



15 March 2010

PATENTS ACT 1977

APPLICANT Suunto OY.

ISSUE Whether patent application number
GB 0613207.0 complies with section
1(1)b and section 1(2)

HEARING OFFICER Stephen Brown

DECISION

- 1 Patent application number GB 0613207.0, entitled "Golf device and method" was filed on 3 July 2006 in the name of Suunto OY and was published as GB2428202. The application claims priority from US patent application number US11/176,359 filed on 8 July 2005.
- 2 Despite amendment of the claims during the substantive examination, the applicant has been unable to persuade the examiner that the application complies with Section 1(1)(b) and Section 1(2) of the Patents Act 1977 (the Act). The matter came before me at a hearing on 26 January 2010 which was attended in video conference by the attorney for the applicant, Mr. Howard Wright, and was also attended in person by the examiner, Mr. Mark Sexton, and the assistant to the Hearing Officer, Mr. Stuart Purdy.

The Application

- 3 The applicant requested that the main claim request as filed on the 13 January 2009 be considered for the purposes of the hearing and that should the main request be refused then consideration be given to the Auxiliary claim request as filed 21 August 2009.
- 4 Initially, I will consider the claims as filed on the 13 January 2010. There are 4 independent claims, claims 1, 11, 12 & 19. Claims 1 and 11 define portable devices and claims 12 and 19 define methods of monitoring movement. All of the claims are very similar in scope with claim 1 being at least as broad as any other. It reads:

1. *A portable device for measuring the movement of a sportsman performing a plurality of motor acts, the device being attachable to a body part, such as a wrist, of a sportsman and comprising:*

- *at least one sensor which is responsive to a movement and is arranged to generate a sensor output signal,*
- *a signal processing unit arranged to extract data on the course of each of the plurality of motor acts from the sensor output signal, said data including key time points of the motor act and*
- *a computing unit arranged to calculate at least one characteristic number describing the repeatability of the motor act in terms of similarity of individual motor acts with respect to each other, the characteristic number being calculated as a weighted sum of at least two coefficients of variation calculated using key time points and describing temporal variation of the motor act.*

While claims 1, 11, 12 and 19 define slightly different scopes, in relation to the question of patentability under sections 1(1)(b) and 1(2), they are similar enough to be dealt with together.

- 5 The invention as defined by the claims relates to a device adapted to measure the repeatability of a sporting action. This is done by sensing the point in time at which certain features of the motor act occur, defined as the key time points. Key time point data is then extracted for a number of repeated motor acts, e.g. 5 swings and then, based on the key time point data, a coefficient of variation is calculated for at least two properties of the motor act, e.g. swing tempo, swing velocity, duration of backswing etc. These coefficients of variation are then weighted and combined and a single number representing repeatability of the motor act is produced. It is noted that the key time points in a golf swing may be selected from the points when a golfer starts his backswing, when the club changes direction, and when the swing is stopped for example.
- 6 There are two objections as laid out by the examiner to consider here, namely that the claims lack Inventive Step as required by Section 1(1)(b) and that the claims define a contribution which is excluded under Section 1(2) of the Act. In accordance with the order of proceedings in the hearing I will address the Inventive Step objection first.

Inventive Step

The law and its interpretation

- 7 Section 3 of the Act reads:

“An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above)”.

8 I do not think I need to quote sections 2(2) and 2(3), but it follows from these that the state of the art comprises all matter which has at any time before the priority date of the invention been made available to the public, whether in the UK or elsewhere.

9 The test for inventive step is the four-step *Windsurfing* test as reformulated by the Court of Appeal in *Pozzoli Spa v BDMO SA & Anor* [2007] EWCA Civ 588 ('Pozzoli'). In paragraph 23 of this decision the test was laid out as:

(1)(a) Identify the notional "person skilled in the art"

(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

I will now take each step in turn:

The notional 'person skilled in the art' and their relevant common general knowledge

10 At the hearing it was agreed that the skilled person would be a designer or manufacturer in the sporting aids field. It was also agreed that portable measuring devices adapted to measure motor acts, including golf swing, were commonly known to such a person. Likewise, they would be aware that the production of a consistent and repeatable action is desirable in many sports.

Identify the inventive concept of the claim

11 I believe that Mr. Wright and I are broadly in agreement as to what constitutes the inventive concept of the independent claims. Namely: A means and method of determining the repeatability of a motor act of a sportsman. The concept further includes measuring key time point data of a plurality of the motor acts, manipulating the data using the weighted combination of coefficients of variation to produce a characteristic number describing the repeatability of the motor acts. I consider that, in light of the description, there is no confusion as to the definition of what represents a key time point, namely the time at which a measurable event occurs during the motor act, and that no further terms in the claims represent problematic or ambiguous wording.

What differences exist between the state of the art and the inventive concept of the claim?

- 12 It was agreed that the closest prior art document is US 2004/0172213 A1 (KAINULAINEN). This document relates to an apparatus for recording and analyzing the trajectory of a body part of a player. The apparatus may be attached to the wrist of a golfer. It comprises means for recording the duration of a motion, sensors for measuring an acceleration component of the motion and for indicating time related acceleration, a processor for processing the time related motion into graphical form and a display means for representing the results in graphical form.
- 13 The problem addressed by KAINULAINEN is that of improving the repeatability of the golfer's swing tempo and ball impact timing. The device is able to record the motion parameters of the arms and the instant of ball impact and processes this data into reports indicating the speed of the arms in different phases of the swing and the timing of the instant of actual ball impact. The application describes the presentation of this data in graphical form and suggests this may show a preceding swing, an average graph of a number of swings, a deviation graph of swings or a graph representing an ideal swing. No indication is provided with this application as to how these further graphs are formulated or calculated or indeed what constitutes a "deviation graph of swings".
- 14 KAINULAINEN discloses the portable device including a sensor responsive to movement and a signal processing unit arranged to extract data on the course of a plurality of motor acts, the data including key time points of the motor act. KAINULAINEN may carry out some non-disclosed additional processing and the results are then shown in graphical form, however the embodiment disclosed merely shows plotting of raw data on an acceleration-time graph.
- 15 The difference between KAINULAINAN and the inventive concept of the current application is that KAINULAINEN does not manipulate the data using coefficients of variation and weighting to produce a *single number* that is characteristic of the repeatability of the motor acts.

Do these differences constitute steps which would have been obvious to the person skilled in the art?

- 16 The examiner has argued that since the desire to improve swing repeatability is known it would be obvious to vary the data processing in KAINULAINAN by simply selecting known mathematical methods, such as standard deviation and weighting, to produce an output more closely associated with repeatability. Further, that it would be obvious to simplify the complex graphical display output in KAINULAINAN to something easier to understand such as a single characteristic number.
- 17 In such a scenario, the notional skilled person could seek the advice of a person skilled in the field of mathematics. That mathematician would present the skilled person with a raft of known mathematical techniques associated with processing

graphical data and the skilled person would select some of these on the basis of trial and error. Thus the skilled person could arguably start at KAINULAINAN and arrive at the invention of the current application without exercising any inventive thought.

- 18 However, while I agree that the desire to improve repeatability and display information efficiently are well known, I do not believe that the disclosure of KAINULAINAN would lead us to the system of the current invention without the exercise of any inventive imagination.
- 19 Firstly, in my opinion, there are too many steps separating the current invention from KAINULAINAN. The skilled person would have to decide that measuring repeatability is key, and choose data processing using the weighted sum of at least two measures of variation and choose to do said processing to output a single number. This seems too many steps to be completely comfortable that the combination of them must be devoid of invention.
- 20 Secondly, KAINULAINAN is directed at improving swing tempo so that the ball is struck during maximum club head velocity. To do this requires analysis of the swing throughout its duration - see paragraphs 3-5 on page 1. This level of analysis cannot be achieved by consideration of a single number and thus this would not be an obvious choice to make based on KAINULAINAN.
- 21 The advantages of producing a single number would seem to me to relate to creating a more compact portable device, since the required display is smaller, and to provide a more accessible measure of repeatability, since little or no analysis is required. I thus believe that the inventive concept as defined by the independent claims of this application is inventive.
- 22 I will now address the issue of the patentability of the claims with regards to Section 1(2) of the Patents Act:

Excluded Matter

The law and its interpretation

- 23 Section 1(2) reads:

It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of:

- (a) a discovery, scientific theory or mathematical method;*
- (b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;*
- (c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;*

(d) *the presentation of information;*

but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.

24 It is not disputed that the assessment of patentability under section 1(2) is governed by the judgment of the Court of Appeal in *Aerotel Ltd v Telco Holdings Ltd* and *Macrossan's Application* [2006] EWCA Civ 1371, [2007] RPC 7 ("*Aerotel*"). In this case the court reviewed the case law on the interpretation of section 1(2) and approved a four-step test for the assessment of patentability, namely:

- 1) Properly construe the claim
- 2) Identify the actual (or alleged) contribution
- 3) Ask whether it falls solely within the excluded matter
- 4) Check whether the contribution is actually technical in nature.

25 The operation of the test is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 47 explains that a contribution which consists solely of excluded matter will not count as a technical contribution. I will now apply the test:

Properly construe the claim

26 I will specifically refer to claim 1 on the understanding that identical arguments apply to claims 11, 12, and 19. There has been no dispute regarding identifying the meaning of the claims. I construe claim 1 as a portable device that measures key time point data of a plurality of motor acts, manipulates the data using the weighted combination of coefficients of variation to produce a characteristic number describing the repeatability of the motor acts.

Identify the contribution

27 In the examination process the examiner argued that since the 'hardware' claimed is known then the contribution must reside in one or more of: a method of playing a game, the presentation of information, a computer programme or a mathematical method.

28 Naturally, Mr. Wright disagreed, arguing that although the substantial *difference* between the present application and the prior art does reside in programming the

device with a mathematical method, the difference is not the same as the contribution. Specifically, the contribution is wider than this, being a novel measuring device that produces a 'better' measure of the repeatability of a golf swing.

- 29 Now, the exemplifying embodiment of KAINULAINAN senses acceleration in the X, Y, and Z directions, and the different motion phases thus measured are shown on a graph. The device therefore provides a measure of motion during a time period. In contrast, the device of this application senses acceleration, registers key time points for this motion, and then calculates a single value representative of repeatability by carrying out a comparison with previous swings.
- 30 While both devices sense the same thing they differ in how they process this information and in what they output. I agree with Mr. Wright that this makes them distinct measurement devices. There are many examples of devices that sense the same thing yet display different measures. One such example is with electrical meters where an ammeter and ohmmeter both sense current flow yet produce different outputs. I thus agree that in this case what has been contributed to the art is a new 'meter' adapted to produce a new output, namely a characteristic number which describes the repeatability of a motor act.

Ask whether it falls solely within excluded matter

- 31 While the differences between the invention of this application and the prior art incorporate mathematical methods, computer programmes, and the presentation of information, the contribution, as identified above, resides squarely in the measuring, processing and provision of improved and simplified real world data. Thus the contribution is clearly more than just a mathematical method, a programme for a computer, or the presentation of information, as such. Likewise, while the device is intended to be used to help improve performance during a game of golf, the contribution is more than a rule, scheme or method of playing a game, as such. Thus the contribution of the claims does not fall solely within the matter excluded by section 1(2).

Check whether the contribution is technical in nature

- 32 As reasoned above, the contribution is a new measuring device which processes real world data to produce a number indicating the repeatability of a motor act. This is clearly technical in nature and thus passes the fourth step of the Aerotel test.
- 33 I am reassured by the similarity between the current application and EPO Board of Appeal's decision in *Vicom* (T208/84). In *Vicom* the contribution lay in improving the resolution of a real world image by subjecting data to a new and inventive mathematical technique. The result of such a manipulation was better image data. The parallels with the current case are obvious. I will not comment further on this case though as Mr. Wright did not have a chance to consider it at the hearing. However, it does reassure me that my reasoning is consistent with long established practice.

Decision

- 34 I have found that the invention as defined by the claims is inventive as required by section 1(1)(b) of the Act and that the contribution does not fall solely within the subject matter excluded under section 1(2).
- 35 As there are some minor issues outstanding regarding consistency between the description and the claims the application is hereby remitted to the examiner to complete his processing.

Appeal

- 36 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days of the date of this decision.

Stephen Brown
Deputy Director acting for the Comptroller