the originally published application WO-A-92/04087 (column 20, lines 38 to 41 of the granted patent). Furthermore, these flow generating means were implicitly present in the wording of both the originally published claim 1 and the granted

claim 1 specifying a flow of water directed on the riding surface.

That the flow is a sheet flow is based on page 7, lines 13 to 15 of the originally published application (column 5, lines 56 to 58 of the granted patent).

- **at least a portion of the inclined riding surface (3) increases in height in the direction of the flow of water (8) upon the riding surface**

This is a restricted version of claim 2 in the originally published application and in the granted patent. Riding surfaces that only increase in height in the direction of the flow of water are shown in many of the Figures e.g. Figure 1 while riding surfaces, only portions of which increase in height in the direction of the flow of water, are shown in e.g. Figures 13a, 21, 22, 23, 25, 26 and 31.

- the riding surface (3) is configured without lateral water constraints **to permit the removal of lower velocity water from the riding surface**

This wording is derived from page 7, lines 2 to 4 of the originally published application (column 5, lines 45 to 47 of the granted patent).

Thus these amendments do not contravene Article 123(2) EPC and, since they are additive and restrictive, they do not contravene Article 123(3) EPC either.

2.2 The present claims 2 to 26 correspond to the granted

claims 3 to 27 respectively. The amendments to the description merely bring it into line with the present claims. The drawings are as granted.

2.3 Thus there are no objections under Article 123 EPC to the present patent documents.

3. *Novelty*

3.1 Figures 1 and 4 to 6 of D1 show an inclined surface 1 bounded by side walls 4. Figures 5 and 6 show a row of openings 13 in a gutter 18 through which the water is led off, in particular sucked off, this water being reintroduced at higher speed downstream, see lines 14 to 22 of column 5. It is clear from Figure 6 that openings 13 are only provided along part of the length of the side wall 4 because immediately downstream of the openings 13 the gutter 18 is continuous and where the water is reintroduced through the opening 20 the side wall 4 is continuous. Therefore, even if it is considered that in the region of the openings 13 there is no lateral water constraint, the riding surface as a whole **does** have lateral water constraints.

Since the extracted water is reintroduced it cannot be said that the inclined riding surface is "generally containerless" as specified at the start of the present claim 1.

Thus not all the features of the present claim 1 are known from the device of Figures 4 to 6 of D1.

3.2 Figure 8 of D1 shows a sloped bottom surface 1 in the form of a truncated cone or truncated pyramid (see column 5, lines 50 to 53). In order to avoid side wall

effects, this surface has no side walls which extend parallel to the flow direction (see column 5, lines 56 to 61).

However, while there are no side walls, there is a peripheral wall (reference numeral 12 denotes a water container - see column 5, lines 49 and 50) and so the riding surface is not containerless. The riding surface plainly extends all around the central container 11, it would be incorrect to notionally split up this annular riding surface into a plurality of riding surfaces each in the form of a circular ring sector and then to argue that each circular ring sector is containerless.

Even if the annular riding surface were notionally divided into circular ring sectors then, while there would be no radially extending walls along the radial edges of a particular circular ring sector, the water in this circular ring sector would still be laterally constrained by the water in the adjacent circular ring sectors.

Thus the embodiment of Figure 8 of D1 does not have all the features of the present claim 1.

- 3.3 D8 deals with the laboratory testing of small, model surf boards (see Figure 13 on page 26) in water flowing in a channel over an obstacle whose side edges are spaced from the walls of the channel to avoid side edge effects (see the middle paragraph of the left hand column on page 23 and Figure 6 on the same page). The arrangement is not a water ride attraction and the obstacle does not provide a riding surface because they are far too small (the channel is 91 cm wide - see page 23, left hand column, line 12 - and the obstacle

is about 50 cm long and 21 cm high - see Figure 8 on page 24). Moreover it can be seen from Figure 8 on page 24 that the obstacle produces a classical wave in a deep water environment, the flow is not sheet flow as specified in the present claim 1 (the term "sheet flow" is explained in column 5, line 56 to column 6, line 8 of the present patent description).

While the penultimate paragraph on page 26 mentions that it is hoped to build a larger obstacle in a fast flowing river, the type of flow would here be the same i.e. not sheet flow as required by the present claim 1.

Thus the subject-matter of the present claim 1 is novel over the disclosure of D8.

- 3.4 The board is also satisfied that no other prior art document on file discloses all the features of the present claim 1 and that its subject-matter is thus novel within the meaning of Article 54 EPC.

4. *Closest prior art, problem and solution*

The board agrees with the appellant that the prior art device closest to the present invention is that shown in Figures 4 to 6 of D1 (see section 3.1 above).

The disadvantages of side wall containment of riding surfaces are set out in the present patent in column 4, line 44 to column 5, line 7 and in column 5, lines 16 to 33. In short flow is retarded at the side walls to cause a build up of slowed water starting at the walls and then propagating across the riding surface. This topic is also dealt with in the prior art discussion in D1 (see column 2, line 64 to column 4, line 19 and

Figures 1 to 3).

D1 presents solutions to the problem of slow water build up, e.g. to provide the side walls 4 with apertures 13 (see Figures 4 to 6) through which the water is led off, in particular sucked off by pump 17, and/or to inject higher velocity water through an opening 20 (see Figure 6 and column 4, line 62 to column 5, line 46). It is clear from the position of the apertures that slowed water can be led off only over a portion of the height of the side wall 4 (see Figure 5) and only over a portion of its length (see Figure 6).

Starting from this state of the art water ride attraction, the problem is to prevent the build up of slowed edge water more simply and more effectively, the present invention solving this problem simply by configuring the riding surface without lateral water constraints. While it can be seen from Figure 5 of D1 that turbulent white water might be retained by the wall 4 which extends higher than the apertures 13, in the inventive water ride attraction not only can the lowest layer of water adjacent the riding surface be removed from the edges of but also water that is well above the riding surface (see the turbulent white water 25 in Figure 6 of the patent for example) will simply leave the riding surface. Advantages of the containerless construction of the invention are set out in column 11, line 54 to column 12, line 13 of the present description e.g. that the riding surface cannot fill or flood with water.

5. *Inventive step*

5.1 The walls 4, apertures 13, pump 17 and reinjection opening 20 are present in the water ride attraction shown in Figures 4 to 6 of D1 in order to conserve the water while minimising the edge effects. To argue that it would be obvious to the skilled person simply to remove all these components and let the water flow away from the sides of the bottom surface 1 is an argument based on knowledge of the present invention, the board does not consider that it would have occurred to the skilled person to redesign the D1 device in this radical manner.

While lines 14 to 22 of column 5 state that the water is led off through the apertures 13 this is not a statement that the water is simply allowed to flow through the apertures. The leading off is explained in particular as a sucking off and this is what the skilled person would be taught by the whole disclosure of D1 with its pump to extract the water. Even D5 (designating the same inventor as D1) comments in column 1, lines 64 to 66 about D1 that "water quantities ... are suctioned of(f)" with no mention of merely allowing the water to flow away.

It would not be obvious simply to remove the peripheral wall to the water container 12 of the device shown in Figure 8 of D1 since the water would then be lost and could not be pumped back into the central tower container 11 via the bottom surface openings 22. Moreover there is no sensible way in which the skilled person could combine this embodiment with that shown in Figures 4 to 6.

5.2 The board will now consider whether the other prior art documents on file would have led the skilled person to

the present claimed subject-matter.

- 5.3 Figure 1 of D2 shows an "ice" rink with a skating surface which is sprayed with water during use (see the page with the typewritten number 6, lines 25 to 29). While the water can plainly flow over the edges of the rink, this rink is horizontal. Lines 34 and 35 of the page with the typewritten number 8 mention runs for toboggans etc but these are of course downhill, there is no suggestion that these do not have edge walls and no suggestion that water is made to run uphill.

In any case the "ice" rink of D2 is in a completely different field to the water ride attraction of D1 so that the skilled person would not consider them together.

- 5.4 The aquatic sports apparatuses of D3 and D5 are similar to that shown in Figures 4 to 6 of D1.

The surfing hill of D4 has side walls 20 (see page 6, line 7) and the water flows downhill (see page 13, lines 19 to 23).

Although the tippable swimming bath of D6 makes waves, it is intended to retain the water in the bath because it is provided with side walls 2 and 2', a bath floor 3 and end walls 4 and 5. D7 discloses a similar tippable wave-making bath.

In none of these documents can a hint be found to eliminate the side walls, thus the person skilled in the art could not be guided towards the present solution.

- 5.5 D8 has been discussed in section 3.3 above. Its object is to laboratory test small, model surf boards not to create a water ride attraction with a riding surface. The brief mention in the penultimate paragraph on page 26 of hoping to build a larger obstacle in a fast flowing river would not lead the skilled person to the subject-matter of the present claim 1 because the type of water flow produced would be completely different (i.e. a deep water environment instead of a sheet flow environment) and so the attraction to the user would be completely different.
- 5.6 Accordingly the board cannot see that any combination of the prior art documents on file could (let alone would) lead the skilled person in an obvious manner to the claimed subject-matter.
6. Thus, as required by Article 56 EPC, the subject-matter of the independent claim 1 filed during the oral proceedings involves an inventive step.
7. The patent may therefore be maintained amended, based on independent claim 1, claims 2 to 26 dependent thereon, the amended description and the granted drawings.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent in the following version:

Claims: 1 to 26 filed during the oral proceedings;

Description: columns 1, 2, 5, 6, 21, 22, 45 and 46 filed during the oral proceedings, columns 3, 4, 7 to 20 and 23 to 44 as granted; and

Figures: 1 to 32 as granted

The Registrar:

The Chairman:

G. Magouliotis

C. Andries