

used. The embodiment now being claimed is shown in figure 6 (shown below) and described on page 6 paragraph 4 of the specification. The device is provided with a photo electric sensor comprising a photo emitter 116' and a photo detector 118' positioned on one half of the device and a reflective region 606 positioned on the other part. When enough light from the photo emitter is reflected back onto the photo detector the device enters the second mode of operation.

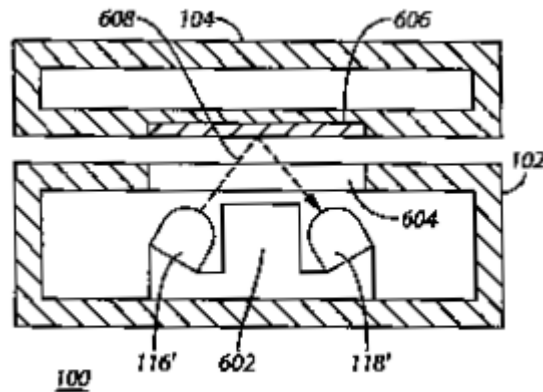


FIG. 6

6. This decision is based on the most recent set of claims, which were filed on 23 April 2010. There is one independent claim which reads:

An electronic device, operable in a first mode and a second mode, including:

- a) a first part;*
- b) a second part moveable with respect to the first part;*
- c) a processing circuit operable to control operation of the device; and*
- d) a photoelectric sensor operable to sense the position of the second part with respect to the first part and to switch the device between the first mode and the second mode dependant upon the position of the second part with respect to the first part;*

wherein the photoelectric sensor comprises a photo-emitter and a photo-detector located in the first part and positioned to receive light reflected from a reflective region of the second part when the second part is in a closed position with respect to the first part, wherein the device is configured to compare a level of light received by the photo-detector to a threshold level to determine whether to switch the device between the first mode and the second mode; wherein the threshold level is selected to detect when substantially all light from the photo-emitter is reflected to the photo-detector, and the photoelectric is operable to switch the device into the first mode if the level of light received by the photo-detector is less than the threshold level and into the second mode if the level of light received by the photo-detector is greater than the threshold level.

The law -support

7. Section 14(5) of the Patents Act 1977 (“the Act”) is relevant to the issue of support and states:

The claim or claims shall –

(a) define the matter for which the applicant seeks protection;

(b) be clear and concise;

(c) be supported by the description; and

(d) relate to one invention or to a group of inventions which are so linked

8. Claim 1 was amended to include the phrase “*the threshold level is selected to detect when substantially all light from the photo-emitter is reflected to the photo-detector*”. A level for the threshold level is never explicitly specified in the description, but Mr Excell contended that the reader would consider it to be implicit, particularly when viewed in conjunction with figure 6. Mr Excell maintained that paragraph 4 of page 6 and figure 6 provided the support for the embodiment now being claimed. The relevant passage reads:

“When the cover 104 is in an open position, only a small amount of light reaches the photo-detector. Even if an object, such as a user’s finger, is placed over the aperture, the intensity of light received by the photo-detector is less than the intensity received when the cover is closed. In operation, the photo-detector produces an electrical signal related to the intensity of the light it receives. The level of this electrical signal is compared to a threshold level to determine if the cover is in an open position or a closed position”.

9. The issue of what was meant by open and closed positions was discussed particularly with reference to page 4 paragraph 1 which states:

“The term ‘closed position’ is taken to include partially closed positions as well as fully closed positions and the term ‘open position’ is taken to include partially open as well as fully open positions.”

10. Mr Excell proposed that the draftsman was trying to cover all embodiments that were originally covered and this paragraph when read in conjunction with figure 6 would lead the skilled reader to know that the device would need to be closed or very nearly closed otherwise it wouldn’t operate as intended.

11. In summary, Mr Excell contended that the application indicates the use of a threshold level and it is implicit what that threshold level should be i.e. substantially all light. I am content to accept this argument and find the

claim to be supported.

The law -inventive step

12. Sections 1 and 3 of the Act are relevant to inventive step, section 1 reads:

1.-(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –

(a) ...

(b) it involves an inventive step;

(c) ...

and references in this Act to a patentable invention shall be construed accordingly.

13. Section 3 defines what is meant by 'inventive step' and 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).

14. I do not propose to quote sections 2(2) and 2(3) here, 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 application been made available to the public, whether in the UK or elsewhere.

15. The correct test for determining inventive step is the structured approach found in *Windsurfing International Inc. v Tabur Marine*¹ as reformulated by Jacob LJ in *Pozzoli*². The steps of the test are now:

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

(1)(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?

¹ *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59

² *Pozzoli SPA v BDMO SA* [2007] EWCA Civ

Applying the Windsurfing/Pozzoli test

Steps 1(a) and (b): Identification of the notional “person skilled in the art” and the relevant common general knowledge of that person

16. The examiner identified the person skilled in the art as a mobile phone hardware designer, working as part of a design team which covered all facets of mobile phone design. He would have knowledge of mobile phone hardware design and would be able to obtain solutions relating to all aspects of mobile phone design. The applicant has not disputed this definition

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

17. The inventive concept would appear to lie in the use of a threshold level to determine whether the electronic device is in an open or closed position, the level of this threshold being chosen such that substantially all light must be received by the photo detector. Again, the applicant has not disputed this definition.

Step 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;

18. The examiner has cited JP 2001022472 (*NEC*) as forming part of the state of the art. This document discloses a foldable mobile electronic device with means to detect whether the device is opened or closed. Two embodiments are disclosed are shown in figures 1 and 3 and described in flow charts 2 and 4 respectively. A light emitting part and light reception part work in conjunction with a reflection unit or a shielding member. A control part detects whether all light is reflected by the reflection unit and is received by the light receptor, or whether all light is blocked by the shielding member and therefore no light is received by the reception part and judges whether, or not, the device is in a closed position.

19. No specific reference is made to the use of a threshold level in *NEC*. Both the examiner and the applicant are in agreement that this is the only difference between the matter cited as forming part of the “state of the art” and the inventive concept of the claim.

Step 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?

20. Having identified the differences that exist between the state of the art and the invention as claimed, it is now for me to decide whether said differences would have been obvious to the person skilled in the art at the time of the invention or whether a certain degree of inventiveness was required on his part. In doing so, I must avoid looking at the cited prior-art

under the influence of the present application, and should attempt to place myself in the shoes of the skilled person faced with the problem at hand. Putting it another way, I must beware of using hindsight or *ex-post facto* analysis to arrive at the invention.

21. The questions that need to be answered are:

- Whether the use of a threshold is implicit in *NEC*.
- If the use of a threshold in *NEC* is implicit whether it is then obvious to select said threshold so that substantially all light from the photo emitter is reflected and hence detected by the photo detector.
- If the use of a threshold is not implicit in *NEC*, would it be obvious to use one.

22. It is worth noting at this point that the majority of the arguments put forward by both the examiner and applicant were based on a machine translation of *NEC* from Japanese to English.

23. The applicant argues that *NEC* teaches away from the idea of a threshold level as one is not required. It is contended that a threshold level is not mentioned as it is not needed as the device functions in a manner different from the present application. Instead of looking for the presence of light at a certain level the device looks for light that has a certain “luminescence cycle” or pattern, this luminescence cycle changes depending on which mode the device is in. The luminescence cycle in the open state is different to that in the closed state. The applicant concluded that the person skilled in the art would have to make a decision which is counter intuitive in order to choose to use a threshold level, and hence would require a degree of invention on their part.

24. The examiner on the other hand, argues that although the machine translation of *NEC* does not make specific reference to the use of a threshold level it would be obvious to use one to decide at what point the amount of light received by the photo detector relates to the device being classed as being in the closed position. In other words the use of a threshold level would be the most conventional way of making such a judgement.

25. The basic embodiments disclosed in *NEC*, which are covered by claims 1 and 2, do not include the use of luminescence cycles as an essential feature. The use of luminescence cycles, or adjustments to the intensity of the discharged light are additional, optional ways in which the efficiency of power consumption of the device may be improved and are covered by dependant claims 4-6. Therefore, the applicant’s arguments with respect to detection of a specific luminescence cycle are not relevant.

26. Figure 1b of *NEC*, which is nearly identical to that of figure 6 of the present application, shows an embodiment in which light from the photo emitter is

reflected onto the photo detector when the device is in a closed position. Figure 3b of NEC shows an alternative embodiment in which light from the photo emitter is blocked by a shielding member when the device is in a closed position and therefore does not reach the photo detector.

27. In both embodiments the control section makes a decision based on the amount of light which is received in order to determine whether the device is in an open or closed position. This can be seen in the flow diagrams of figures 2 and 4 and is described in paragraphs 0034-0037 and 0040-0042 of the description. I am of the opinion that as *NEC* includes these embodiments in which luminescence cycles are not essential, the description of the basic process of detection of light is equivalent to the description of threshold levels to realize the invention. I therefore consider this to be an implicit disclosure of the use of threshold levels within *NEC*.
28. Moving on to the question as to whether it would be obvious to select a threshold level so that substantially all light from the photo emitter is reflected and hence detected by the photo detector. As stated above figure 6 of the present application is nearly identical to figure 1b of *NEC*; In deciding that there was support for the amendment to claim 1, I agreed with Mr Excell that figure 6 provided support for the phrase "the threshold level is selected to detect when substantially all light from the photo-emitter is reflected to the photo-detector". It would be perverse logic on my part to now decide that the nearly identical figure 1b of *NEC* could not be interpreted in the same way. I therefore conclude that it would be obvious to select a threshold level where substantially all light from the photo-emitter is reflected to the photo-detector.
29. As I have answered questions 1 and 2 there is need for me to answer my third question.

Conclusion

30. I conclude that the invention as defined in independent claim 1 lacks an inventive step. At the hearing Mr Excell made clear that if I was minded to refuse claim 1 then he did not think that was any saving amended that could be filed mainly due to a number of divisional applications that have been filed and the possibility of double patenting. I am happy to accept this and I therefore refuse this application under section 18(3) of the Patents Act.

Appeal

31. Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

J Pullen

Deputy Director acting for the Comptroller