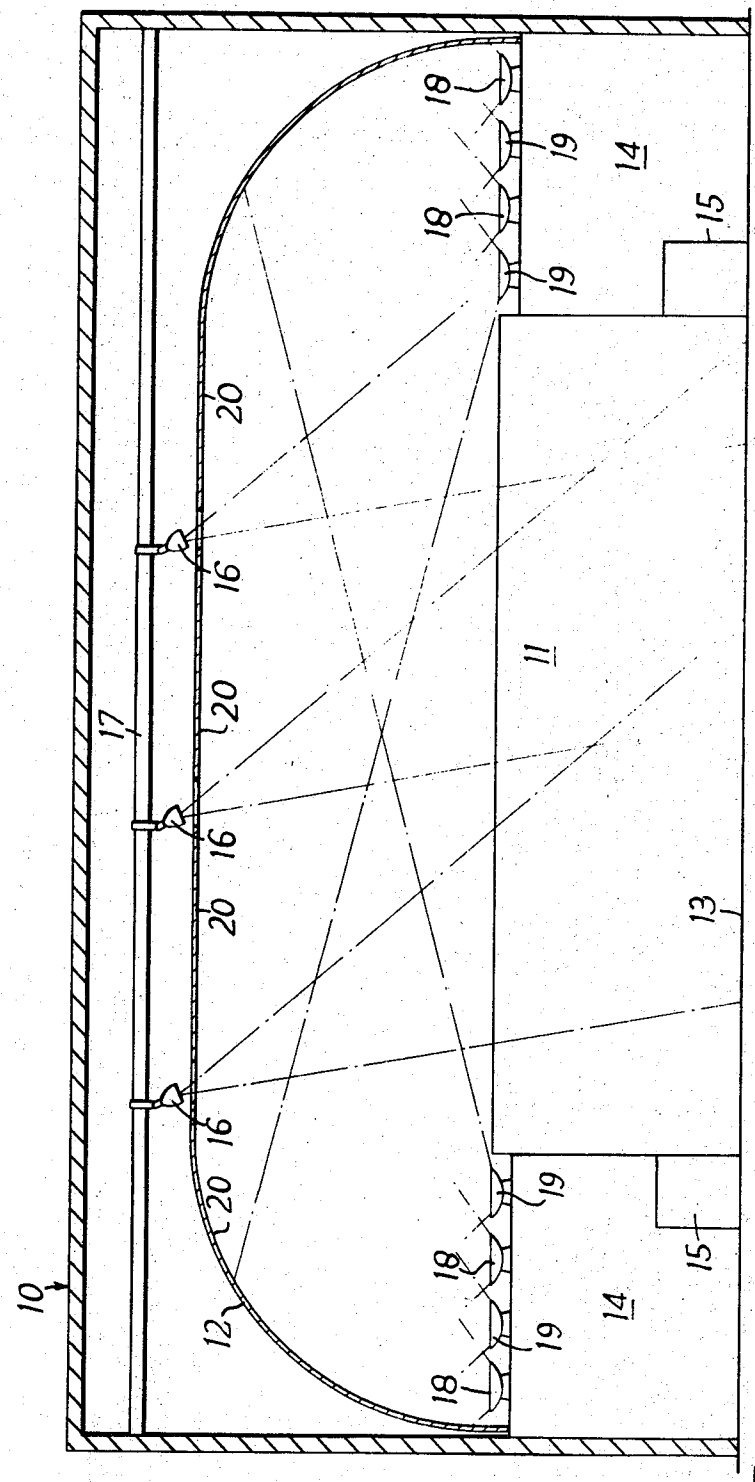
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ARTIFICIAL SUN-BATHING ENCLOSURE

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INVENTORS,
HAROLD ROBERT RUFF,
RICHARD JOHN WALSINGHAM

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ARTIFICIAL SUN-BATHING ENCLOSURE

Harold R. Ruff and Richard J. Walsingham, London, England, assignors to British Lighting Industries Limited, London, England

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ABSTRACT OF THE DISCLOSURE

An enclosure for simulating natural day-time illumination for sun-bathing and recreational purposes. A ceiling coated with a material which reflects blue light and UVB radiation from lamps within the enclosure is supported over a sun-bathing and recreation area. One or more lamps are supported above respective windows in the ceiling and direct light down onto the sun-bathing and recreation area to simulate the sun's rays.

The present invention relates to an enclosure designed to reproduce the effects of natural conditions as closely as required for the purposes sun-bathing or recreation.

It is now well known that it is mainly the UVB region of sunlight, which is the 290 to 315 nanometer (nm.) region, which produces erthema and sun-tanning, and there are a number of beneficial biological reactions such as, for example, the formation of vitamin D from ergosterol secreted under the skin. It is also well known that there are safe dosage values which, if exceeded, can cause blistering or other troubles. The acquiring of suntan by exposure to sunlight is favoured by the majority, and in addition to natural sun-bathing, home sun lamps exist, which provide UVB at light intensities used indoors; there are also medical UV lamps for curative medical treatments.

In temperate climates it would be advantageous if it were possible to reproduce sun-bathing conditions comfortably indoors. To do this it is desirable to use less radiation intensities than the 100 watts/sq. ft. which are obtained from mid-day, midsummer sunlight.

In accordance with the present invention there is provided an enclosure having a matt ceiling over a base area, one or more lamps arranged to direct light downwards towards the base area to produce a visual simulation of the sun's rays, lamps arranged to illuminate the ceiling with a diffuse bluish-white light to simulate the sky, and UVB lamps to produce a substantially uniform distribution of UVB radiation over the base area. The intensity of the UVB radiation is preferably controllable to suit different individuals and different conditions of use.

Preferably the UVB radiation is reflected from the matt ceiling to give the desired uniformity.

The invention will now be further described solely by way of example with reference to the accompanying drawing of which the sole figure is a schematic sectional view of an embodiment of the invention.

In the drawing there is shown a building **10** which houses an enclosure **11** having a ceiling **12** formed by a flexible sheet of material such as a commercially available polymeric amide coated with polyvinyl chloride. A base area **13** of the enclosure **11** constitutes a sun-bathing and recreational area and is surrounded by shops and changing rooms **14** to which the periphery of the sheet forming the ceiling **12** is secured.

The ceiling **12** is supported by maintaining a small excess air pressure within the enclosure by means of air pumps **15** which pump fresh air into the enclosure **11**, air escaping from the enclosure **11** through the shops and changing rooms **14**.

Three lamps **16** for simulating the sun's rays are supported on a girder **17** above the ceiling **12**. Each lamp **16** directs a beam of some 30° at an angle of 60° to 65° to the horizontal. A catwalk, not shown, is provided to allow access to the lamps **16**. The lamps **16** are tungsten-halogen or mercury halide lamps.

Further lamps **18** are mounted above the shops and changing rooms **14** and emit blue light towards the ceiling **12**.

Lamps **19** for producing UVB radiation are also mounted above the shops and changing rooms **14** and emit radiation towards the ceiling **12**. The lamps **19** are fluorescent lamps having a special phosphor coating to convert 253.7 nanometre radiation into UVB. For example, each lamp **19** can comprise a fluorescent tube made of UVB transmitting glass such as Chesterfield C.85 or C.46 glass, coated internally with thallium activated calcium phosphate or lead activated zinc barium silicate.

The ceiling **12** has a matt aluminium or aluminium oxide coating **20** which reflects the blue light from the blue lamps **18** and the ultra-violet from the UVB lamps **19**. Windows of transparent material are provided in the ceiling **12** below the lamps **16** to allow the lamps **16** to shine through the ceiling **12**.

The smoothly curved surface provided by the flexible material forming the ceiling **12** aids the illusion of a blue sky.

What is claimed is:

1. An enclosure comprising:
(a) a matt ceiling,
(b) means for supporting the ceiling over a base area,
(c) first lamp means in proximity to said ceiling and arranged to emit light directly downwards toward the base area in simulation of the sun's rays,
(d) second lamp means below said ceiling and arranged to illuminate the ceiling with diffuse bluish-white light,
white light, and
(e) a plurality of UVB lamps below said ceiling and arranged in conjunction therewith to distribute UVB radiation substantially uniformly over the base area.

2. An enclosure as claimed in claim **1**, wherein the UVB lamps are ararnged to direct UVB radiation to the ceiling.

3. An enclosure as claimed in claim **1**, wherein the ceiling is formed by a sheet of flexible material, and the means for supporting the ceiling include means for maintaining a small excess of air pressure within the enclosure.

4. An enclosure as claimed in claim **3**, wherein the first lamp means comprises at least one lamp supported above the said sheet, the second lamp means comprising a plurality of blue lamps which, with the UVB lamps, are arranged within the enclosure adjacent the periphery of the said sheet, the periphery of the said sheet being secured to structures comprising shops and changing rooms.

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JOHN M. HORAN, Primary Examiner
F. L. BRAUN, Assistant Examiner
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