CANDIDATE’S ANSWER

B, EQE 2017

European Patent Office
D-80298 Munich
Germany

Dear Sirs,

In response to the communication issued on this patent application, I file herewith an amended set of claims presently on file.

Claim Amendments

Claim 1 has been amended to define “attaching means (1, 11, 21) for attaching” in place of “holding means for holding”. Basis for this amendment is found in the broadest statement of invention in para [02] of the specification, and thus does not add subject matter under Art123(2) EPC. The dependent claims have been amended for consistency with this change.

Claim 1 has been further amended to define that “the attaching means (1, 11, 21) is a garment (1, 11, 21). Basis for this amendment is found at [02] which states “the attaching means is a garment”. The term garment is thus clearly and unambiguously disclosed in the application as filed, in combination with all embodiments. The term “garment” encompasses a sock, wristband ([02]), and headband ([10] – “the headband is a garment”). It is also common knowledge that a glove is a type of garment, see D3 [4].
The word “close” has deleted from claim 1. Basis is found in [02].

Claim 2 has been amended to delete the feature “at least one… oxygen saturation”. As set out in [01], the four vital signs are known to be well defined. These features are not essential to the invention, and so no subject matter is added by their deletion.

The feature “transmitting means is a wireless transmitting means” has been deleted from claim 1 and inserted into claim 2. This amendment is allowable in the sense of the Guidelines H-V, 3.1. In this regard, the feature is not explained as essential in the disclosure of the application, as [02] states that it is not important for the invention how signals are transmitted. [04] also discloses other options for the transmitting means. Further, this feature is not, as such, indispensable for the function of the invention in light of the technical problem the invention serves to solve, because the means of transmission of data is not part of the technical solution. The data can be transmitted to the evaluation by cabled or wireless means [04] with no change in the functioning of the invention.

Also the removal of this feature requires no real modification of other features to compensate for the change. The remaining features of the claim are unchanged, and as there is still a transmitting means present (albeit not necessarily wireless), the system still works in the same way.

Thus the removal of the feature passes the three point essentiality test of G/L H-IV, 3.1.

Also the wireless transmitting means is not inextricably linked to the rest of claim 1, as claim 1 still contains the essential feature of a transmitting means. Due to [02] and [04], the overall disclosure of the application justifies this amendment.
The dependency of claim 3 has been amended as the wireless transmitting means is now in claim 2.

Old claim 5 has been renumbered as claim 4, and “holding means” has been deleted to match claim 1.

Old claim 4 has been renumbered as claim 5. The original dependencies allow this change without adding matter.

This change has been made to align new claim 5 with the term “garment” in claim 1. As described at [12], the feature of claim 5 is incompatible with the third embodiment of the invention. As “garment” encompasses this “headband” embodiment, the combination of “garment” plus new claim 5 would encompass added subject matter. The new dependency avoids this added subject matter.

In line with this, new claim 6 has been added to define a “headband (21) for goggles (20)”. Basis for this amendment is found at [10], which discloses that a headband is a garment. Para [12] gives basis for this feature in combination with the features of claims 1 to 3.

Old claim 6 has been renumbered as claim 7, and made dependent on any of claims 1 to 6. Paragraph [10] gives basis for this claim in combination with new claim 6.

The term “Optitex” has been replaced in new claim 7 by the definition of Optitex from [09] of the description.
Amendment to Description

The following phase should be added to the description:

“The attaching means may be a glove.”

Basis for this amendment is in claim 5 as originally filed.

This amendment is allowed according to G/L F-IV, 6.6.

Art 84 EPC

The term “glove” has been retained in new claim 4, based on old claim 5. According to G/L F-IV, 6.6, where a feature is disclosed only in the claims as filed, it is permissible to amend the description to include this subject matter, as set out above.

*It is well known to the skilled person that a glove is a type of garment, and the original disclosure of “glove” only in the claims does not introduce a sufficiency problem.

As this feature was disclosed in the application as filed this amendment does not add subject matter under Art 123(2) EPC.

The word “close” has been deleted from claim 1 (basis is found for “to the human body” in [2]), so the Examiner’s clarity objection at 3.1 is overcome.

The term “Optitex” has been replaced by its definition from [9], so the objection at 3.3 has been addressed.
Art 54 EPC – Novelty

Claim 1 is novel with respect to D1 because it defines that the attaching means is a garment. The clip of D1 is not a garment, so claim 1 is novel over D1.

Claim 1 is novel over D2 for the same reason as D1, above. D2 does not disclose an attaching means. Further, it discloses no attaching means that is a garment. In D2 the camera is held by a support 2. The device of D2 is not held to the human body (D2 [01]). Thus, claim 1 is novel over D2.

Claim 1 is novel over D3, as D3 does not disclose a system for monitoring a vital sign. As described at (D3, [03]) the system of D3 is unsuitable for monitoring vital signs. Further, D3 does not disclose a motion sensor. Thus, claim 1 is novel over D3.

Dependent claims 2 to 7 are novel by merit of dependency on claim 1.

Art 56 EPC – Inventive Step

The closest prior art is D1, because D1 is intended for the same purpose as the present invention, that is, to monitor vital signs of patients. Like the present invention, D1 uses sensors attached to the human body to monitor vital signs. Thus D1 and claim 1 have the same purpose and D1 is the closest prior art. Claim 1 has been drafted in two-part form accordingly.

The system of D2 is intended primarily for monitoring sound and images of a baby. D2 allows remote monitoring of a number of parameters, and allows interaction with a baby by sending eg. music. Measuring pulse is a secondary feature of D2, so the
purpse of D2 is more remote from the present invention than D1, even though D2 has more features incomon with claim 1.

D3 is not suitable for monitoring vital signs, so has a different purpose from the present invention. D3 is therefore not the closest prior art.

The difference between D1 and claim 1 is that D1 does not disclose an attaching means which is a garment. Further, the optical sensor and motion sensor of D1 measure parameters independently of one another (D1 [04]). The evaluation means is not configured to correct the output signals based on one another.

The technical effect of using a garment as attaching means is that it provides a reliable and comfortable system for long term monitoring of the vital signs of patients.

The technical effect of the evaluation means being configured to correct the output signals based on one another is that is reduces electrical noise, leading to better signal quality and preventing false measurements.

These technical effects have a synergistic link in that accommodating an optical sensor into a garment adds electrical noise to the output of the optical sensor. Movement when the garment is worn exacerbates this. However, the configuration of the evaluation means corrects this noise, thus allowing the sensors to be incorporated into a garment while still producing a good quality output signal.

The technical problem solved by claim 1 is therefore how to provide a more reliable and comfortable system for long term monitoring of vital signs, while still providing good signal quality.
Starting from D1, it would not be obvious for the skilled person to adapt D1 into a garment, as there is no motivation to do so. If they did try this, however, [04] of D1 teaches that a motion sensor is undesirable, as it is typically large and heavy, and therefore uncomfortable for the patient. This is against the aim of providing a more comfortable system, so the skilled person would use a pressure sensor instead, as suggested by [04] of D1.

Further, there is no indication in D1 of how to reduce the additional noise that would be created by putting D1 in a garment. Doing this would lead to a poorer signal from D1, so the skilled person would not incorporate D1 into a garment.

The skilled person would not turn to D2 for help in modifying D1, as D2 is in a different technical field of baby monitors.

If they did so, D2 would not help to adapt D1 into a garment, as D2 is a device that has to be positioned remotely from a baby to work (D2, [01]). Further, the camera of D2 only works at a distance to measure pulse via colour changes, and would be unlikely to work if attached to a human body.

Though D2 does not mention noise reduction, it also teaches away from use as a garment, as its device must be out of reach of a child. Also noise reduction is only mentioned in respect of image and audio signals, and not vital sign measurements.

It would therefore not be obvious to modify the sensor of D1 based on D2. If one did so, they would not arrive at the garment-system of the present invention. The resulting system would retain the “clip” attaching means of D1. D2 also does not disclose the possibility of the optical sensor being used to correct the output signal of the motion sensor.
The skilled person would further not turn to D3 for help to adapt D1, as D3 is not suitable for measuring vital signs.

If they did consider D3, the skilled person would be taught (D3 [3]) that the garments of D3 are incompatible with any sensors other than electrical sensors. D3 teaches that it is incompatible with the optical and motion sensors of D1, so the skilled person would not try to combine their teachings.

Further, D3 discloses the problem of noise affecting signals from optical sensors, but makes no suggestion of how to avoid this problem.

The skilled person would thus not arrive at the present invention based on D1 plus D3.

Grant is thus requested based on the attached set of amended claims.

Yours faithfully,

Ms E. Lee-Tea

Amended Claims

1. System for monitoring at least one vital sign of a human body, the system comprising:
   - holding attaching means (1, 11, 21) for holding attaching an optical sensor (2, 12, 22) and a motion sensor (3, 13, 23) close to the human body (10, 27), the holding attaching means (1, 11, 21) comprising in addition to the sensors (2, 12, 22, 3, 13, 23) transmitting means (4, 14, 24) for transmitting output signals from the sensors (2, 12, 22, 3, 13, 23),
evaluation means (5, 25) for receiving the output signals and calculating from the output signals the at least one vital sign,
- characterised in that the attaching means (1, 11, 21) is a garment (1, 11, 21)
- and in that the evaluation means (5, 25) is configured to correct the output signal from the optical sensor (2, 12, 22) based on the output signal of the motion sensor (3, 13, 23) or to correct the output signal from the motion sensor (3, 13, 23) based on the output signal of the optical sensor and in that the transmitting means (4, 14, 24) is a wireless transmitting means.

2. System according to claim 1 wherein the at least one vital sign is pulse, body temperature, blood pressure and/or blood oxygen saturation transmitting means is a wireless transmitting means (4, 14, 24).

3. System according to claim 1 or 2 wherein the wireless transmitting means (4, 14, 24) is a wireless local network emitter.

4. System according to any of claims 1 to 4 wherein the holding means is an attaching means (1, 11, 21) is such as a sock (1), a wristband (11) or a glove.

5. System according to claim 4, further comprising a screen (6) and configured to display the at least one vital sign on the screen.

6. System according to any of claims 1 to 3, wherein the attaching means is a headband (21) for goggles (20).

7. System according to any of claims 1 to 6, wherein the attaching means (1, 11, 21) is at least partly made of Optitex™ a material comprising 50-60% cotton, 30-40% polyurethane and 10-20% polyethylene glycol in % by weight.
Examination Committee I: Paper B - Marking Details - Candidate No

<table>
<thead>
<tr>
<th>Category</th>
<th>Max. possible</th>
<th>Marker 1</th>
<th>Marker 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claims</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Arguments Amendments</td>
<td>24</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Arguments Clarity</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Arguments Novelty</td>
<td>6</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Arguments Inventive step</td>
<td>32</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>95</strong></td>
<td><strong>95</strong></td>
<td></td>
</tr>
</tbody>
</table>

Examination Committee I agrees on 95 points and recommends the grade PASS.