SOLAR RADIATION DEVICE FOR MEDICAL TREATMENT

The present invention relates to a solar radiation device for medical treatment.

In recent years, a large number of people have suffered from incurable diseases such as arthritis, neuralgia and rheumatism, or pain from an injury scar or a bone fracture scar, or pain from an ill-defined disease. Furthermore, the ageing of a person's skin progresses gradually from a comparatively young age. The present applicant has previously proposed focussing solar radiation or artificial light radiation by the use of lenses or the like, to guide the same into an optical conductor, and to transmit the emergent radiation on to a selected location. The solar radiation or artificial light radiation thus transmitted is used for illuminating or for other like purposes such as cultivating plants, chlorella, or the like. Visible light radiation not containing ultraviolet or infrared radiation, etc. promotes a living body reaction, and thereby promotes the health of a person and prevents the person's skin from ageing. Furthermore, visible light radiation has a noticeable effect on the recovery of a patient suffering from arthritis, neuralgia, bedsores, rheumatism, injury scar, bone fracture scar, or the

like and on stopping pain associated with these conditions. Such effects have already been found by the present applicant to have been obtained by use of apparatus according to the present invention.

Furthermore, in consideration of the above, the present applicant has previously proposed a light radiation device for medical treatment capable of performing various medical treatments or beauty treatment or promotion of a person's health by radiating radiation corresponding to the visible component of solar radiation not containing harmful components such as ultraviolet or infrared radiation, etc.

A light radiation device for medical treatment which has been previously proposed by the present applicant and disclosed in European patent application EP 208309 comprises an optical conductor cable and a cylindrical hood member. Solar radiation or artificial light radiation is guided into the optical conductor cable from an end portion thereof, and the guided light radiation is transmitted therethrough. Light (white light) corresponding to the visible component of solar radiation is transmitted through the optical conductor cable in such a manner as proposed previously by the present applicant in various ways. The cylindrical hood

member is installed at the light-emitting end portion of the optical conductor cable. At the time of medical treatment, a patient is laid on a chair and the visible light radiation component transmitted through the optical conductor cable in the above-mentioned manner is radiated on to the diseased part of the patient.

As mentioned above, the light radiation radiated on to the diseased part of the patient corresponds to the visible component of solar radiation containing neither ultraviolet nor infrared radiation. Medical treatment can thereby be effected without suffering from any undesirable influence of ultraviolet or infrared radiation.

The period of performing medical treatment by solar radiation as mentioned above is about 20 to 30 minutes at one time. Such a period is considered to be sufficient for medical treatment. By repeating such irradiation every day, the effects can be enhanced and the health of a person can be promoted. However, nowadays people are very busy and have too little time to go to a suitably equipped place for performing medical treatment.

The invention provides apparatus for medical treatment comprising a solar radiation collecting device mounted on, or adapted to be mounted on, a

vehicle, and optical conductor cable means for transmitting solar radiation collected by said solar radiation collecting device into said vehicle.

The device preferably includes motor means for directing said device towards the sun and preferably includes, in addition, a plurality of lenses mounted in a support frame which is rotatable about two mutually perpendicular axes by said motor means. Moreover, the device preferably includes a solar radiation direction sensor arranged to produce signals for controlling said motor means whereby said lenses are automatically directed towards the sun. A solar battery is preferably mounted on, or adapted to be mounted on, a vehicle for supplying power to said motor means.

The invention further provides solar rays radiation device for medical treatment characterized in that an automatic solar rays collecting and transmitting device is set on an automobile such as a car, solar rays collected by said automatic solar rays collecting and transmitting device being transmitted through an optical conductor cable into said automobile and emitted from the end portion of said optical conductor cable.

Such apparatus can be used when travelling in the vehicle on the way to and from work, during travel in

the vehicle from one place to the other or while the vehicle is parked at a place of sunshine.

Other features and advantages of the present invention will be apparent from the following detailed description, when read in conjunction with the accompanying drawings, wherein:

Fig. 1 is a construction view for explaining an embodiment of the present invention;

Fig. 2 is a construction view of a solar radiation device for medical treatment which has been previously proposed by the present applicant; and

Fig. 3 is a structural view for explaining an embodiment of a solar radiation collecting device which is employed in the present invention.

Fig. 1 is a construction view for explaining an embodiment of a solar radiation device for medical treatment according to the present invention. In Fig. 1, 10 is an automatic solar radiation collecting and transmitting device, 20 is an optical conductor cable, 30 is a cylindrical hood member and 40 is a car.

In the embodiment, the automatic solar radiation collecting and transmitting device 10 is mounted on the car 40 as shown in Fig. 1. The solar radiation collected by the automatic solar radiation collecting and transmitting device 10 is guided into the optical conductor cable 20 and transmitted into the car 40 via

the optical conductor cable 20. A patient can thereby receive medical treatment by solar radiation in the car 40.

Moreover, in the case of the embodiment shown in Fig. 1, the automatic solar radiation collecting and transmitting device 10 is mounted on the car 40 by use of a supplementary instrument. Therefore, the car 40 itself does not require any modification. Furthermore, it is not necessary to have the automatic solar radiation collecting and transmitting device 10 permanently mounted on the car 40.

During transit, the device 10 is put in the car and it can be mounted on the car at the time of use. Furthermore, the automatic solar radiation collecting and transmitting device 10 requires a power supply for controlling a solar radiation focussing lens so as to direct it to the sun. A car battery may be used as the power supply. Alternatively, a solar battery is mounted on the car roof or at a location in the automatic solar radiation collecting and transmitting device 10, for use as the power supply.

Fig. 2 is a construction view for explaining a solar radiation device for medical treatment which has been previously proposed by the present applicant, in the above-mentioned European patent application EP 208309. In Fig. 2, 20 is an optical conductor cable

having an end portion not shown in Fig. 2 for collecting solar radiation and the collected solar radiation is transmitted through the optical conductor cable 20. Light radiation (white light) corresponding to the visible component of solar radiation is transmitted through the optical conductor cable 20 in such a manner as proposed previously by the present applicant.

In Fig. 2, 30 is a cylindrical hood member installed at a light-emitting end portion 20a of the optical conductor cable 20, and 50 is a medical treatment chair. When performing medical treatment or health promotion treatment, a patient is laid on the medical treatment chair 50, and the visible component of the solar radiation transmitted though the optical conductor cable 20 is radiated on to the diseased or other optionally desired part of the patient. As already mentioned, the light radiated on to the patient corresponds to the visible component of the solar radiation and contains neither ultraviolet nor infrared radiation. Consequently, it will be possible to perform medical treatment without suffering any harmful influence exerted by ultraviolet or infrared radiation.

Fig. 3 is a detailed structural view for explaining a solar radiation collecting device 10

which is accommodated in a transparent dome-shaped capsule. The solar radiation collecting device 10 comprises a large number of lenses 11 (nineteen lenses in the embodiment shown in Fig. 3), a solar radiation direction sensor 12 for detecting the direction of the solar radiation, a support frame 13 for supporting both the lenses 11 and the solar radiation direction sensor 12, a first motor 14 for rotating in the sense indicated by arrow A the lenses 11, sensor 12, and support frame 13, a support arc 15 for supporting the lenses 11, sensor 12, support frame 13, and motor 14, a rotatable shaft 16 installed at a right angle to the rotatable shaft of the motor 14, and a second motor (not shown in Fig. 3) for rotating the rotatable shaft 16 in the sense indicated by arrow B.

The direction of the solar radiation is detected by the solar radiation direction sensor 12. The signal generated by the sensor 12 controls the first motor and the second motor so as to direct the lenses 11 towards the sun at all times. The solar radiation focussed by the lenses 11 is guided into the optical conductor cable 20, the light-receiving end portion of which is located at the focus of the lenses 11. The solar radiation is then transmitted through the optical conductor cable into the car 40 as shown in Fig. 1.

As is apparent from the foregoing description, the benefits of solar radiation can be can be enjoyed in a vehicle as mentioned below.

In the case where the device is mounted on a private car, the solar radiation can be directed on to the body of a person in the car during inactive spare time, on the way to and from work or driving from home, for the purpose of performing medical treatment or promoting the health of the person.

And further, in the case of a device mounted on the vehicle specially for medical treatment, the vehicle may be hired to go to a desired place at a desired time, both of which are previously designated, and transferred to a place of sunshine. A person staying in the vehicle for the necessary minimum period can then receive medical treatment by solar radiation. Furthermore, even a patient with an advance disease or a serious illness who cannot attend hospital can receive medical treatment in the vehicle.

CLAIMS:

1. Apparatus for medical treatment comprising a solar radiation collecting device mounted on, or adapted to be mounted on, a vehicle, and optical conductor cable means for transmitting solar radiation collected by said solar radiation collecting device into said vehicle.

2. Apparatus as claimed in claim 1, wherein said device includes motor means for directing said device towards the sun.

3. Apparatus as claimed in claim 2, wherein said device includes a plurality of lenses mounted in a support frame which is rotatable about two mutually perpendicular axes by said motor means.

4. Apparatus as claimed in claim 3, wherein said device includes a solar radiation direction sensor arranged to produce signals for controlling said motor means whereby said lenses are automatically directed towards the sun.

5. Apparatus as claimed in any one of claims 2 to 4, further including a solar battery mounted on, or

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adapted to be mounted on, a vehicle for supplying power to said motor means.

6. A solar rays radiation device for medical treatment characterized in that an automatic solar rays collecting and transmitting device is set on an automobile such as a car, solar rays collected by said automatic solar rays collecting and transmitting device being transmitted through an optical conductor cable into said automobile and emitted from the end portion of said optical conductor cable.

7. Apparatus for medical treatment substantially as herein described with reference to Figure 3 of the accompanying drawings.

8. Apparatus for medical treatment mounted on a vehicle and substantially as herein described with reference to Figures 1 and 3 of the accompanying drawings.

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