(12) UK Patent Application (19) GB (11) 2 277 579 (13) A

(43) Date of A Publication 02.11.1994

(21) Application No 9405174.5

(22) Date of Filing 16.03.1994

(30) Priority Data
(31) 4313914 (32) 28.04.1993 (33) DE

(71) Applicant(s)
Robert Bosch GmbH

(Incorporated in the Federal Republic of Germany)

Postfach 30 02 20, D-70442 Stuttgart 30,
Federal Republic of Germany

(72) Inventor(s)
Doris Boebel
Rainer Neumann

(74) Agent and/or Address for Service
A A Thornton & Co
Northumberland House, 303-306 High Holborn,
LONDON, WC1V 7LE, United Kingdom

(51) INT CL[5]
B60Q 1/04

(52) UK CL (Edition M)
F4R RFN R22Y R23Y R364

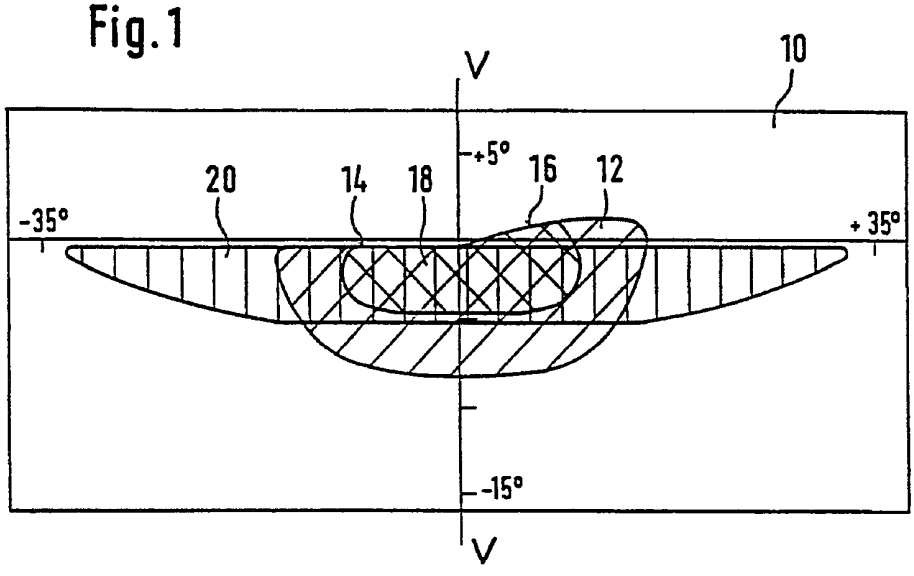
(56) Documents Cited
None

(58) Field of Search
UK CL (Edition M) F4R RFN RL
INT CL[5] B60Q 1/04
Online databases: WPI

(54) Headlamp system for vehicles

(57) The headlamp system has two headlamp units, which are disposed on the front end of the vehicle and in a first operating position emit a basic low beam, which illuminates a road in front of the vehicle with a luminous intensity distribution (12) which meets the current statutory minimum requirements for low beam as regards luminous intensity. In a further operating position, the headlamp system emits, in addition to the basic beam, a further beam illuminating the road with a further luminous intensity distribution (18) which effects powerful illumination of the remote region of the road and thereby improves visibility for the driver particularly at high driving speeds. Even when both beams are emitted simultaneously, the legally permitted maximum luminous intensity values are not exceeded. To improve visibility in fog, in addition to the basic beam a further beam may be emitted, which has a wide horizontal spread and illuminates the road with a further luminous intensity distribution (20).

Fig.1



GB 2 277 579 A

Fig. 1

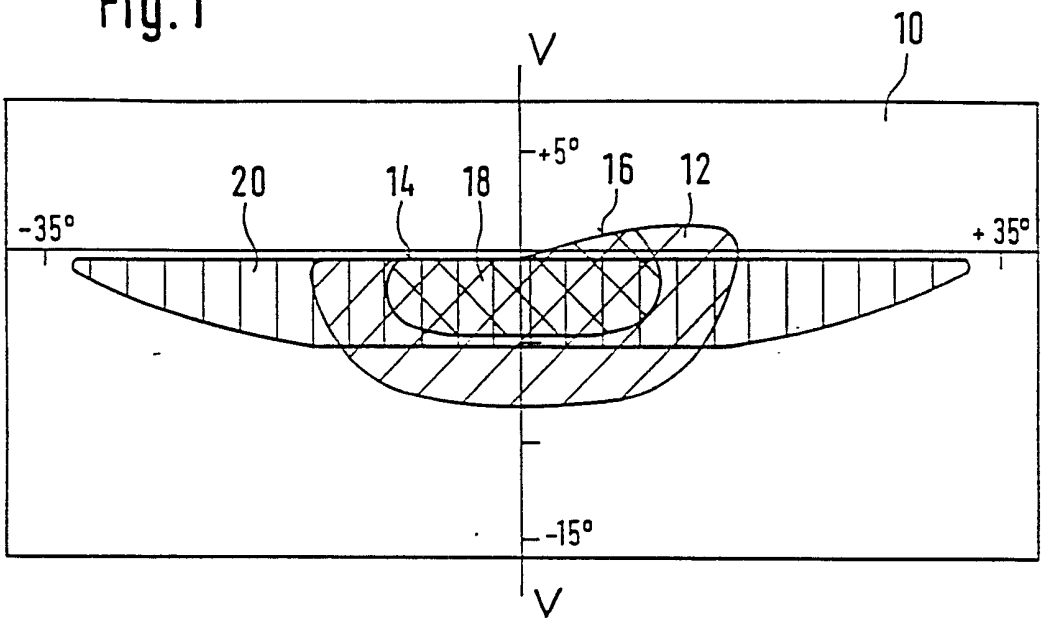
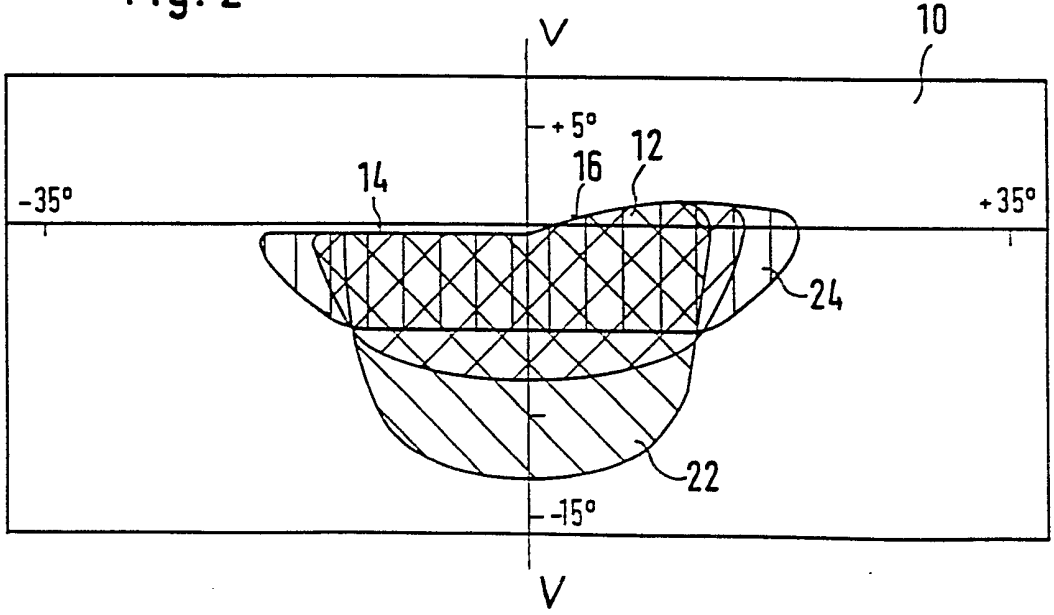


Fig. 2



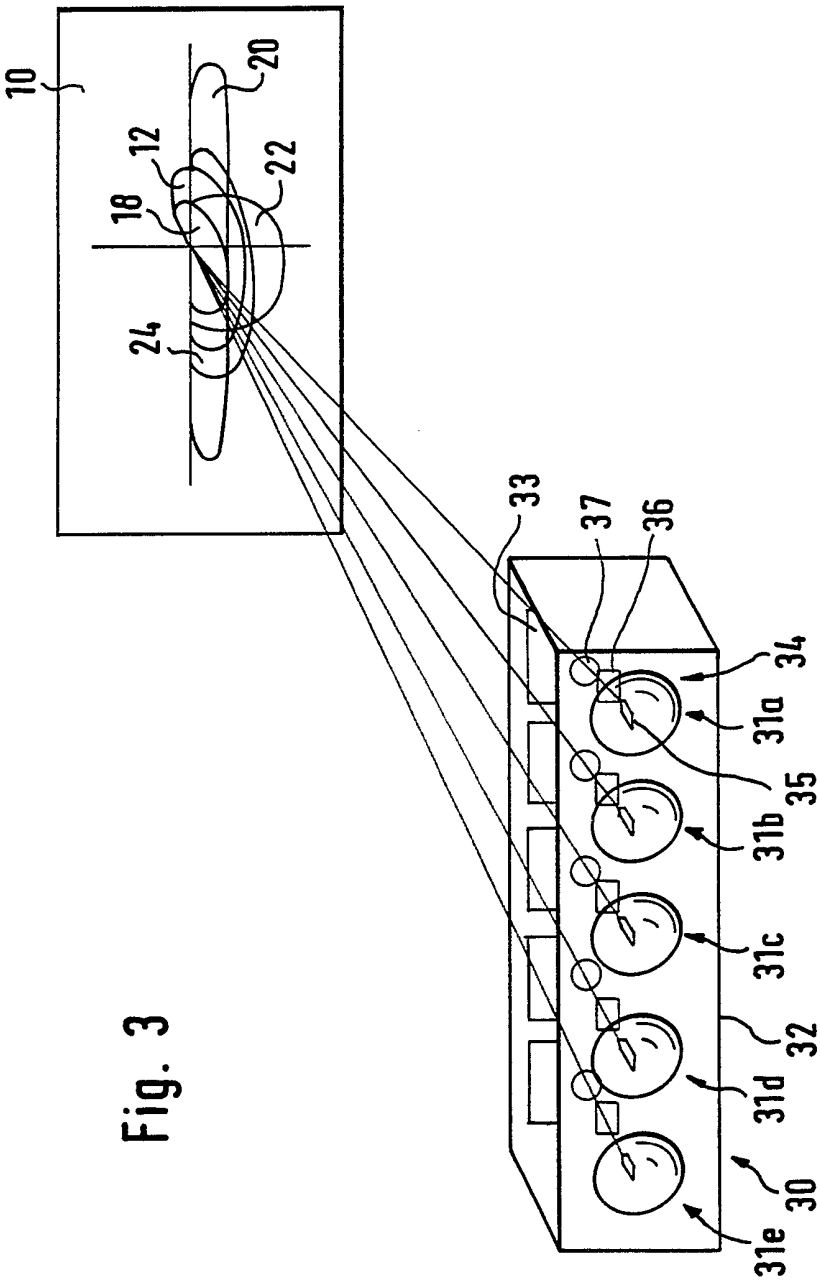


Fig. 3

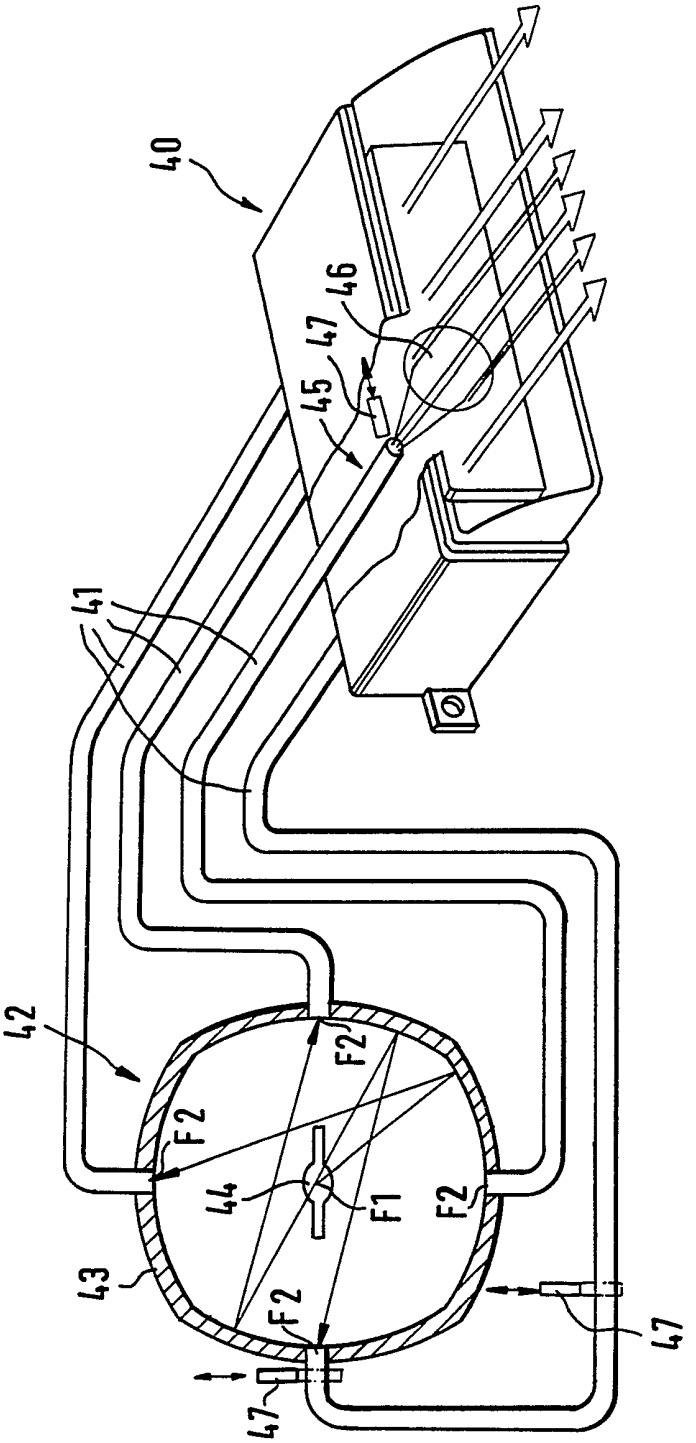


Fig. 4

Fig. 5a

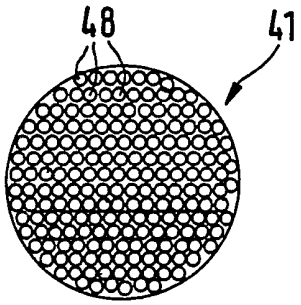
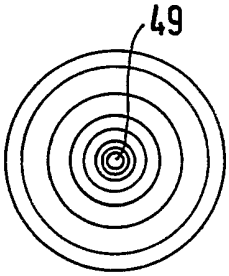


Fig. 5b



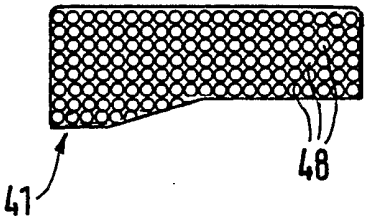


Fig. 6a

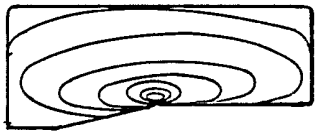


Fig. 6b

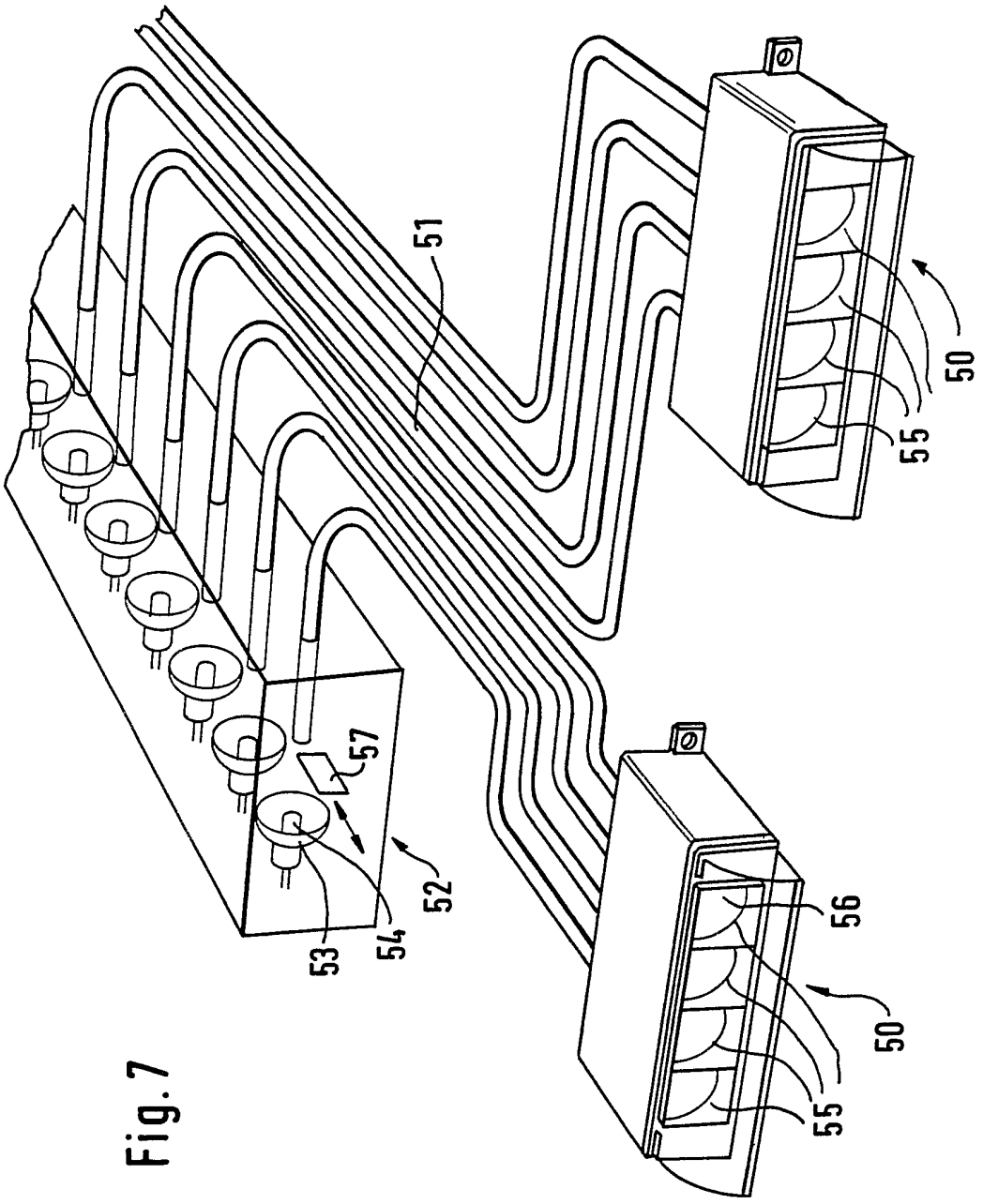


Fig. 7

Fig. 8

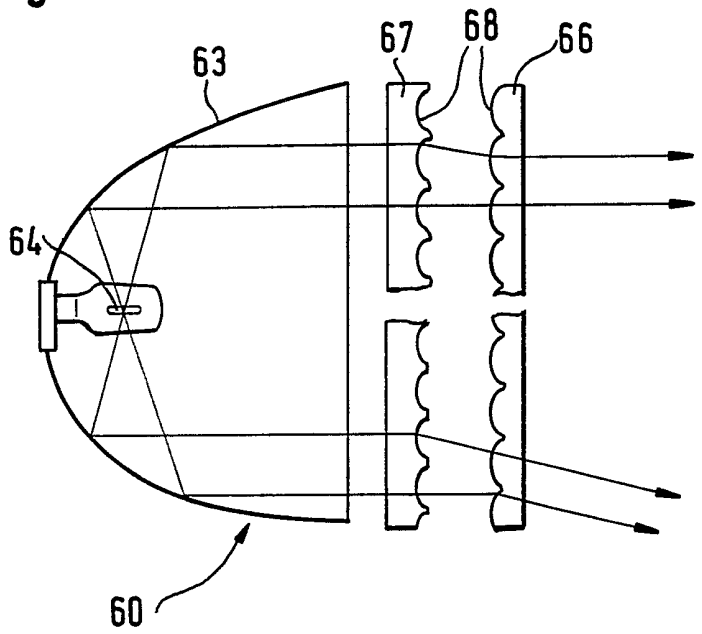
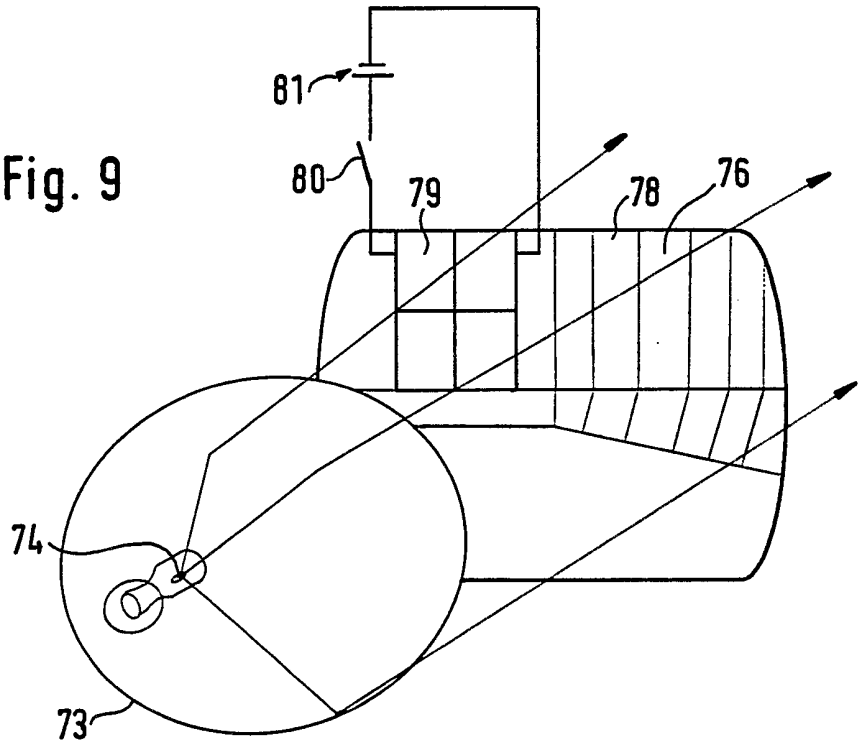


Fig. 9



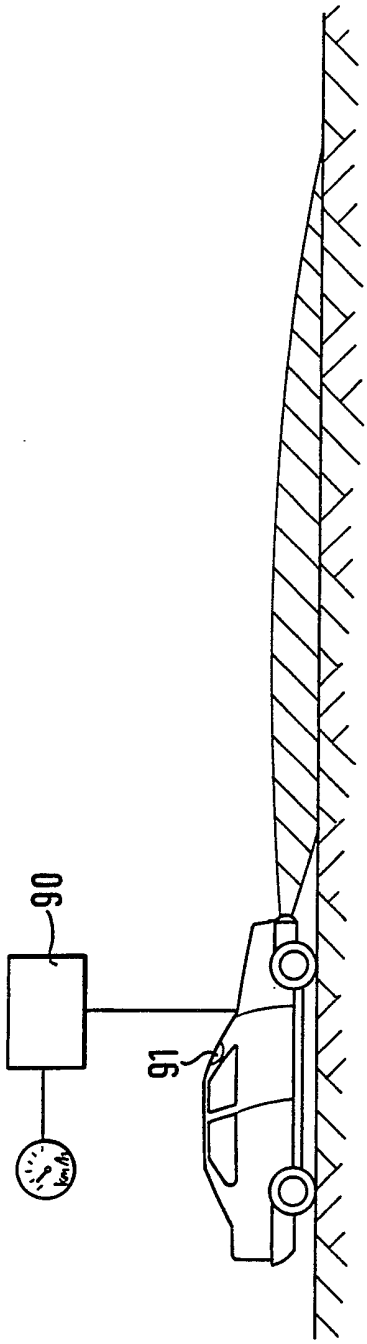


Fig. 10

Headlamp system for vehicles

Prior art

The invention proceeds from a headlamp system for vehicles according to the preamble of claim 1.

Such a headlamp system is known from DE-OS 15 97 977. Said headlamp system has two headlamp units which are mounted on the front end of the vehicle and are each subdivided into three headlamp sub-units. A first headlamp sub-unit of the headlamp mounted on the nearside of the vehicle emits a basic beam which produces a basic luminous intensity distribution, a second sub-unit produces an additional beam for use on country roads and a third sub-unit produces a main beam. A first headlamp sub-unit of the headlamp mounted on the offside of the vehicle likewise produces a basic beam, a second sub-unit produces an additional beam for motorway use and a third sub-unit produces a main beam. The basic beam produces a symmetrical luminous intensity distribution with a horizontal top light/dark boundary. The country-road additional beam illuminates the nearside of the road more powerfully and the luminous intensity distribution produced thereby has a horizontal light/dark boundary on the offside and a light/dark boundary rising towards edge of the road on the nearside of the vehicle. The motorway additional beam illuminates the offside more powerfully and the luminous intensity distribution produced thereby has a light/dark boundary rising towards the edge of the road on the nearside and a light/dark boundary likewise rising towards the edge of the road on the offside. For driving in built-up areas, it is provided that only the headlamp sub-units producing the basic beam are

operated. For driving on a two-way country road, the two sub-units producing the basic beam and the sub-unit producing the country-road additional beam are operated. For motorway driving, the two sub-units producing the basic beam, the sub-unit producing the country-road additional beam and the sub-unit producing the motorway additional beam are operated. In the absence of oncoming traffic, the two sub-units producing the basic beam and the two sub-units producing the main beam are operated as a full beam.

The drawback of said known headlamp system is that the luminous intensity distribution produced by the basic beam alone is not able to meet statutory minimum requirements for low beam regarding the minimum required luminous intensity at predetermined measuring points. When the motorway additional beam is cut in, the statutory provisions for low beam regarding the position of the light/dark boundary and the maximum admissible luminous intensities are not observed. Moreover, with said headlamp system, despite the possibility of optionally cutting in at least one further beam, i.e. the country-road additional beam and/or the motorway additional beam, the luminous intensity distribution cannot be adapted to the traffic situation in front of the vehicle, different weather conditions, travelling speed or individual needs of the driver.

Advantages of the invention

In contrast, the headlamp system according to the invention has the advantage that, within the scope of the statutory minimum requirements governing low beam and the maximum admissible values of luminous intensity, the luminous intensity distribution produced by the headlamp system may be adapted to different conditions.

Advantageous refinements and developments of the headlamp system according to the invention are indicated in the sub-

claims. By virtue of the additional beam indicated in claim 2, visibility for the driver is improved at high driving speeds. By virtue of the additional luminous intensity distribution indicated in claim 4, visibility for the driver is improved particularly in fog or snow. By virtue of the additional luminous intensity distribution indicated in claim 5, visibility is improved particularly when driving in rain or on a dark road surface. In the case of the construction of the headlamp system indicated in claim 8, only a few light sources are needed to produce the different beams. The constructions of the headlamp system indicated in claims 15 and 16 each have the advantage that the different beams may be produced by one headlamp unit.

Drawings

Five embodiments of the invention are illustrated in the drawings and explained in greater details in the following description. Figure 1 shows a measuring screen disposed in front of a headlamp system, with various luminous intensity distributions which are produced by the headlamp system in different operating positions; Figure 2 shows the measuring screen with further luminous intensity distributions which may be produced by the headlamp system in further operating positions; Figure 3 shows a first embodiment of the headlamp system; Figure 4 shows a second embodiment of the headlamp system; Figure 5a shows a light entry end of a light guide of Figure 4; Figure 5b shows a luminous intensity distribution at the light entry end of the light guide of Figure 5a; Figure 6a shows a light exit end of a light guide of Figure 4; Figure 6b shows a luminous intensity distribution at the light exit end of the light guide of Figure 6a; Figure 7 shows a third embodiment of the headlamp system; Figure 8 shows a fourth embodiment of the headlamp system; Figure 9 shows a fifth embodiment of the headlamp system; and Figure 10 is a schematic view for automatic control of the headlamp system.

Description of the embodiments

First of all, the mode of operation of the headlamp system according to the invention for vehicles, in particular for motor vehicles, is described, said mode of operation being in principle the same for all of the embodiments. The headlamp system has, for example, two headlamp units mounted in the manner of known headlamps in lateral regions of the front end of a motor vehicle. The headlamp system may optionally emit different beams which produce different luminous intensity distributions on a measuring screen 10 shown in Figures 1 and 2 which is set up at a distance of around 25 metres from the front of the vehicle. The measuring screen 10 represents a road lying in front of the vehicle which is illuminated by the headlamp system. The luminous intensity distributions produced on the measuring screen 10 by the different beams are described below, said distributions corresponding to a corresponding illumination of the road. Reference is made to different weather conditions, traffic situations and other parameters, which relate in each case to the actual operation of the headlamp system on the vehicle on the road and not to the conditions existing during illumination of the measuring screen 10.

In a first operating state of the headlamp system, said system emits a basic beam, which illuminates a region designated 12 on the measuring screen 10 and produces in said region a basic luminous intensity distribution. The basic luminous intensity distribution meets the current minimum statutory provisions for low beam as regards the luminous intensity at predetermined measuring points of the region 12. The region 12 illuminated by the basic beam has a top light/dark boundary which has a horizontal portion 14 on the oncoming traffic side, in Figures 1 and 2 left of the vertical centre plane VV of the measuring screen for driving on the right, and a portion 16 rising towards the edge of the screen 10 on the nearside, right of the vertical centre plane VV.

In a further operating state of the headlamp system, said system emits, in addition to the basic beam, a further beam producing on the measuring screen 10 a further luminous intensity distribution which is superimposed on the basic luminous intensity distribution produced by the basic beam. However, even when the measuring screen 10 is simultaneously illuminated by both beams, the maximum admissible luminous intensity levels laid down in statutory provisions for low beam are not exceeded at predetermined measuring points on the measuring screen 10. The characteristic of the additional luminous intensity distribution produced by the further beam on the measuring screen 10 differs from that of the basic luminous intensity distribution and is so selected that in certain traffic situations, weather conditions or operating conditions of the vehicle, e.g. driving speed, visibility for the driver is purposefully improved.

In a possible further operating state of the headlamp system, said system emits a further beam, which illuminates a region 18 of the measuring screen 10 shown in Figure 1 and produces an additional luminous intensity distribution there. The region 18 lies within the region 12 illuminated by the basic beam, just below the light/dark boundary 14, 16. In the region 18, because of the illumination by both beams, there is a powerful concentration of light in the centre of the measuring screen 10. The region 18 is likewise delimited at the top by the light/dark boundary 14, 16. By virtue of the further beam illuminating the region 18 in addition to the basic beam, visibility for the driver is improved in the remote region of the road, this being advantageous particularly at high driving speeds.

It is moreover possible for the headlamp system, in a further operating state, to emit a further beam which illuminates a region, designated 20 in Figure 1, of the measuring screen 10 and produces an additional luminous intensity distribution there. The region 20 overlaps the region 12 illuminated by

the basic beam but has a much greater horizontal spread and a smaller vertical spread than the region 12. Here, by virtue of the further beam, an additional illumination of the lateral edge regions of the measuring screen 10 is achieved. This corresponds to good illumination of the edges of the road lying in front of the vehicle, as a result of which visibility for the driver is improved particularly in fog or snow or on winding roads.

Given a further construction of the headlamp system, it is also possible for said system in a further operating state to emit a further beam, which illuminates a region, designated 22 in Figure 2, of the measuring screen 10 and produces an additional luminous intensity distribution there. Compared to the region 12 illuminated by the basic beam, the region 22 has a smaller horizontal spread but a greater vertical spread below the light/dark boundary 14, 16. Thus, by means of the further beam, the area of road lying directly in front of the vehicle is well lit so that visibility for the driver is improved, especially when driving in rain, i.e. on wet roads, or on dark road surfaces.

Finally, Figure 2 shows a further region 24 which is illuminated by a further beam, which is emitted by the headlamp system in a further operating state and produces an additional luminous intensity distribution. Compared to the region 12 illuminated by the basic beam, the region 24 has a slightly greater horizontal spread and a slightly smaller vertical spread.

The above-described further beams illuminating the regions 18, 20, 22 and 24 on the measuring screen 10 are to be regarded merely as examples, with it being additionally possible in further operating positions of the headlamp system for further beams to be emitted. The more beams producing different luminous intensity distributions which may be emitted by the headlamp system, the better visibility under different

conditions may be adapted to the needs of the driver. Depending on its construction, a headlamp system may emit the basic beam and, in addition, one of the beams described above. It is therefore possible, for example, given a simple construction of the headlamp system, for the beam illuminating the region 18 of the measuring screen 10 to be superimposed on the basic beam simply to improve visibility at a high driving speed. This is also possible with one of the further beams described above. Given a more elaborate construction of the headlamp system, it is possible for one or more further beams to be superimposed on the basic beam to improve visibility under different conditions.

There follows a description of several embodiments of headlamp systems, by means of which the various beams described above may be emitted.

Figure 3 shows a first embodiment of the headlamp system. Said headlamp system has two headlamp units 30, each composed of a plurality of headlamp sub-units 31. The headlamp sub-units 31 may be combined in a common housing 32 which has a light exit opening closed by a transparent cover sheet 33. In the embodiment, the headlamp sub-units are small-dimension projection headlamps, each having an ellipsoidal reflector 34, into which a light source 35 is inserted and disposed at a distance from which in light exit direction are a shield 36 and a lens 37 imaging the shield. Incandescent lamps or gas discharge lamps may be used as light sources 35. The headlamp sub-units 31 each emit different beams which, for example, illuminate the above-described regions 12 to 24 of the measuring screen 10. In the embodiment, five sub-units 31a to 31e are provided, with sub-unit 31a emitting the basic beam illuminating the region 12, the beam emitted by sub-unit 31b illuminating the region 18, the beam emitted by sub-unit 31c illuminating the region 20, the beam emitted by sub-unit 31d illuminating the region 22 and the beam emitted by sub-unit 31e illuminating the region 24. The sub-units 31a to e may be

operated independently of one another so that combinations of the sub-unit 31a emitting the basic beam and one or more of the sub-units 31b to 31e may be operated simultaneously. The headlamp sub-units 31a to e may take a different form to that described above and be reflection headlamps, i.e. without a shield or lens, in which case the beams are then produced by corresponding reflection of the light, which is emitted by the light source 35, by the reflector and/or optical elements on the cover sheet 33.

Figure 4 shows a second embodiment of the headlamp system, in which said system has two headlamp units 40 disposed on the front end of the vehicle. Said headlamp units 40 do not possess their own light source but are connected by light guides 41 to a central light generator 42. It is possible to provide a common light generator for both headlamp units 40, as shown in Figure 4, or to provide each headlamp unit 40 with its own light generator. The central light generator 42 is disposed spatially remote from the headlamp units 40, e.g. in the vehicle interior. The central light generator 42 has a reflector made up of a plurality of - in the embodiment, four - ellipsoidal parts 43 which have a common focal point F1, in which a light source 44 is disposed, and different second focal points F2, in each of which one end of a light guide 41 is disposed. By virtue of said construction of the reflector, the light emitted by the light source 44 is supplied almost completely into the light guides 41. An incandescent lamp or a gas discharge lamp may be used as light source 44. The headlamp units 40 are composed of a plurality of light distributor sub-units 45, by means of which the light exiting from the light guides 41 is influenced in order to form the different beams described above. To said end, each sub-unit 45 has a lens 46, through which the light exiting from the light guide 41 passes and is influenced in its direction to form the relevant beam. To enable selective emission of the different beams, the entry of light into each light guide 41 connected to one sub-unit 45 or the exit of light from each

light guide 41 may be selectively blocked and cleared by a screening device 47. The screening device 47 may be disposed, as shown in Figure 4, on the central light source 42 in which case, depending on whether or not said device is situated in the path of the rays of light reflected by the reflector, it then blocks or clears the entry of light into the relevant light guide 41. However, the screening device 47 may alternatively be disposed at any point between the end of the light guides, at which the light enters, and the end, at which the light exits in the headlamp unit 40. Finally, it is also possible for the screening device 47 to be disposed in the path of rays between the end of the light guides 41, at which the light exits, and the lens 46, or in the path of the rays of light exiting from the lens 46. An independent light source may possibly be provided for the headlamp sub-unit producing the basic beam, while the remaining headlamp sub-units are connected to the central light generator 42.

The use of the light guides 41 in the second embodiment offers particular advantages with regard to the possibility of achieving the luminous intensity distribution produced by the emitted beam. The light guide 41 comprises a plurality of individual light guide fibres 48 which may be arranged in any desired manner. Figure 5a shows the end of a light guide 41, into which light enters in the light generator 42. There, the light guide fibres 48 are so arranged that the light guide 41 has a circular cross-section, with, distributed over said cross-section, the luminous intensity distribution with the greatest luminous intensity being in the centre thereof, as shown in Figure 5b. Figure 6a shows the end of the light guide 41, from which light exits in the headlamp unit 40. As Fig.6b reveals, said end of the light guide 41 does not have a circular cross-section but a cross-section adapted to the luminous intensity distribution to be produced by the beam exiting therefrom after passage through the lens 46. The arrangement of the individual light guide fibres 48 shown in

Figure 6a produces, for example, the basic luminous intensity distribution which illuminates the region 12 of Figure 1.

Figure 7 shows a third embodiment of the headlamp system having two headlamp units 50, which are disposed on the front end of the vehicle and are, in principle, of an identical construction to the headlamp units 40 of the second embodiment. Each light distributor sub-unit 55 of the headlamp units 50 has a lens 56 for forming the beam and is connected by light guides 51 to a light generator 52 disposed remote from the headlamp unit 50, e.g. in the vehicle interior. Each light generator 52 has a reflector 53, inserted into which is a light source 54 which may be an incandescent lamp or a gas discharge lamp. The reflector 53 is ellipsoidal, with the light source 54 being disposed in its inner focal point and the end of the light guide 51 being disposed in its outer focal point so that the light emitted by the light source 54 is concentrated onto the end of the light guide 51. To enable selective production of the different beams, a screening device 57 corresponding to the screening device 47 is provided. The construction of the light guides 41 described for the second embodiment may also be used in the third embodiment.

In a fourth embodiment shown in Figure 8, the headlamp system has two headlamp units 60 disposed on the front end of the vehicle and each having a reflector 63, into which a light source 64 is inserted. Disposed in the path of the rays of light reflected by the reflector 63 are two transparent sheets 66, 67 which are provided with optical elements 68, with the sheet 67 being movable relative to the other sheet 66 at right angles to the light exit direction. By means of the optical elements 68 of the sheets 66, 67, the light passing through said sheets is deflected to form the beams described above. The optical elements 68 of the two sheets 66, 67 are so tuned to one another that, upon a shift of the movable sheet 67, the deflection of the light passing through is varied and so

different beams may be emitted. With said construction of the headlamp system, it is possible to vary in particular the spread of the beam, thereby enabling production of the beams illuminating the region 18 (light concentration) or 20 (wide lateral spread). In Figure 8, in the top part the sheet 67 is in a position, in which the light passing through is only slightly dispersed, i.e. the region 18 of the measuring screen 10 (see Figure 1) is illuminated. In the position of the sheet 67 shown in Figure 8 in the bottom part, the light passing through is dispersed so that the region 20 of the measuring screen 10 (see Figure 1) is illuminated.

Finally, Figure 9 shows a fifth embodiment of the headlamp system, in which said system likewise has two headlamp units 70 disposed on the front end of the vehicle. Each headlamp unit 70 has a reflector 73, into which a light source 74 is inserted. Disposed in the path of the rays of light reflected by the reflector 73 is a transparent sheet 76 provided with optical elements 78, by means of which the light reflected by the reflector 73 is influenced to form the desired beam. The sheet 76 is at least in sections provided with a screen 79 which has a variable light-transmitting capacity. The screen 79 may take the form of, for example, a coating applied onto the sheet 76, or a separate part disposed in the path of rays between the reflector 73 and the sheet 76. Variation of the light-transmitting capacity of the screen 79 may be effected under the influence of a voltage, in which case the screen 79 is made of an electrochromic material. By varying the light-transmitting capacity of the screen 79, individual beams may be purposefully emitted or shielded. The screen 79 may be connected to a voltage source 81 by a switch 80 which may be individually operated by the driver or by means of a control device described in more detail below. In order to emit or shield various beams, the screen 79 is subdivided into a plurality of regions which may be connected independently of one another to the voltage source 81.

In all of the embodiments of the headlamp system described above, the changeover of the headlamp system so that it emits further beams in addition to the basic beam may be effected by the driver as and when he needs them. Alternatively, however, a control device 90 may be provided, by means of which a cutting-in or shielding of the further beams is automatically effected as a function of various parameters. Figure 10 shows, in a very much simplified form, a vehicle having a headlamp system according to one of the constructions described above and the control device 90.

Thus, it is possible, for example, for the control device to receive and process information about the driving speed of the vehicle and, when the driving speed exceeds a predetermined minimum value, for there to be automatic cutting-in of the additional beam which illuminates the region, lying approximately in the centre of the measuring screen 10 and designated 18 in Figure 1, with a high luminous intensity.

The control device 90 may further be connected to one or more sensors 91 which detect the traffic situation in front of the vehicle. The term "traffic situation" is used collectively to refer to various parameters such as width of the road, brightness of the road surface and weather conditions, i.e. rain, fog, snow etc. In the control device 90, the signals of the sensors 91 are evaluated and, depending on the result of the evaluation, individual additional beams are cut in or shielded. Data relating to the additional beams required for various evaluation results are stored in the control device 90.

Claims

1. Headlamp system for vehicles, having at least one headlamp unit (30; 40; 50; 60; 70), which is disposed on the vehicle and in one operating state of the headlamp system emits a basic low beam which illuminates the road in front of the vehicle with a basic luminous intensity distribution, and wherein in at least one further operating state in addition to the basic beam at least one further beam may be cut in, which illuminates the road in front of the vehicle with a luminous intensity distribution differing from the basic luminous intensity distribution, characterized in that the basic luminous intensity distribution at least meets the statutory minimum requirements for low beam as regards luminous intensity and that, when the road is simultaneously illuminated by the basic beam and the at least one further beam, the legally permitted maximum luminous intensity for low beam is observed, with the at least one further beam being used to improve visibility for the driver under certain general conditions.

2. Headlamp system according to claim 1, characterized in that by means of the at least one further beam a powerful concentration of light is produced in the remote region of the road and in the middle region of the road in front of the vehicle.

3. Headlamp system according to claim 2, characterized in that a switchover of the headlamp system into the at least one further operating state for emitting the at least one further beam is effected when the travelling

speed of the vehicle has exceeded a predetermined minimum value.

4. Headlamp system according to one of claims 1 to 3, characterized in that the at least one further beam has a wide horizontal spread and the luminous intensity distribution produced by said beam has a horizontal top light/dark boundary.

5. Headlamp system according to one of claims 1 to 4, characterized in that by means of the at least one further beam the road lying in front of the vehicle is powerfully illuminated in the region just in front of the vehicle.

6. Headlamp system according to one of the preceding claims, characterized in that the at least one headlamp unit (30) comprises at least two headlamp sub-units (31), the basic beam and the at least one further beam being emitted by different headlamp sub-units.

7. Headlamp system according to claim 6, characterized in that the headlamp sub-units (31a-e) take the form of projection headlamps and each have a reflector (34), a light source (35) and, in the path of the rays of light reflected by the reflector (34), a shield (36) and a lens (37).

8. Headlamp system according to one of claims 1 to 5, characterized in that the at least one headlamp unit (40; 50) is subdivided into at least two light distributor sub-units (45; 55), each of which is connected by light guides (41; 51) to a light generator (42; 52) separated from the headlamp unit (40; 50).

9. Headlamp system according to claim 8, characterized in that the basic beam and the at least one further beam are

emitted by different light distributor sub-units (45; 55).

10. Headlamp system according to claim 8, characterized in that all of the light distributor sub-units (45) are connected to a common light generator (42).

11. Headlamp system according to claim 8 or 9, characterized in that a light distributor sub-unit (45), which emits the basic beam, is connected to a light generator (42) and that the at least one further light distributor sub-unit (45) is connected to a further light generator (42).

12. Headlamp system according to claim 8 or 9, characterized in that each light distributor sub-unit (55) is connected to its own light generator (52).

13. Headlamp system according to claim 12, characterized in that each light generator (52) has an ellipsoidal reflector (53), in whose one focal point a light source (54) is disposed and in whose other focal point one end of a light guide (51) is disposed.

14. Headlamp system according to claim 13, characterized in that the light generator (52) is a halogen cold-light mirror lamp.

15. Headlamp system according to one of claims 1 to 5, characterized in that the at least one headlamp unit (60) has, in the path of the rays of light emitted thereby, at least two transparent sheets (66, 67) provided with optical elements (68), the one sheet (67) being movable relative to the other sheet (66) and the optical elements (68) of both sheets (66, 67) being so tuned to one another that, upon a shift of the one sheet (67), the deflection of the light passing through the sheets (66,

67) is varied so as to cut in or shield the at least one further beam.

16. Headlamp system according to one of claims 1 to 5, characterized in that the at least one headlamp unit (70) has, disposed in the path of the rays of light emitted thereby, a transparent sheet (76) provided with optical elements (78), that disposed in the path of the rays of light in front of the sheet (76) is a screen (79) having a light-transmitting capacity which is variable at least in sections and that the at least one further beam may be cut in or shielded by varying the light-transmitting capacity of the screen (79).

17. Headlamp system according to claim 16, characterized in that the screen (79) is subdivided into a plurality of portions (80), whose light-transmitting capacity is variable independently of one another.

18. Headlamp system according to claim 16 or 17, characterized in that the light-transmitting capacity of the screen (79) is variable under the influence of a voltage.

19. Headlamp system according to one of the preceding claims, characterized in that a control device (90) is provided, which is connected to at least one sensor (91) detecting the traffic situation in front of the vehicle and in which the signals of the sensor (91) are evaluated and, dependent on said evaluation, the at least one further beam is cut in or shielded.

20. Headlamp system according to claim 19, characterized in that information about the operating state of the vehicle is also taken into consideration by the control device (90).

21. Headlamp system according to one of claims 1 to 18, characterized in that a cutting-in or shielding of the at least one further beam may be effected individually by the driver.

22. Any of the headlamp systems substantially as herein described with reference to the accompanying drawings.

Examiner's report to the Comptroller under Section 17
(The Search report) -18-

Application number
GB 9405174.5

Relevant Technical Fields

(i) UK Cl (Ed.L) F4R (RFN, RL)

(ii) Int Cl (Ed.5) B60Q 1/04

Search Examiner
S I AHMAD

Date of completion of Search
23.6.94

Databases (see below)
(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE: WPI

Documents considered relevant following a search in respect of Claims :-
1-22

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
	NONE	

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).