

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
16 October 2008 (16.10.2008)

PCT

(10) International Publication Number
WO 2008/122941 A1

(51) International Patent Classification:

F21V 5/04 (2006.01) *F21Y 101/02* (2006.01)
G02B 3/00 (2006.01) *F21W 131/103* (2006.01)

(21) International Application Number:

PCT/IB2008/051264

(22) International Filing Date: 4 April 2008 (04.04.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

07300925.0 5 April 2007 (05.04.2007) EP

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(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE,
EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID,
IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC,
LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN,
MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV,
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,
NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG,
CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))

Published:

— with international search report
— with amended claims

Date of publication of the amended claims: 18 December 2008

(54) Title: LIGHT-BEAM SHAPER.

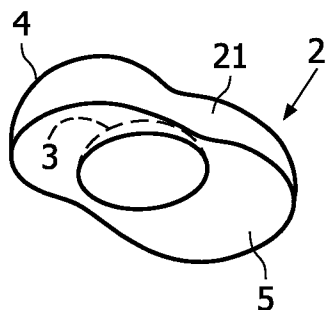


FIG. 2C

(57) Abstract: The invention relates to an optical device for imparting an elongate shape to a light beam emitted by a LED, and to street luminaries which comprise such optical devices. The optical device comprises a lens (2) having an entry dioptr (3) and an exit dioptr (4) which comprises a first convergent section, a second convergent section and a divergent section bridging said first and second convergent sections.

AMENDED CLAIMS

(received by the International Bureau on 27 October 2008 (27.10.2008))

1. An optical device for imparting an elongate shape to a light beam, said optical device comprising a lens (2) having a centerline (22,221,222) and:
- 5 (i) an entry diopter (3, 301, 302) and
- (ii) an exit diopter (4, 400) which comprises a first convergent section (41, 401), a second convergent section (42, 402, 403) and a divergent section (43, 404) bridging said first and second convergent sections, wherein the exit surface comprises a rotationally symmetrical continuous surface constructed
- 10 around a rotation axis (23) perpendicular to said centerline.
2. The optical device of claim 1, wherein said convergent sections (41, 401, 42, 403) of the exit diopter (4, 400) are symmetrical with respect to one another.
- 3.
- 15 4. The optical device of claim 1, wherein said convergent sections (41, 401, 42, 402, 403) of the exit diopter (4, 400) comprise quadratic surfaces.
5. The optical device of claim 1, wherein the optical device comprises a base plane and the exit surface (4, 400) has one plane of symmetry (IIB) perpendicular
- 20 to the base plane.
6. The optical device of claim 4, wherein the exit surface has a second plane of symmetry (IIA) perpendicular to the first plane of symmetry (IIB).
- 25 7. The optical device of claim 5, wherein the two planes of symmetry (IIA, IIB) intersect on said centerline (22).
8. The optical device of claim 4, wherein said rotation axis (23, 230) is inscribed in the plane of symmetry (IIB).
- 30 9. The optical device of claim 1, wherein the first convergent section (41, 401, 402, 403) is smaller than the second convergent section (42, 401, 403).
10. The optical device of claim 1, wherein said entry diopter (3, 301, 302)
- 35 comprises a lodging arrangement (31, 301, 302) for a light source.
11. The optical device of claim 9, wherein said lodging has an axis of symmetry (22, 221, 222) which passes through said light source.

12. The optical device of claim 9, wherein said lodging comprises several light sources located along the rotation axis (23,230).

5 13. The optical device of claim 9, wherein the surface of said lodging is quadratic.

14. The optical device of claim 1, comprises one or two other entry diopter(s), the overall entry diopters being located symmetrically.

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15. The optical device of claim 1, further comprising another entry diopter (301,302) and wherein the exit diopter comprises a second divergent section (405) and a third convergent section (403), the second divergent section (405) bridging the second convergent section (402) and the third convergent section (403).

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16. The optical device of claim 1, wherein the exit diopter comprises at least two convergent sections of which are laid out at the corners of a square, with divergent sections bridging consecutive corners, or opposite corners, or both consecutive and opposite corners.

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17. A luminary head (112), useful in particular for street lighting, comprising a plurality of light emitting diodes (LEDs) each LED being arranged upstream of an optical device (2) as claimed in Claim 1, said optical devices having substantially the same bearing.

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18. A luminary head of claim 17, wherein the optical devices comprises are arranged in rows and wherein the bearing comprises at least a recess between two consecutive rows of optical devices, each recess being adapted to lodge a plurality of radiators for draining and dissipating the heat produced while operating the LEDs.

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19. The luminary head of claim 17, further comprising means for dissipating the heat produced while operating said LEDs.

35 20. The luminary head of claim 17, wherein each LED is arranged in a lodging (31, 301, 302) provided for on the entry diopter (3) of said optical devices (2).

21. A street luminary (11) comprising a luminary head (112) as claimed in claim 16 and a luminary post (111).