



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 453 666 A1

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **90304339.6**

(51) Int. Cl.⁵: **F21V 7/09**

(22) Date of filing: **23.04.90**

(43) Date of publication of application:
30.10.91 Bulletin 91/44

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

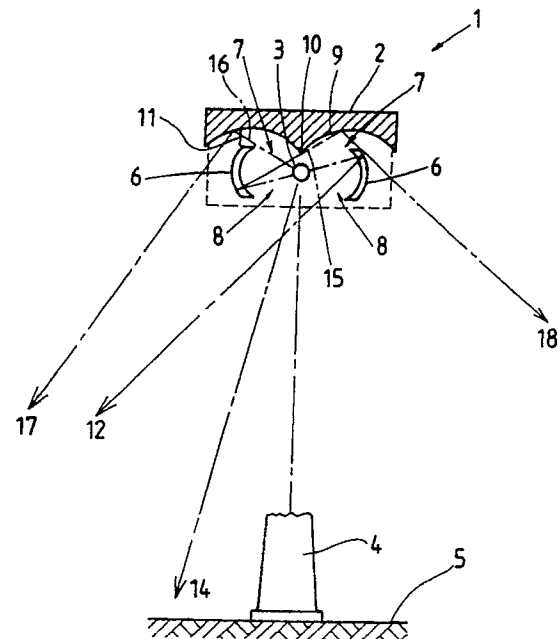
(71) Applicant: **POWERTECH INDUSTRIES
(PROPRIETARY) LIMITED**
Knightsbridge Manor, Block F, 33 Sloane
Street
Bryanston, Transvaal Province(ZA)

(72) Inventor: **Marcia, Gregory Michael**
89 Main Reef Road, Langlaagte
Johannesburg, Transvaal Province(ZA)

(74) Representative: **Allen, William Guy Fairfax et
al**
J.A. KEMP & CO. 14 South Square Gray's Inn
London WC1R 5EU(GB)

(54) **Luminaires.**

(57) This invention relates to luminaires suitable for illuminating roadways. Reflector means are arranged within a housing around a light source (3) and comprise two side reflectors (6,6) located one on each side of the light source, being shaped to direct light to the upper (7) and lower (8) gaps therebetween, while a "gull-wing" reflector (9) is located, spaced apart above the light source and arranged to reflect light around the outside of the side reflector means.



EP 0 453 666 A1

INTRODUCTION

THIS INVENTION relates to luminaires.

BACKGROUND TO THE INVENTION

Particularly this invention relates to luminaires which are required to provide a relatively wide area of well distributed light, such as in street lighting. The invention however is not to be understood as being limited thereto.

In street lighting, the distance between luminaires mounted on lighting poles is an important issue in the cost of the total lighting installation, and is dependent on the spread of light that is available from the lighting source and its luminaire.

The design of the luminaires is generally directed to optimising this light spread, but costs are a restriction on the design. Most often, the luminaire has a concentration of light immediately underneath it and an insufficient distribution of light away from the luminaires, which causes unevenness of lighting for motorists and represents a waste of lighting energy.

OBJECT OF THE INVENTION

It is an object of this invention to provide a luminaire which can at least alleviate these difficulties.

SUMMARY OF THE INVENTION

In accordance with this invention there is provided a luminaire comprising a first reflector means adjacent a light source location, and arranged to direct light from the source location to at least one side of the source location and the first reflector means, and second reflector means on the opposite side spaced from the first reflector means, and being arranged to direct light from the area of the source location in use, passed the rear of the first reflector means generally away from the same side as light from the first reflector means.

There is further provided for the reflector means to be arranged to reflect light from the first reflector means to be received and redirected by the second reflector means.

Preferably two side reflectors on opposite sides of the light source location form the first reflector means, with the reflectors being shaped to direct light to the gaps on both sides thereof. In this case, there is provided for the second reflector means to be in the form of a "gull-wing" reflector, with the V-shape of the wing being located immediately opposite the light source location and in the middle of the two side reflectors. The wing portions of the second reflector means are then arranged to pass

around the side reflector means on each side, to direct light around the rear thereof.

A preferred embodiment of the invention is described below by way of example only, and with reference to the accompanying drawing, which is an end view of a luminaire in accordance with the invention in use with an elongate light source.

DETAILED DESCRIPTION OF THE DRAWING

As illustrated, a luminaire (1) comprises a housing (2) for reflector means, which are further now described below, and for a gas discharge tube light source (3) located thereunder.

The luminaire is arranged to be located on a street lamp standard indicated diagrammatically by numeral (4), above a ground surface (5).

A first reflector means comprises two side reflectors (6) in the form of long strips located parallel one to each side of the light source, and being curved in their short side which is vertical in operative orientation, and also in the long side. The curvation of the reflector is arranged to direct light to upper and lower gaps (7) and (8) respectively formed between the two reflectors with the light source in the middle.

A second reflector means (9) is provided and comprises a gull-wing type reflector having its V-shape (10) located spaced apart and above the light source (3), with the wing reflectors extending to each side of this position, well passed the location of the side reflectors (6). A gap (11) between the wing portion of the reflectors and the upper edge of the side reflectors is created with this arrangement.

In use, with the light source (3) energised, light is reflected therefrom to the side reflectors and downwardly as indicated by arrows (12), in conventional manner. This light is thus distributed laterally passed the lines of vertical drop from the luminaire, to the ground plane (5).

Direct light (14) from the light source is also of course received at the ground surface (5). Light from the side reflectors, indicated by numerals (15), is also reflected upwardly through the upper gap (8) towards the gull-wing reflector.

In the usual luminaire, the light reflected in this upward direction is received by a rear reflector and redirected towards any side reflectors, and towards the path of direct light. This reflected light reinforces the concentration effect in the immediate path of direct light from a light source.

In this embodiment of the invention, however, direct light from the light source which is directed upwardly through the upper gap, strikes the rear reflectors, as indicated by numeral (16), and is directed outwardly through the gap (11), as indicated by numeral (17), to provide a wide spread

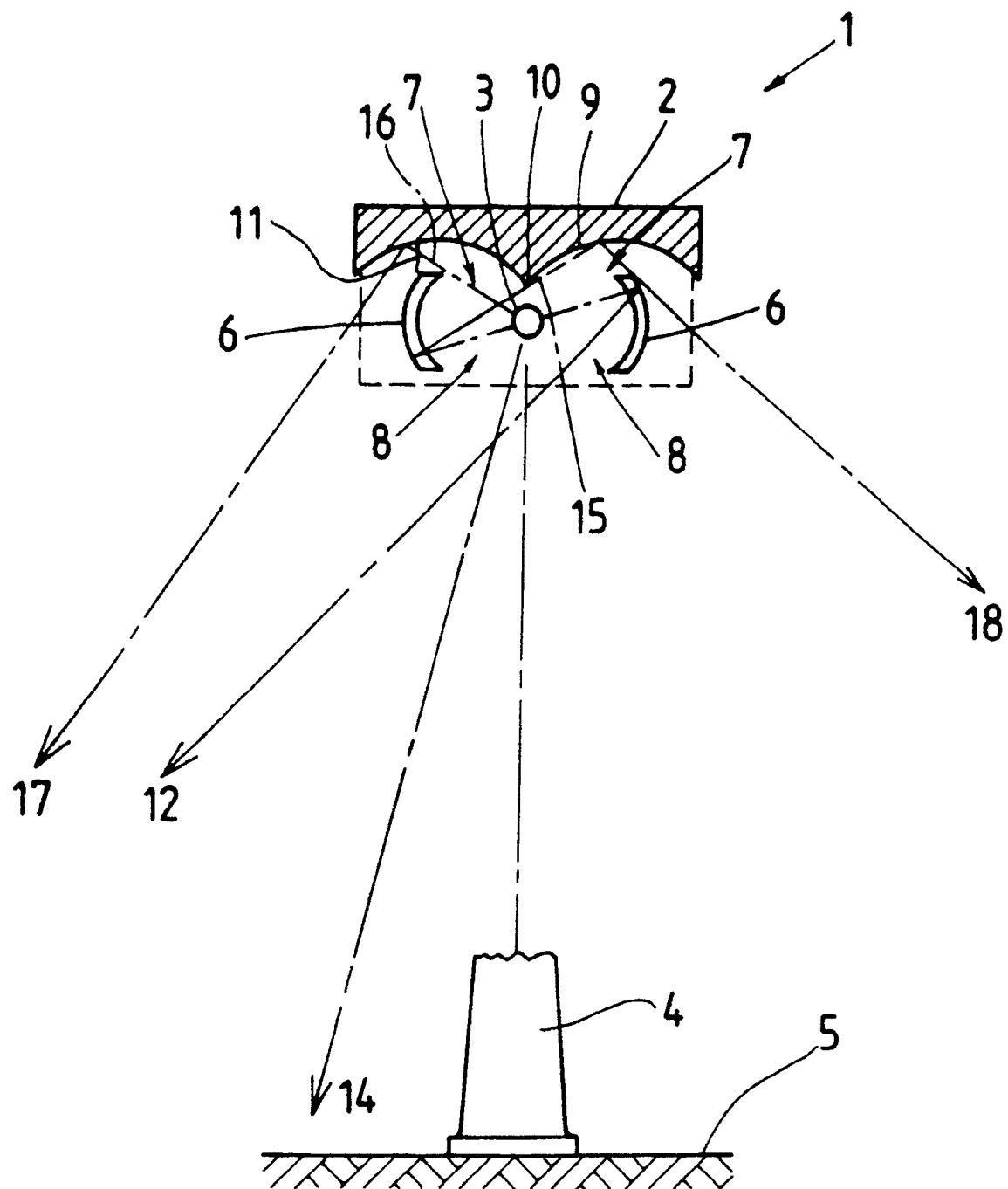
of light passed the spread given by the side reflectors. A certain amount of light, indicated by numeral (18), is reflected from the side reflectors to the gull-wing reflector, and out through the gaps (11) also to further distribute light to increase the covered area over the ground surface (5). 5

It is considered that the invention provides a useful spread of light which is of even distribution over a good area.

Variations may be made to the above embodiment without departing from the scope of the invention. Clearly the invention is not restricted to its application to an elongate light source, although it may be better suited thereto. The exact shape of the gull-wing reflectors and the side reflectors can be adjusted to achieve an optimal concentration and distribution area of light, for particular applications. 10 15

Claims 20

1. A luminaire comprising a first reflector means adjacent a light source location, and arranged to direct light from the source location to at least one side of the source location and the first reflector means, and a second reflector means on the opposite side spaced from the first reflector means, and being arranged to direct light from the area of the source location in use, passed the rear of the first reflector means generally away from the same side as light from the first reflector means. 25 30
2. A luminaire as claimed in claim 1 in which the reflector means are arranged so that light reflected from the first reflector means is also received, and is redirected, by the second reflector means. 35
3. A luminaire as claimed in claim 1 or 2 in which the first reflector means is formed by two side reflectors, on opposite sides of the light source location, shaped to direct light to the gaps on both sides thereof. 40 45
4. A luminaire as claimed in claim 3 in which the second reflector means is in the form of a "gull-wing" reflector with the V-shape of the wing being located immediately opposite the light source location and in the middle of the two side reflectors. 50
5. A luminaire as claimed in claim 3 in which the wing positions of the second reflector are arranged to pass around the side reflector means on each side, to direct light around the rear thereof. 55





European
Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 30 4339

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-2 305 722 (LIVERS) * Claim; figure 1 *	1-3	F 21 V 7/09
A	-----	4,5	
X	FR-A-7 701 67 (WILDI) * Page 1, lines 33-51; page 2, lines 25-30; figure 3 *	1-3	
X	CH-A-4 440 95 (JÄRNBKONST AB) * Claims 1,2; figures 1,2 *	1	
A	-----	2-5	
X	BE-A-3 737 10 (SIEMENS & HALSKE AG) * Claims 1,4; figure 1 *	1	
A	-----	2-5	
X	FR-A-2 333 359 (COMPAGNIE DES LAMPES) * Claims 1-5,7,8; figure 1 *	1	
A	-----	2-5	
X	DE-C-2 479 47 (SCHNEIDER & NAUJOKS ELEKTRIZITÄTS-GmbH) * Claim *	1	
A	-----	2-5	
The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		30 November 90	MARTIN C.P.A.
CATEGORY OF CITED DOCUMENTS			
X: particularly relevant if taken alone		E: earlier patent document, but published on, or after the filing date	
Y: particularly relevant if combined with another document of the same category		D: document cited in the application	
A: technological background		L: document cited for other reasons	
O: non-written disclosure		-----	
P: intermediate document		&: member of the same patent family, corresponding document	
T: theory or principle underlying the invention			