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(12) # EUROPEAN PATENT SPECIFICATION

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(54) **Front direction indicator lamp for motor vehicles.**

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EP 0 071 583 B1

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Description

The present invention relates to a direction indicator lamp for motor vehicles adapted to emit a beam of coloured light.

In particular, the invention is concerned with a lamp comprising a casing which is closed at the front by a colourless transparent element, the casing housing:

- a cup-shaped substantially ellipsoidal reflector having its edge facing the transparent element;
- a light source located at the rear focal point of the reflector;
- a coloured filter applied onto the internal surface of the reflector for imparting the desired colour to the rays of light emitted by the light source, and
- screening means between the reflector and the transparent element, including an annular opaque element mounted transversely to and surrounding the interfocal axis of the reflector and a central opaque disc mounted coaxially with the said interfocal axis, to substantially prevent the coloured filter from being seen from the exterior and to prevent the direct rays emitted by the light source from reaching the transparent element.

DE—B—1 259 747 discloses a direction indicator lamp of the above described type, in which the central opaque disc is applied directly onto the transparent element and the annular screening element is disposed in the transversal plane which contains the front focal point of the reflector. The central opening of the annular element is necessarily very small.

This known lamp is affected by the following drawbacks.

When the light source is in its deactivated condition the above mentioned central opaque disc can be seen through the transparent element, thus adversely affecting the aesthetic appearance of the direction indicator.

When the light source is in the activated condition the central opaque disc applied onto the transparent element tends to create a cone of shade in the light beam which comes out through the transparent element. In order to eliminate this shading effect the transparent element must be adequately shaped, e.g. in form of a Fresnel lens.

Moreover the known device is rather complicate in structure and construction.

In order to overcome the above outlined inconveniencies of the prior art device, the present invention provides a direction indicator lamp according to the appended claim 1.

In the direction indicator according to the invention the central opaque disc is located far from the transparent element and cannot be therefore distinctly seen therethrough when the light source is off.

The light source being not punctiform, the reflector directs coloured light rays also in directions extending into or through the cone which would be otherwise shaded if the light source were perfectly punctiform. The screening structure of the direction indicator lamp according to the invention allows a substantial portion of those rays pass through the transparent element, thereby lessening the shading effect of the central disc.

Further characteristics and advantages of the present invention will be apparent from the description which follows with reference to the attached drawings, in which:

- Figure 1 is a front elevational view of a front direction indicator lamp for motor vehicles;
- Figure 2 is a cross-section taken along the line II—II of Figure 1;
- Figure 3 is a cross-section taken along the line III—III of Figure 1;
- Figure 4 is a plan view of the screen used in the indicator lamp of Figures 1 to 3; and
- Figure 5 is a cross-section taken along the line V—V of Figure 4.

In the example shown in Figures 1 to 5, the casing 1 of a front direction indicator lamp for motor vehicles is closed at the front by a colourless transparent element 2.

The casing 1 is closed at the rear by a closure element 3 secured by screws 4 with the interposition of a sealing gasket 5.

The casing 1 contains an ellipsoidal reflector, generally indicated 6, having focal points F1, F2 respectively.

The ellipsoidal reflector 6 is formed by a main part 7 which is moulded from transparent plastics material coloured according to the colour of the light, for example yellow, which must be emitted by the indicator lamp in accordance with current regulations.

The external surface of the part 7 has a reflective layer 8 which is applied by metallization or lacquering.

The ellipsoidal reflector 6 is provided with a tubular projection 9 at the rear, enabling it to be fixed to the casing 1.

The closure element 3 is provided with a tubular projection 10 which serves as a support for a bulb 11 the filament of which is in correspondence with the rear focal point F1 of the ellipsoidal reflector 6.

A screen is fixed to the front edge 6a of the ellipsoidal reflector 6 and comprises a frustoconical element 12 which converges towards the transparent element 2, a flat annular element 13 which lies in a plane perpendicular to the line passing through the two focal points F1, F2, and a central disc 15 carried by three inclined rods 14 on the internal edge of the annular element 13. The disc 15 has a diameter less than the internal diameter of the annular wall 13 and lies in a plane substantially coin-

cident with that of the edge 6a of the reflector 6.

The parts 12, 13, 14, 15 are conveniently made in a single piece by moulding from a white opaque plastics material, and form a screen which allows only those rays emitted by the bulb 11 which are reflected by the reflector 6 and coloured by passing through the part 7 acting as a filter, to pass towards the transparent element.

The rays emitted by the bulb 11 directly towards the transparent element 2, however, are intercepted by the screen, which also serves to substantially prevent the coloured internal surface of the reflector 6 from being seen from the exterior, particularly by anyone observing the lamp along the line joining the focal points F1, F2.

Claims

1. Direction indicator lamp for motor vehicles adapted to emit a beam of coloured light, comprising a casing (1) which is closed at the front by a colourless transparent element (2), the casing housing:

— a cup-shaped substantially ellipsoidal reflector (6) having its edge (6a) facing the transparent element (2);
— a light source (11) located at the rear focal point (F1) of the reflector (6);
— a coloured filter (7) applied onto the internal surface of the reflector (6) for imparting the desired colour to the rays of light emitted by the light source (11), and
— screening means (12, 13, 15) between the reflector (6) and the transparent element (2), including an annular opaque element (13) mounted transversely to and surrounding the interfocal axis of the reflector (6) and a central opaque disc (15) mounted coaxially with the said interfocal axis, to substantially prevent the coloured filter (7) from being seen from the exterior and to prevent the direct rays emitted by the light source (11) from reaching the transparent element (2); characterised in that the said annular element (13) is mounted between the focal points (F1, F2) of the reflector (6), and the said central opaque disc (15) is mounted between the annular element (13) and the light source (11).

2. A direction indicator lamp according to claim 1, characterised in that the said central opaque disc (15) has a diameter less than the internal diameter of the annular element (12, 13).

3. A direction indicator lamp according to the Claim 1 or 2, characterised in that the central opaque disc (15) is connected to the internal edge of the annular element (13) by means of support rods (14).

4. A direction indicator lamp according to claim 3, characterised in that the annular element (13), the said support rods (14) and the central opaque disc (15) are made in a single piece.

Revendications

1. Lampe indicatrice de direction pour véhicules automobiles réalisée de manière à émettre un faisceau de lumière colorée, comprenant un boîtier (1) qui est fermé à l'avant par un élément transparent incolore (2), le boîtier contenant: un réflecteur (6) en forme de cuvette, sensiblement ellipsoïdal, dont le bord (6a) fait face à l'élément transparent (2); une source de lumière (11) placée au foyer arrière (F1) du réflecteur (6); un filtre coloré (7) appliqué sur la surface interne du réflecteur (6) pour donner la couleur désirée aux rayons de lumière émis par la source de lumière (11); et des moyens formant écran (12, 13, 15) placés entre le réflecteur (16) et l'élément transparent (2), qui comprennent un élément opaque annulaire (13) monté transversalement par rapport à l'axe interfocal du réflecteur (6) et entourant cet axe, et un disque central opaque (15) monté coaxialement audit axe interfocal, pour empêcher sensiblement que le filtre coloré (7) ne soit vu de l'extérieur et pour empêcher les rayons directs émis par la source de lumière (11) d'atteindre l'élément transparent (2), caractérisée en ce que ledit élément annulaire (13) est monté entre les foyers (F1, F2) du réflecteur (6) et que le disque central opaque (15) est monté entre l'élément annulaire (13) et la source de lumière (11).

2. Une lampe indicatrice de direction selon la revendication 1, caractérisée en ce que le disque central opaque (10) présente un diamètre inférieur au diamètre intérieur de l'élément annulaire (12, 13).

3. Une lampe indicatrice de direction selon la revendication 1 ou 2, caractérisée en ce que le disque central opaque (15) est relié au bord intérieur de l'élément annulaire (13) par des barres de support (14).

4. Une lampe indicatrice de direction selon la revendication 3, caractérisée en ce que l'élément annulaire (13), lesdites barres de support (14) et le disque central opaque (15) sont réalisés en une seule pièce.

Patentansprüche

1. Richtungsanzeigeleuchte für Motorfahrzeuge zur Ausstrahlung eines Strahlenbündels farbigen Lichts mit einem an der Vorderseite durch ein farbloses transparentes Element (2) verschlossenen Gehäuse (1), das folgende Teile beinhaltet:

— einen becherförmigen Reflektor (6), der im wesentlichen die Form eines Ellipsoids hat und dessen Kante (6a) dem transparenten Element (2) zugewandt ist,

— eine im rückseitigen Brennpunkt (F1) des Reflektors (6) gelegene Lichtquelle (11)
— ein an der Innenfläche des Reflektors (6) angebrachtes Farbfilter (7), das den von der Lichtquelle (11) abgegebenen Lichtstrahlen die gewünschte Fabre verleiht,
— sowie zwischen dem Reflektor (6) und dem transparenten Element (2) angeordnete Abschirmmittel (12, 13, 15), die
  — ein die zwischen den Brennpunkten des Reflektors (6) verlaufende Achse umgebendes und quer zu ihr montiertes ringförmiges opakes Element (13),
  — und eine koaxial zu der zwischen den Brennpunkten verlaufenden Achse montierte zentrale opake Scheibe (16) umfassen,
— und die bewirken, daß das Farbfilter (7) von außen im wesentlichen unsichtbar ist und daß von der Lichtquelle (11) abgegebene direkte Strahlen das transparente Element (2) nicht erreichen, dadurch gekennzeichnet,
  — daß das ringförmige Element (13) zwischen den Brennpunkten (F1, F2) des Reflektors (6) montiert ist
  — und daß die genannte zentrale Scheibe (15) zwischen dem ringförmigen Element (13) und der Lichtquelle (11) montiert ist.

2. Richtungsanzeigeleuchte nach Anspruch 1, dadurch gekennzeichnet, daß die zentrale opake Scheibe (15) einen Durchmesser besitzt, der kleiner ist als der Innendurchmesser des ringförmigen Elements (12, 13).

3. Richtungsanzeigeleuchte nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die zentrale opake Scheibe (15) durch Haltestege (14) mit der Innenkante des ringförmigen Elements (13) verbunden ist.

4. Richtungsanzeigeleuchte nach Anspruch 3, dadurch gekennzeichnet, daß das ringförmige Element (13), die genannten Haltestege (14) und die zentrale opake Scheibe (15) einstückig ausgebildet sind.

FIG. 1

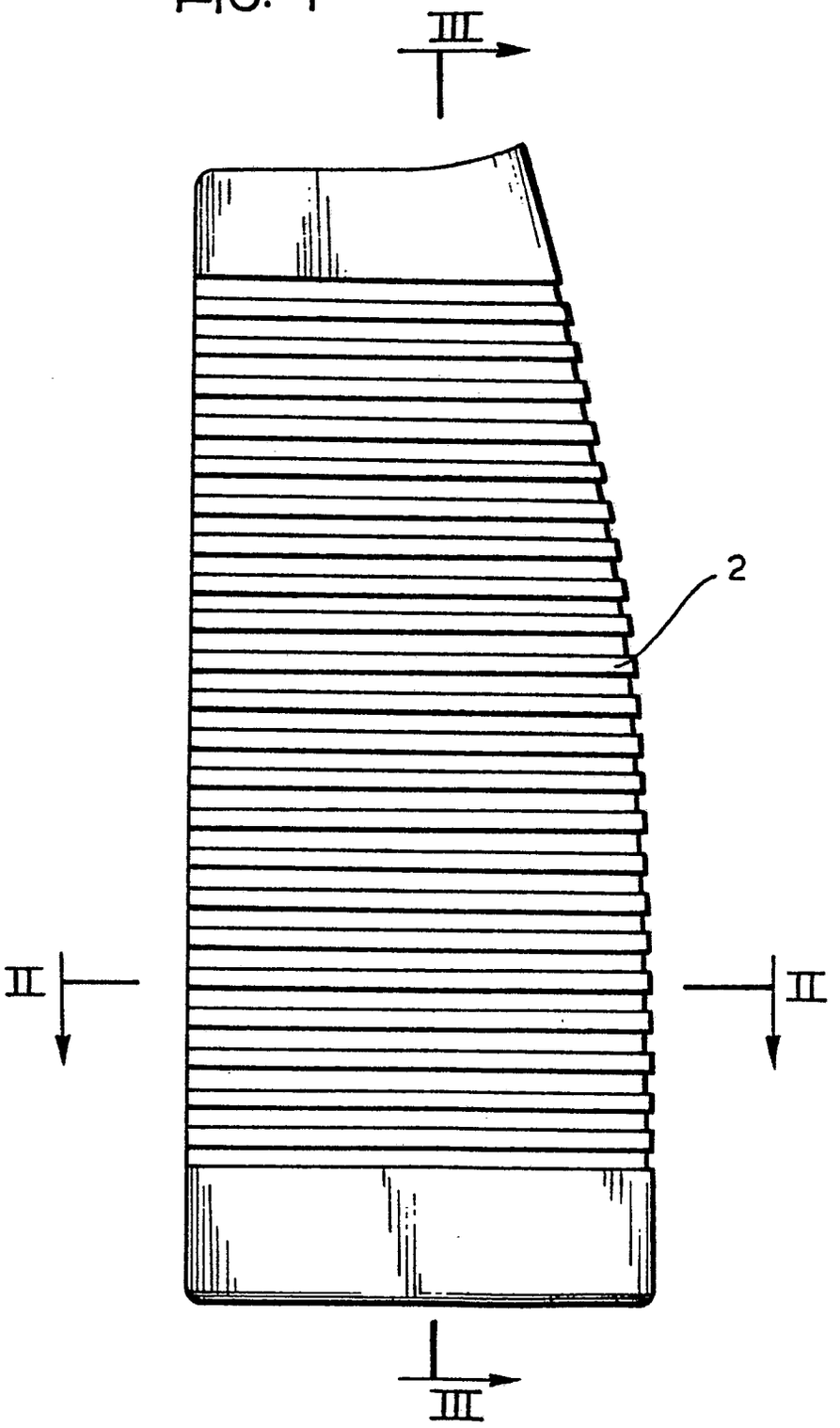


FIG. 2

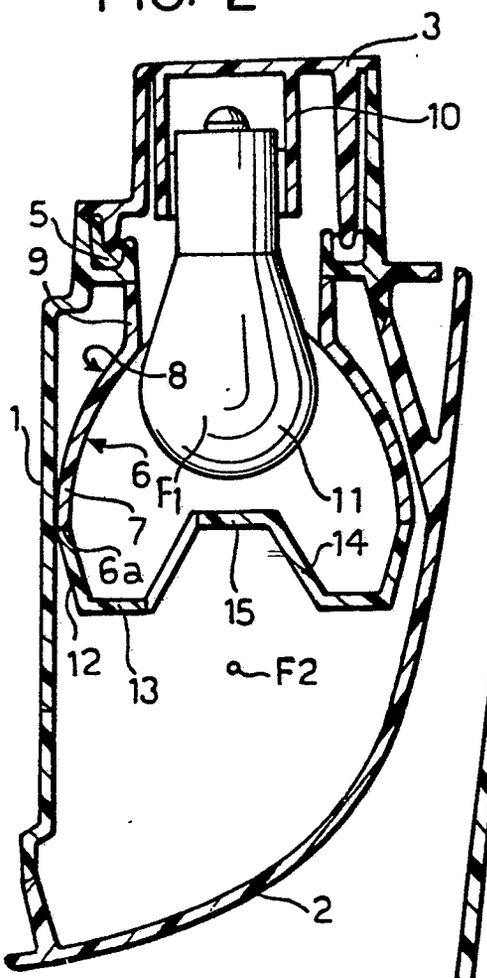


FIG. 3

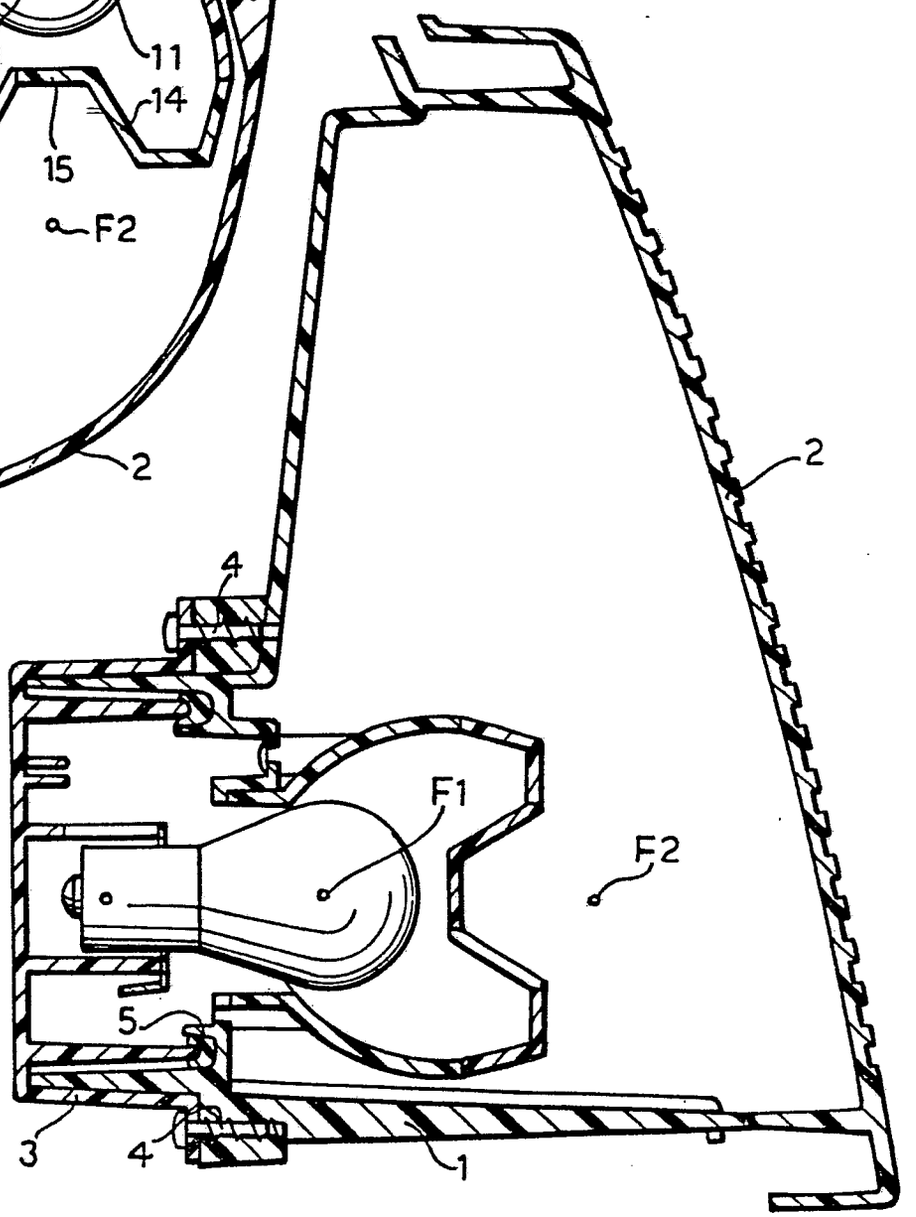


FIG. 4

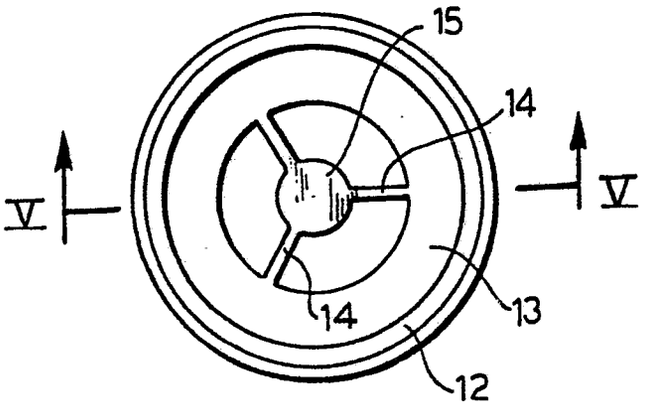


FIG. 5

