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(54) Title: REAR VISION SYSTEM WITH AUTOMATIC BLIND ZONE AND GLARE ELIMINATION FUNCTION

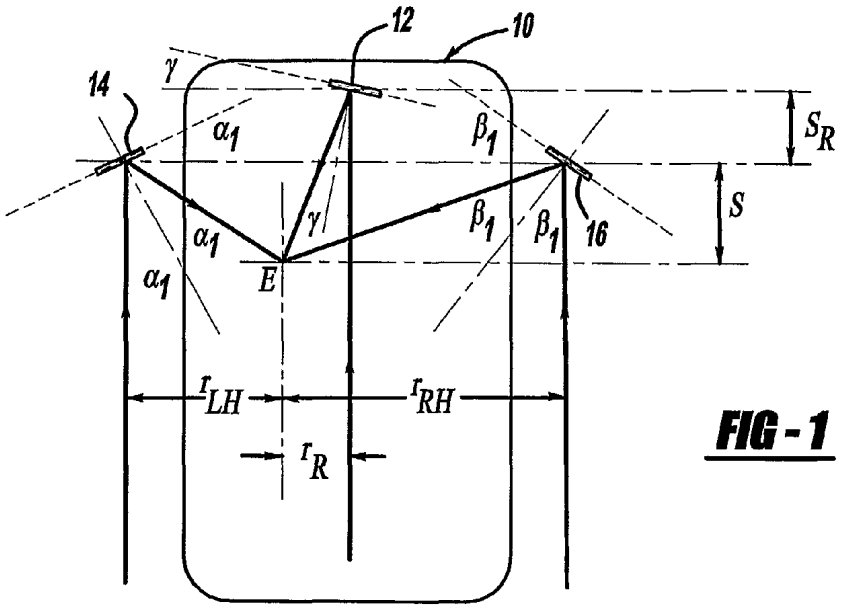

FIG - 1

(57) Abstract: A system for automatically changing the position of the side mirrors of a vehicle between a blind zone side mirror setting position and a blind zone/glare elimination (BGE) side mirror setting position in response to actuation of a switch. From the angle of the driver side mirror an equation can be used to determine the distance between the driver side mirror and the vehicle operator's eyes. Based on the angle of the driver side mirror, the system will know whether the driver set the driver side mirror for the blind zone setting method or the BGE setting method. If the vehicle operator actuates the switch, then the system will use the distance from the vehicle operator's eyes to the driver side mirror to set the angle for the other of the blind zone setting method or the BGE setting method based on predetermined equations.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/27997

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **B60R 1/06**(2006.01);**G02B 5/08**(2006.01)

USPC: 359/843,900
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 359/843, 900

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
East

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,694,259 A (BRANDIN) 02 December 1997 (02.12.1997), see entire document.	1 and 2
X	US 6,840,637 A (WANG) 11 January 2005 (11.01.2005), see entire document.	1 and 2

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/27997

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1 and 2

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 2, drawn to a method for positioning a driver side mirror and a passenger side mirror of a vehicle comprising determining a current angle of the driver side mirror; determining whether the driver side mirror is in a blind zone or a blind zone/glare elimination mirror position based on the angle; detecting a command for switching to the other of the blind zone mirror position or the blind zone/glare elimination mirror position; and moving both the driver side mirror and the passenger side mirror to the other of the blind zone mirror position or the blind zone/glare elimination mirror position in response to the command, wherein the determining the current angle of the driver side mirror includes using position sensors.

Group II, claim(s) 3, drawn to a method for positioning a driver side mirror and a passenger side mirror of a vehicle comprising determining a current angle of the driver side mirror; determining whether the driver side mirror is in a blind zone or a blind zone/glare elimination mirror position based on the angle; detecting a command for switching to the other of the blind zone mirror position or the blind zone/glare elimination mirror position; moving both the driver side mirror and the passenger side mirror to the other of the blind zone mirror position or the blind zone/glare elimination mirror position in response to the command and determining the positioning of a vehicle operator's eyes based on a setting angle of the driver side mirror and predetermined vehicle parameters.

Group III, claim(s) 4, drawn to a method for positioning a driver side mirror and a passenger side mirror of a vehicle comprising determining a current angle of the driver side mirror; determining whether the driver side mirror is in a blind zone or a blind zone/glare elimination mirror position based on the angle; detecting a command for switching to the other of the blind zone mirror position or the blind zone/glare elimination mirror position; and moving both the driver side mirror and the passenger side mirror to the other of the blind zone mirror position or the blind zone/glare elimination mirror position in response to the command, wherein moving the passenger side mirror includes automatically setting the angle of the passenger side mirror based on a setting angle of the driver side mirror.

Group IV, claim(s) 5, drawn to a method for positioning a driver side mirror and a passenger side mirror of a vehicle comprising determining a current angle of the driver side mirror; determining whether the driver side mirror is in a blind zone or a blind zone/glare elimination mirror position based on the angle; detecting a command for switching to the other of the blind zone mirror position or the blind zone/glare elimination mirror position; moving both the driver side mirror and the passenger side mirror to the other of the blind zone mirror position or the blind zone/glare elimination mirror position in response to the command and automatically setting the angle of an interior rear view mirror of the vehicle in response to a setting angle of the driver side mirror.

Group V, claim(s) 6-8, drawn to a method for positioning a driver side mirror and a passenger side mirror of a vehicle comprising determining a current angle of the driver side mirror; determining whether the driver side mirror is in a blind zone or a blind zone/glare elimination mirror position based on the angle; detecting a command for switching to the other of the blind zone mirror position or the blind zone/glare elimination mirror position; and moving both the driver side mirror and the passenger side mirror to the other of the blind zone mirror position or the blind zone/glare elimination mirror position in response to the command, wherein the detecting a command for switching includes receiving an input from a switch.

Group VI, claim(s) 9, drawn to a method for positioning a driver side mirror and a passenger side mirror of a vehicle comprising determining a current angle of the driver side mirror; determining whether the driver side mirror is in a blind zone or a blind zone/glare elimination mirror position based on the angle; detecting a command for switching to the other of the blind zone mirror position or the blind zone/glare elimination mirror position; and moving both the driver side mirror and the passenger side mirror to the other of the blind zone mirror position or the blind zone/glare elimination mirror position in response to the command, wherein the detecting a command for switching includes detecting a signal from an optical sensor associated with an auto dimmer of an interior rear view mirror of the vehicle.

Group VII, claim(s) 10-16, drawn to a method for positioning a driver side mirror and a passenger side mirror of a vehicle comprising determining a current angle of the driver side mirror; determining the position of a vehicle operators eyes based on the angle of the driver side mirror; determining whether the driver side mirror is in a blind zone or a blind zone/glare elimination mirror position based on the angle; detecting a command for switching to the other of the blind zone mirror position or the blind zone/glare elimination mirror position; and moving the driver side mirror to the other of the blind zone mirror position or the blind zone/glare elimination mirror position based on the position of the operators eyes in response to the command.

Group VIII, claim(s) 17-23, drawn to a mirror positioning system for a vehicle comprising a driver side mirror; a passenger side mirror; an interior rear view mirror; a switch for switching between a blind zone position and a blind zone/glare elimination mirror position; and a controller responsive to a mirror switching signal from the switch, wherein said controller determining a current angle of the driver side mirror, determining whether the driver side mirror is in a blind zone mirror position or the blind zone/glare elimination mirror position based on the angle and moving the driver side mirror to the other of the blind zone mirror position or the blind zone/glare elimination mirror position in response to the signal.

Claim 1 links Groups I-VI listed above. U.S. Patent 5,694,259 to Brandin is cited as evidence to show that the features of claim 1 lack novelty and/or inventive step and does not define a contribution over the prior art.

This International Searching Authority considers that the International application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated below:

The inventions listed as Groups I-VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: For each of Groups I-VIII above, each of the listed group has special technical features not required for the other listed groups. The special technical features exclusive to each group are listed above in the listing of the groups.