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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL EDWARD COLBAUGH and
CHRISTOPHER SCOTT LUCCI

Appeal 2019-004254¹
Application 14/906,276
Technology Center 3700

Before PHILLIP J. KAUFFMAN, TARA L. HUTCHINGS, and
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

FINAMORE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the Examiner's decision to reject claims 1–7 and 15–22. We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM.

¹ We reference herein the Specification filed January 20, 2016 (“Spec.”), Final Office Action mailed August 10, 2018 (“Final Act.”), Appeal Brief filed January 11, 2019 (“Appeal Br.”), Examiner’s Answer mailed March 7, 2019 (“Ans.”), and Reply Brief filed May 2, 2019 (“Reply Br.”).

² “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Koninklijke Philips N.V. Appeal Br. 4.

SUBJECT MATTER ON APPEAL

The invention “pertains to a system and method for modifying the circadian rhythm of a subject through light therapy, and in particular, to using pulses of electromagnetic radiation in a particular wavelength range to accomplish certain such modifications.” Spec. ¶ 1. Claims 1 and 15 are independent. Independent claim 1 is illustrative of the subject matter on appeal, and we reproduce it below, emphasizing the limitation at issue.

1. A system to provide light therapy to a subject, the system comprising:
 - a light source configured to emit electromagnetic radiation, wherein the emitted electromagnetic radiation includes electromagnetic radiation having a variable intensity;
 - one or more processors configured to execute computer program modules, the computer program modules comprising:
 - a therapy module configured to obtain a light therapy regimen for the subject, wherein the light therapy regimen defines stages including a first stage and a second stage, wherein the first stage is associated with a first period during one or more days, wherein the second stage is associated with a second period during the one or more days that is different from the first period and **the first and second periods are mutually exclusive periods**, wherein the light therapy regimen is configured such that:
 - during the first stage the subject receives pulsed electromagnetic radiation including electromagnetic radiation having a first range of wavelengths, the electromagnetic radiation during pulses being at a first intensity, the first range of wavelengths and the first intensity being selected to stimulate S-cone receptors of the subject upon impingement upon a closed eyelid of the subject, wherein the pulsed electromagnetic radiation received during the first period has a pulse duration of up to 10 minutes and an inter-pulse duration between 0.1 seconds and 10 minutes, and

during the second stage the subject receives electromagnetic radiation, wherein one or more parameters of the electromagnetic radiation during the second stage are changed from the pulsed electromagnetic radiation during the first stage such that light therapy provided during the first stage is different from light therapy provided during the second stage; and

a light control module configured to control emission from the one or more light sources in accordance with the light therapy regimen.

Appeal Br., Claims App. (emphasis added).

REJECTION

Claims Rejected	35 U.S.C. §	Reference(s)/Basis
1–7, 15–22	103	Colbaugh, ³ Wells ⁴

ANALYSIS

Appellant argues independent claims 1 and 15 together. Appeal Br. 7–12. Appellant argues the patentability of dependent claims 2–7 and 16–22 solely on the basis of dependency from the independent claims. *Id.* at 12. Accordingly, we take independent claim 1 as representative. 37 C.F.R. § 41.37(c)(i)(iv).

The Examiner finds Colbaugh discloses substantially all of the limitations of independent claim 1. Final Act. 7–10. In particular, the Examiner relies on the application of light pulses 58 for disclosing the recited first stage associated with a first period, and the application of electromagnetic radiation during rest periods 60 for the recited second stage

³ WO 2011/141842 A1, published Nov. 17, 2011.

⁴ US 2011/0257712 A1, published Oct. 20, 2011.

associated with a second period. *Id.* at 8 (citing Colbaugh ¶ 46). Figure 8 of Colbaugh, reproduced below, shows a light therapy plan with pulses 58 and rest periods 60.

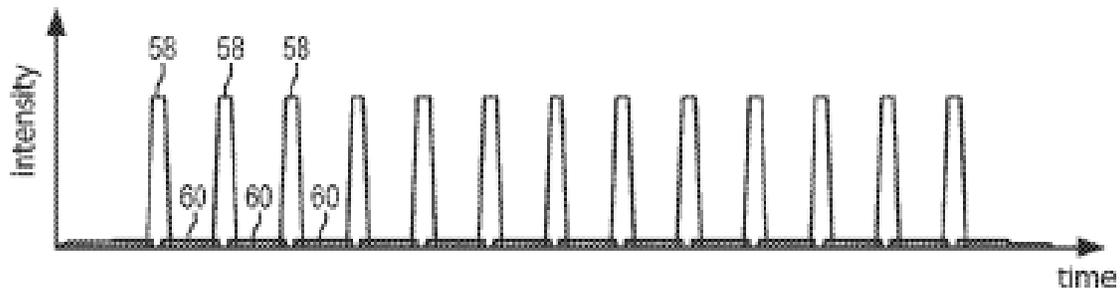


FIG. 8

Figure 8 depicts a light therapy plan showing, as a function of time, the application of pulses 58 of electromagnetic radiation in a first wavelength band and the emission electromagnetic radiation in a second wavelength band during rest periods 60. Colbaugh ¶¶ 16, 46.

The Examiner acknowledges Colbaugh does not disclose “the first and second periods are mutually exclusive periods.” Final Act. 10. For this limitation, the Examiner relies on Wells’s teaching of a processor that determines whether the eyelids of a subject are open or closed and adjusts an intensity of a therapy based on the output received from the eyelid detector.

Id. The Examiner concludes that it would have been obvious

to configure the system of Colbaugh to include an eyelid detector for defining additional first and second periods based on whether the eyelid is open or closed, as taught by Wells, in order to improve therapy by adjusting the parameters of the radiation for treatment based on whether the eyelid is open or closed.

Id.

Appellant argues modifying Colbaugh's disclosure to have mutually exclusive first and second periods either would change Colbaugh's principle of operation or would render Colbaugh's light therapy system unsatisfactory for its intended purpose. Appeal Br. 7. According to Appellant, Colbaugh's system is specifically designed so that the application of lower intensity light pulses during rest periods 60 overlaps with the application of higher intensity pulses 58, as shown in Figure 8, to reduce the disturbing quality of the quickly changing pulses 58 and thereby minimize the disturbance to the sleeper. *Id.* at 9, 11 (citing Colbaugh ¶ 47, Fig. 8). Appellant further contends the application of the longer wavelength of electromagnetic radiation applied during rest periods 60 must be coincident with the application of the shorter wavelength of pulses 58 to enable the longer wavelength to reset the sensitivity of the photosensitive retinal ganglion cells to the shorter wavelength of pulses 58 and thereby provide a number of advantages. *Id.* at 9 (citing Colbaugh ¶ 33).

Appellant's arguments are not persuasive of error because they are misaligned with the Examiner's rejection. The Examiner is not proposing to modify Colbaugh's disclosure so that the application of pulses 58 and the application of electromagnetic radiation during rest periods 60 do not overlap. Ans. 8. Rather, the Examiner proposes to modify Colbaugh so that the light treatment plan, including pulses 58 and the application of electromagnetic radiation during rest periods 60, is provided at a higher intensity when a subject's eyelids are closed and a lower intensity when the eyelids are open, as taught by Wells, so that the mutually exclusive first and second periods are when the subject's eyelids are shut and open. *Id.* at 8–9.

Appellant further argues the Examiner's rejection relies on a shifting interpretation of the first and second periods recited in independent claim 1. Reply Br. 2–4. According to Appellant, “[t]he claims require that the first and second periods be mutually exclusive of each other, not that the first and second periods are mutually exclusive of some additional period as allegedly taught by Wells.” *Id.* at 3. Appellant also asserts that, for teaching of the recited first and second periods, the Examiner improperly relies on both Colbaugh, i.e., pulses 58 and the electromagnetic radiation applied during rest periods 60, and Wells, i.e., the application of higher intensity light when eyelids are shut and the application of lower intensity light when eyelids are open. *Id.* at 3–4. Per Appellant, the Examiner cannot rely on Wells for teaching the recited first and second periods because the dependent claims, namely claims 5–7 and 18–20, recite specific characteristics of the second stage associated with the second period, which Wells's higher intensity pulses do not teach. *Id.*

Although we agree independent claim 1 requires that the first and second periods be mutually exclusive to each other, Appellant's arguments are not persuasive of error. As set forth above, the Examiner finds that Colbaugh's pulses 58 disclose the recited first stage associated with the first period, and that the electromagnetic radiation applied during rest periods 60 discloses the recited second stage associated with the second period. Final Act. 8–10. The Examiner proposes to modify Colbaugh so that the light treatment plan, including pulses 58 and the application of electromagnetic radiation during rest periods 60, is provided at a lower intensity when a subject's eyelids are open and a higher intensity when the eyelids are closed, as taught by Wells. *Id.* at 10; Ans. 8–9. Given that the Examiner essentially

proposes to use Colbaugh's light treatment plan, which discloses the recited first and second stages, at different intensities dependent on a subject's eyelids being open or shut, i.e., mutually exclusive time periods, Appellant does not apprise us of error in the Examiner's determination that the combined teachings of Colbaugh and Wells would result in mutually exclusive first and second periods and respective first and second stages associated therewith, as recited in independent claim 1.

In view of the foregoing, Appellant does not apprise us of error in the Examiner's rejection of independent claim 1. We, thus, sustain the rejection of claims 1-7 and 15-22 under 35 U.S.C. § 103 as unpatentable over Colbaugh and Wells.

CONCLUSION

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-7, 15-22	103	Colbaugh, Wells	1-7, 15-22	
Overall Outcome			1-7, 15-22	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED