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PTO/SB/16 (2-98)
Approved for use through 01/31/2001. OMB 0651-0037
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
George		BRAINARD		Haddonfield, New Jersey	
☐ Additional inventors are being named on the ____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (280 characters max)					
LIGHT SYSTEM, METER SYSTEM, AND MATERIALS FOR STIMULATING CIRCADIAN AND NEUROENDOCRINE SYSTEMS					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
☐ Customer Number				Place Customer Number Bar Code Label here	
OR Type Customer Number here					
☒ Firm or Individual Name		Clifford Kent Weber			
Address		Thomas Jefferson University			
Address		1020 Walnut St Suite 620			
City		Philadelphia	State	PA	ZIP 19107
Country		United States	Telephone	(215) 503-0757	Fax (215) 923-3613
ENCLOSED APPLICATION PARTS (check all that apply)					
☒ Specification Number of Pages		3		☐ Small Entity Statement	
☐ Drawing(s) Number of Sheets				☒ Other (specify) Express Mail Letter	
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)					
☐ A check or money order is enclosed to cover the filing fees				FILING FEE AMOUNT (\$)	
☒ The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 50-0491				\$150.00	
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
☐ No.					
☒ Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,

SIGNATURE Clifford Kent Weber
TYPED or PRINTED NAME Clifford Kent Weber
TELEPHONE (215) 503-0757

Date 05/10/00

REGISTRATION NO. 42,215
(if appropriate)
Docket Number: BRA01-P0002

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

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PTO/SB/21 (12-97)
Approved for use through 9/30/00. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>	Application Number	Not Known	
	Filing Date	Not Known	
	First Named Inventor	BRAINARD, George	
	Group Art Unit		
	Examiner Name		
Total Number of Pages in This Submission	8	Attorney Docket Number	BRA01-P0002

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60/203308
05/10/00

ENCLOSURES (check all that apply)		
☒ Fee Transmittal Form	☐ Assignment Papers (for an Application)	☐ After Allowance Communication to Group
☐ Fee Attached	☐ Drawing(s)	☐ Appeal Communication to Board of Appeals and Interferences
☐ Amendment / Response	☐ Licensing-related Papers	☐ Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
☐ After Final	☐ Petition Routing Slip (PTO/SB/69) and Accompanying Petition	☐ Proprietary Information
☐ Affidavits/declaration(s)	☐ To Convert a Provisional Application	☐ Status Letter
☐ Extension of Time Request	☐ Power of Attorney, Revocation Change of Correspondence Address	☒ Additional Enclosure(s) (please identify below):
☐ Express Abandonment Request	☐ Terminal Disclaimer	Provisional Application Cover Sheet and Provisional Application, including specification
☐ Information Disclosure Statement	☐ Small Entity Statement	
☐ Certified Copy of Priority Document(s)	☐ Request for Refund	
☐ Response to Missing Parts/Incomplete Application	Remarks	
☐ Response to Missing Parts under 37 CFR 1.52 or 1.53		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Clifford Kent Weber
Signature	<i>Clifford Kent Weber</i>
Date	May 10, 2000

CERTIFICATE OF MAILING			
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on this date:			
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1. Light system which emits an optimal balance of wavelengths to stimulate the circadian and neuroendocrine system and provides light therapy for Light Sensitive Disorders such as Seasonal Affective Disorder (SAD)

2. Transparent or translucent materials which specifically transmit or block the optimum balance of wavelengths for stimulating the circadian and neuroendocrine system and provides light therapy for Light Sensitive Disorders such as Seasonal Affective Disorder (SAD)

3. Meter system for quantifying light which stimulates the human circadian and neuroendocrine systems under normal conditions and provides light therapy for individuals with light sensitive disorders such as seasonal affective disorder (SAD)

This metering device will be specifically configured to accurately quantify electromagnetic radiation that stimulates the circadian and neuroendocrine systems of healthy humans. The meter's wavelength sensitivity will match the wavelength sensitivity of the photoreceptors for circadian and neuroendocrine regulation in humans. This device may also be used to quantify electromagnetic radiation which is optimum for treating Seasonal Affective Disorders (SAD) or other light-responsive disorders.

The science of photobiology involves the study of how the infrared, visible and ultraviolet portions of the electromagnetic spectrum influence biological processes. There are two broad categories of light measurement techniques: radiometric and photometric. Each measurement technique has its merits and drawbacks relative to circadian regulation, neuroendocrine regulation and light therapy. Radiometry is based exclusively on the physical properties of light - its energy and wavelength. A radiometer measures the radiant power of a light source over a defined range of wavelengths. Figure 1 illustrates an example of a radiometer detector response that measures radiant power from the middle ultraviolet spectrum (290 nm) into the near infrared spectrum (770 nm). Radiometers can be configured to measure different bandwidths across the electromagnetic spectrum. The wavelengths within the designated bandwidth can be detected equally as shown in Figure 1, or they can be filtered for differential sensitivity across the various wavelengths.

In contrast to radiometry, photometry is based on the selective responsiveness of the human visual system. A photometer is simply a radiometer that has filters added to the detector which "shape" the detector sensitivity to resemble the luminance (brightness) response of the human visual system. Thus, photometry is a special branch of radiometry. Figure 1 illustrates the well characterized visual responses: photopic or day vision, and scotopic or night vision. Between individual humans, there are substantial differences in visual responses. The curves shown in Figure 1 represent sketches of the average response curves for the "standard observer" as determined by the Commission Internationale de l'Eclairage (CIE 1987). The photopic and scotopic visual functions are defined with reference to the adaptive state of the rod and cone photoreceptors in the human retina. Radiometers can be filtered to detect only those relative proportions of wavelengths that comprise the photopic or scotopic visual response. Such photometers will detect photopic lux or scotopic lux, respectively. Specifically defined, lux measures are measures of illuminance - the amount of light, or luminous flux, falling on a surface. One photopic lux is one lumen per square meter (lm/m^2).

Most investigators operate from the assumption that light therapy is mediated via a photoreceptive mechanism in the human eye as opposed to a photoreceptive mechanism in the skin or some other part of the body. There is increasing evidence that the photoreceptive mechanism for the circadian and neuroendocrine system or that mediates light therapy is not identical to the photoreceptive system that mediates the sensory capacity of vision.

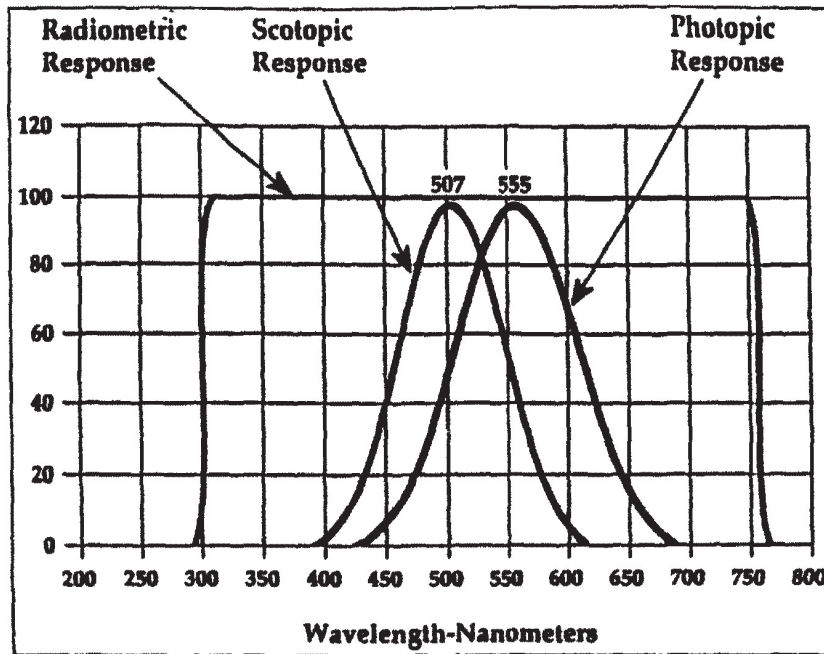


FIGURE 1-1. Response functions for three light detectors. One line indicates the characteristic response of a radiometer that has a flat sensitivity from 310 nm to 750 nm. The two other curves represent photometric responses for photopic lux and scotopic lux, based on the Commission Internationale de l'Eclairage standard observer (Commission Internationale de l'Eclairage 1987).

