

# PATENT SPECIFICATION

(11) 1 347 839

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(21) Application No. 57923/72 (22) Filed 15 Dec. 1972

(31) Convention Application No. P 22 33 934.0

(32) Filed 11 July 1972 in

(33) Germany (DT)

(44) Complete Specification published 27 Feb. 1974

(51) International Classification F21S 1/12; G09F 19/12

(52) Index at acceptance

F4R 207 20Y 307 318 336 410 41Y 441 444 44Y 468 501

502 503 521 528 530 534 535 53Y 541 543 547 621

62Y 631 641 705

G5C 64B4 68 69B 70C



## (54) LIGHT FITTING USING GLASS FIBRES

(71) I, WOLFGANG HOCHMUTH, trading as the firm CIMA INTERNATIONAL DIPL.KFM. W. HOCHMUTH, of 19 Bussardstrasse, 8510 Fuerth, Germany; a German national, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention concerns a light fitting incorporating glass fibres (light conductors) which are bunched at one end on a lamp housing including a light source, whilst the free ends of the fibres spread out like a brush.

In these light fittings the ends of the glass fibres are splayed apart in all directions so that they acquire, by bending out to a varying degree, a substantially hemispherical or spherical form under their own weight. Due to the light issuing from the free ends of the glass fibres, an ornamental light fitting is produced with a plurality of luminous points spaced apart from each other.

The object of the present invention is to increase the range of application of these light fittings.

According to the present invention there is therefore provided a glass fibre light fitting the fibres of which are bunched at one end and engage a light fitting housing containing a light source, whilst the free ends of the fibres extend individually or in groups through openings in a guide body connected to the light fitting housing so as to form a predetermined pattern of light spots, the pattern being determined by the arrangement of the said openings.

The guide body may be formed for instance, as a hollow body fixed to the light fitting housing, the fibres passing through a hole in the body near its point of fixation on the housing, with a number of openings for the passage of the glass fibres being

distributed over the surface of the guide body. Alternatively it may be a plate-shaped body which is provided with apertures and is fixed or detachably secured to, and at a short distance from, the housing. The openings for the fibres may be of circular or angular form, and located to show diagrams, letters of the alphabet and/or numbers, the glass fibres projecting through the openings forming similar patterns. The result is a light fitting which can be used for advertising purposes or the like, the ends of the glass fibres, perceptible as points of light, being recognisable as advertising or decoration.

By pivotably mounting the guide body the associated glass fibres may be differently orientated. In addition, the guide body, due to its supporting effect on the glass fibres, also provides a mechanical protection, particularly during the transport of the light fitting.

In a preferred embodiment of the light fitting, the glass fibres and the guide body are surmounted by a hood of transparent or translucent material firmly connected to the housing or the support for the glass fibres or the guide body; this improves the protection of the glass fibres without preventing the production of the points of light; the glass fibres themselves are protected against the action of dust.

Finally, the light fitting may include a cold light reflector for the light source on the side of the source remote from the glass fibres, and a heat protecting filter and rotatable transparent coloured filters between the light source and the glass fibres. The coloured filters may be portions of discs having at least approximately radial side surfaces, interchangeably mounted on a motor driven shaft. By slowly rotating the shaft, the filters are continuously brought in succession before the inlet ends of the glass fibres to change the colour of the points of light at the outlet ends of the glass fibres. The interchangeable association of the filters

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enables the sequence of colour change to be varied as desired. For this purpose, the filters are preferably clamped between two co-axial metal discs on the shaft with intermediate layers of a resilient material or a material having a high frictional co-efficient between the coloured bodies and the metal discs so as to retain the filters against displacement by slight pressure.

The present invention will be described with reference to embodiments illustrated in the accompanying drawings, in which:

Fig. 1 shows a front view of a light fitting in part section;

Fig. 2 is a side view of a light fitting according to another embodiment;

Fig. 3 is a front view of the light fitting of Fig. 2;

Fig. 4 shows a side view of another light fitting;

Fig. 5 is a plan view of a coloured filter assembly, and

Fig. 6 is a side view of a shaft with filters.

In the embodiment shown in Fig. 1, a cylindrical light fitting housing 1 has feet 2 for location on a surface. A bunch of glass fibres 5 is secured on a cover 3 by means of a holder 4. A light source 6 such as a halogen lamp with a cold light reflector 7 supplies light to the inlet ends of the bunch of glass fibres 5. The rays of the light source pass through a heat insulating filter 8 and a coloured filter 9 to the inlet ends of the glass fibres 5' and are visible as points of light at the free ends of the fibres. The glass fibres extend through a hollow spherical guide body 10 and are held spread out by means of passage openings 11, individually or in groups, in predetermined directions. For this purpose the passage openings 11 are either located on a particular pattern or distributed at random over the surface of the guide body 10, the arrangement being repeated by the fibre ends. Due to the support afforded the glass fibres 5' the light fitting may be safely transported and is relatively insensitive to impact. As shown, the housing 1 carries a spherical hood 12 of glass or transparent plastics material which acts as a protecting member for the glass fibres, but at the same time allows the points of light to be clearly visible.

In the light fitting shown in Figs. 2 and 3, a plane plate-shaped body 13 is used as a guide body for the free ends of the glass fibres 5'. The plate 13 has passage openings 11 and is held away from the housing by a support 14. The passage openings 11 here are a pictorial representation and direct the glass fibres accordingly to form a luminous figure conforming therewith. In the embodiment, the plate 13 is mounted on the housing 1 to pivot about a joint 15 so that, by tilting the plate, it is possible to vary the positions of the ends of the fibres.

In the case of the light fitting shown in Fig. 4, a hemispherical guide body 16 is used which is provided with passage openings 11 for the glass fibres 5'.

As may be seen from Figs. 5 and 6, coloured filters 9 are of trapezoidal or sectional form with radial sides. The filters 9 are held between metal discs 17, 18 which are rotatable about a shaft by a motor 19 provided with a reduction gear. By loosening the metal disc 17, the filters 9 may be replaced or arranged in a different sequence relatively to each other. The insertion of resilient intermediate layers 19' enables only weak clamping forces to be used in securing the filters 9 in position.

WHAT I CLAIM IS:—

1. A glass fibre light fitting the fibres of which are bunched at one end and engage a light fitting housing containing a light source, whilst the free ends of the fibres extend individually or in groups through openings in a guide body connected to the light fitting housing so as to form a predetermined pattern of light spots, the pattern being determined by the arrangement of the said openings.

2. A light fitting according to claim 1, wherein the guide body is hollow and is firmly fixed at one point on the light fitting housing, the point of fixation having a hole in the guide body adjacent thereto through which the bunched fibres extend, and a number of openings being distributed over the surface of the guide body for the passage of the glass fibres therethrough.

3. A light fitting according to claim 1 or 2 in which the guide body is a hollow sphere.

4. A light fitting according to claim 1 or 2 wherein the guide body is a plate provided with openings and rigidly or detachably secured to the housing.

5. A light fitting according to claim 4, wherein the plate is pivotably secured to the housing.

6. A light fitting according to any one of the preceding claims, wherein the openings are of circular or angular shape.

7. A light fitting according to any one of the preceding claims, wherein the openings form illustrations, letters of the alphabet, or numbers, the free ends of the glass fibres forming a similar pattern.

8. A light fitting according to any one of the preceding claims, wherein the glass fibres and the guide body are surmounted by a hood of a transparent or translucent material connected to the housing, or the support of the guide body.

9. A light fitting according to any one of the preceding claims, wherein a cold light reflector is associated with the light source on the side of the source remote from the glass fibres and that a heat filter and a rotatable coloured filter assembly are in-

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serted between the light source and the glass fibres.

5 10. A light fitting according to claim 9 wherein the coloured filters are disc portions having radial sides which are replaceably mounted on a motor driven shaft.

11. A light fitting according to claim 10 wherein the coloured bodies are clamped between two co-axial discs with intermediate layers of a resilient material or a material having a high frictional co-efficient between the filters and the discs. 10

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Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1974.  
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

