IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re *Inter Partes* Review of:	)
U.S. Patent No. 8,128,244	)
Issued: March 6, 2012	)
Application No.: 13/071,169	)

For: **Exterior Sideview Mirror System**

FILED VIA E2E

DECLARATION OF DR. JOSE SASIAN IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,128,244

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I. INTRODUCTION AND QUALIFICATIONS

1. I have been retained by SMR Automotive Systems USA Inc. ("SMR") to provide my opinion concerning the validity of U.S. Patent No. 8,128,244 (attached to the accompanying Petition and henceforth referred to as "the '244 patent") in support of SMR's Petition for *Inter Partes* Review of U.S. Patent No. 8,128,244.

2. I have extensive academic and industry experience with optical engineering. Specifically, I have over thirty years of academic and industry experience in the field of optical sciences and optical engineering in general, including optical instrumentation, optical design, and optical fabrication and testing.

3. I am currently a full-time, tenured Professor of Optical Sciences at the College of Optical Sciences at the University of Arizona in Tucson, Arizona, a position I have held since 2002. As a professor, I teach and perform research in the field of optical design. For example, I teach my students how to design lenses and mirrors and how to think about light so that they can design useful optical systems.

4. As part of my academic and research responsibilities I am frequently involved with the design, fabrication, and testing of optical devices. Prior to receiving tenure, I was an Associate Professor of Optical Sciences at the University of Arizona from 1995 to 2001. Prior to joining the University of Arizona faculty,

I was a member of the technical staff of AT&T Bell Laboratories from 1990 to 1995. From 1984 to 1987, I was a Research Assistant, and from 1988 to 1990, I was a Research Associate, in the Optical Sciences Center at the University of Arizona. From 1976 to 1984, I was an optician at the Institute of Astronomy at the University of Mexico.

5. I received a Bachelor of Science degree in Physics from the University of Mexico in 1982, a Master of Science degree in Optical Sciences from the University of Arizona in 1987, and a Ph.D. degree in Optical Sciences from the University of Arizona in 1988. My research areas include optical design, fabrication, and testing of optical instruments, astronomical optics, diffractive optics, opto-mechanical design, light in gemstones, lithography optics, and light propagation.

6. At the University of Arizona, I have taught the courses Lens Design OPTI 517 (1997-present), Introduction to Aberrations OPTI 518 (2005-present), Advanced Lens Design OPTI 595A (2008, 2012, 2017), Illumination Optics Seminar (1997-2000), Introduction to Opto-mechanics OPTI 690 (1998, 2001, 2003, 2004, 2005) and Optical Shop Practices OPTI 597A (1996-present). I teach students how to design mirrors, including their field of view specifications, how to grind, polish, and test aspheric mirrors, how to mount mirrors properly so that their physical integrity is preserved under a variety of loads, and how to align mirrors. I

have experience in flat, curved, and aspheric mirror fabrication and mounting, and in the chemical and vacuum deposition of reflective metals on substrates.

7. I have directed several theses and dissertations in the areas of lens and mirror design. I have lectured regarding my work, and have published, along with students and colleagues, over one hundred scientific papers in the area of optics. These include technical papers, patents, and thesis research done under my direction, related to lens and mirror design. For example, “Two-mirror telescope design with third-order coma insensitive to decenter misalignment,” “Double-curvature Surfaces in Mirror System Design,” "Four-mirror optical system for large telescopes," and "Flat-field, anastigmatic, four-mirror optical system for large telescopes."

8. As part of my research responsibilities at the University of Arizona, I am often involved in projects that have included automotive optics, and mirrors and prism in periscopic systems.

9. Since 1995, I have been a consultant and have provided to industry solutions to a variety of projects that include flat and curved mirrors and opto-mechanics design. I also have consulted in the area of plastic optics. I hold several patents and patent applications related to optical mirrors.

10. I have been a topical editor and reviewer for the peer-reviewed journal Applied Optics. I am a fellow of the International Society for Optics and Photonics

(SPIE), a fellow of the Optical Society of America (OSA), and a lifetime member of the Optical Society of India.

11. I have served as a co-chair for the conferences "Novel Optical Systems: Design and Optimization" (1997-2006), "Optical systems alignment, tolerancing, and verification" (2007-2017), and “International Optical Design Conference,” (2002). I have taught in Japan (2014, 2016, and 2017) the course: Advanced Lens Design: Art and Science.

12. I have been an editor of approximately 17 published conference proceedings from SPIE. I am the author of the book, "Introduction to Aberrations in Optical Imaging Systems," by Cambridge University Press, 2013. I am named as an inventor on approximately 12 U.S. patents.

13. My *curriculum vitae*, which includes a more detailed summary of my background, experience, and publications, is attached to the accompanying Petition.

II. SUMMARY OF MATERIALS REVIEWED AND CONSIDERED

14. The opinions contained in this Declaration are based on the documents I reviewed and my knowledge and professional judgment. In forming the opinions expressed in this Declaration, I reviewed the following documents:

Ex. No.	**Description**
1001	U.S. Patent No. 8,128,244 (the “’244 patent”)

1003	Curriculum Vitae of Jose Sasian
1008	U.S. Patent No. 7,934,843 (the "'843 patent")
1009	File History for U.S. Patent No. 7,934,843 (the "'843 FH")
1010	Second Amended Complaint, Magna Mirrors of America, Inc. v. Samvardhana Motherson Reflectec Group Holdings Ltd., et al., No. 1:17-CV-77 (W.D. Mich., Aug. 17, 2017) ("2d Am. Compl.")
1011	U.S. Patent Application Publication No. 2002/0072026 (the "'026 publication")
1012	WO 2001/44013 ("Henion")
1013	WO 2001/81956 ("Platzer")
1014	U.S. Patent Application No. 12/197,666 (the "'666 application")
1016	U.S. Patent No. 6,522,451 (the "'451 patent")
1017	U.S. Patent No. 6,717,712 (the "'712 patent")
1019	U.S. Patent Application No. 12/851,045 (the "'045 application")
1020	Computer-generated document comparison showing differences in the '045 and '666 applications
1032	JAMES MAXWELL, PLASTICS IN THE AUTOMOTIVE INDUSTRY 114 (Woodhead Publishing Limited 1994) ("Maxwell")
1033	N. G. MCCRUM, C. P. BUCKLEY, & C. B. BUCKNALL, PRINCIPLES OF POLYMER ENGINEERING (Oxford Science Publications 2d ed. 2011) (1997) ("Bucknall")
1034	U.S. Patent No. 5,721,646 ("Catlin")
1035	U.S. Patent No. 5,793,542 ("Kondo")
1037	Certified English Translation of French Republic Patent Application Publication No. 2,650,982 ("Silvestre")
1038	U.S. Patent No. 6,984,048 ("Yamabe")
1039	George Platzer, The Geometry of Automotive Rearview Mirrors - Why Blind Zones Exist and Strategies to Overcome Them, SAE Technical Paper 950601 (1995)

1040	National Highway Traffic Safety Administration, U.S. Dep't of Transportation, Doc. No. TP111V-00, Laboratory Test Procedure for FMVSS 111 – Rearview Mirrors (Other Than School Buses) (October 28, 1999)

15. My opinions are additionally guided by my appreciation of how a person of ordinary skill in the art would have understood the claims of the '244 patent at the relevant time. As discussed herein, in my opinion, a person of ordinary skill in the art would not have understood the claims of the '244 patent to be described in the '666 application. Nevertheless, because I understand that the '244 patent attempts to claim priority to a provisional application filed in 2003, I was also asked to consider a date of 2003 for the purpose of determining how a person or ordinary skill would have understood the claims. The choice of 2003 vs. a later date did not affect my analysis of the meaning of the claim terms.

III. LEVEL OF SKILL IN THE ART AND PERSPECTIVE APPLIED IN THIS DECLARATION

16. To analyze the level of skill in the art, I have considered the type of problems encountered in the art, prior art solutions, rapidity of innovation, sophistication of technology, and educational level of active workers in the field.

17. The '244 Patent field of invention relates to side-view mirror assemblies for vehicles that include a main mirror and an auxiliary mirror. The problem addressed in the '244 patent requires knowledge of geometrical optics,

optical elements including flat and curved mirrors, optical specifications, alignment of optics, fabrication of optics, mechanical design, and visual optics.

18. The relevant field, therefore, is comprised of people having an engineering degree or its equivalent. In particular, a person having ordinary skill in this art ("POSA") will have had at the time of invention a M.Sc. degree in Optics, Optical Engineering, or similar studies in a related field (e.g., Physics or Mechanical Engineering) with 2-3 years of experience in the optics/mechanical industry. This description is approximate, and a higher level of education or skill may make up for less experience, and vice-versa, *e.g.*, a B.S. in the above fields with 4-6 years of experience in the industry.

IV. BACKGROUND LAW

A. Written Description

19. I understand that a patent claim has sufficient written description support in a patent application when that application (including its as-filed claims) describes the claimed invention, with all of its limitations, in a manner that is understandable to one of ordinary skill in the art and therefore shows that the inventor actually invented the invention claimed. I also understand that describing an obvious variant of the claimed invention is not sufficient. The person of ordinary skill must conclude that the application itself (including its as-filed claims) fully

sets forth the claimed invention, by describing it in words, figures, diagrams, and the like.

B. Incorporation By Reference

20. With respect to incorporation by reference in the context of patents and patent applications, I understand that in order for a first document to validly incorporate material by reference from a second document, the first document must state with detailed particularity what material is incorporated and identify where in the second document that material may be found. I further understand that the Board evaluates the particularity required for sufficient incorporation by reference from the point of view of a POSA: material is validly incorporated if a POSA would understand a document to sufficiently incorporate subject matter by reference.

C. Understanding Of Legal Principles Relevant To Anticipation And Obviousness

21. I understand that a prior art reference can anticipate a patent claim when the prior art's disclosure renders the claim's disclosure not novel. I understand that in order to anticipate a patent claim, a prior art reference must teach every element of the claim, expressly or inherently. In analyzing anticipation, I understand that it is important to consider the scope of the claims, the level of skill in the relevant art, the scope and content of the prior art, and the differences between the prior art and the claims.

22. I understand that a prior art reference can render a patent claim obvious to one of ordinary skill in the art if the differences between the subject matter set forth in the patent claim and the prior art are such that the subject matter of the claim would have been obvious at the time the claimed invention was made. In analyzing obviousness, I understand that it is important to consider the scope of the claims, the level of skill in the relevant art, the scope and content of the prior art, the differences between the prior art and the claims, and any secondary considerations.

23. I understand that when the claimed subject matter involves combining pre-existing elements to yield no more than one would expect from such an arrangement, the combination would have been obvious. I also understand that in assessing whether a claim would have been obvious one must consider whether the claimed improvement is more than the predictable use of prior art elements according to their established functions. I understand that there need not be a precise teaching in the prior art directed to the specific subject matter of a claim because one can take account of the inferences and creative steps that a person of skill in the art would employ. I further understand that a person of ordinary skill is a person of ordinary creativity, not an automaton.

24. I understand that obviousness cannot be based on the hindsight combination of components selectively culled from the prior art. I understand that

in an obviousness analysis, neither the motivation nor the avowed purpose of the inventors controls the inquiry. Any need or problem known in the field at the time of the invention and addressed by the patent can provide a reason for combining elements. For example, I understand that it is important to consider whether there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent's claims. I understand that known techniques can have obvious uses beyond their primary purposes, and that in many cases a person of ordinary skill can fit the teachings of multiple pieces of prior art together like pieces of a puzzle.

25. I understand that, when there is a reason to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. I further understand that, if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense, which bears on whether the claim would have been obvious.

26. I understand that secondary considerations can include, for example, evidence of commercial success of the invention, evidence of a long-felt need that was solved by an invention, evidence that others copied an invention, or evidence that an invention achieved a surprising result. I further understand that such evidence must have a nexus, or causal relationship to the elements of a claim, in

order to be relevant. I am unaware of any such secondary considerations for the '244 patent.

V. SUMMARY OF OPINIONS

27. As I describe in further detail below, my opinion is that the claims of the '244 patent, all of which are directed to an automotive exterior rear sideview mirror assembly containing a flat primary mirror and a curved auxiliary mirror, lack written description support in the application to which the '244 patent claims priority – the '666 application. The '666 application is directed at a *single* mirror assembly rather than a two mirror assembly, but contains a brief statement of incorporation by reference relating to the '712 patent, which discloses a two mirror assembly. As I describe herein, a POSA would not have understood this brief statement to constitute incorporation by reference of the '712 patent's two-mirror assembly. Further, even if the '712 patent's two mirror assembly were fully incorporated by reference into the '666 application, a POSA would still not understand the '666 application to provide sufficient written description support for a two-mirror assembly.

28. It is also my opinion that certain claims of the '244 patent are anticipated or would have been rendered obvious by the prior art references disclosed herein. Specifically, it is my opinion that claims 1-26 are anticipated by

the ’026 publication and that claims 23-26 would have been rendered obvious by the combination of Henion, Platzer, and Catlin.

VI. THE ’244 PATENT

29. I have reviewed the ’244 patent. The ’244 patent is entitled to an effective filing date of August 5, 2010 or later because the claims of the ’244 patent do not have written description support in the previous patent applications in the ’244 patent’s family, as illustrated below.

A. The ’244 Patent’s Disclosure

30. The ’244 patent discloses a driver’s-side exterior sideview mirror system for automobiles. See, *e.g.*, ’244 patent at 1:66-3:35 & Fig. 16. The system is comprised of an assembly containing two separate mirrors – a flat (plano-reflective) primary mirror for viewing areas rearward and sideward of the driver, and an auxiliary curved or secondary mirror providing a wide-angled field of view (“FOV”) capable of viewing into the area not covered by the primary mirror (the driver’s “blind spot”). ’244 patent at 1:66-3:35 & Figs. 11, 13-16. The primary and secondary mirrors may be at an angle relative to each other to provide the driver a wider total field of view. *Id.* at 1:66-3:35 & Figs. 11, 14. This angling may be accomplished by placing the primary and secondary mirrors on separate, angled portions of a molded plastic backing plate. *Id*. at 1:66-3:35 & Figs. 3, 6.

B. Application For The ’843 Patent

31. I have considered the application for the ’843 patent (Appl. No. 12/851,045). I understand that the ’244 patent claims priority through the ’843 patent, which I understand to be important to understanding the ’244 patent’s priority date.

32. I understand that applicant filed the application for the ’843 patent (Appl. No. 12/851/045, the “’045 application”) on August 5, 2010. ’843 FH 1145. The application noted that it was a continuation of the application for the ’154 patent (the ’666 application). ’843 FH 1145.

33. I am informed that the specification of the ’712 patent was copied into the ’045 application.

34. I have reviewed a computer-generated comparison of the ’045 and ’666 applications that shows that the majority of the ’712 patent’s specification was copied into the ’045 application that is attached as an exhibit to the petition and listed in the table of materials reviewed.

35. This incorporation of the ’712 included the ’712 patent’s disclosure of an exterior automotive rearview mirror assembly comprised of two separate mirrors, one flat and one curved, whose combined FOVs provided a greater FOV to the driver of the automobile. ’712 patent at 3:2-5:6, Figs. 3, 5, 6, and 15.

36. This incorporated the disclosure that described an exterior sideview mirror system comprising two separate mirrors – the primary and auxiliary mirrors claimed by the ’843 patent.

VII. THE ’666 APPLICATION LACKS WRITTEN DESCRIPTION SUPPORT FOR THE INDEPENDENT CLAIMS OF THE ’244 PATENT

37. I understand that the ’244 patent claims priority through the ’154 patent. I understand that therefore, the application leading to the ’154 patent (App. No. 12/197,666 (the “’666 application”)) must provide written description support for the claims of the ’244 patent. Thus, throughout this discussion, I will also refer to the disclosures of the ’666 application, in addition to the patents where appropriate.

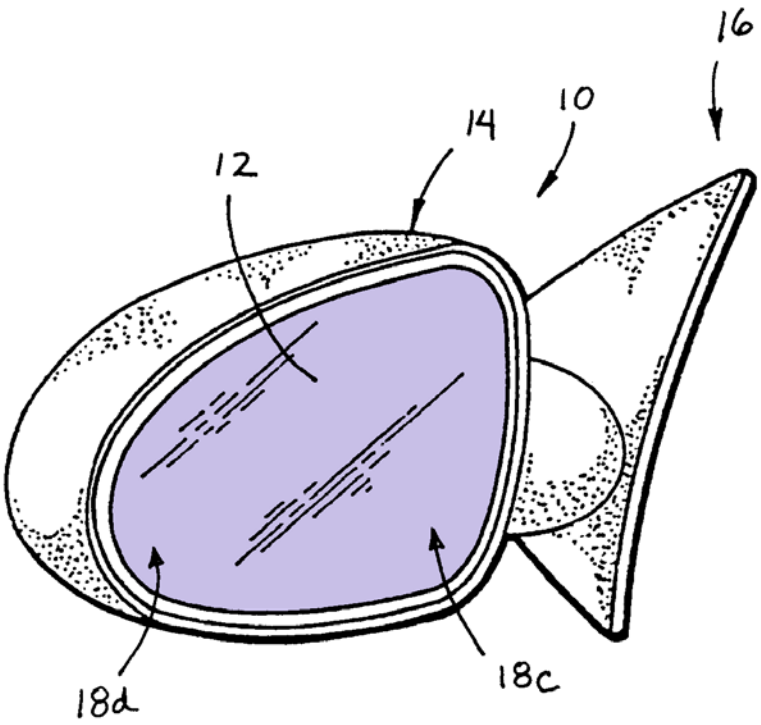
38. Reading the ’666 application, one of ordinary skill in the art would plainly recognize that the invention disclosed is drawn to mirror assemblies that use a single reflective element. There are many cues recognizable to one of ordinary skill in the art that leads to this conclusion. Specifically, the title of the application refers to a single “reflective element.” Additionally, one of ordinary skill in the art reading the ’666 application would expect and recognize that the Summary of the Invention section of the ’666 application (¶¶ 6-17) describes general aspects of the invention as a whole, while Description of the Preferred

Embodiments section (¶¶ 27-48) describes specific aspects of embodiments of the invention.

39. The first sentence of the Summary of the Invention states: "The present invention provides a molded wide angle or multi-radius substrate for a reflective element." '666 application at ¶ 6. Consistent with the title of the application, the first sentence of the Summary of the Invention refers to a single substrate. The second sentence of the Summary of the Invention further makes the point, describing that the single "molded substrate" "comprises a polymeric optical resin transparent material and has a curved exterior surface, which may have a less curved/flatter or substantially flat inboard portion or surface and a more curved outboard portion or surface." *Id.* Thus, the single molded substrate of the invention has two portions: one that is flatter, and one that is more curved at the outboard portion of the single substrate. *See also id.* at ¶ 10. These descriptions are regarding the "present invention." *Id.* at ¶ 6. By contrast, other paragraphs within the Summary of the Invention refer to only to an "aspect" or "application" of the present invention. *See id.* at ¶¶ 7-8, 12-13. But at the end of the Summary of the Invention, the applicant against notes that "the present invention provides a molded wide angle or multi-radius ***single substrate*** for a rearview mirror assembly . . . ." *Id.* at ¶ 16 (emphasis added). Thus, one of ordinary skill in the art reading

the ’666 application would recognize that the applicant’s invention was about mirror assemblies using a single reflective element.

40. The embodiments of the ’666 application are also consistent with this conclusion. For example, Figure 1, described as “a perspective view of an exterior rear view mirror assembly in accordance with ***the present invention***,” shows that reflective element 12 is of a single piece. ’666 application at ¶ 18 (emphasis added); Fig. 1. Figure 1 of the ’666 application is reproduced below.



41. Similarly, Figure 2, described as “a perspective view of a wide angle or multi-radius reflective element in accordance with ***the present invention***,” similarly shows “a ***single*** reflective element substrate 18.” *Id.* at ¶¶ 19, 27

(emphases added); Fig. 2. Figure 3 shows "a sectional view of the wide angle or multi-radius reflective element taken along the line III-III in FIG. 2." *Id.* at ¶ 20. Figures 2 and 3 are reproduced below, showing that a single element is used, as no discontinuities or breaks are visible.

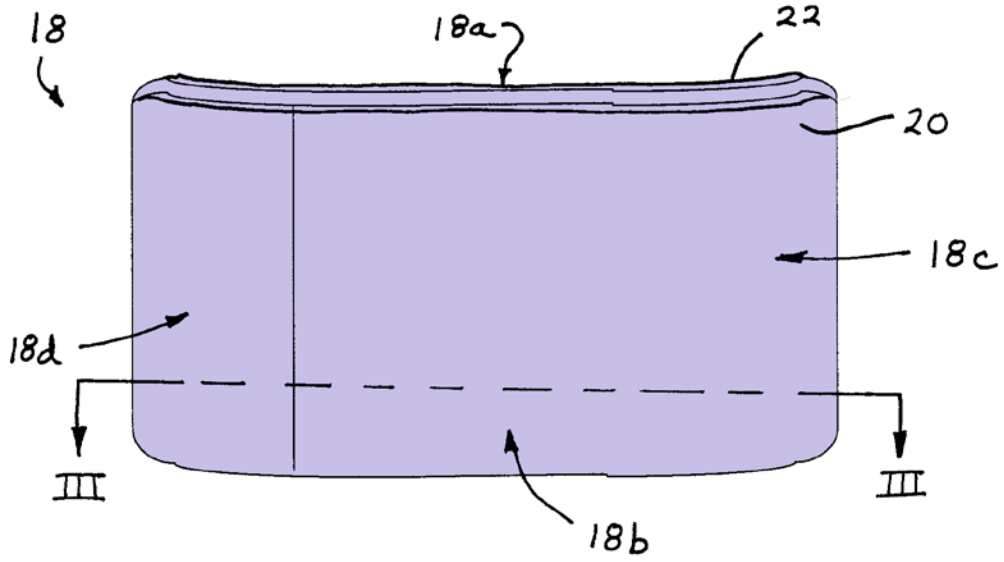
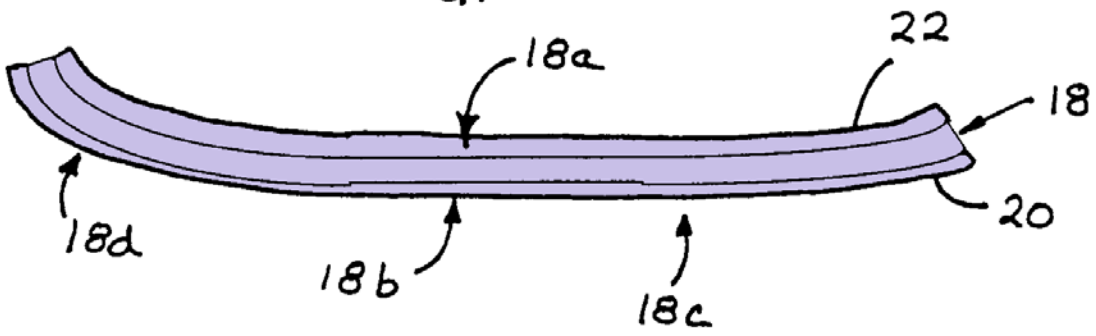


FIG. 2

FIG. 3



42. The remaining portions of the specification's text describe further aspects of this single substrate, and how to make it. "The substrate 18 of the

reflective element 12 of the present invention may be formed (such as by casting, extrusion or injection molding) of a polymeric optical resin material . . . ." '666 application at ¶ 29. These processes of forming the single substrate allow it to be "molded or formed to a desired shape having a wide angle or multi-radius surface," and therefore have the properties desired of the single substrate of the invention, such as its field of view. *Id.* at ¶¶ 29-31. As shown in Figure 3, surface 18c of the single substrate has "a substantially flat or slightly curved or less curved surface" with a fairly large radius of curvature. *Id.* at ¶ 30. By contrast, surface portion 18d of the single substrate "may be a more convex or curved surface, such that the substrate comprises a wide angle or multi-radius exterior substrate," with significantly smaller radii of curvature compared to surface 18c. *Id.* at ¶ 31. Thus, while surface 18c of the single substrate may provide a field of view between 10 and 20 degrees, the more curved surface 18d provides the single substrate with a combined field of view between 25 and 45 degrees. *Id.* at ¶¶ 30-31. While the specification notes that "[t]he substrate may be formed to have curves or shapes or to provide other field of views, without affecting the scope of the present invention," it does not suggest that the substrate not include surface portion 18d, or that surface portion 18d be formed on a separate substrate. *Id.* at ¶ 31. The exterior surface of the single substrate may be coated or covered with a

substantially transparent functional film for anti-abrasion and an ultrathin glass film. *See id.* at ¶ 32.

43. Nowhere in the specification's text is there any mention or suggestion that the invention is about anything other than mirror assemblies using a single reflective element. Indeed, when concluding the specification, the applicant further confirmed this. Paragraph 47 states that "***the present invention*** provides a wide angle or multi-radius ***single*** substrate or reflective ***element*** which may provide an enhanced field of view for an interior or exterior rearview mirror assembly." *Id.* at ¶ 47 (emphases added). It refers to the "single element" a few times in this paragraph, and states that "[t]he ***present invention*** thus provides a ***single*** element wide angle or multi-radius substrate which has enhanced scratch resistance." *Id.* (emphases added). Thus, a person of ordinary skill in the art, reading the Description of Preferred Embodiments section would similarly conclude that the invention is drawn to mirror assemblies using a single reflective element, because that is precisely what the applicant said.

44. The claims filed with the '666 application similarly confirm this. Claim 1 is for a method for forming a reflective element substrate, and ultimately forms two or more of said substrates. But claim 10 confirms that when a mirror assembly is formed, only "one of said two or more mirror substrates" is used. Thus, the title, the Summary of the Invention, the Description of the Preferred

Embodiments, and the claims of the ’666 application would lead one of ordinary skill in the art to conclude that the invention is for mirror assemblies using a single reflective element.

45. The ’666 application further describes its reflective element as a single, unitary piece of reflective material. *See, e.g.*, ’666 Appl. ¶ 16 (“[T]he present invention provides a molded wide angle or multi-radius single substrate for a rearview mirror assembly which has an anti-abrasion or anti-scratch film or layer applied to the curved, wide angle or multi-radius exterior surface of the substrate.”); ¶ 47 (“[T]he present invention provides a wide angle or multi-radius single substrate or reflective element which may provide an enhanced field of view for an interior or exterior rearview mirror assembly.”). The application refers only to “a” reflective element. ’666 Appl. ¶ 6 (“The present invention provides a molded wide angle or multi-radius substrate for a reflective element.”).

46. The other figures in the ’666 application likewise demonstrate only a single reflective element, rather than the two separate reflective elements of the ’712 application

A. A POSA Would Not Understand The ’843 Patent Family To Incorporate With Particularity The Two-Mirror Assembly Of The ’712 And ’451 Patent Family

47. The ’666 application purports to incorporate at least some portions of approximately 100 separate references. For some references, the ’666

application states that the reference is "incorporated by reference in ***its entirety***." '666 application at ¶¶ 1, 45, 46 (emphasis added). Thus, one of skill in the art would recognize these as an attempt to incorporate the entire disclosure of those references into the '666 application's specification. Other than those instances, there is no attempt to incorporate an entire reference. *See id.* at ¶¶ 3, 28, 29, 32, 34, 43, 44. This contrast in language would lead one of skill in the art to look to what particular information is sought to be incorporated from each reference into the '666 application's specification in each such separate instance.

48. Paragraph 28 of the '666 application states:

> Reflective element 12 may comprise an aspheric or multi-radius or wide angle single element reflective element substrate. The reflective element 12 may provide a field of view similar to the plano-auxiliary reflective element assembly disclosed in U.S. Pat. Nos. 6,522,451 and 6,717,712, where are hereby incorporated herein by reference.

'666 application at ¶ 28. First, consistent with the rest of the specification, the specification notes that the "single element" may be aspheric, multi-radius, or wide angle. The second sentence says that this single element 12 "may provide a ***field of view*** similar to the plano-auxiliary reflective ***assembly***" disclosed in two other patents. *Id.* (emphases added). One of skill in the art reading this would recognize that applicant has identified with particularity that the field of view of the plano-auxiliary assembly of these other patents is the relevant portion incorporated by

reference. That is all that is referenced, and one of skill in the art may be interested in a performance comparison between the single substrate and prior art assemblies using two reflective substrates. Essentially, this passage says that the single reflective substrate of the invention can provide similar field of view characteristics as prior art assemblies using two reflective elements. While the passage does not point to any specific passages from these patents, one of skill in the art reviewing these two patents would easily find the relevant disclosures that are incorporated. Specifically, one of skill in the art would pick out column 8, lines 4-14 of U.S. Pat. No. 6,522,451 (the "'451 patent") and the identical disclosure at column 7, line 66 to column 8, line 8 of U.S. Pat. No. 6,717,712 (the "'712 patent"), because these portions describe the characteristics of the field of view of the assemblies of the two patents. Specifically, this portion states:

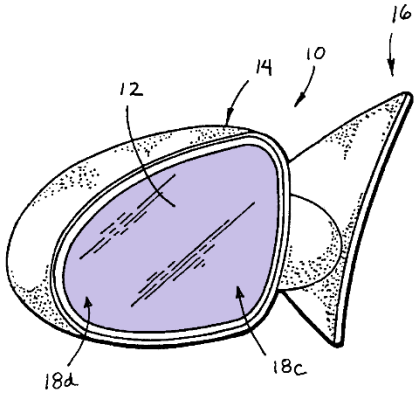
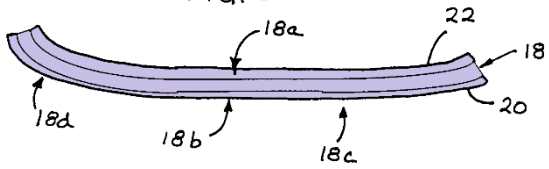
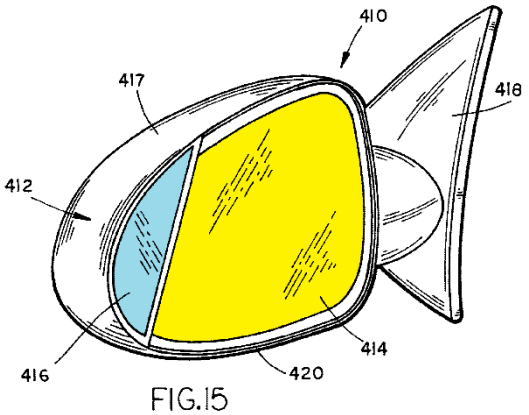
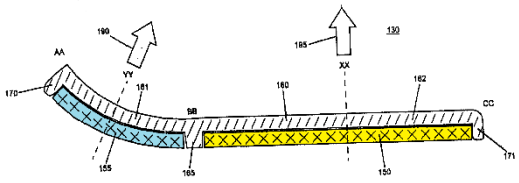
> The total field of view rearwardly of the automobile of the plano-auxiliary reflective element assembly (which is a combination of the field of view of the plano reflective element and of the auxiliary reflective element) preferably generally subtends an angle of at least about 20 degrees (and more preferably, generally subtends an angle of at least about 25 degrees and most preferably, generally subtends an angle of at least about 30 degrees) with respect to the side of an automobile to which is attached an exterior sideview mirror assembly equipped with the plano-auxiliary reflective element assembly.

'451 patent at 8:4-14; *see also* '451 patent at 16:44-54; '712 patent at 16:37-47, 20:28-21:11. While other references to field of view are contained throughout these two patents, one of skill in the art would recognize that the '666 application is comparing the field of view of the single substrate of the '666 application with the field of view of the two-substrate plano-auxiliary assemblies of these other two patents. These other references to field of view are general descriptions of a "rearward field of view," which have no particular importance in paragraph 28 because any such mirror practically mounted would have a rearward field of view. That paragraph 28 is meant to be a performance comparison of field-of-view characteristics is bolstered by the fact that just a couple of paragraphs later, the '666 application provides field of view angles for the single substrate of its invention. *See* '666 application at ¶¶ 30-31. These angles are similar to those for fields of view in the '451 and '721 patents. *See* '666 application at ¶¶ 30-31. Thus, one of ordinary skill in the art reading the '666 application would understand only the above-cited portions of these other two patents to be incorporated by reference into the '666 application. This is also true because the '666 application does not refer to the "entirety" of the disclosures of these patents, as it does in other instances.

49. A POSA would also have understood the statement that the '451 and '712 patents "are hereby incorporated herein by reference" to not be directed to the

two-mirror setup of the ’712/’451 patents when fully read in context. To further explain, and as I discussed above, a POSA would find that the ’666 application is directed to a single element reflective substrate with varying curvature. *See also* ’666 Appl. ¶¶ 6, 16, 18, 27-31, 47, Figs. 1-3. As I discussed above, a POSA would find the ’712 and ’451 patents directed to two separate reflective elements, a first plano mirror and a second reflective mirror, in a single assembly. ’712 patent at 5:20-28, 10:56-11:4, 21:27-35; 21:42-48, 21:51-63 & Figs. 6, 15.

50. The structural difference between the inventions in the ‘666 application and in the ‘712 patent is illustrated by comparing the below figures:

’666 application, Figs. 1 and 3	**’712 patent, Figs. 6 and 15**
 FIG. 3 	 FIG.15  Figure 6

51. A POSA viewing these images, as well as the accompanying written description in the ’666 application and the ’712 patent, would have concluded that the two patent families had a straightforward but fundamental structural difference. The ’666 application exclusively discloses a single mirror element that is partially curved at one portion and more curved at another portion, that provides a wide-angle field of view. The ’712 patent discloses a system that, instead of using a single mirror with areas of differing curvature, uses two mirrors angled relative to one another and with differing degrees of curvature to provide a wide-angle field of view.

52. Thus, a POSA reading that the field of view of the ’666 application’s single-mirror invention could have the same field of view as the ’712/’451 patents’ dual-mirror invention, which was “incorporated herein by reference,” would not have thought that this single line of the ’666 application was attempting to introduce a dual-mirror system. ’666 appl. ¶ 28. The entire remaining disclosure of the ’666 application is directed to the single-mirror system mentioned earlier in the same sentence. Instead of understanding that the incorporation by reference sought to incorporate a wholly different system, a POSA would have understood that the incorporation language *distinguished* the ’712/’451 patents’ “plano-auxiliary reflective element assembly” from the “single element reflective element

substrate" while noting that the fields of view of these two structurally distinct system could be the same. *Id.*

53. A POSA would have understood the '666 application and the '712/'451 family reach the same result – a wide-angle field of view – via the differing structural approaches discussed above. The '666 application states that "[t]he present invention provides a molded wide angle or multi-radius substrate for a reflective element." '666 application ¶ 6. Similarly, the '712 patent states that its two mirrors "together provide an increased field of view for the exterior side mirror assembly." '712 patent at 3:6-8. A POSA reading this language would understand these patent families to share a common purpose – an increased/wider rearward field of view for the driver. A POSA would thus understand the incorporation by reference language of the '666 application, which refers to the "field of view similar to the plano-auxiliary reflective element assembly" of the '712/'451, to be directed at this point of commonality between the patent families, rather than to incorporating the two distinct and structurally incompatible approaches I described above. In my opinion, a POSA would have understood the purported invention of the '666 application to be a single reflective element covering a wide field of view.

B. A POSA Would Not Understand The '666 Application To Support The '843 Patent's Claims Even If The '451 And '712 Patents Were Fully Incorporated By Reference

54. Were it to be determined that, despite the clear choice to not do so by the applicant, the entirety of the '451 and '712 patents are incorporated by reference into the '666 application, one of ordinary skill in the art would still not understand the application as describing an invention of a mirror assembly having two separate reflective elements.

55. As detailed above, the '666 application makes it very clear to one of ordinary skill in the art that the invention is drawn to mirror assemblies that use a single reflective element. This is seen in the title, Summary of the Invention, the Description of the Preferred Embodiments, and the claims of the '666 application. The description of the plano-auxiliary reflective element assembly of the '451 and '712 patents makes clear that there are two separate reflective elements. Because the '712 patent is a continuation-in-part of the '451 patent, my discussion regarding what is disclosed will refer primarily to the '712 patent, but it should be understood that the '451 patent has the same disclosure as the '712 patent with the exception of the portions added by the continuation-in-part application of the '712 patent.

56. The title of the '712 patent (and the '451 patent) is "Exterior Mirror Plano-Auxiliary Reflective Element Assembly," the word "assembly" making clear that it will have multiple component parts. The Abstract indicates that "[t]he

reflective element assembly includes a first reflective element and a second reflective element." '712 patent at Abstract. The '451 patent is consistent, noting that the plano-multiradius reflective element includes "a plano reflective element which has a rearward of view" and a "multiradius portion with a rearward field of view." '451 patent at Abstract. Thus, upon even an initial inspection of the '451 and '712 patents, one of ordinary skill in the art would immediately recognize that they teach a mirror structure that is different from that disclosed in the '666 application.

57. The Summary of the Invention of the '712 patent similarly states that "[t]he reflective element assembly includes a first reflective element and a second reflective element." '712 patent at 3:4-6. The Summary of the Invention of the '451 patent also describes that "[t]his invention provides a plano reflective element with unit magnification and an auxiliary reflector element for use in an exterior sideview mirror assembly on an automobile." '451 patent at 3:25-27. Thus, both patents make clear in the section to which one of ordinary skill in the art would look for characterizations of their inventions as a whole, that two separate reflective elements are used. At no time do either the '451 patent or '712 patent suggest a single reflective substrate to be used for the two separate functions of the two separate reflective elements they describe. The Detailed Description of the Preferred Embodiments section is also consistent. For example, this section

describes that the assembly "comprises a plano element 50 ***and a separate*** multiradius element 55." '712 patent at 6:38-40 (emphasis added); *see also id.* at 6:41-45, 8:57-65, 9:18-20, 10:57-60, 13:24-27, 16:10-15, 16:50-53, 21:29-35, 21:67-22:2 (all indicating "separate"). The separate nature of these two reflective elements is plainly shown in the figures as well, some of which (Figs. 15, 7, 3, and 6) are reproduced below. Figure 15 shows one reflective element designated 414 and a separate one designated 416. *See* '712 patent at 21:51-55. Figure 7 shows one reflective element designated 250 and a separate one designated 255. *See id.* at 16:9-15. Figure 3 shows one reflective element designated 50 and a separate one designated 55, clearly separated by element 65. *See id.* at 6:38-40. Figure 6 shows one reflective element designated 150 and a separate one designated 155, clearly separated by element 165. *See id.* at 10:61-11:4.

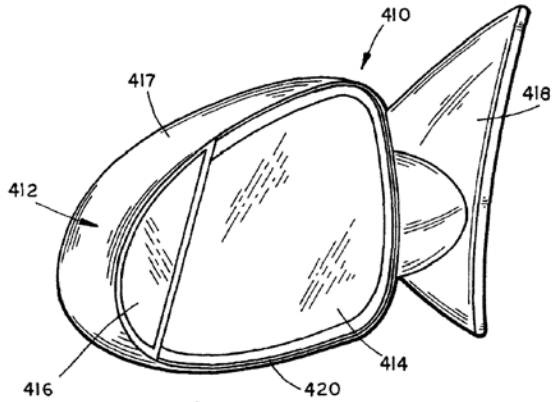


FIG.15

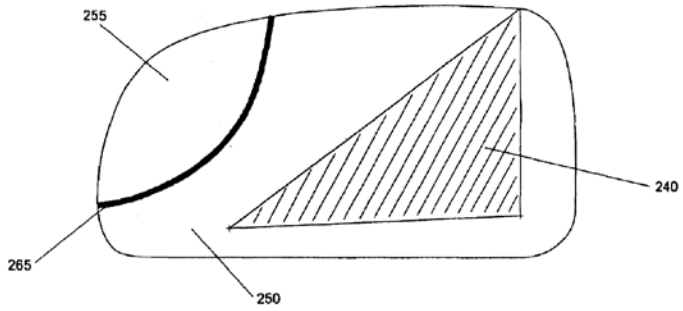
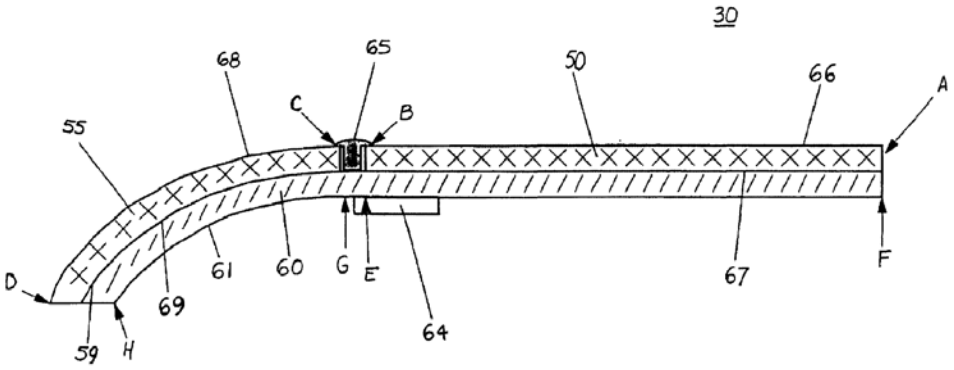
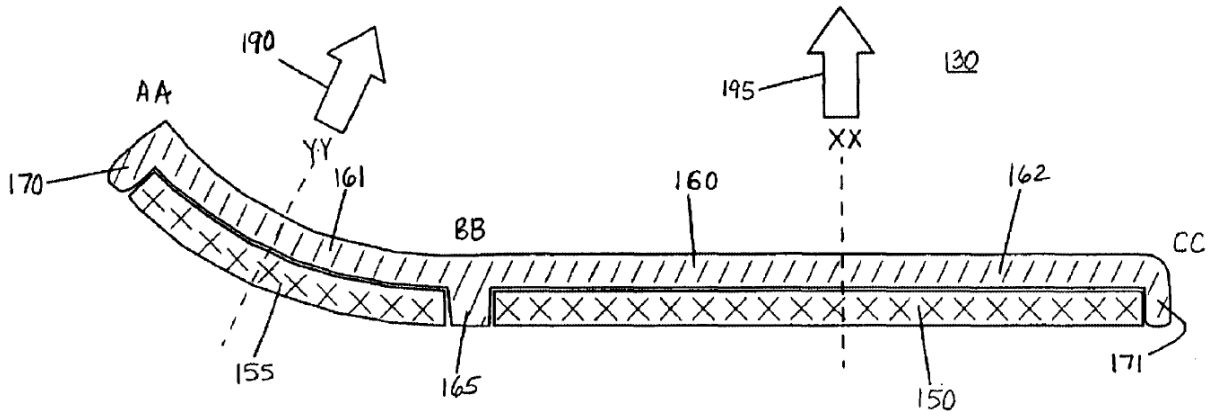
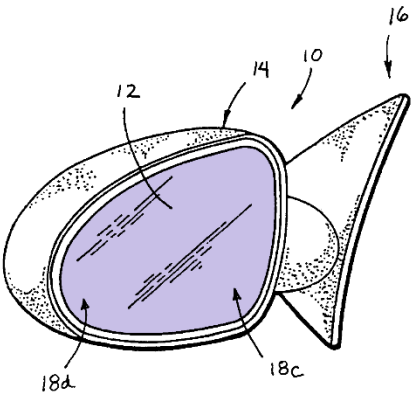
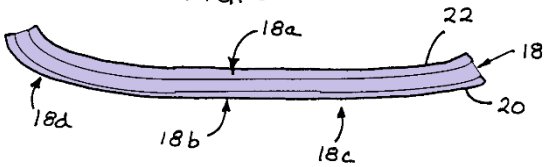
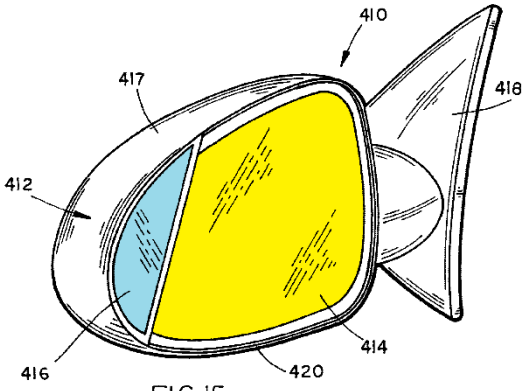
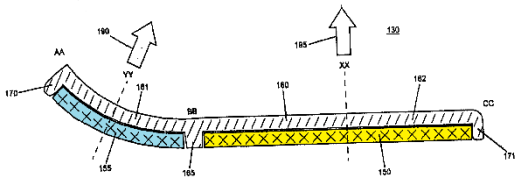


Figure 7





58. The differences between the ’666 application and the ’451 and ’712 patents are summarized below.

’666 application, Figs. 1 and 3	’712 patent, Figs. 6 and 15
 FIG. 3 	 FIG.15  Figure 6

59. While both the ’666 application and the ’451 and ’712 patents discuss an automobile mirror assembly, the approaches diverge enough that one of

ordinary skill in the art would not think that the invention described in the '666 application is the invention of the '451 and '712 patents. For example, the '451 and '712 patents refer to using two separate glass substrates, coated with metal reflector material. *See* '712 patent at 7:5-17, 8:9-21. The multiradius substrate is preferably curved or bent glass. *See id.* at 7:40-48. The '451 and '712 patents also stress that the thickness of their two separate substrates should be "substantially the same" "so that a driver can readily view images in either or both element." *Id.* at 8:29-33. Moreover, there is no description in the '451 and '712 patents as to how to make either of these separate substrates. By contrast, the '666 application describes that because the single substrate can be "injection molded from an optical resin, the substrate may be molded or formed to a desired shape having a wide angle or multi-radius surface, which is typically challenging to accomplish with glass sheets." '666 application at ¶ 29.

60. Because of these divergent approaches, one of ordinary skill in the art would not understand the application of the '666 application to be describing a two-element mirror assembly that is so contrary to what is disclosed in the text of the specification itself. Thus, one of skill in the art would not think that the bulk of these descriptions in the '451 and '712 patents were related to the invention clearly emphasized in the '666 application, and would not think that the applicant

of the ’666 application was describing as his invention a mirror with two separate reflective elements.

61. Such a conclusion is consistent with how one of skill in the art would view the rest of the ’666 application and approximately one hundred references purportedly incorporated by reference.

62. The inventor was explicit when indicating what materials purportedly incorporated by reference could be part of the invention. For example, in Paragraph 29, the ’666 application states that the substrate “of the present invention” may be formed from a number of different materials, including the resin described in “U.S. pat. Application, Ser. No. 09/946,228.” ’666 application at ¶ 29. Thus, one of ordinary skill in the art may expect to see a claim specifically using this material for the substrate, as that is all that the paragraph suggests was part of the invention. As another example, in Paragraph 32, the ’666 application states that the “[t]he ultrathin glass film or layer or sheet 20 provides a flexible glass film which can be conformed to the exterior surface of the molded substrate (for example, such as described in U.S. Pat. No. 5,085,907, which is hereby incorporated herein by reference) after the substrate is molded.” *Id.* at ¶ 32. One of ordinary skill in the art may expect to see a claim specifically using the material disclosed in that patent, as the specification suggests the invention encompassed using such a material. As another example, in Paragraph 34, the ’666 application

states that the "[r]eflective film 22 may comprise a polymeric reflective film, such as an all polymer-thin-film multilayer, high reflective mirror film, such as a multilayer, non-metallic reflective film which may comprise multiple coextrusion of many plastic layers to form a highly reflective mirror film, such as described in U.S. Pat. Nos. 3,773,882; 3,884,606; and 3,5759,647, which are hereby incorporated herein by reference." *Id.* at ¶ 34. Again, one of ordinary skill in the art may expect to see a claim specifically using reflective films of the type disclosed in these patents.

63. As another example, in Paragraph 34, the '666 application states that the "a durable metallized polymeric mirror layer can be used, such as described in U.S. Pat. No. 5,361,172, which is hereby incorporated herein by reference." *Id.* at ¶ 34. Again, one of ordinary skill in the art may expect to see a claim specifically using such a polymeric layer. As another example, in Paragraph 43, the '666 application states that "the interior or exterior rearview mirror assembly of the present invention may comprise an electrochromic mirror, such as an electrochromic mirror assembly and electrochromic element utilizing principles disclosed in commonly assigned [list of 19 patents], which are hereby incorporated herein by reference, and/or as disclosed in the following [3 publications], which are hereby incorporated by reference herein." *Id.* at ¶ 43. Again, one of ordinary skill in the art may expect to see a claim specifically to an electrochromic mirror

or elements because the specification expressly states that the "assembly of the present invention" may be so constructed. *Id.*

64. As another example, in Paragraph 43, the '666 application states that the "mirror assembly . . . may include an accessory module or may be mounted to an accessory module, such as an accessory module of the types disclosed in [U.S. Pat. No. 6,824,281], which is hereby incorporated herein by reference." *Id.* at ¶ 43. Again, one of ordinary skill in the art may expect to see a claim specifically including such an accessory module. As another example, in Paragraph 44, the '666 application states that "the mirror assembly may include one or more displays for displaying information to a driver of the vehicle at or through the reflective element of the mirror assembly. For example, the mirror assembly may include one or more displays of the types described in [list of 17 patents and applications], which are all hereby incorporated herein by reference, without affecting the scope of the present invention." *Id.* at ¶ 44. Again, one of ordinary skill in the art may expect to see claims specifically including various types of display information being presentable on the single substrate mirror assembly of the invention. As another example, in Paragraph 45, the '666 application states that "the mirror assembly may include or be associated with electronic accessories, such as, for example, [listing various items such as GPS antennas, blind spot detection systems, etc. described in 50 patents and applications] hereby incorporated herein by

reference in their entireties)." *Id.* at ¶ 45. Again, one of ordinary skill in the art may expect to see claims specifically including association of the single substrate mirror assembly with other such systems and accessories.

65. These incorporation disclosures are complementary to the invention disclosed, and not a wholesale change of the described structure. Furthermore, reading these paragraphs, one of skill in the art would recognize these as complementary, or additional features that do not take away from or change the character of the disclosed invention of a single substrate reflective element, and would not expect details of that invention to be located within this multitude of references. Thus, one of ordinary skill in the art, when reading the purported incorporation of the '451 and '712 patents, which make no indication that the invention could be used with anything disclosed there, would not understand that the invention included those teachings.

66. Contrary to what one of ordinary skill in the art would understand the invention to be, claim 1, and every other claim since each claim depends from claim 1 or other claims that depend from claim 1, is instead directed toward "[a]n exterior sideview mirror system" in which there is "a plano reflective element having unit magnification ***and a separate*** auxiliary reflective element having a curvature." '843 patent at 28:4-9 (emphasis added). One of skill in the art reading the specification of the '666 application, regardless of whether the '451 and '712

are incorporated into the ’666 application, would not understand the invention to include using two separate reflective elements.

67. The limitation in the claims that is described in the ’666 application’s written disclosure, but not the ’451 or ’712, is that last portion of claim 1 of the ’843 that reads “(b) a polymeric substrate having a thin glass element applied to a surface thereof and with an opposing surface thereof having a reflecting layer applied thereto.” ’843 patent at 29:13-16. The claim may be practiced without this feature, however, because that limitation is optional—only *one of* options (a) and (b) need be present as claim is written:

> wherein at least one of said plano reflective element and said auxiliary reflective element comprises *one of* (a) a glass substrate having a surface coated with a metallic reflector coating and (b) a polymeric substrate having a thin glass element applied to a surface thereof and with an opposing surface thereof having a reflecting layer applied thereto.

68. Furthermore, there is no written description of a mirror assembly using two separate reflective elements, one of which is made using the recited “polymeric substrate having a thin glass element applied to a surface thereof and with an opposing surface thereof having a reflecting layer applied thereto.” That is described only in the ’666 application and is not described as being part of a two-element mirror, even assuming the entire disclosure of the ’451 and ’712 patents

were physically incorporated into the ’666 application’s disclosure (as is the case with the patent-at-issue). The combined written description describes each of the parts of claim 1, but never combines the ’666 application’s “thin glass” features with the two-element mirror assembly. While it might have been obvious to use the ’666 patent’s thin-glass reflective element as the main or auxiliary element in the ’712 patent, for example, that is not described. I understand the written description requirement is not met for an obvious variation on a patent’s disclosure when that obvious variation is not explicitly described.

VIII. CLAIM CONSTRUCTION

69. I understand that in this proceeding, a patent claim receives the broadest reasonable construction in light of the specification of the patent in which it appears. I also understand that in this proceeding, any claim term that is not construed should be given its plain and ordinary meaning under the broadest reasonable construction. In addition, I am informed that the “broadest reasonable construction” standard applicable to this proceeding is not the same as the claim construction standard applied in district court litigation.

A. “side-by-side”

70. The challenged claims state the requirement that the primary and secondary mirrors be mounted adjacently within the overall mirror assembly in a “side-by-side” relationship. *See, e.g.*, ’244 patent at claim 1. I have not been asked

to construe this term, but I have been asked to assume a construction that encompasses Magna's litigation position. Specifically, I understand that Magna has asserted in litigation that the recited "side-by-side" relationship is met by a mirror assembly in which the secondary mirror is placed at the corner of the primary mirror, as depicted below from one of the mirrors accused by Magna in litigation:

Magna 2d. Am. Compl. 19.

71. Although I have been informed that Magna is taking the position that the term "side-by-side" encompasses a primary/secondary mirror orientation wherein the mirrors are adjacent along two edges, including the corner arrangement depicted above, I have also been asked to analyze the patent under a narrower construction, where the mirrors must be "side-by-side" as shown below, and one is not in the corner of the other as above:

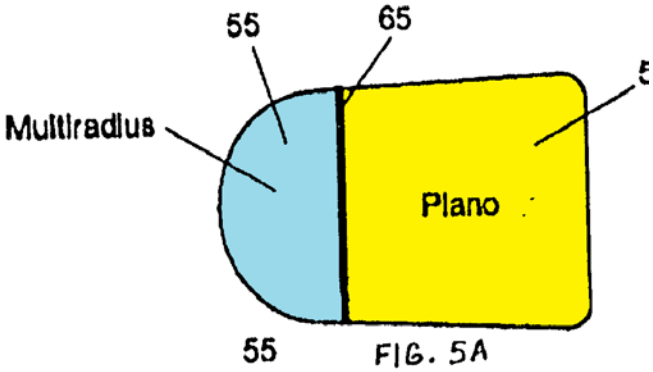


FIG. 5A

IX. THE PRIOR ART AND BACKGROUND EVIDENCE

A. Prior Art Relied Upon For Anticipation

1. U.S. Patent Application Publication No. 2002/0072026 (the "'026 publication")

72. The '026 publication describes automotive sideview mirror assemblies containing separate primary plano-reflective mirror elements and auxiliary curved secondary reflective mirror elements that provide a wide-area rearward field of view to a driver. '026 publication at Abstract, ¶ 9. In one embodiment, claimed in the '244 patent, those mirrors are mounted adjacently in a backing plate containing portions adapted to fit the flat primary and curved auxiliary mirrors. '026 publication ¶¶ 42-61 & Figs. 3, 6, 7. The '026 publication also describes two other embodiments: the planar mirror is mounted in a first bezel portion (¶¶ 62-67 & Figs. 8-9) and the auxiliary mirror is separately mounted in a bezel (¶¶ 68-71 & Figs. 8-9).

B. Prior Art Relied Upon For Obviousness Combinations

73. In this section, I provide an overview of the three prior art references relied upon in the obviousness combinations detailed herein.

1. International Pub. No. WO 2001/44013 ("Henion")

74. Henion teaches a two-mirror rearview mirror system containing a flat primary mirror and a curved auxiliary mirror. As in the '244 patent, the curved mirror provides a wider field of view than the flat mirror. The two mirrors are adjacently arranged in a mirror casing, and are mounted on a backing plate adapted to receive each mirror element, as shown below in Figs. 2 and 3.

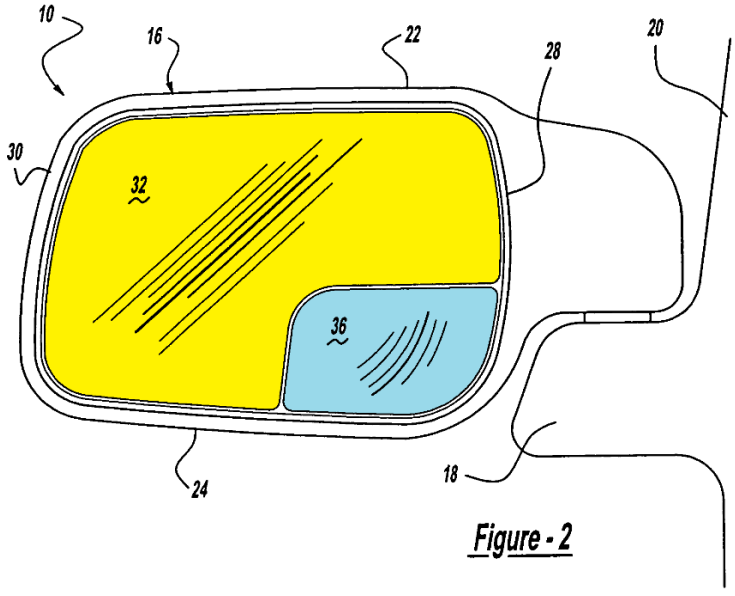


Figure - 2

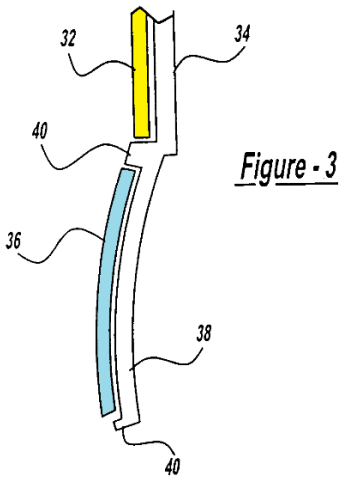


Figure - 3

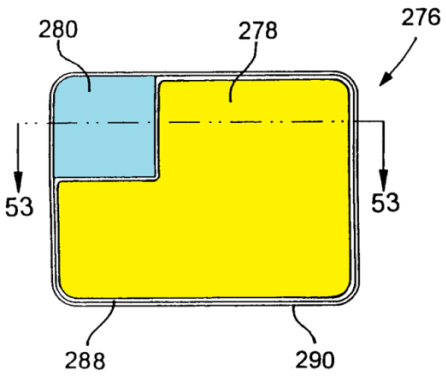
75. Henion also discloses a system by which the driver may angle the secondary mirror relative to the primary mirror in order to achieve a wide variety

of angles or degrees of overlap between the fields of view of the two mirrors. Henion was published on June 21, 2001.

2. International Pub. No. WO 2001/81956 ("Platzer")

76. Like Henion, Platzer teaches a dual-mirror system consisting of a flat mirror positioned alongside a curved mirror in a rearview mirror assembly, as depicted in Figs. 52 and 53 below.

Fig. 52



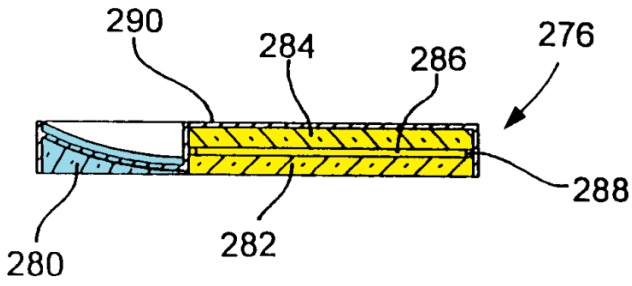


Fig. 53

77. The curved mirror is capable of viewing into the driver's blind spot. Platzer provides a mathematical explanation of the typical angling required between the primary and secondary mirrors in order to obtain a maximal rearward field of view, including into the blind spot. Platzer was published on November 1, 2001.

3. U.S. Pat. No. 5,721,646 ("Catlin")

78. Catlin is addressed to the problem of improving the structural integrity of wide-angle exterior rearview mirror assemblies. Catlin teaches that a

mirror backing plate may be structurally formed by injection molding of a polymer compound. The Catlin patent issued on February 24, 1998.

C. Background Evidence

79. As general evidence of the knowledge one of ordinary skill in the art would have had prior to the filing of the '244 patent, I refer to a number of exemplary references, including:

- N.G. McCrum, C.P. Buckley, C.B. Bucknall, *Principles of Polymer Engineering* (Oxford Univ. Press 1997).
- J. Maxwell, *Plastics in the Automotive Industry* (Woodhead Publishing Ltd., 1994).
- George Platzer, *The Geometry of Automotive Rearview Mirrors - Why Blind Zones Exist and Strategies to Overcome Them*, SAE Technical Paper 950601 (1995)).
- NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, U.S. DEP'T OF TRANSPORTATION, DOC. NO. TP111V-00, LABORATORY TEST PROCEDURE FOR FMVSS 111 – REARVIEW MIRRORS (OTHER THAN SCHOOL BUSES) (October 28, 1999).

X. CLAIMS 1-26 OF THE '244 PATENT ARE ANTICIPATED BY THE '026 PUBLICATION

80. I have been asked to analyze whether a POSA would find the claims of the '244 patent disclosed by the '026 publication. In providing my opinions below, I am asked to assume that the '026 publication constitutes prior art to the '244 patent.

81. As I describe below, it is my opinion that a POSA would find claims 1-26 of the ’244 patent are anticipated by the ’026 publication.

82. As described above in the sections on incorporation by reference, the ’026 publication issued as the ’712 patent, and included the entirety of the ’451 patent’s disclosure except for the summary of invention and claims. For that reason, the ’026 patent discloses, almost verbatim, the majority of the limitations of the ’244 patent.

83. In my discussion below, I first address the independent claims. Next, I address the dependent claims. When I am discussing a dependent claim, it should be understood that my discussion is further in view of the claim or claims from which it depends. That is, when I discuss claim 2, I have already discussed claim 1 and am addressing only the additional features. Unless I state otherwise, the additional features are from the same embodiment—the art teaches all the elements arranged as recited in the claims.

A. Claim 1

1. Preamble, [a], [b] Exterior sideview mirror assembly

84. The preamble and elements [a] and [b] of claim 1 recite:

> 1. An exterior sideview mirror system suitable for use on an automobile, said exterior sideview mirror system comprising:
>
> [a] an exterior sideview mirror assembly adapted for attachment to a side of an automobile;

> [b] said exterior sideview mirror assembly including a reflective element having a rearward field of view when attached to the side of the automobile;

85. The ’026 publication discloses a sideview mirror system that attaches to an automobile and provides a rearward field of view. As shown in Fig. 1 below, the sideview mirror assembly attaches to an automobile on the driver’s side facing backward to provide a rearward field of view. A POSA would have understood that a mirror is a reflective element, and that a mirror facing backward would reflect light incident from the rear of the car so as to provide a rearward field of view.

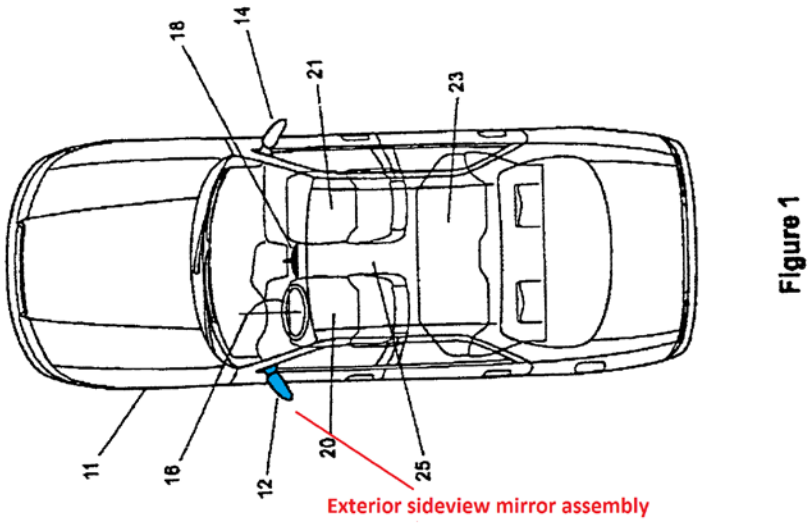


Figure 1

86. The ‘026 publication further states that “[i]n one form of the invention, an automobile exterior side mirror system includes an exterior side

mirror assembly, which is adapted for attachment to a side of an automobile." '026 publication ¶ 9; *see also id.* at Abstract, ¶¶ 13, 15, 19, 41, 57, 59, 61, Figs. 1, 7.

87. Thus, claim elements 1[a] and 1[b] are disclosed, as is the preamble, to the extent it is limiting.

2. [d] Plano-auxiliary assembly

88. Claim 1 element [d] recites:

> [d] wherein said reflective element comprises a plano-auxiliary reflective element assembly, said plano-auxiliary reflective element assembly comprising a plano reflective element having unit magnification and a separate auxiliary reflective element having a curvature;

89. The '026 publication discloses a reflective element assembly that consists of a flat primary mirror with unit magnification and a curved auxiliary mirror. '026 publication ¶ 9 ("The exterior sideview mirror assembly includes a reflective element assembly having a plano reflective element, which forms a first reflective element, and a multiradiused reflective element which forms a second reflective element."), ¶15 ("a first reflective element having a unit magnification"); *see also id.* at ¶¶ 8, 42-43, 45, 49, 58-59, 61, 64, claims 1, 31, Figs. 3, 5A-H, 6-8. The flat primary mirror and curved auxiliary mirror are demonstrated below in Fig. 3.

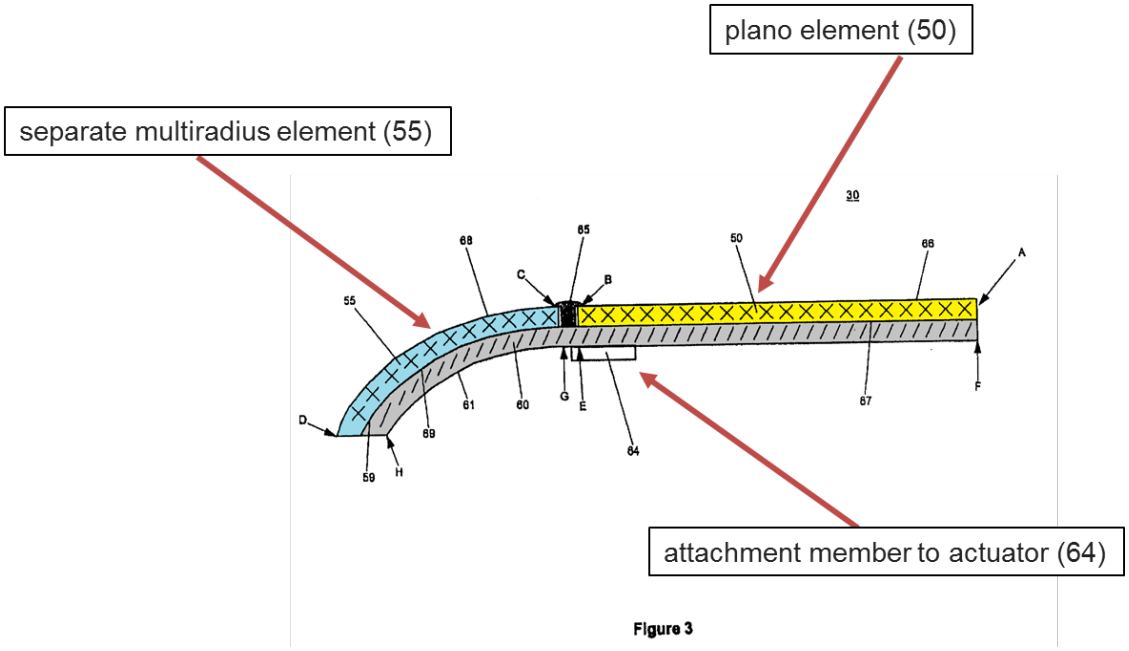


Figure 3

90. The curved auxiliary mirror is annotated in blue, and the primary plano mirror is annotated in yellow. *See* '026 publication Fig. 3; *see also id.* ¶ 42 ("FIG. 3, comprises a plano element 50 and a separate multiradius element 55.").

91. Thus, claim element 1[d] is disclosed.

3. [q] Reflective Element Substrates

92. Claim 1 element [q] recites:

> [q] wherein at least one of said plano reflective element and said auxiliary reflective element comprises one of (a) a glass substrate having a surface coated with a metallic reflector coating and (b) a polymeric substrate having a thin glass element applied to a surface thereof and with an opposing surface thereof having a reflecting layer applied thereto;

93. The ’026 publication discloses (a), that one of the mirrors has a glass surface with a metallic reflector coating. ’026 publication ¶¶ 43 (“Plano element 50 preferably comprises a flat reflector-coated glass substrate … plano element 50 may comprise a flat glass substrate coated with a metallic reflector coating”), 47, 48, 55, 64.

94. Thus, claim element 1[q] is disclosed.

4. [e], [i] Mounted adjacently and outboard

95. Claim 1 elements [e] and [i] recite

> [e] said plano reflective element and said auxiliary reflective element of said plano-auxiliary reflective element assembly mounted adjacently at said plano-auxiliary reflective element assembly in a side-by-side relationship and not superimposed with one reflective element on top of the other reflective element;
>
> [i] wherein said auxiliary reflective element is positioned at an outboard portion of said plano-auxiliary reflective element assembly when said exterior sideview mirror assembly is mounted to the side of the automobile;

96. The ’026 publication states that the primary and secondary mirrors may be mounted elements adjacently, with the secondary mirror placed outboard of the primary mirror. ’026 publication ¶¶ 10 (“In one aspect, the first reflective element and the second reflective element are adjacently attached to the frame

element assembly at a joint"), 12 ("The multiradiused reflective element is mounted to the frame at an outboard position, with the plano reflective element being positioned adjacent the multiradiused reflective element and at an inboard position with respect to the multiradiused reflective element when the exterior side mirror assembly is mounted to an automobile"), 42, 44, 45, 50-52, 59, 61, Figs. 3, 5A-H, 6-8. Further, as demonstrated in figures 5A-H below, the two mirrors are in a side-by-side relationship.

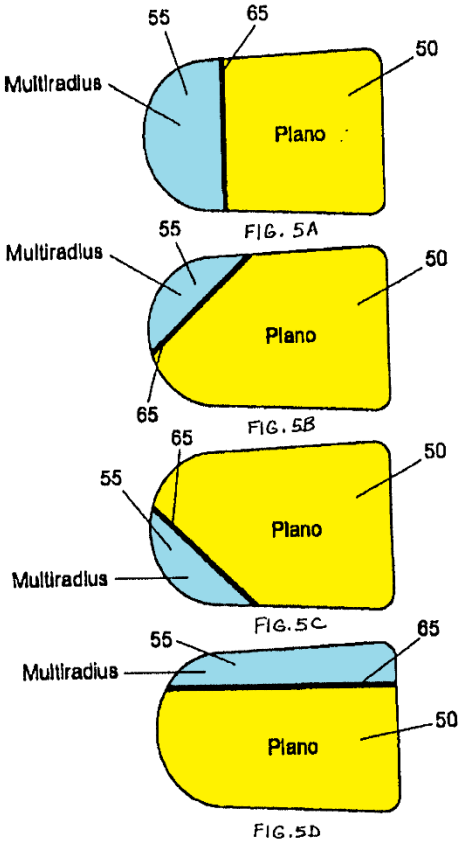


FIG. 5A

FIG. 5B

FIG. 5C

FIG. 5D

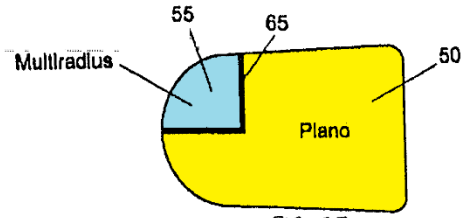


FIG. 5E

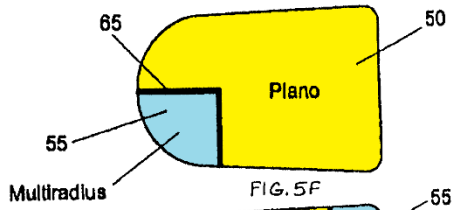


FIG. 5F

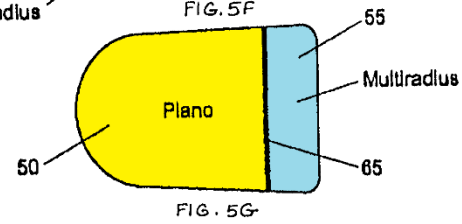


FIG. 5G

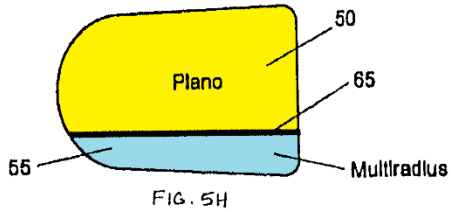


FIG. 5H

97. The claim's "side-by-side" limitation is disclosed under the construction of "side-by-side" discussed above in the claim construction section, in which two mirrors are "side-by-side" if they are adjacent along two edges. As shown in Figs. 5E and 5F, the primary and secondary mirrors are adjacent along two edges, and the secondary multiradius mirror (55) is in the corner of the primary plano mirror (55). Similarly, as shown in Figs. 5A-5D and 5G-5H, the plano and auxiliary elements share an edge, and are thus in a side-by-side relationship.

98. The plano and auxiliary mirrors disclosed by the '026 publication also do not overlap, as demonstrated in Fig. 3 below. Demarcation element 65 separates the primary and secondary mirrors, as described in the '026 publication. '026 publication ¶¶ 42 ("Plano element 50 and multiradius element 55 are demarcated apart by demarcation element 65.").

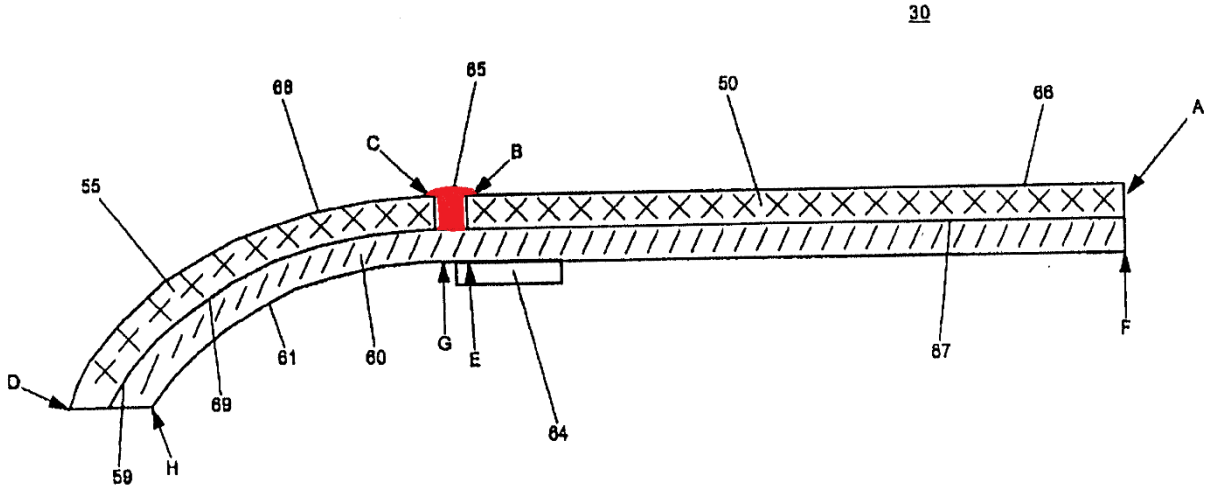


Figure 3

99. Thus, claim elements 1[e] and 1[i] are anticipated.

5. [c] Electrically-operated actuator

100. Claim 1 element [c] recites:

> [c] said reflective element attached to an electrically-operated actuator of said exterior sideview mirror assembly and movable by said actuator in order to position said rearward field of view to a driver-desired position when said exterior sideview mirror assembly is attached to the side of the automobile;

101. The ’026 publication discloses attaching the sideview mirror’s reflective element to an electrically operated actuator to position the mirror as recited in claim element 1[c].

102. The ’026 publication discloses attaching the reflective element to an electrically-operated actuator capable of positioning the mirror. ’026 publication ¶¶ 9 (“The reflective element assembly is mounted to an actuator, which moves the reflective element assembly to position the rearward field of view of the reflective element assembly.”), 15, 19 (“In yet another form of the invention, an automobile exterior sideview mirror system includes an exterior sideview mirror assembly, which is adapted for attachment to a side of an automobile. The mirror assembly includes an actuator and a reflective element assembly.”), 41.

103. The ’026 publication further notes that electrically positioning mirrors to obtain a driver-desired field of view was known in the art. *Id.* ¶ 6 (“Also, in

most passenger automobiles, the position of the side view mirror reflector is adjustable by the driver (such as by a hand-adjust, or by a manually adjustable cable such as a Bowden cable or by an electrically operable actuator, as known in the art) in order to provide to that driver his or her desired rearward field of view, which ill-suits use of a separate, auxiliary reflector.").

104. Thus, claim element 1[c] is disclosed.

6. [f] Backing plate mounted to actuator

105. Claim 1 element [f] recites:

> [f] said plano reflective element and said auxiliary reflective element supported at a backing plate element, said backing plate element mounting to said actuator such that movement of said backing plate element of said plano-auxiliary reflective element assembly by said actuator simultaneously and similarly moves said plano reflective element and said auxiliary reflective element;

106. The '026 publication discloses mounting the mirror support backing plate to the actuator such that movement of the actuator simultaneously and similarly moves the two mirrors. '026 publication ¶¶ 42 ("Surface 61 of backing plate element 60 is preferably adapted to attach, such as by attachment member 64, to actuator 36 when plano-multiradius reflective element assembly 30 is mounted in driver-side exterior sideview mirror assembly 12 (and/or in passenger-side exterior side view mirror assembly 14) such that plano element 50 and multiradius

element 55 are adjusted and positioned in tandem and simultaneously when the driver (or alternatively, when a mirror memory system, as is conventional in the rearview mirror arts) activates actuator 36 to reposition the rearward field of view of plano-multiradius reflective element assembly 30."), 58, and Figs. 3, 6; *see also* the discussion of claim element [c] above. As shown in Figure 3 below, a single actuator attachment point exists for the unitary backing plate 60. As such, any movement of the actuator will be transferred through this single backing point in order to rotate backing plate 60. Because the plano and auxiliary mirrors are attached to the backing plate, they will undergo the same rotation as the backing plate.

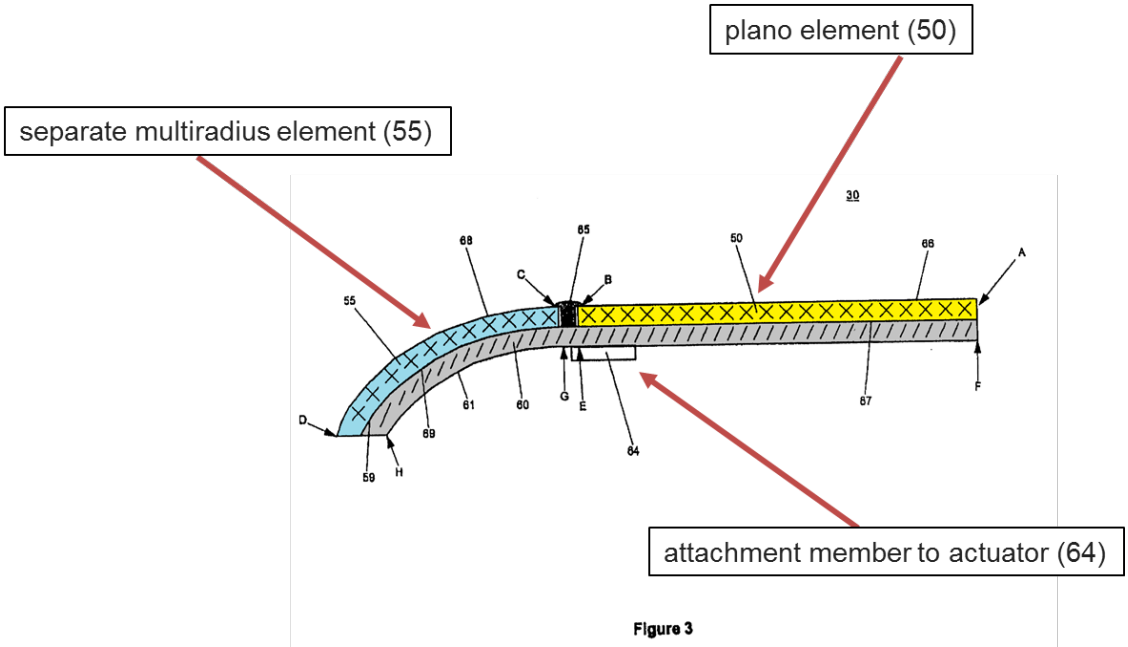


Figure 3

107. Thus, claim element 1[f] is disclosed.

7. [h], [k], [l], [m] Support portions and capable of supporting

108. Claim 1 elements [h], [k], [l], and [m] recite:

> [h] said backing plate element having a first support portion supporting said plano reflective element and a second support portion supporting said auxiliary reflective element;
>
> [k] wherein said backing plate element is capable of supporting said plano reflective element and said auxiliary reflective element;
>
> [l] wherein said first support portion of said backing plate element comprises a flat portion and wherein said plano reflective element is disposed at said flat portion;
>
> [m] wherein said second support portion of said backing plate element comprises a curved portion and wherein said auxiliary reflective element is disposed at said curved portion;

109. The ’026 publication discloses that the backing plate is divided into primary and auxiliary mirror support portions capable of supporting both mirrors. ’026 publication ¶¶ 42 (“Plano element 50 and multiradius element 55 are both mounted to surface 59 of, and are both supported by, a single backing plate element 60.”), 50 (“Backing plate element 60 is preferably a rigid polymeric substrate capable of supporting plano element 50 and multiradius element 55”), 51-52, 59, 61, Figs. 3, 6.

110. The plano portion of the backing plate is flat to match the plano primary mirror and the auxiliary portion of the backing plate is curved to match the curved auxiliary mirror. '026 publication ¶¶ 50 ("Backing plate element 60 comprises a flat portion (generally between E and F as shown in FIG. 3) that corresponds to and is aligned with plano element 50. Backing plate element 60 also comprises a curved portion (generally between G and H as shown in FIG. 3) that corresponds to and is aligned with multiradius element 55."), 43, 45, 59, Figs. 3 and 6; As shown in Fig. 3 below, primary mirror (50) is disposed at the matching flat portion of the backing plate (60), while auxiliary element (55) is disposed at the matching curved portion of the backing plate (60).

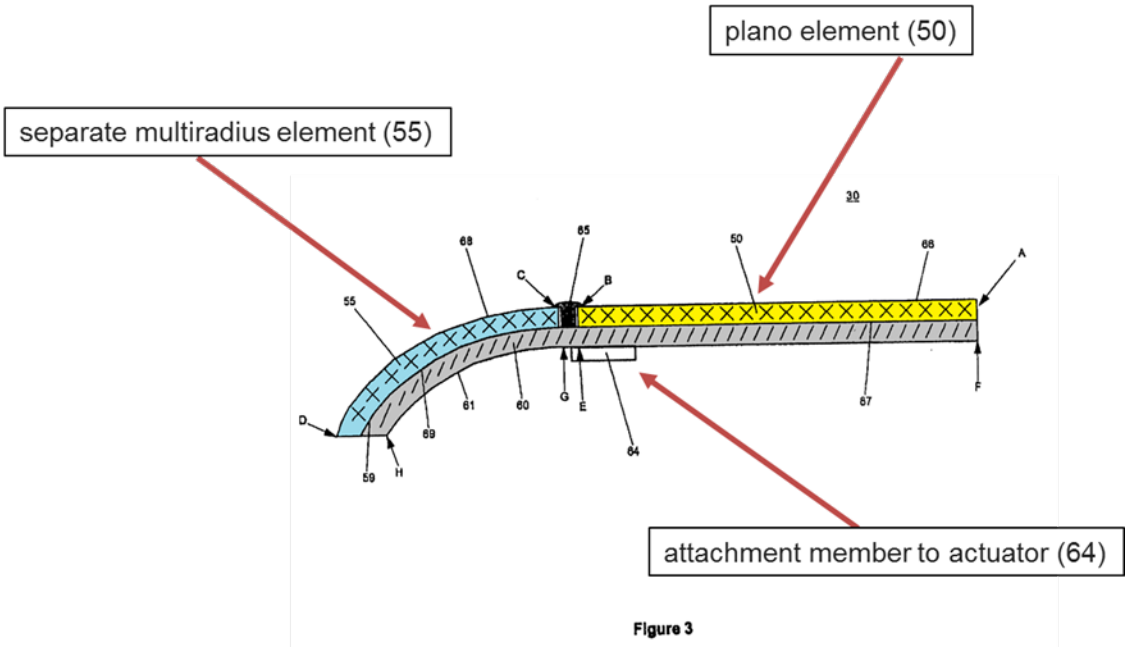


Figure 3

111. Thus, claim elements 1[h], 1[k], 1[l], and 1[m] are anticipated.

8. [j] Polymeric substrate

112. Claim 1 element [j] recites:

> [j] wherein said backing plate element comprises a polymeric substrate that is formed as a single element by injection molding of a polymeric resin;

113. The ’026 publication states that the backing plate may be formed by injection molding with a polymeric resin. ’026 publication ¶¶ 50 (“Preferably, backing plate element 60 is formed by injection molding of a thermoplastic or a thermosetting polymer resin … [b]acking plate element 60 is preferably a rigid polymeric substrate”), 51, 53.

114. Thus, claim element 1[j] is disclosed.

9. [g], [p] Planar and auxiliary field of view, blind spot

115. Claim 1 elements [g], [p] recite:

> [g] said auxiliary reflective element having a wide-angle field of view encompassing a blind spot in the side lane adjacent the side of the automobile to which said exterior sideview mirror assembly is attached;
>
> [p] wherein, when said exterior sideview mirror assembly is attached to the side of the automobile, the field of view of said plano reflective element generally views rearwardly of the equipped automobile and the field of view of said auxiliary reflective element generally views towards a blind spot in the side lane adjacent the side of the

automobile to which said exterior sideview mirror assembly is attached, said blind spot being generally outside the rearward field of view of said plano reflective element when said plano reflective element is viewed by a driver of the equipped automobile when said exterior sideview mirror assembly is attached to the side of the automobile;

116. The ’026 publication discloses that the secondary curved mirror has a wide field of view encompassing the driver’s blind spot. ’026 publication Fig. 14. The ’026 publication states that the primary and auxiliary mirrors may be angled relative to one another to “allow[] the auxiliary reflective element to view a portion of the road adjacent the automobile that is in a blind spot of the plano reflective element.” *Id.* ¶ 52; *see also id.* ¶¶ 3, 58-59, 61, 77, Fig. 14. A POSA would understand that the blind spot is in the side line adjacent to the side of the automobile. The auxiliary reflective element is curved as shown in Fig. 3 and provides a wide field of view. Fig. 14 shows that the field of view of the spotter is a wide field of view that encompasses a blind spot, in the side lane adjacent to the side of the automobile, and is generally outside the field of view of the plano reflective element. See also ’026 publication ¶ 76.

117. As I discussed above with respect to the preamble and claim elements 1[a], 1[b], and 1[g], the ’026 publication states that the rearview mirror assembly is attached to the side of the automobile and generally views rearward of the

equipped automobile. And as I discussed above with respect to element 1[g], the auxiliary reflective element views a blind spot in the adjacent lane that is generally outside the field of view of the plano mirror. '026 publication ¶¶ 3, 52, 58-59, 61, 76-77, Fig. 14.

118. Thus, claim elements 1[g] and 1[p] are disclosed.

10. [n] Different, angled rearward field of view

119. Claim 1 element [n] recites:

> [n] wherein the rearward field of view of said auxiliary reflective element is different from and angled to the rearward field of view of said plano reflective element when both are attached to said backing plate element of said plano-auxiliary reflective element assembly when said plano-auxiliary reflective element assembly is included in said exterior sideview mirror assembly and when said exterior sideview mirror assembly is attached to the side of the automobile;

120. The '026 publication states that the auxiliary mirror's field of view is angled relative to that of the primary mirror when the assembly is installed on the automobile. '026 publication ¶ 13 ("In other aspects, the first reflective element includes a rearward field of view having a principal axis, which is different from and angled to a principal axis of the rearward field of view of the second reflective element when the reflective element assembly is mounted in the exterior sideview mirror assembly. The principal axis of the rearward field of view of the second

reflective element is directed generally outwardly and downwardly with respect to a longitudinal axis of the automobile when the exterior side mirror system is mounted to an automobile."); *see also id.* at Abstract, ¶¶ 9, 14-19, 59, 61, 72-74, 76-77, Figs. 3, 6-7, 10-14, claims 1, 19-24.

121. Thus, claim element 1[n] is disclosed.

11. [o] Angled second support portion

122. Claim 1 element [o] recites:

> [o] wherein angling of the rearward field of view of said auxiliary reflective element relative to the rearward field of view of said plano reflective element is achieved, at least in part, by an angling of said second support portion of said backing plate element supporting said auxiliary reflective element relative to said first support portion of said backing plate element supporting said plano reflective element;

123. The '026 publication states that the portion of the backing plate supporting the auxiliary mirror is angled relative to the portion of the backing plate supporting the primary mirror. '026 publication ¶¶ 52 ("Note that section AA to BB of backing plate element 160 is angled to section BB to CC. Such angling of the auxiliary reflective element relative to the plano element can be advantageous in allowing the auxiliary reflective element view a portion of the road, adjacent the automobile that is in a blind spot of the plano reflective element. In this regard, it is preferable that the multiradius element be angled away from the plane of the

plano element, as shown in FIG. 6 by the angling of section AA to BB to section BB to CC."), 59, Fig. 6. This angled relationship is displayed in Fig. 6 below. Arrows XX and YY demonstrate that the flat and curved portions of the backing plate are disposed at different angles.

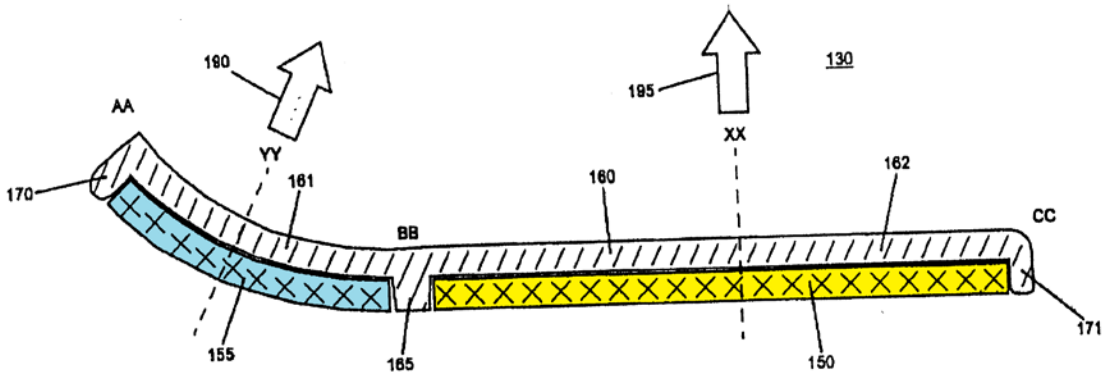


Figure 6

124. Thus, claim element 1[o] is disclosed.

12. [s] Generally coplanar

125. Claim 1 element [s] recites:

> [s] wherein at least a portion of said auxiliary reflective element adjacent said plano reflective element has its front surface generally coplanar with the front surface of said plano reflective element;

126. The '026 publication discloses that at least part of the front surfaces of the planar and auxiliary mirrors are generally coplanar to allow a driver to view the images on both mirror. '026 publication ¶¶ 48 ("Also, it is preferable that the

thickness of plano element 50 and multiradius element 55 be substantially the same in dimension so that their respective outer surfaces, 66 and 68, are substantially coplanar so that a driver can readily view images in either or both elements."), 72, Figs. 3, 6, 10.

127. Thus, claim element 1[s] is disclosed

13. [r], [t], [u], [v], [w], [x] Demarcation

128. Claim 1 element [r] recites:

> [r] wherein said plano reflective element and said auxiliary reflective element are adjacently supported at said backing plate element at a joint, and wherein said plano-auxiliary reflective element assembly includes a demarcation element, said demarcation element disposed at said joint to form a demarcation between said plano reflective element and said auxiliary reflective element, said demarcation element having a portion visible to a driver of the automobile when said exterior sideview mirror assembly is attached to the side of the automobile;

129. The '026 publication states that the plano and auxiliary mirrors may be adjacently supported at a joint marked by a demarcation element. '026 publication ¶¶ 57 ("FIGS. 5A-5H shows various arrangements of multiradius reflective element 55 relative to its adjacent plano reflective element 50 (with demarcation element 65 disposed at their joint)"), 10 ("The reflective element assembly further includes a demarcation element disposed at its joint to form a

demarcation between the first and second reflective elements that is visible to the driver"), 42, 50-53, 59, 61, Figs. 3-4, 6, 7, 15, claims 2-3. As shown in Fig. 15 below, the demarcation element is visible between the primary and auxiliary mirrors when the mirror assembly is in its driver's-side orientation.

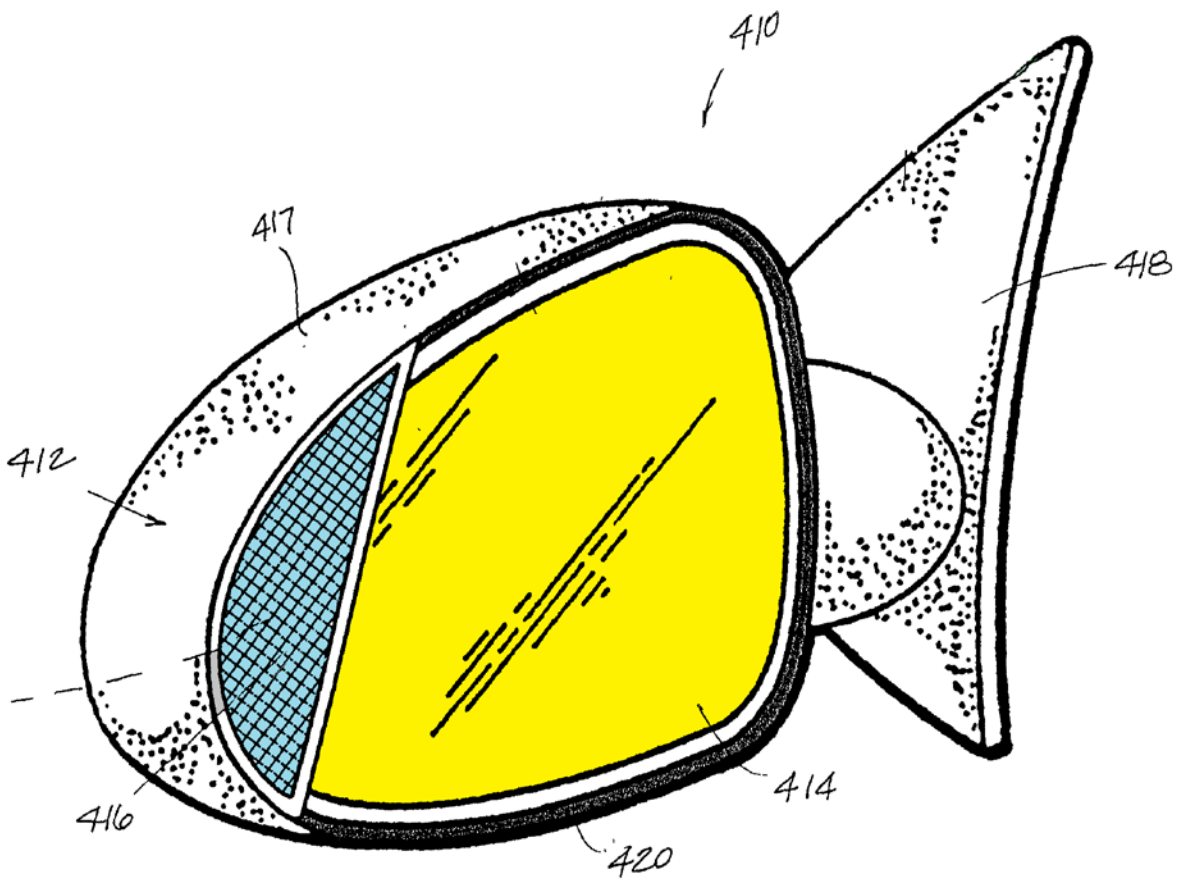


FIG. 15

130. Thus, claim element 1[s] is disclosed.

131. Claim 1 element [t] recites:

[t] wherein said demarcation element is dark colored;

132. The ’026 publication states that “Preferably, demarcation element 65 is formed of a polymeric material that is dark colored (such as black or dark blue or dark brown or dark grey or a similar dark color).” ’026 publication ¶ 51, claim 3.

133. Claim 1 element [u] recites:

[u] wherein said demarcation element comprises a polymer material;

134. The ’026 publication states that the demarcation element may be composed of a polymer. ’026 publication ¶¶ 51 (“Preferably, demarcation element 65 is formed of a polymeric material”), 52-53.

135. Thus, claim element 1[u] is disclosed.

136. Claim 1 element [v] recites:

[v] wherein said joint comprises a space between said plano reflective element and said auxiliary reflective element;

137. Claim 1 element [w] recites:

[w] wherein said demarcation element is at least partially disposed at said space between said plano reflective element and said auxiliary reflective element; and

138. The ’026 publication states that a space exists between the plano and auxiliary mirrors, and that the demarcation element may be at least partially disposed in that space. ’026 publication ¶¶ 51 (“ at least a portion of demarcation

element 65 can be disposed in any gap between plano element 50 and multiradius element 55 at their joint on backing plate element 60"), 10, 42, 50, 52-53, 59, 61, Figs. 3-4, 6, 7, claim 2.

139. Thus, claim elements 1[w] and 1[v] are disclosed.

140. Claim 1 element [x] recites:

> [x] wherein said demarcation element comprises a wall on said backing plate element, said wall located on said backing plate element at said joint, said wall disposed between said plano reflective element and said auxiliary reflective element.

141. The '026 publication discloses that the plano and auxiliary mirrors may be adjacently supported at a joint between the primary and auxiliary mirrors marked by a demarcation element. '026 publication ¶¶ 57 ("FIGS. 5A-5H shows various arrangements of multiradius reflective element 55 relative to its adjacent plano reflective element 50 (with demarcation element 65 disposed at their joint)"), 10 ("The reflective element assembly further includes a demarcation element disposed at its joint to form a demarcation between the first and second reflective elements that is visible to the driver"), 42, 50-53, 59, 61, Figs. 3-4, 6, 7, 15, claims 2-3. Further, the '026 publication discloses that the demarcation element is formed as a wall.

142. Thus, claim element 1[x] is disclosed.

B. Claim 2 – Three-degree Angle

143. Claim 2 recites:

> 2. The exterior sideview mirror system of claim 1, wherein the rearward field of view of said auxiliary reflective element is at an angle of at least about 3 degrees relative to the rearward field of view of said plano reflective element.

144. The ’026 publication states that the primary and secondary mirrors may be angled relative to each other in ranges including at least about 3 degrees: “the principal axis of the rearward field of view of the second reflective element may form a downward angle with respect to the principal axis of the rearward field of view of the first reflective element in the range from about 0.75° to about 5°, or in a range of about 1.5° to about 3.5°, in a range of about 2° to about 3°.”); ’026 publication ¶ 13; *see also id.* at 16-17, 59, 74, 76, Figs. 12-14.

145. A POSA reading these angle ranges would understand that the FOV angles could vary within those ranges. For that reason, a POSA would have understood the angle ranges of the ’026 publication to include FOV angle differences exceeding at least about 3 degrees, such as the 0.75 to 5 degree and 1.5 to 3.5 degree disclosures of ¶ 13.

146. This claim is thus anticipated.

C. Claims 3-5 – Outwardly and/or downwardly

147. Claims 3-5 recite:

3. The exterior sideview mirror system of claim 2, wherein the rearward field of view of said auxiliary reflective element is angled downward and outward relative to the rearward field of view of said plano reflective element.

4. The exterior sideview mirror system of claim 1, wherein the rearward field of view of said auxiliary reflective element is generally directed at least one of outwardly and downwardly with respect to the longitudinal axis of the equipped automobile when said exterior sideview mirror assembly is attached to the side of the automobile.

5. The exterior sideview mirror system of claim 1, wherein the rearward field of view of said auxiliary reflective element is generally directed outwardly and downwardly with respect to the longitudinal axis of the equipped automobile when said exterior sideview mirror assembly is attached to the side of the automobile.

148. The ’026 publication states that “[t]he principal axis of the rearward field of view of the second reflective element is directed generally outwardly and downwardly with respect to a longitudinal axis of the automobile when the exterior side mirror system is mounted to an automobile.” ’026 publication ¶ 13; *see also id.* at Abstract, ¶¶ 9, 14-19, 59, 61, 72-74, 76-77, Figs. 3, 6-7, 10-14, claims 1, 19-24.

149. These claims are thus anticipated.

D. Claim 6 – Adhesive attachment

150. Claim 6 recites:

6. The exterior sideview mirror system of claim 1,

[a] wherein said plano reflective element is supported at said backing plate element by at least one of an adhesive attachment and a mechanical attachment and wherein said auxiliary reflective element is supported at said backing plate element by at least one of an adhesive attachment and a mechanical attachment, and

151. The ’026 publication states that “[p]lano element 50 and multiradius element 55 can then be attached (such as by an adhesive attachment such as an adhesive pad or by mechanical attachment such by clips, fasteners or the like) to the already molded backing plate element 60.” ’026 publication ¶ 50.

[b] wherein said auxiliary reflective element comprises a glass substrate having a surface coated with a metallic reflector coating and

152. The ’026 publication also states that “multiradius element 55 may comprise a flat glass substrate coated with a metallic reflector coating”). ’026 publication ¶ 47.

[c] wherein said auxiliary reflective element comprises a bent glass substrate with a spherical curvature.

153. The ’026 publication also states that the auxiliary mirror element/bent glass substrate may have a spherical curvature. ’026 publication ¶¶ 83 (“a spherical

reflective element (that has substantially only one radius of curvature and, as such, is a section from a sphere) can optionally be used adjacent the plano reflective element instead of, or in addition to, the multiradius reflective element"), 80-82, ¶¶ 5-6, 11, 45 (bent glass).

154. Claim 6 is thus anticipated.

E. Claims 7, 8, 9, 15, 16 – Multiradius, spheric, and aspheric shapes

155. Claim 7 recites:

> 7. The exterior sideview mirror system of claim 1, wherein said plano reflective element comprises a flat glass substrate having a surface coated with a metallic reflector coating and wherein said auxiliary reflective element comprises a bent glass substrate having a surface coated with a metallic reflector coating, and wherein said bent glass substrate has a spherical curvature.

156. Claim 8 recites:

> 8. The exterior sideview mirror system of claim 1, wherein said plano reflective element comprises a flat glass substrate having a surface coated with a metallic reflector coating and wherein said auxiliary reflective element comprises a bent glass substrate having a surface coated with a metallic reflector coating, and wherein said bent glass substrate has a multiradius curvature.

157. Claim 9 recites:

9. The exterior sideview mirror system of claim 1, wherein said plano reflective element comprises a flat glass substrate having a surface coated with a metallic reflector coating and wherein said auxiliary reflective element comprises a bent glass substrate having a surface coated with a metallic reflector coating, and wherein said bent glass substrate has an aspherical curvature.

158. Claim 15 recites:

15. The exterior sideview mirror system of claim 1, wherein said auxiliary reflective element has an aspherical curvature.

159. Claim 16 recites:

16. The exterior sideview mirror system of claim 1, wherein said auxiliary reflective element has a spherical curvature.

160. As I described above with respect to claim element 1[q], the ’026 publication discloses that the plano mirror may be comprised of a flat glass substrate coated with a metallic reflector coating. ’026 publication at Abstract. The ’026 publication also states that “multiradius element 55 may comprise a flat glass substrate coated with a metallic reflector coating”). ’026 publication ¶ 47, Abstract.

161. The ’026 publication also discloses that the auxiliary mirror element/bent glass substrate may have spherical, aspherical, or multiradiused curvature. ’026 publication ¶¶ 83 (“although it is preferable to utilize a multiradius

or compound curvature reflective element, such as an aspherical element or a compound curvature element, for the second or auxiliary mirror element adjacent the plano or first reflective element (as this enables least discontinuity in image at the joint between the adjacent elements of the assembly), a spherical reflective element (that has substantially only one radius of curvature and, as such, is a section from a sphere) can optionally be used adjacent the plano reflective element instead of, or in addition to, the multiradius reflective element"), 9, 15, 41-42, 44, 47-61, 80-82; ¶¶ 5-6, 11, 45 (bent glass).

162. Thus, claims 7, 8, 9, 15, and 16 are anticipated

F. Claim 10, 19 – Substrate

163. Claim 10 recites:

> 10. The exterior sideview mirror system of claim 1, wherein said plano reflective element comprises a substrate having a surface coated with a metallic reflector coating and wherein said auxiliary reflective element comprises a substrate having a surface coated with a metallic reflector coating.

164. Claim 19 recites:

> 19. The exterior sideview mirror system of claim 1, wherein at least one of said plano reflective element and said auxiliary reflective element comprises a glass substrate having a surface coated with a metallic reflector coating, and wherein said metallic reflector coating is selected from the group consisting of (i) a chromium coating, (ii) a

titanium coating, (iii) a rhodium coating, (iv) a metal-alloy coating, (v) a nickel alloy coating, (vi) an aluminum coating and (vii) a silver coating.

165. As I discussed above with respect to claim 1[q], the ’026 publication states that the primary and secondary mirrors may be comprised of a substrate coated with a metallic reflector coating, and that secondary mirror element is a bent glass substrate. ’026 publication ¶11 (“the second reflective element comprises a bent glass substrate with radii of curvature in the range of about 4000 mm to about 100 mm”); 45 (“Preferably, multiradius element 55 comprises a bent glass substrate with radii of curvature in the range of from about 4000 mm to about 50 mm.”); *see also id.* at ¶¶ 43 (“Plano element 50 preferably comprises a flat reflector-coated glass substrate”), 45.

166. The ’026 publication also states that “plano element 50 may comprise a flat glass substrate coated with a metallic reflector coating such as a chromium coating, a titanium coating, a rhodium coating, a metal alloy coating, a nickel-alloy coating, a silver coating, an aluminum coating (or any alloy or combination of these metal reflectors).” 026 publication ¶¶ 43, 47 (“multiradius element 55 may comprise a flat glass substrate coated with a metallic reflector coating such as a chromium coating, a titanium coating, a rhodium coating, a metal alloy coating, a

nickel-alloy coating, a silver coating, an aluminum coating (or any alloy or combination of these metal reflectors)"), 55.

167. Thus, these claims are anticipated.

G. Claim 11 – Curved portion

168. Claim 11 recites:

> 11. The exterior sideview mirror system of claim 10, wherein said curved portion of said backing plate element comprises a curvature corresponding to a curvature of said auxiliary reflective element, and wherein said curved portion of said backing plate element comprises at least one of (a) a spherical curvature, (b) an aspherical curvature and (c) a multiradius curvature.

169. The '026 publication discloses that the curvature of the backing plate corresponds to the curvature of the auxiliary mirror and that it has a multiradius curvature, as recited in claim 11. '026 publication ¶¶ 50, 53 (backing plate molded to mirrors), Figs. 3, 6. Figures 3 and 6 likewise show the backing plate having curvature corresponding to the curvature of the auxiliary reflective element, annotated in blue.

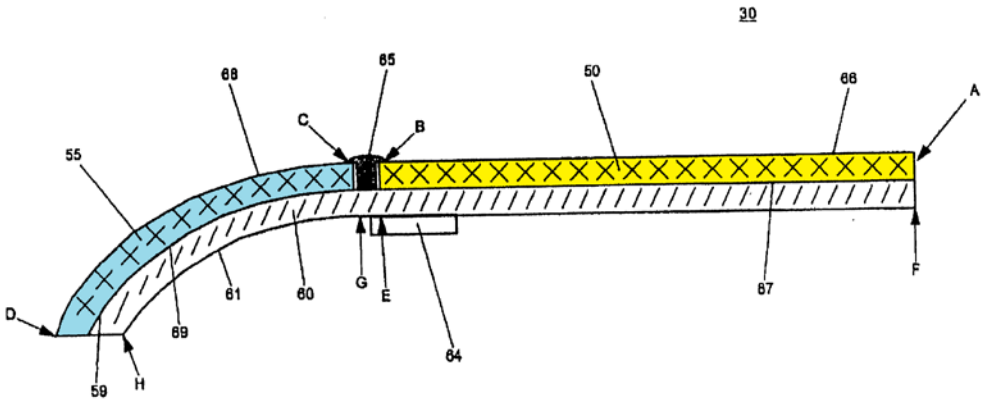


Figure 3

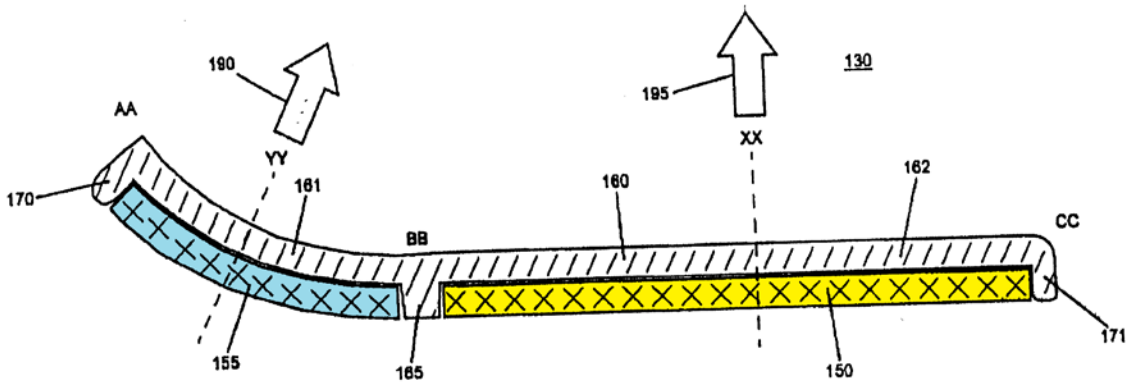


Figure 6

170. As I discussed above with respect to claim elements 1[h], 1[k], 1[l], and 1[m], the ’026 publication states that the curved portion of the backing plate element corresponds to the curvature of the auxiliary mirror.

171. And as I discussed above with respect to claims 7, 8, 9, 15, and 16, the ’026 publication moreover provides that “although it is preferable to utilize a

multiradius or compound curvature reflective element, such as an aspherical element or a compound curvature element, for the second or auxiliary mirror element . . . [that] a spherical reflective element (that has substantially only one radius of curvature and, as such, is a section from a sphere) can optionally be used . . . instead of . . . the multiradius reflective element." '026 publication at ¶ 83; *see also, id.* at 80 ("Reflective element 416 preferably comprises a wide-angle reflector, such as a convex or aspheric reflector, and may include a multiradiused curvature.").

172. And the '026 publication discloses that single integral molding is the preferred fabrication process, and that "[b]y loading all the sub components of plano-multiradius reflective element assembly 30 into a molding tool, and then injecting polymeric resin to form the backing plate . . . enable[es] . . . accommodation of any dimensional tolerances in the sub components." '026 publication at ¶ 53; *see also, id*. at Figs. 3, 6. A POSA would understand that this process of fabrication would result in the second portion of the mirror backing plate having a corresponding curvature to the selected auxiliary mirror, whether a spherical, aspherical, or multiradius curvature.

173. Thus, this claim is anticipated.

H. Claim 12 – Demarcation partitions

174. Claim 12 element [a] recites:

12. The exterior sideview mirror system of claim 1,

> [a] wherein said demarcation element comprises a wall structure that at least partially partitions said backing plate element into a first region where said plano reflective element is disposed and a separate and adjacent second region where said auxiliary reflective element is disposed, and

175. As I discussed above for claim elements [h], [j], [k], [l], the '026 publication discloses a wall disposed between the primary and auxiliary mirrors and serving to partition the backing plate into plano and auxiliary regions for receiving the respective mirrors. '026 publication ¶¶ 42, 50-52, 59, 61, Figs. 3, 6, 7.

176. Claim 12 element [b] recites:

> [b] wherein at least one of (a) said first region is adapted to receive said plano reflective element and (b) said second region is adapted to receive said auxiliary reflective element.

177. The '026 publication discloses that the backing plate has two regions. A first region adapted to receive plano reflective element 50 and a second region adapted to receive multiradius reflective element. '026 publication ¶¶ 51 ("backing plate element 60 into two regions: A first region adapted to receive plano reflective element 50 and a separate and adjacent second region adapted to receive multiradius reflective element 55") 52 ("a backing plate element 160 which

comprises a plate molded from a polymer resin (such as a polyolefin such as polypropylene or such as ABS or nylon) with a demarcation element 165 that is molded as a wall structure that partitions backing plate element 165 into a first region (from CC to BB) adapted to receive and accommodate plano reflective element 150 and into a second region (from BB to AA) adapted to receive and accommodate wide-angle optic multiradius reflective element 155"); *see also id.* ¶¶ 42, 50, 59, 61, Figs. 3, 6.

178. Thus, this claim is anticipated.

I. Claim 13 – Auxiliary mirror heater

179. Claim 13 recites:

> 13. The exterior sideview mirror system of claim 12, wherein said auxiliary reflective element comprises a heater element operable to demist/deice the outmost surface of said auxiliary reflective element when said auxiliary reflective element is disposed at said backing plate element and when said exterior sideview mirror assembly is attached and operated on the side of the automobile.

180. The '026 publication states that "[p]lano element 50 and/or multiradius element 55 can comprise a heater element, as known in the automotive mirror art, that is operable to deice/demist surfaces 66, 68." '026 publication ¶ 54; *see also id.* at ¶¶ 65-66 (describing operation of heater element when placed in an operational assembly).

181. Thus, this claim is anticipated.

J. Claim 14 – Subtended angle

182. Claim 14 recites:

> 14. The exterior sideview mirror system of claim 1, wherein said exterior sideview mirror assembly including said plano-auxiliary reflective element having a rearward field of view when attached to the side of the automobile comprises a driver-side exterior sideview mirror assembly, and wherein, when attached to the side of the automobile, said driver-side exterior sideview mirror assembly provides to the driver of the equipped automobile a total field of view that generally subtends an angle of at least about 25 degrees with respect to the side of the equipped automobile.

183. The ’026 publication states that “[t]he total field of view rearwardly of the automobile of the plano-auxiliary reflective element assembly (which is a combination of the field of view of the plano reflective element and of the auxiliary reflective element) preferably generally subtends an angle of at least about 20° (and more preferably, generally subtends an angle of at least about 25° and most preferably, generally subtends an angle of at least about 30°) with respect to the side of an automobile to which is attached an exterior sideview mirror assembly equipped with the plano-auxiliary reflective element assembly.” ’026 publication ¶¶ 46, 61, 76, Fig. 14. And as I described above with respect to claim 1’s preamble

and elements [a] and [b], the invention of the ’026 publication is a driver-side rearview mirror assembly.

184. Thus, the claim is anticipated.

K. Claim 17 – Relative sizes

185. Claim 17 recites:

> 17. The exterior sideview mirror system of claim 1, wherein the ratio of the width of said plano reflective element to the width of said auxiliary reflective element is greater than 1.5.

186. The ’026 publication states that “the ratio of the width of plano element 50 to the width of multiradius element 55 is . . . more preferably greater than 1.5 . . . in order to provide a large, unit magnification plano element 50”). ’026 publication ¶ 49.

187. Thus, the claim is anticipated.

L. Claim 18 – 1 to 24 feet behind

188. Claim 18 recites:

> 18. The exterior sideview mirror system of claim 1, wherein said exterior sideview mirror assembly comprises a door-mounted exterior sideview mirror assembly adapted for attachment to a side of the automobile adjacent a driver seating location of a driver of the automobile and wherein the rearward field of view of said auxiliary reflective element generally views downwardly towards the road surface adjacent to the driver seating location at least at a distance in

the range of about 1 foot to about 24 feet to the rear of the driver seating location.

189. As discussed above with respect to claim 1's preamble and claim elements 1[a] and 1[b], the '026 publication comprises a door-mounted exterior sideview mirror assembly adapted for attachment adjacent to a driver seating location, as shown in Fig. 1 below.

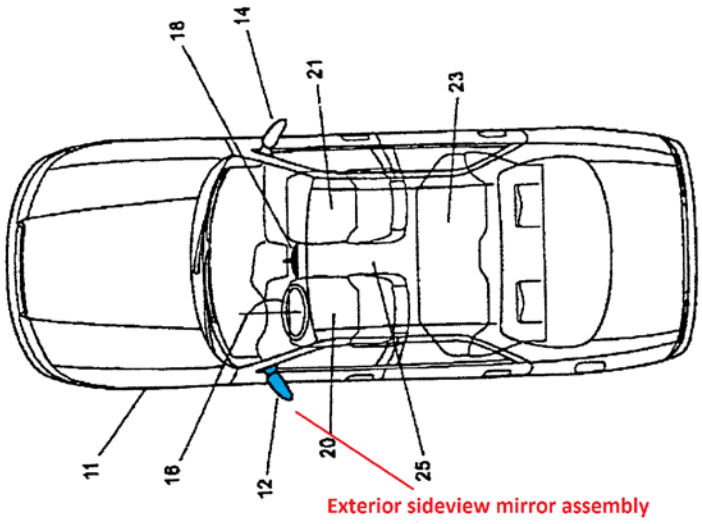


Figure 1

190. The '026 publication discloses that "preferably the principal axis of the rearward field of view of the multiradius element of, for example, a door-mounted driver-side (or passenger-side) exterior sideview mirror assembly in which the plano-multiradius reflective element assembly is mounted is directed generally downwardly towards the road surface adjacent to the driver seating location and/or several feet (such as about 1 foot to about 24 feet; more preferably,

about 1 foot to about 12 feet; most preferably about 1 foot to about 8 feet in distance) to its rear." '026 publication ¶ 59.

191. Thus, the claim is anticipated.

M. Claim 20, 21, 22 - electro-optic or fixed reflective element

192. Claim 20 recites:

> 20. The exterior sideview mirror system of claim 19, wherein said plano reflective element comprises an electro-optic reflective element.

193. The '026 publication states that the "plano element 50 preferably comprises an electro-optic reflector element and, most preferably, an electrochromic reflector element." '026 publication ¶ 43.

194. Thus, the claim is anticipated.

195. Claim 21 recites:

> 21. The exterior sideview mirror system of claim 1, wherein said auxiliary reflective element comprises a fixed reflectance mirror reflector and said fixed reflectance mirror reflector comprises a curved substrate coated with a metallic reflector coating.

196. As I discussed above with respect to claims 7, 8, 9, 15, and 16, the auxiliary reflective element may comprise a curved substrate coated with a metallic reflector coating. '026 publication at ¶¶ 45, 47, 50 ("Multiradius element 55 can be cut from a stock lite of multiradiusly-bent chromium mirror-coated 1.6 mm

thick glass."). The '026 publication also states that "[m]ultiradius element 55 may comprise a conventional fixed reflectance mirror reflector." '026 publication ¶ 47.

197. Thus, the claim is anticipated.

198. Claim 22 recites:

> 22. The exterior sideview mirror system of claim 21, wherein said curved substrate comprises a spherically bent glass substrate.

199. As I discussed above with respect to claims 7, 8, 9, 15, and 16, the curved substrate may comprise a spherically bent glass substrate. '026 publication at ¶¶ 80, 83 (spherically/bent), 5-6, 11, 45 (bent glass).

200. Thus, the claim is anticipated.

N. Independent Claim 23

1. Preamble, claim elements 23[a]-[q]

201. Claim 23 contains many of the same elements as recited in claim 1. As I discussed above with respect to claim elements 1[a]-[q], the '026 publication also discloses claim elements 23[a]-[q].

202. Claim element 23[q] differs from claim element 1[q] by limiting the substrate option to only the main plano element. As I noted in claim element 1[q], the '026 patent also discloses this option. '026 publication ¶¶ 43, 48, 55, 64

203. Thus, the claim elements 23[a]-[q] are disclosed.

2. [r] Curved substrate

204. Claim 23[r] recites:

> [r] wherein said auxiliary reflective element comprises a fixed reflectance mirror reflector and wherein said fixed reflectance mirror reflector comprises a curved substrate coated with a metallic reflector coating; and

205. As I discussed above with respect to claim 21, the auxiliary reflective element may comprise a curved substrate coated with a metallic reflector coating. ’026 publication at Abstract, ¶¶ 47, 50 (“Multiradius element 55 can be cut from a stock lite of multiradiusly-bent chromium mirror-coated 1.6 mm thick glass.”). As I also discussed above with respect to claim 21, the ’026 publication also states that “[m]ultiradius element 55 may comprise a conventional fixed reflectance mirror reflector.” ’026 publication ¶ 47.

206. Thus, claim element 23[r] is disclosed.

3. [s] Joint space

207. Claim 23[s] recites:

> [s] wherein said plano reflective element and said auxiliary reflective element are adjacently supported at said backing plate element at a joint and
>
> wherein said joint comprises a space between said plano reflective element and said auxiliary reflective element and

wherein a wall located on said backing plate element at said joint is disposed between said plano reflective element and said auxiliary reflective element.

208. The ’026 publication discloses that the plano and auxiliary mirrors may be adjacently supported at a joint marked by a demarcation element. ‘026 publication ¶¶ 57 (“FIGS. 5A-5H shows various arrangements of multiradius reflective element 55 relative to its adjacent plano reflective element 50 (with demarcation element 65 disposed at their joint)”), 10 (“The reflective element assembly further includes a demarcation element disposed at its joint to form a demarcation between the first and second reflective elements that is visible to the driver”), 42, 50-53, 59, 61, Figs. 3-4, 6, 7, 15, claims 2-3.

209. Also, the ’026 publication discloses a wall or demarcation element disposed between the primary and auxiliary mirrors. Figs. 3 (element 65) and 6 (element 165) show in cross section a demarcation element as a wall located on a backing plate and disposed between mirror elements. ’026 publication ¶ 52. Further, the ’026 publication states that a space exists between the plano and auxiliary mirrors, and that the demarcation element may be at least partially disposed in that space. ’026 publication ¶¶ 51 (“ at least a portion of demarcation element 65 can be disposed in any gap between plano element 50 and multiradius element 55 at their joint on backing plate element 60”), 10, 42, 50, 52-53, 59, 61,

Figs. 3-4, 6, 7, claim 2. The '026 publication also discloses that the demarcation element may be formed as a wall. '026 publication ¶ 51.

210. Thus, the claim element 23[s] is disclosed.

O. Claim 24 – "glass substrate"

211. Claim 24 element [a] recites:

24. The exterior sideview mirror system of claim 23,

[a] wherein said plano reflective element comprises a glass substrate having a surface coated with a metallic reflector coating, wherein said auxiliary reflective element comprises a fixed reflectance mirror reflector and wherein said fixed reflectance mirror reflector comprises a spherically bent glass substrate coated with a metallic reflector coating,

212. As I discussed above with respect to claim 7, the '026 publication discloses that the plano mirror may be comprised of a flat glass substrate coated with a metallic reflector coating. '026 publication ¶ 43. The '026 publication also states that "multiradius element 55 may comprise a flat glass substrate coated with a metallic reflector coating"). '026 publication ¶ 47, Abstract. And, the '026 publication discloses that the auxiliary mirror element/bent glass substrate may have spherical curvature. '026 publication ¶¶ 83, ¶¶ 5-6, 11, 45 (bent glass). As I also discussed above with respect to claim 21, the '026 publication also states that

"[m]ultiradius [auxiliary] element 55 may comprise a conventional fixed reflectance mirror reflector." '026 publication ¶ 47.

213. Claim 24 element [b] recites:

> [b] wherein said curved portion of said backing plate element comprises a curvature corresponding to a curvature of said auxiliary reflective element,

214. As I discussed above with respect to claim 11, the '026 publication discloses that the curvature of the backing plate corresponds to the curvature of the auxiliary mirror. '026 publication ¶¶ 50, 53 (backing plate molded to mirrors), Figs. 3, 6. And the '026 publication discloses that single integral molding is the preferred fabrication process, and that "[b]y loading all the sub components of plano-multiradius reflective element assembly 30 into a molding tool, and then injecting polymeric resin to form the backing plate . . . enable[es] . . . accommodation of any dimensional tolerances in the sub components." '026 publication at ¶ 53; *see also, id.* at Figs. 3, 6. A POSA would understand that this process of fabrication would result in the second portion of the mirror backing plate having a corresponding curvature to the selected auxiliary mirror, whether a spherical, aspherical, or multiradius curvature.

215. Claim 24 element [c] recites:

> [c] wherein said wall at least partially partitions said backing plate element into a first region where said plano reflective element is disposed and a separate and adjacent second region where said auxiliary reflective element is disposed, and wherein said first region is adapted to receive said plano reflective element and said second region is adapted to receive said auxiliary reflective element and

216. As I discussed above for claim 12, the ’026 publication discloses a wall disposed between the primary and auxiliary mirrors and serving to partition the backing plate into plano and auxiliary regions for receiving the respective mirrors. ’026 publication ¶¶ 42, 50-52, 59, 61, Figs. 3, 6. These regions are adapted to receive the reflective elements as per Figures 3 and 6.

217. Claim 24 element [d] recites:

> [d] wherein said exterior sideview mirror assembly including said plano-auxiliary reflective element having a rearward field of view when attached to the side of the automobile comprises a driver-side exterior sideview mirror assembly, and

218. As I discussed above with respect to claim 1’s preamble and elements 1[a] and 1[b], as well as claim 14, the ’026 publication discloses a driver’s-side exterior rearview mirror assembly having a rearward field of view when attached to the side of an automobile, and also discloses a plano-auxiliary assembly. ’026 publication at Abstract.

219. Claim 24 element [e] recites:

[e] wherein, when attached to the side of the automobile, said driver-side exterior sideview mirror assembly provides to the driver of the equipped automobile a total field of view that generally subtends an angle of at least about 25 degrees with respect to the side of the equipped automobile.

220. As I discussed above for claim 14, the ’026 publication states that “[t]he total field of view rearwardly of the automobile of the plano-auxiliary reflective element assembly (which is a combination of the field of view of the plano reflective element and of the auxiliary reflective element) preferably generally subtends an angle of at least about 20° (and more preferably, generally subtends an angle of at least about 25° and most preferably, generally subtends an angle of at least about 30°) with respect to the side of an automobile to which is attached an exterior sideview mirror assembly equipped with the plano-auxiliary reflective element assembly.” ’026 publication ¶¶ 46, 61, 76, Fig. 14.

221. Thus, claim 24 is anticipated.

P. Independent Claim 25

1. Preamble, claim elements 25[a]-[q]

222. Claim 25 contains many of the same elements as recited in claim 1. As I discussed above with respect to claim elements 1[a]-[q], the ’026 publication discloses claim elements 25[a]-[q].

223. Claim element 25[q] differs from claim element 1[q] by limiting the substrate option to only the main plano element. As I noted in claim element 1[q], the ’026 patent also discloses this option and thus discloses claim element 25[q]. ’026 publication ¶¶ 43, 48, 55, 64

224. Thus, the claim elements 25[a]-[q] are disclosed.

2. [r] Spherically bent glass substrate

225. Claim element [r] recites:

> [r] wherein said auxiliary reflective element comprises a fixed reflectance mirror reflector and wherein said fixed reflectance mirror reflector comprises a spherically bent glass substrate coated with a metallic reflector coating;

226. As I discussed above with respect to claim 24, the ’026 publication states that the auxiliary reflective element may comprise a “glass substrate coated with a metallic reflector coating”. ’026 publication ¶ 47, Abstract. And, the ’026 publication discloses that the auxiliary mirror element/bent glass substrate may have spherical curvature. ’026 publication ¶¶ 83, 5-6, 11, 45 (bent glass). And, as I also discussed above with respect to claim 21, the ’026 publication also states that “[m]ultiradius element 55 may comprise a conventional fixed reflectance mirror reflector.” ’026 publication ¶ 47.

227. Thus, the claim element 25[r] is disclosed.

3. [s] Outwardly and downwardly

228. Claim element [r] recites:

> [s] wherein the rearward field of view of said auxiliary reflective element is generally directed at least one of outwardly and downwardly with respect to the longitudinal axis of the equipped automobile when said exterior sideview mirror assembly is attached to the side of the automobile; and

229. As I discussed above with respect to claims 3-5, the ’026 publication states that “[t]he principal axis of the rearward field of view of the second reflective element is directed generally outwardly and downwardly with respect to a longitudinal axis of the automobile when the exterior side mirror system is mounted to an automobile.” ’026 publication ¶ 13; *see also id.* at Abstract, ¶¶ 9, 14-19, 59, 61, 72-74, 76-77, Figs. 3, 6-7, 10-14, claims 1, 19-24.

230. Thus, the claim element 25[s] is disclosed.

4. [t], [u] Total field of view

231. Claim elements 25[t] and [u] recite:

> [t] wherein said exterior sideview mirror assembly including said plano-auxiliary reflective element having a rearward field of view when attached to the side of the automobile comprises a driver-side exterior sideview mirror assembly, and [u] wherein, when attached to the side of the automobile, said driver-side exterior sideview mirror assembly provides to the driver of the equipped automobile a total

field of view that generally subtends an angle of at least about 25 degrees with respect to the side of the equipped automobile.

232. As I discussed above with respect to claim 1 elements [a], [b], and [d], the ’026 publication discloses an exterior sideview mirror assembly with a plano-auxiliary reflective element having a rearward field of view when attached to the side of an automobile, and thus discloses claim element 25[t]. As I discussed above with respect to claim 14, the ’026 publication states that “[t]he total field of view rearwardly of the automobile of the plano-auxiliary reflective element assembly (which is a combination of the field of view of the plano reflective element and of the auxiliary reflective element) preferably generally subtends an angle of at least about 20° (and more preferably, generally subtends an angle of at least about 25° and most preferably, generally subtends an angle of at least about 30°) with respect to the side of an automobile to which is attached an exterior sideview mirror assembly equipped with the plano-auxiliary reflective element assembly.” ’026 publication ¶¶ 46, 61, 76, Fig. 14.

233. Thus, the claim elements 25[t] and 25[u] are disclosed.

Q. Claim 26 – Glass substrate

234. Claim 26 element [a] recites:

26. The exterior sideview mirror system of claim 25,

[a] wherein said plano reflective element comprises a glass substrate having a surface coated with a metallic reflector coating,

235. As I discussed above with respect to claim 24, the ’026 publication discloses that the plano mirror may be comprised of a flat glass substrate coated with a metallic reflector coating. ’026 publication ¶ 43.

236. Claim 26 element [b] recites:

[b] wherein said curved portion of said backing plate element comprises a curvature corresponding to a curvature of said auxiliary reflective element, and

237. As I discussed above with respect to claim 24, the ’026 publication discloses that the curvature of the backing plate corresponds to the curvature of the auxiliary mirror. ’026 publication ¶¶ 50, 53, Figs. 3, 6. And the ’026 publication discloses that single integral molding is the preferred fabrication process, and that “[b]y loading all the sub components of plano-multiradius reflective element assembly 30 into a molding tool, and then injecting polymeric resin to form the backing plate . . . enable[es] . . . accommodation of any dimensional tolerances in the sub components.” ’026 publication at ¶ 53; *see also, id.* at Figs. 3, 6. A POSA would understand that this process of fabrication would result in the second portion of the mirror backing plate having a corresponding curvature to the selected auxiliary mirror, whether a spherical, aspherical, or multiradius curvature.

238. Claim 26 element [c] recites:

> [c] wherein an element of said backing plate element at least partially partitions said backing plate element into a first region where said plano reflective element is disposed and a separate and adjacent second region where said auxiliary reflective element is disposed and wherein said first region is adapted to receive said plano reflective element and said second region is adapted to receive said auxiliary reflective element.

239. As I discussed above for claim 24, the ’026 publication discloses a wall, a backing plate element, disposed between the primary and auxiliary mirrors and serving to partition the backing plate into plano and auxiliary regions for receiving the respective mirrors. ’026 publication ¶¶ 42, 50-52, 59, 61, Figs. 3, 6. The ’026 publication discloses that the demarcation element is formed as a wall. ’026 publication ¶ 51.

240. Thus, the claim is anticipated.

XI. CLAIMS 23-26 OF THE ’244 PATENT WOULD HAVE BEEN OBVIOUS OVER HENION, CATLIN, AND PLATZER

241. In this section, I will explain why claims 23-26 of the ’244 patent would have been rendered obvious by the combination of Henion, Catlin, and Platzer. I note that in this discussion, I may focus on the particular language in specific claims, but it should be understood, as described above, that my analysis

applies to the corresponding limitations of all claims containing identical or substantially identical language.

A. Claim 23

1. Preamble, [a], [b] Exterior sideview mirror assembly

242. The preamble and elements [a] and [b] of claim 23 recite:

> 23. An exterior sideview mirror system suitable for use on an automobile, said exterior sideview mirror system comprising:
>
> [a] an exterior sideview mirror assembly adapted for attachment to a side of an automobile;
>
> [b] said exterior sideview mirror assembly including a reflective element having a rearward field of view when attached to the side of the automobile;

243. Henion describes an "exterior, rear-view mirror assembl[y]" including a housing that "attaches to the vehicle." Henion at 1:3-10. Figure 1 of Henion demonstrates one such assembly attached to a vehicle.

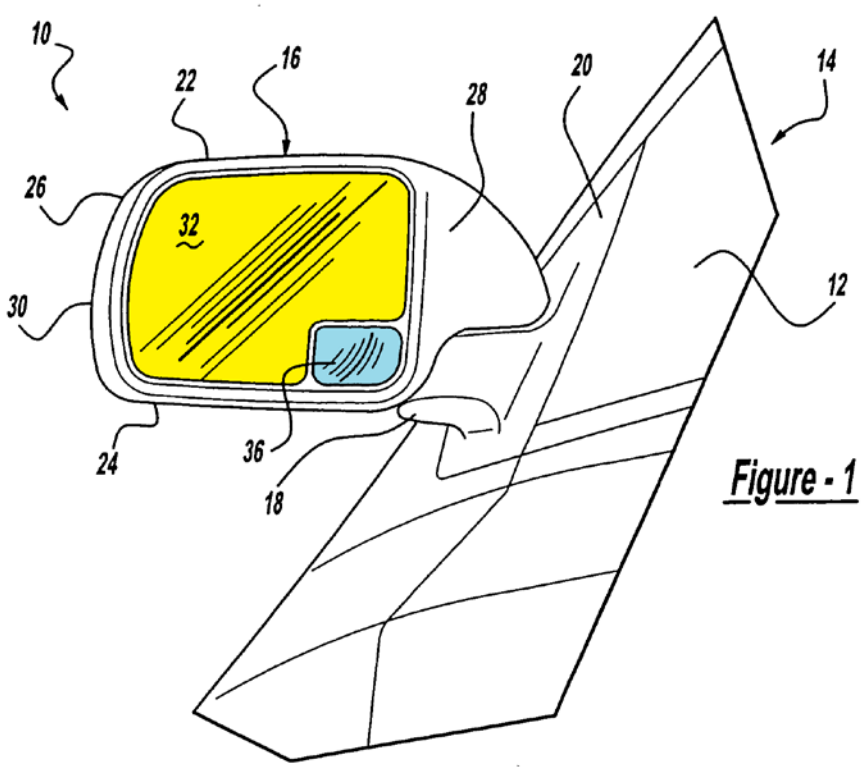


Figure - 1

244. As shown in Fig. 1, the reflective element assembly faces toward the rear of the vehicle (it is disclosed as a rear-view mirror), and thus provides a rearward field of view to the driver. *See also* Henion at 5:9-16 ("With reference to the drawings, and Figs. 1-5 in particular, there is shown an exterior rear view mirror assembly indicated generally at 10 installed on the door 12 of a motor vehicle 14. Mirror assembly 10 is of the typical breakaway design and includes a housing 16 pivotally supported on an arm 18 extending outwardly from a generally triangular shaped mounting plate 20.").

245. Henion thus discloses these elements.

2. [c] Electrically-Operated Actuator

246. Claim 23 element [c] recites:

> [c] said reflective element attached to an electrically-operated actuator of said exterior sideview mirror assembly and movable by said actuator in order to position said rearward field of view to a driver-desired position when said exterior sideview mirror assembly is attached to the side of the automobile;

247. Henion describes how drive motors may be attached to the multi-function backing plate: "multi-function backing plate 34 may include suitable drive motors and the like for remote control adjustment of first reflective element 32 and second reflective element 36." Henion 7:6-10; *see also id.* at 1:5-9, 9:18-22.

248. A POSA reading this claim limitation would have understood that adjusting the reflective elements is a form of actuation, and that the drive motors of Henion perform that actuation, and are thus actuators. A POSA would also have understood that adjustment of the reflective mirror is to position its rearward field of view because the reflective element moves, and thus accepts a different angle of incident light for reflection.

249. A POSA reading this claim limitation would have found it obvious that the actuators may be electrically operated. Electrical actuation is one of two primary means of adjusting automotive rearview mirror elements, the other being manual actuation. A POSA would have understood that the "motors" claimed by

Henion were not mechanical actuators, but were instead the electric motors commonly used to adjust vehicle peripherals such as windows, locks, and mirrors.

250. Finally, Henion discloses that the exterior sideview mirror assembly is attached to the side of the automobile for the same reasons as I described above with respect to the preamble and claim elements 23[a] and [b].

251. Henion thus discloses this element.

3. [d] Plano-auxiliary assembly

252. Claim 23 element [d] recites:

> [d] wherein said reflective element comprises a plano-auxiliary reflective element assembly, said plano-auxiliary reflective element assembly comprising a plano reflective element having unit magnification and a separate auxiliary reflective element having a curvature;

253. Henion states that housing (16) is "adapted to receive a first reflective element 32. First, reflective element 32 is preferably a flat mirror to provide a generally unaltered field of view to the user." Henion at 5:17-6:1. A POSA would have understood that Henion's flat mirror has unit magnification. Platzer, (Article), The Geometry of Automotive Rearview Mirrors – Why Blind Zones Exist and Strategies to Overcome Them, at 143-44.

254. Henion also states that "[i]n addition to first reflective element 32, support member or multi-function backing plate 34 also supports a second

reflective element 36." Henion at 6:7-8. Henion states that this reflective element may be curved. Henion at 5:16-17 ("Second reflective element 36 is preferably a convex shape to provide the desired wide angle field of view."); *see also id. at* 9:14-15 ("Reflective element 88 may be any suitable type such as a flat, concave, convex").

255. The primary flat mirror and secondary curved mirror of Henion are shown in Figs. 2 and 3 below. Fig. 2 depicts a frontal view of the mirror assembly. The flat primary mirror (32) is annotated in yellow, and the curved auxiliary mirror (36) is annotated in blue. Fig. 3 depicts a cross-sectional view of the mirror assembly of Fig. 2. Henion at 2:9-11. As shown in Fig. 3, the plano mirror is flat, while the auxiliary mirror is curved.

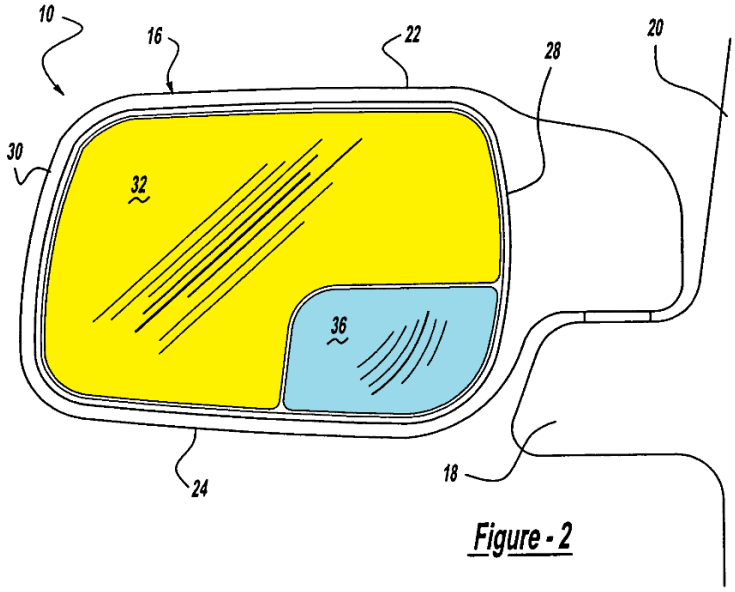


Figure - 2

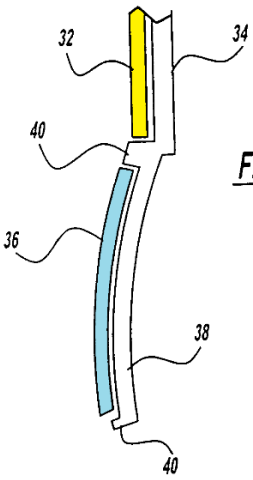


Figure - 3

256. Henion thus discloses this element.

4. [e] Mounted Adjacently, Side-By-Side, And Not Superimposed

257. Claim 23 element [e] recites:

> [e] said plano reflective element and said auxiliary reflective element of said plano-auxiliary reflective element assembly mounted adjacently at said plano-auxiliary reflective element assembly in a side-by-side relationship and not superimposed with one reflective element on top of the other reflective element;

258. Henion Fig. 2 shows the two mirrors of the assembly in an adjacent, side-by-side relationship, in which the primary (yellow) and auxiliary (blue) reflective elements share two sides in accordance with the claim construction discussed above in the claim construction section. The boundary between the plano and auxiliary mirrors is also visible in Fig. 2, and annotated below.

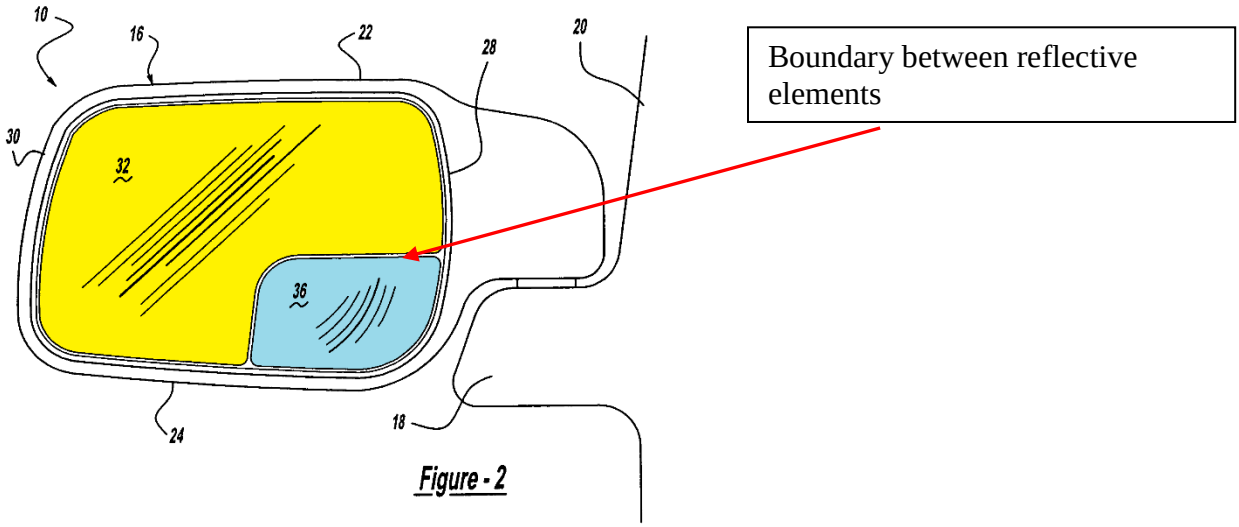


Figure - 2

259. The cross-sectional view of Henion's mirror assembly depicted in Figs. 3 and 4 below, likewise shows the boundary between the primary and auxiliary mirrors. Specifically, Henion states that "second reflective element 36 preferably attaches to spotter support section 38 using adhesive or other fastening or may be mechanically held in place between ears 40." Henion at 6:21-7:2.

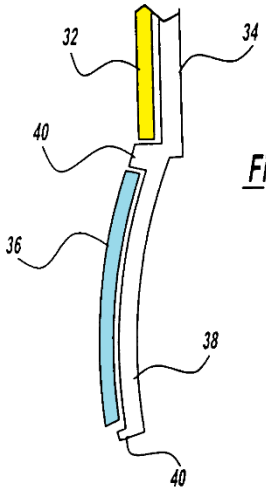


Figure - 3

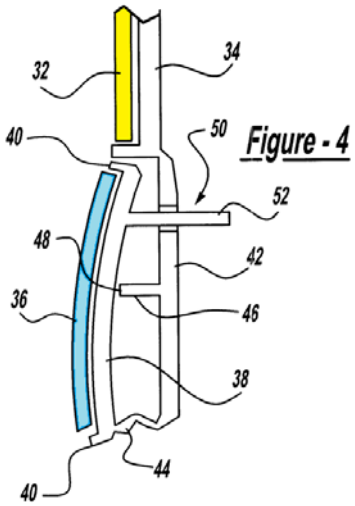


Figure - 4

260. Fig. 2 in Henion likewise shows the plano mirror and the auxiliary mirror positioned in a "side-by-side" configuration. In addition, the mirror elements are disclosed by Henion as not superimposed with one reflective element on top of the other, as shown by the mirrors' spacing in Figs. 3 and 4.

261. The "side-by-side" limitation of claim element 1[e] would have been obvious to a POSA even if the term "side-by-side" were construed to only require the primary and auxiliary mirrors to share one edge under a broader construction

than the one I understand Magna to be taking, as described above in the section on claim construction.

262. Orientations in which the secondary mirror is not in the corner of the primary mirror, but instead shares only a single edge with the primary mirror, were well-known in the prior art at the time of the invention. For example, Yamabe showed a variety of arrangements including two where the secondary mirror is not in the corner. Ex. 1038 Figs. 1-3. Likewise, Kondo discloses a single mirror in which the flat and curved portions of an integrally-formed plano-auxiliary element share a common edge that covers the entire vertical extent of the mirror assembly. Kondo Fig. 9. Silvstre, too, shows the mirrors sharing a single edge, top-and-bottom arrangement. Ex. 1037 at Fig. 2. Similarly, as discussed above with respect to claim element 1[e] and 1[i] for the ’026 publication, the ’026 publication discloses a variety of side-by-side arrangements for the primary and secondary mirrors.

263. Further, a POSA reading Henion would have been motivated to alter the size and orientation of the auxiliary mirror relative to the primary mirror to satisfy the wider construction of “side-by-side” that I have been informed is an alternative to the construction proposed by Magna. The auxiliary mirror is used to provide a wide-angled field of view in both the horizontal and vertical directions. If the auxiliary mirror is only placed in the corner of the plano-reflective element,

as in Henion, the auxiliary element's field of view in the horizontal or vertical direction may be unduly constrained, and prevent the driver from viewing the full width of the road (in the horizontal direction) or the full surface of the road (in the vertical direction). In order to gain an increased field of view for the driver, and in order to increase coverage of the blind spot, a POSA would have been motivated to extend the auxiliary mirror in the horizontal or vertical directions such that the auxiliary mirror extended across the entire width or height of the plano mirror, respectively.

264. Henion thus discloses this element.

5. [f] Backing Plate mounted to actuator

265. Claim 23 element [f] recites:

> [f] said plano reflective element and said auxiliary reflective element supported at a backing plate element, said backing plate element mounting to said actuator such that movement of said backing plate element of said plano-auxiliary reflective element assembly by said actuator simultaneously and similarly moves said plano reflective element and said auxiliary reflective element;

266. Henion describes a backing plate in which the auxiliary mirror may be adjusted relative to the primary mirror. Henion 7:11-13 ("Figs. 4 and 5 depict an embodiment of mirror assembly 10 in which the orientation of second reflective

element or spotter mirror 36 is adjustable with respect to first reflective element 32.").

267. Henion also describes a different type of backing plate, in which the auxiliary mirror is fixed at an angle relative to the spotter mirror. Henion 6:19-21 ("Multi-function backing plate 34 preferably includes an integral spotter support section 38 which is shaped to the desired shape of second reflective element 36."), Fig. 3. Figs. 3 and 4 below illustrate the former and latter backing plates, respectively.

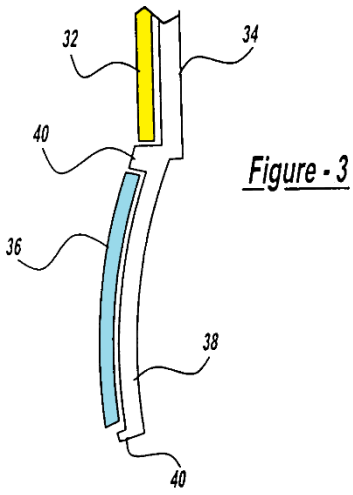


Figure - 3

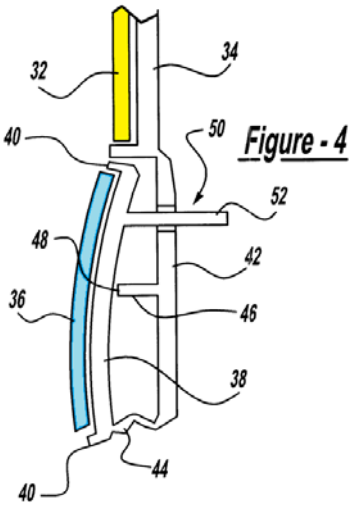


Figure - 4

268. As shown in both Figs. 3 and 4, curved element 36 is supported by curved backing plate section 38, and plano element 32 is supported by plano backing plate section 34. Henion 6:7-8 ("In addition to first reflective element 32, support member or multifunction backing plate 34 also supports a second reflective

element 36"), 6:11-12 ("the multi-function backing plate supports standard and wide angle reflective elements"), 6:1-4, 6:21-7:2, 7:5-6, 7:11-15.

269. Henion describes how the backing plate in both embodiments is mounted to an actuator. Henion Fig. 13 is a cross-sectional view of a mirror assembly containing a backing plate 124. Henion 3:15-17, 13:1-4. "Support member or multi-function backing plate 124 includes a suitable drive motor 128 and the like for remote control adjustment of the mirror…" Henion 13:6-8.

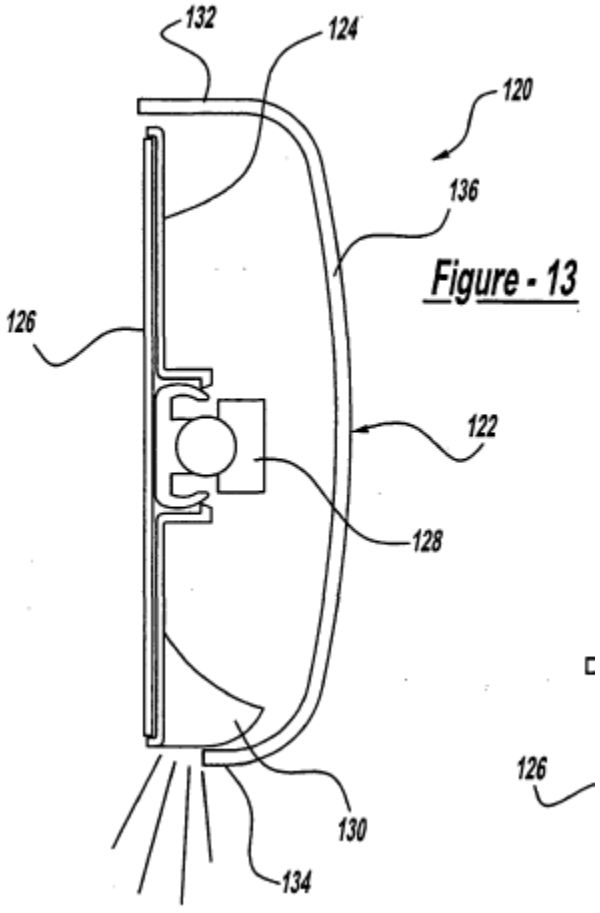


Figure - 13

270. Henion further states that the reflective element of Fig. 13 may comprise any of the reflective arrangements described with respect to Figs. 1-12. Henion 13:4-6 ("Reflective element 126 may be arranged in accordance with the reflective elements described above with respect to Figs. 1-12."). This includes the dual-mirror arrangements of Figs. 3 and 4.

271. Any movement of the actuator in Fig. 13 will be transferred through to the backing plate and the reflective element attached thereto. This reflective element may comprise the two-mirror arrangement of Figs. 3 and 4. Because the plano and auxiliary mirrors in those arrangements are attached to the backing plate, they will undergo the same rotation as the backing plate, thus meeting the "simultaneously and similarly" portion of this limitation.

272. Henion thus discloses this element.

6. [g], [p] Planar and auxiliary mirror fields of view, blind spot

273. Claim 23 element [g] recites:

> [g] said auxiliary reflective element having a wide-angle field of view encompassing a blind spot in the side lane adjacent the side of the automobile to which said exterior sideview mirror assembly is attached;

274. Claim 23 element [p] recites:

> [p] wherein, when said exterior sideview mirror assembly is attached to the side of the automobile, the field of view of said plano reflective element generally views rearwardly of the equipped automobile and the field of view of said auxiliary reflective element generally views towards a blind spot in the side lane adjacent the side of the automobile to which said exterior sideview mirror assembly is attached, said blind spot being generally outside the rearward field of view of said plano reflective element when said plano reflective element is viewed by a driver of the equipped automobile when said exterior sideview mirror assembly is attached to the side of the automobile;

275. Henion states that the auxiliary mirror is convex to provide a wide-angle field of view. "Second reflective element 36 is typically referred to as a spotter mirror or fisheye mirror and preferably provides a wide angle of view of the area rearward and sideward of the vehicle. Second reflective element 36 is preferably a convex shape to provide the desired wide angle field of view." Henion 6:13-17, Abstract. A POSA would have understood that a spotting mirror provides a view of a blind spot in the side lane on the side of the vehicle. Henion claim 1 states that the field of view of the second mirror is wider than that of the first mirror, and Henion's claim 5 states that the position of the second element is adjustable independently of the first reflective element. Thus, a POSA would understand that the spotting mirror field of view would be adjusted to the side lane where the where

the first element has a blind spot, and would result in the wider field of view of the second element being generally outside the field of view of the plano element.

276. A POSA reading Henion would have understood that a convex mirror had a wide angle field of view relative to the plano mirror because the curved surface accepts a larger angle of incident light to be reflected to the driver's eye relative to the plano mirror. Platzer, (Article) The Geometry of Automotive Rearview Mirrors – Why Blind Zones Exist and Strategies to Overcome Them, at 143-44.

277. Further, the problem of blind spots in plano mirrors was well-known to those of skill in the art at the time of the invention. *See, e.g. id.* at 143. A POSA reading Henion would thus have understood that plano mirrors have a shortcoming – they cannot view into the blind spot.

278. A POSA would also have understood that the convex-curved auxiliary reflective element would produce a wider field of view than the plano element, and that this wider field of view could be used to view areas not visible in the plano mirror's field of view, namely, the blind spot on the side lane.

279. Henion thus discloses these elements.

7. [h], [k], [l], [m] Support portions and capable of supporting

280. Claim 23 element [h] recites:

[h] said backing plate element having a first support portion supporting said plano reflective element and a second support portion supporting said auxiliary reflective element;

281. Claim 23 element [k] recites:

[k] wherein said backing plate element is capable of supporting said plano reflective element and said auxiliary reflective element;

282. Claim 23 element [l] recites:

[l] wherein said first support portion of said backing plate element comprises a flat portion and wherein said plano reflective element is disposed at said flat portion;

283. Claim 23 element [m] recites:

[m] wherein said second support portion of said backing plate element comprises a curved portion and wherein said auxiliary reflective element is disposed at said curved portion;

284. Henion describes how the backing plate element has separate portions that support each mirror. Henion 6:1-4, 6:7-8 ("In addition to first reflective element 32, support member or multi-function backing plate 34 also supports a second reflective element 36.") & Fig. 3 (below). Henion further states that the backing plate is "suitably shaped" to support first reflective element 32. Henion 5:22-6:6. Because Henion teaches that the backing plate supports the reflective elements, a POSA would understand that the backing plate is "capable" of

supporting them. Similarly, Henion states that "spotter mirror or second reflective element 36 is supported by multi-function backing plate 34. Multi-function backing plate 34 preferably includes an integral spotter support section 38 which is shaped to the desired shape of second reflective element 36." Henion 6:18-7:6. As demonstrated in Fig. 3 below, support portion 34 of the backing plate is flat to accommodate plano reflective element 32, and support portion 38 is curved to accommodate auxiliary reflective element 36.

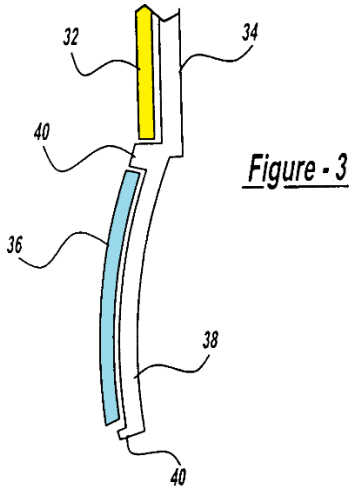


Figure - 3

285. Henion thus discloses these elements.

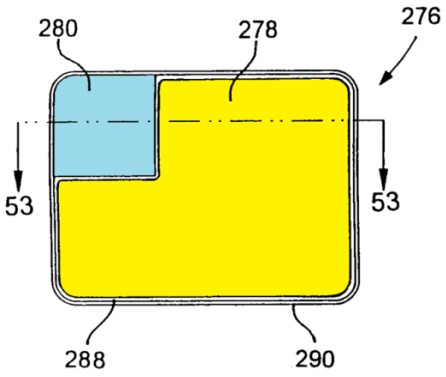
8. [i] Auxiliary mirror outboard

286. Claim 23 element [i] recites:

[i] wherein said auxiliary reflective element is positioned at an outboard portion of said plano-auxiliary reflective element assembly when said exterior sideview mirror assembly is mounted to the side of the automobile;

287. Henion Figure 10 demonstrates how this limitation is met. The auxiliary mirror of Figure 10 extends outboard of the primary mirror, as shown below, and thus is positioned at the outboard portion of Figure 10. Henion at 3:5-8 (Fig. 10 is a perspective view of a mirror assembly having a conventional reflective element, a spotter reflective element, and an indicator light assembly beside the conventional reflective element."). This limitation is further disclosed by Platzer, which states that its "auxiliary mirror is placed in the upper and outer quadrant of the rearview mirror." Platzer 15:16-17, *see also id.* 37:18-28 & Figs. 52, 53. This arrangement is depicted in Figs. 52 and 53 below.

Fig. 52



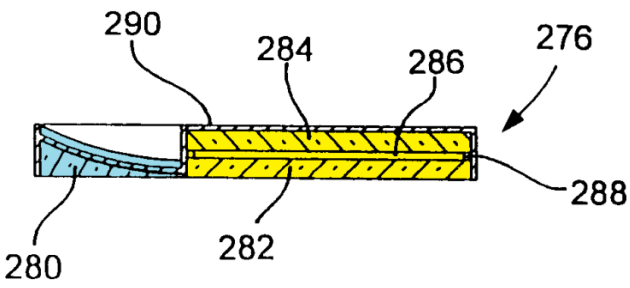


Fig. 53

288. A POSA would have understood that Platzer's outboard auxiliary arrangement had several obvious advantages over the inboard auxiliary mirror depicted in Henion Figs. 1 and 2.

289. *First*, a POSA would have understood that placing the auxiliary mirror at the outboard edge would have provided better coverage of the blind spot,

which itself is outboard of the primary mirror's field of view. The field of view of a plano-reflective mirror element extends at some angle outboard from the side of the automobile. Overtaking vehicles first appear at the inboard edge of the plano mirror and move across to the outboard edge before passing into the blind spot outboard of the plano element's field of view. The field of view of a plano reflective element depicted in Platzer Fig. 1.

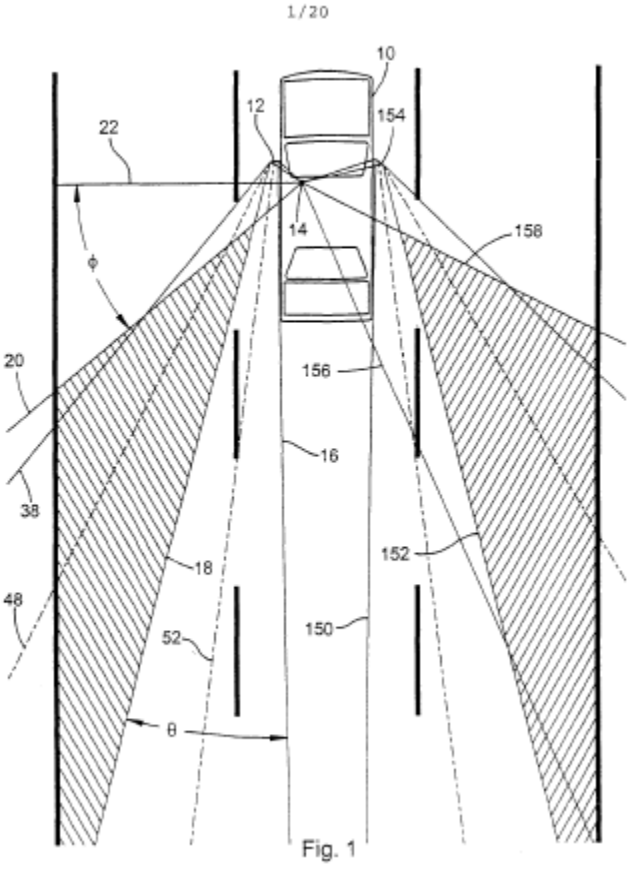


Fig. 1

290. This figure depicts a car on in the middle lane of a road, and the various fields of view of the car's mirror assemblies. Platzer 4:20-21. The field

of view of the plano mirror is the area subtended by angle theta between lines 16 and 18. Henion 8:30-31. The blind zone is the crosshatched area between lines 18 and 20. Henion 8:32-34. As demonstrated by this figure, the blind zone is outboard of the field of view of the plano reflective element.

291. A POSA seeking to use the auxiliary mirror of Henion to view into the blind zone would have been motivated to position the mirror such that it maximized the driver's view of the blind zone. Positioning the auxiliary mirror at the outboard edge of the assembly places the mirror closer to the blind zone, in a position in which it can be more easily angled to view into the blind spot. A POSA would have been motivated to use Platzer's outboard-positioned auxiliary mirror to achieve this improvement in blind spot visibility.

292. *Second*, a POSA would have found it obvious that moving the auxiliary mirror to the outboard position would have created a more intuitive and comprehensible visual picture for a driver viewing an overtaking vehicle in the rearview mirror assembly. As discussed above, an overtaking vehicle moves from inboard to outboard in the plano mirror's field of view. As the vehicle passes into the blind spot, it disappears from the outward edge of the plano mirror and transitions into the auxiliary mirror. This effect is illustrated in Figs. 9 and 10a-10d of Platzer.

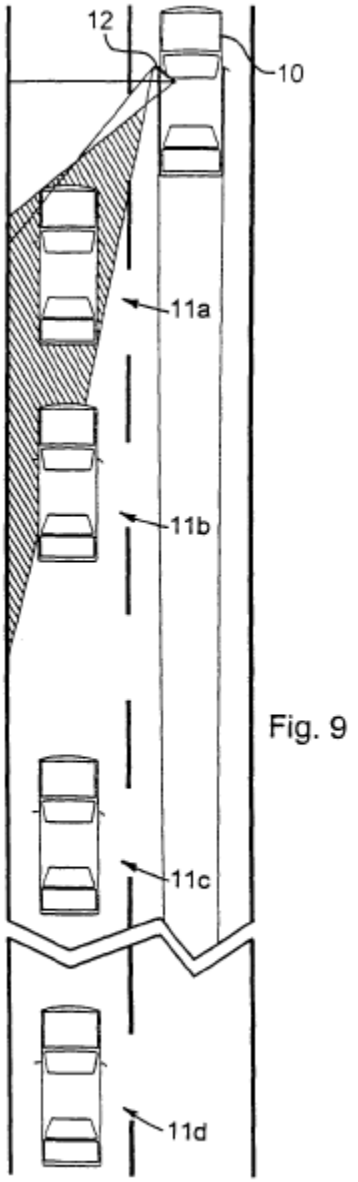


Fig. 9

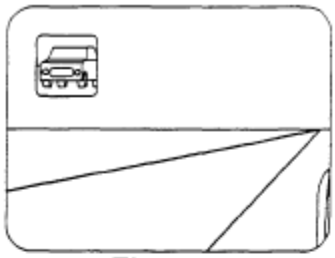


Fig. 10a

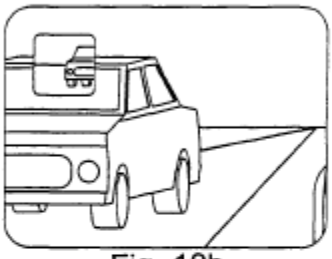


Fig. 10b

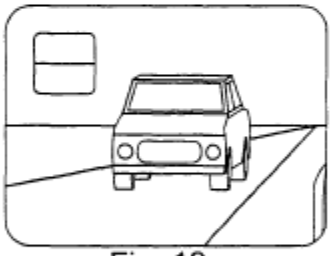


Fig. 10c

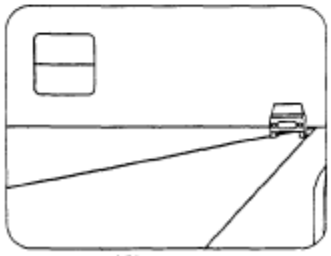


Fig. 10d

293. If the auxiliary mirror is on the outboard edge of the plano mirror, as in Platzer, then the overtaking vehicle moves smoothly, in sequence, from inboard to outboard as it passes out of the plano mirror's field of view and into the blind spot. This is illustrated in Figs. 10b and 10a.

294. If the auxiliary mirror is at the inboard edge of the assembly, as in Henion, the overtaking vehicle will move inboard to outboard in the plano mirror's field of view. Then, as it disappears into the blind spot at the outboard edge of the plano mirror, it will reappear in an entirely different location: the inboard auxiliary mirror. This discontinuity in representation has the potential to confuse drivers as to the location of overtaking automobiles in their blind spot, with associated safety implications.

295. A POSA viewing Henion would have understood that the auxiliary mirror's inboard position would confuse drivers as to the presence of vehicles in the blind spot. For that reason, a POSA would have been motivated to use Platzer's disclosure of an outboard auxiliary mirror to correct this problem.

296. *Third*, A POSA reading Henion would have understood that an inboard mirror could obstruct the required field of view of the plano mirror. Federal Motor Vehicle Safety Standard 111 (FMVSS 111), a regulation that "specifies requirements for the performance and location of rearview mirrors" requires a plano mirror that provides a certain field of view rearward of the vehicle, as depicted in Figures 3A and 3B below. FMVSS 111 at 17 ("Each passenger car shall have an outside mirror of unit magnification. The mirror shall provide the driver a view of a level road surface extending to the horizon from a line, perpendicular to a longitudinal plane tangent to the driver's side of the vehicle at

the widest point, extending 2.4 meters (8 feet) out from the tangent plane 10.7 meters (35 feet) behind the driver's eyes, with the seat in the rearmost position").

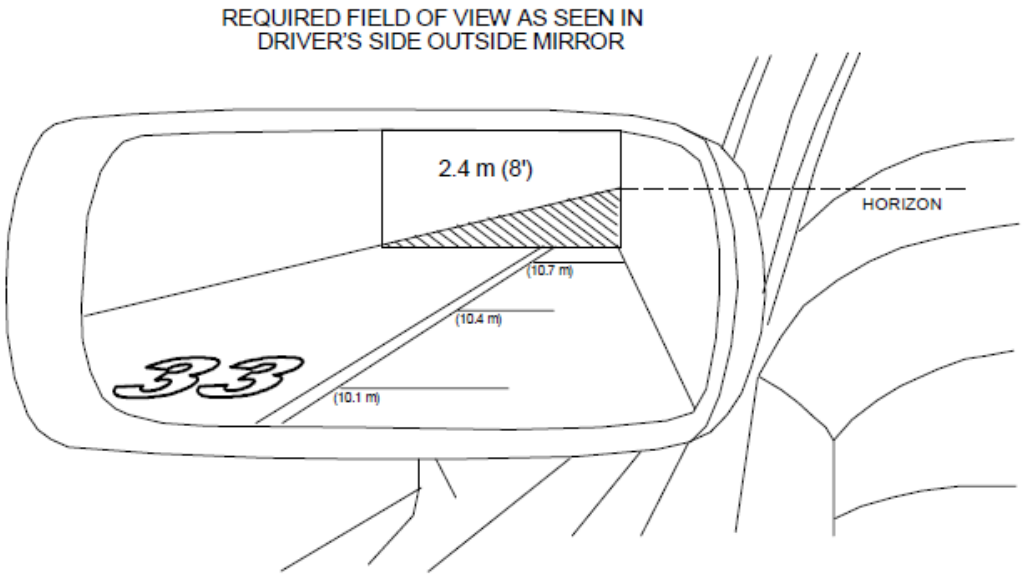


FIGURE 3A

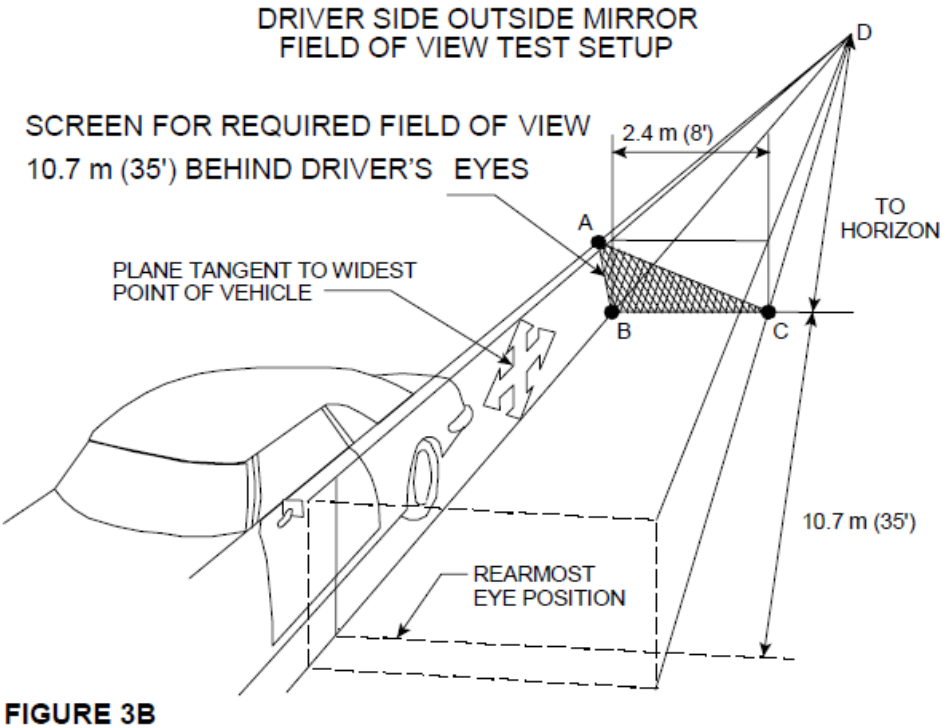


FIGURE 3B

297. As depicted in Figs. 3A and 3B, the test for determining whether the plano mirror provides an adequate field of view rearward of the vehicle requires screening for adequate coverage at a point 35 feet behind the driver's eyes. A POSA would have understood that an auxiliary reflective element placed at the corner of the plano mirror could interfere with this standard, and would thus have been motivated to identify an alternative location for the auxiliary mirror.

298. *Fourth*, both Henion and Platzer address the problem of improving the fields of view of rearward mirror systems through a combination of flat and curved mirrors. Henion at 1:1-4:6; Platzer at 1:14-4:14. Similarly, both disclose the same key parts, including primary flat and auxiliary curved mirrors, mirror assemblies and housings, mirror backing plates, and angled fields of view. Due to this overlap in function and composition, a POSA would have understood that implementing the outboard mirror of Platzer in Henion's mirror assembly would produce a predicable result: the system of Henion with the blind spot detection and driver experience of Platzer.

9. [j] Polymeric substrate

299. Claim 23 element [j] recites:

> [j] wherein said backing plate element comprises a polymeric substrate that is formed as a single element by injection molding of a polymeric resin;

300. As shown in Fig. 3, the backing plate of Henion is a single, integral whole. Henion Fig. 3; *see also id.* at 6:1-7:2 (describing the single-piece multi-function backing plate of Fig. 3).

301. And Henion specifically states that in the backing plate of Figs. 4 and 5, in which the spotter mirror may be adjusted "support member 34, support section 38, extension member 42, and hinge 44 may but need not, be integrally formed." Henion 7:17-19, Figs. 4-5. Henion thus explicitly discloses that the backing plate may be a single integral unit. A POSA reading this description would have found it obvious that an "integrally formed" backing plate was one composed of a single element.

302. Henion also discloses that the reflective elements can be made of glass or plastic. At the time of the invention, injection molded parts for mirror support components were commonly made of plastic. *See* Maxwell, Plastics in the automotive industry at 114 ("[t]he door-mounted rear view mirror with a plastic body, now a virtually universal feature"), 114 ("[t]he great majority of today's mirror housings are moulded"); 115 ("Materials other than nylon are increasingly entering this field. Plastics from BASF are used in the novel double mirror design for a Kaess Bohrer Setra bus. The foot housing and the housing for both mirrors are injection moulded…"). Further, a POSA would have understood the "polymeric substrate" of the claimed injection molding process to be a plastic

substrate. *See* Bucknall, Principles of Polymer Engineering 1 ("[p]olymers, in the form of plastics…").

303. A POSA at the time of the invention would thus have understood that the backing plate of Henion Figure 3 could have been formed by injection molding.

304. A POSA reading Henion would thus have found it obvious that backing plate element 34 could have been formed as an integral whole using polymer injection molding. Injection molding with plastics was a cheap, efficient, and effective manufacturing process for mirror supports and casings at the time of the invention, and remains so today. A POSA reading Henion would have first considered polymer injection molding to create the integrally formed backing plate 34 depicted in Henion Figure 3.

305. Even if this limitation would not have been obvious to one of skill in the art, Catlin describes a "mirror support plate" for an automotive rearview mirror system that is "preferably injection molded from a resinous plastic." Catlin 5:22-28. As I described above, the '244 patent's recitation of "polymeric substrate" would be understood by a POSA to constitute a plastic substrate. Catlin thus discloses this limitation.

306. A POSA reading Henion would have been motivated to combine it with Catlin's injection molded backing plate for several reasons.

307. *First*, Catlin concerns the same field of endeavor as Henion: automotive rearview mirror assemblies that seek to improve rearview visibility, including through adjacent mounting of multiple mirrors, which may be "planar or convex." Catlin 1:59-62, 3:1-9. It further describes the same major components as Henion: exterior rearview mirror assemblies, multiple reflective mirror elements, support brackets, mirror housings, backing plates, and remote and local mirror actuation. Catlin 2:4-3:52. Due to this overlap in function and composition, a POSA would have understood that using Catlin's injection-molded backing plate to create the single-piece backing plate of Henion would have created a predictable result – the one-piece backing plate disclosed in Henion.

308. *Second*, A POSA at the time of the invention would have appreciated that injection molding the backing plate would have provided a more stable base for the mirrors. Stability is of particular salience to spotter mirror systems, like Henion, where the rearward field of view of the entire mirror assembly, including the driver's blind spot, depends on the precise angular difference between the primary and secondary mirrors. It is more difficult to achieve such angles using backing plates created by joining multiple parts, such as separate sub-plates for supporting the primary and spotter mirrors that are joined by adhesive, fasteners, or other mechanical means of attachment. Non-integral plates are also more prone to misalignment, require more assembly time, and cost more. A POSA would thus

have been motivated to avoid such problems in crafting the backing plate disclosed in Henion by using injection molding.

309. *Third*, a POSA would have been motivated to use injection molding to form the backing plate because injection molding is a preferred manufacturing process in a mass production environment such as automobile production.

310. A POSA at the time of the invention would have understood that, just as for the backing plates of Catlin, injection molding could have been used to create the backing plate of the ’244 patent.

10. [n] Different, angled rearward field of view

311. Claim 23 element [n] recites:

> [n] wherein the rearward field of view of said auxiliary reflective element is different from and angled to the rearward field of view of said plano reflective element when both are attached to said backing plate element of said plano-auxiliary reflective element assembly when said plano-auxiliary reflective element assembly is included in said exterior sideview mirror assembly and when said exterior sideview mirror assembly is attached to the side of the automobile;

312. As I discussed above with respect to claim limitations 1[h], 1[k], 1[l], and 1[m], Henion teaches that the primary and secondary mirrors are installed on a common backing plate, which is installed in the mirror assembly, which is

attached to the driver's side of the automobile. Henion 5:9-6:4 (summarizing the rearview mirror assembly and associated components).

313. Henion Fig. 3 discloses an embodiment of the backing plate in which the primary and secondary mirrors are fixed at angles relative to one another on the backing plate:

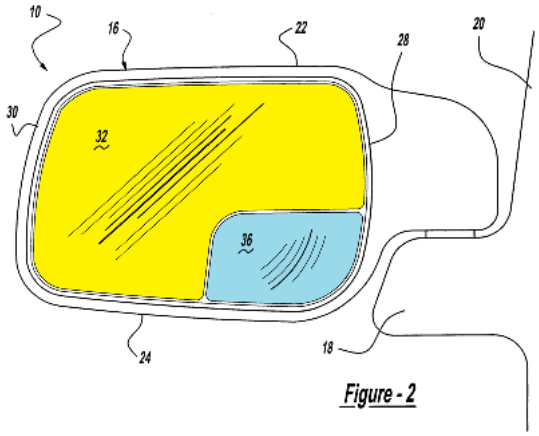


Figure - 2

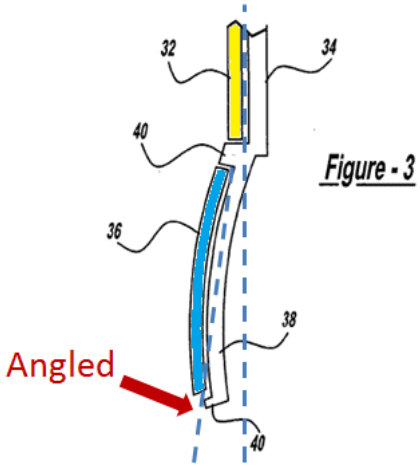


Figure - 3

314. The angle between the primary and secondary mirrors is annotated on Fig. 3. A POSA reading Henion would have understood that the differing angles of Fig. 3's mirrors lead to a different field of view between the primary and secondary mirrors, because the incident light reflected to the driver by each mirror will vary based upon the mirror angles.

315. Henion also discloses an embodiment in which the auxiliary mirror may be angled relative to the primary mirror. Henion 8:9-21. This angling leads to differing fields of view for the same reasons as described above.

316. Further, a POSA would have understood that the differing curvatures of the flat and curved mirror elements would lead to differing fields of view, because the curved surface causes incident light to be reflected to the driver's eye at a different angle relative to the plano mirror. Platzer, (Article), The Geometry of Automotive Rearview Mirrors – Why Blind Zones Exist and Strategies to Overcome Them, at 143-44.

11. [o] Angled second support portion

317. Claim 23 element [o] recites:

> [o] wherein angling of the rearward field of view of said auxiliary reflective element relative to the rearward field of view of said plano reflective element is achieved, at least in part, by an angling of said second support portion of said backing plate element supporting said auxiliary reflective element relative to said first support portion of said backing plate element supporting said plano reflective element;

318. As I discussed above with respect to claim limitations 23[h], 23[k], 23[l], and 23[m], Henion teaches that the primary and secondary mirrors are installed on a common backing plate, which is installed in the mirror assembly, which is attached to the driver's side of the automobile. Henion 5:9-6:4 (summarizing the rearview mirror assembly and associated components).

319. Henion Fig. 3 discloses an embodiment of the backing plate in which the primary and secondary mirrors are fixed at angles relative to one another on the backing plate:

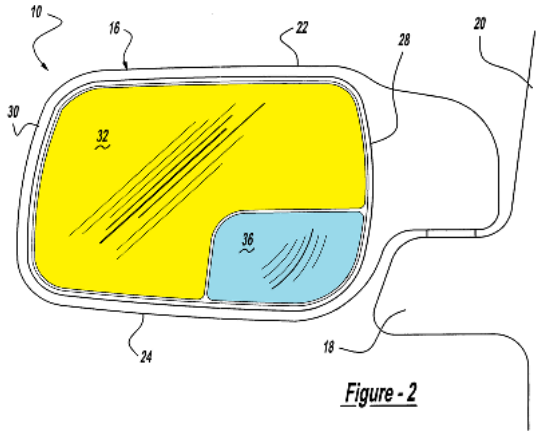


Figure - 2

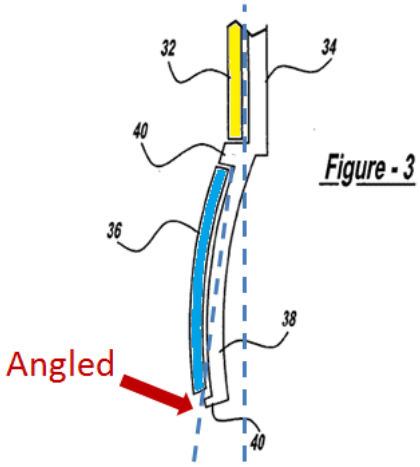


Figure - 3

320. The angle between the primary and secondary mirrors is annotated on Fig. 3. A POSA reading Henion would have understood that the differing angles of Fig. 3's mirrors leads to a different field of view between the primary and secondary mirrors, because the incident light reflected to the driver by each mirror will vary based upon the mirror angles.

321. Henion also discloses an embodiment in which the auxiliary mirror may be angled relative to the primary mirror. This angling leads to differing fields of view for the same reasons as described above. Henion claim 1 also recites that the first reflective element has a first field of view, and the second reflective

element has a second field of view, with the second field of view being wider than the first.

322. Further, a POSA would have understood that the differing curvatures of the flat and curved mirror elements would lead to differing fields of view, because the curved surface accepts a larger angle of incident light to be reflected to the driver's eye relative to the plano mirror. Platzer, (Article) The Geometry of Automotive Rearview Mirrors – Why Blind Zones Exist and Strategies to Overcome Them at 143-44. Henion further teaches that the convex mirror can be adjusted in angle and thus can be made to point at different fields of view. Henion at 8:9-12; *see also id.* at 7:11-13 ("the orientation of second reflective element or spotter mirror 36 is adjustable with respect to first reflective element 32").

323. Henion thus discloses this element.

12. [q] Reflective Element Substrates

324. Claim 23 element [q] recites:

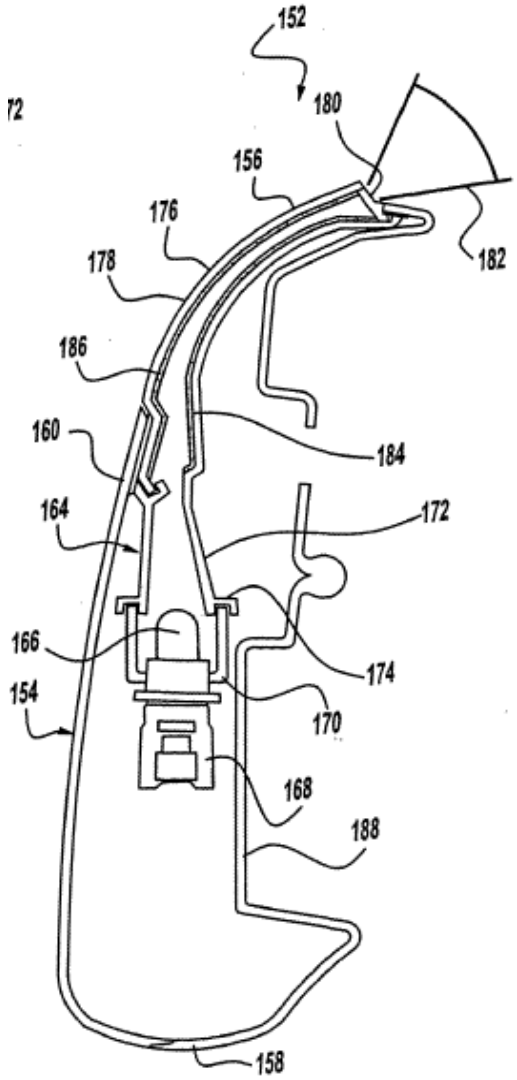
> [q] wherein said plano reflective element comprises one of (a) a glass substrate having a surface coated with a metallic reflector coating and (b) a polymeric substrate having a thin glass element applied to a surface thereof and with an opposing surface thereof having a reflecting layer applied thereto;

325. Henion states that the main or auxiliary element may be comprised of a glass substrate with a metallic reflector coating: "First reflective element 32 may

be implemented upon a glass or plastic substrate, each substrate receiving a reflective coating in accordance with techniques known to those skilled in the art…." Henion 6:4-6; *see also id.* at 7:3-6, 10:7-9, 23:8-11, 23:17-21.

326. Construction of mirror elements by deposition of a metallic reflector coating upon a glass substrate was well-known in the art at the time of the invention. This technique provides a number of advantages: a glass substrate may be easily molded or bent to achieve certain optical properties, glass substrates and metallic reflector coatings are cheap, metallic reflector coatings provide a high degree of reflectance and durability, and metallic reflector coatings are easily applied to a variety of surfaces. A POSA would have known that metallic reflector coatings are a preferred technology for establishing reflective surfaces on reflective elements. As such, a POSA would have understood Henion's reflective coating created "in accordance with techniques known to those skilled in the art" as encompassing and including a metallic reflector coating.

327. Henion also describes a metallic reflector coating. One embodiment described in Henion is a rearview mirror with a light source or globe attached. Henion at 17:10-13, pictured in Fig. 17 below.



Henion Fig. 17.

328. In order to ensure adequate brightness of the light assembly, Henion discloses a reflector element "the interior of which is preferably metallized or coated with a reflective material to collect light projected from the globe and focus it into a light pipe…" Henion at 17:12-13. The light pipe of Henion "is formed by placing a metallized coating on opposing surfaces of housing 172 and lens 178. In

particular, a first metallized coating 184 is formed on housing 172, and a second metallized coating 186 is formed on lens 178 on a surface opposing metallized coating 184. Metallized coatings 184 and 186 cooperate to reflect light projected from globe 166 through to port 180." Henion at 18:10-16.

329. A POSA reading this description would have understood that the metallized coatings of the reflector element and light pipe operated to reflect light, as Henion explicitly states. Because these elements perform the same reflective function as the mirror coatings of claim element 1[q], a POSA would have understood that Henion's metallized reflector coatings could be used for the reflective coatings on Henion's mirror elements. Further, a POSA would have known that metallic glass coatings are a standard and preferred method of producing mirrors. Further, Henion refers to the second element as a spotter or fisheye element. Henion at 10:3-4. A POSA would have understood such fisheye mirrors to be made of glass or plastic substrates with metallic coatings.

330. Henion thus discloses this element.

13. [r] and [s] Reflectance and Wall

331. Claim 23 element [r] recites:

> [r] wherein said auxiliary reflective element comprises a fixed reflectance mirror reflector and wherein said fixed reflectance mirror reflector comprises a curved substrate coated with a metallic reflector coating; and

332. A POSA reading Henion would have found it obvious that either of Henion's mirror elements could have a fixed reflectance. Reflectance, as used in the optical field, is a measure of the proportion of the incident light reflected by a mirror surface. Mirrors with high reflectance reflect a larger proportion of light incident to them than mirrors with low reflectance, and thus appear brighter to a viewer. A fixed reflectance mirror is a mirror where the proportion of the light reflected does not vary. A variable reflectance mirror is one where the proportion of the light reflected by the mirror may be altered by some means, such as passing electrical current through a substance whose reflectance varies as a function of that current.

333. Further, a POSA would have understood that a fixed reflectance rearview mirror could have provided driver safety and an improved driver experience. First, a fixed reflectance mirror cannot become dimmer, either through inadvertent driver adjustment or malfunction, and thus ensures that enough light is reflected to the driver to provide the driver with awareness of areas sidewards and rearwards of the vehicle. Second, a POSA would have understood that not all drivers would want to adjust a variable reflectance mirror to the proper reflectance value for driving conditions, or that drivers might inadvertently dim a variable reflectance mirror to a level that did not provide an adequate view of objects around the vehicle. As a result, a POSA would have understood the benefits of a fixed

reflectance mirror in Henion's disclosed rearview mirror assemblies, and would have found it obvious to include such a mirror in Henion.

334. Further, Henion discloses that its reflective elements may have a fixed or variable reflectance. One of Henion's embodiments describes a reflective element that "may be any suitable type such as a flat, concave, convex, or other type which automatically adjusts to reduce glare." Henion 9:14-16. A POSA would have understood that a variable reflectance mirror could be adjusted to reflect less light, thus reducing glare. Henion describes this glare-reducing mirror as an "other type." For that reason, a POSA would have understood such a mirror to be different from the normal type of mirror contemplated by Henion, namely, one which does not adjust to reduce glare. Such a mirror would have a fixed reflectance. For that reason, Henion discloses this element of Claim 23[r].

335. Henion also discloses that the auxiliary reflective element may be curved with a reflective coating applied. Henion states that the auxiliary reflective element may have a curvature. Henion at 5:16-17 ("Second reflective element 36 is preferably a convex shape to provide the desired wide angle field of view."); *see also id.* at 9:14-15 ("Reflective element 88 may be any suitable type such as a flat, concave, convex").

336. Henion further states that the curved reflective element may comprise a substrate coated with a chrome-reflective coating: "second reflective element 36

may be implemented by utilizing a chrome plated plastic formulation to define second reflective element 36. In such a configuration, the plastic substrate is applied directly to multi-function backing plate 34 as a coating." Henion 7:3-6. A POSA would have understood that the surface of a reflective element is reflective by definition, and thus that the "chrome plated" substrate disclosed by Henion is reflective. A POSA would further understand that chrome is a reflective material.

337. A POSA would further have understood that reflective coatings typically have fixed reflectance. Henion refers to the second element as a spotter or fisheye element. Henion at 10:3-4. A POSA would have known that such fisheye mirrors include curved substrates and fixed reflectance.

338. Henion also states that the primary mirror may be formed by coating a plastic substrate with a reflector: "[f]irst reflective element 32 may be implemented upon a glass or plastic substrate, each substrate receiving a reflective coating in accordance with techniques known to those skilled in the art." Henion 6:4-6. A POSA would have found it obvious to apply this disclosure of a reflector-coated plastic substrate to form a primary reflective element to Henion's secondary mirror. Nowhere does Henion disclose differing methods of manufacture for the primary and secondary mirror. The primary difference between the mirrors that Henion describes is their different shapes and the corresponding differences in field of view that each provides. For that reason, a POSA would have found it obvious

that the "reflective coating" of Henion's first mirror, established in accordance with techniques "known to those skilled in the art," would be equally applicable to Henion's auxiliary mirror.

339. This element is thus disclosed.

340. Claim 23 element [s] recites:

> [s] wherein said plano reflective element and said auxiliary reflective element are adjacently supported at said backing plate element at a joint and wherein said joint comprises a space between said plano reflective element and said auxiliary reflective element and wherein a wall located on said backing plate element at said joint is disposed between said plano reflective element and said auxiliary reflective element.

341. Henion's cross-sectional view of the mirror backing plate demonstrates that the primary element and the secondary element are supported adjacently on the backing plate for the same reasons as discussed above with respect to claim 23[e]. As depicted in Henion Fig. 3, the primary and auxiliary mirrors meet at a joint at which the angle of the backing plate changes. The mirrors are separated by a space at this joint, with a wall element – labeled the "ears" element (40) because it also assists in holding the auxiliary mirror in place – in between them. Henion 7:1-2. Similarly, Henion claim 7 and Figure 4 disclose a backing assembly with two walls and a hinge between them. The walls support

the reflective elements and comprise ears and a space that separates the reflective elements.

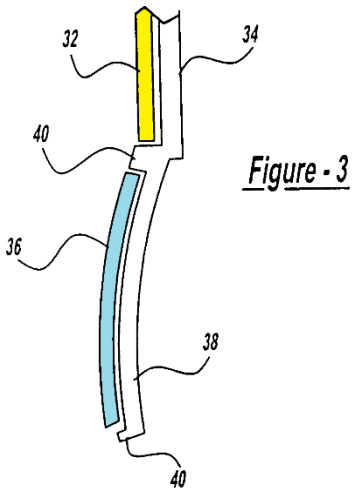


Figure - 3

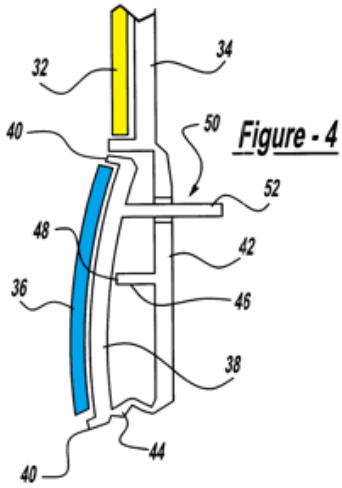


Figure - 4

342. Henion Figure 2 shows a frontal view of the mirror element. As seen in Figure 2, the wall element wholly separates the primary from the secondary mirror by occupying the space at the joint between them. Thus, this element is disclosed.

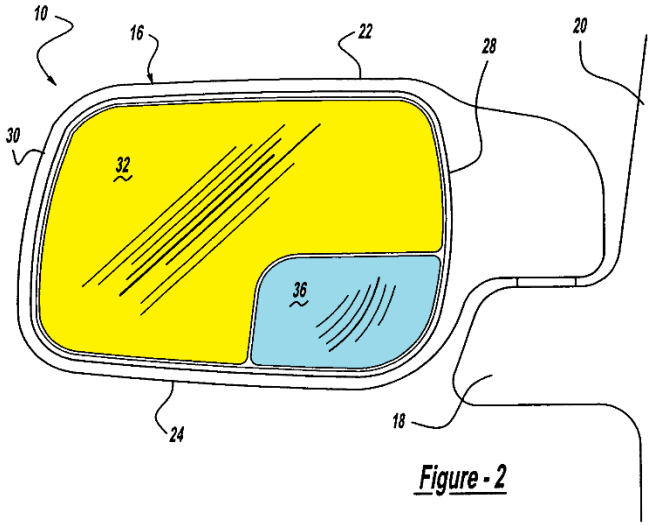


Figure - 2

B. Claim 24

1. Preamble and [a] Fixed Reflectance, Spherically Bent

343. Claim 24's preamble and element [a] recite:

24. The exterior sideview mirror system of claim 23,

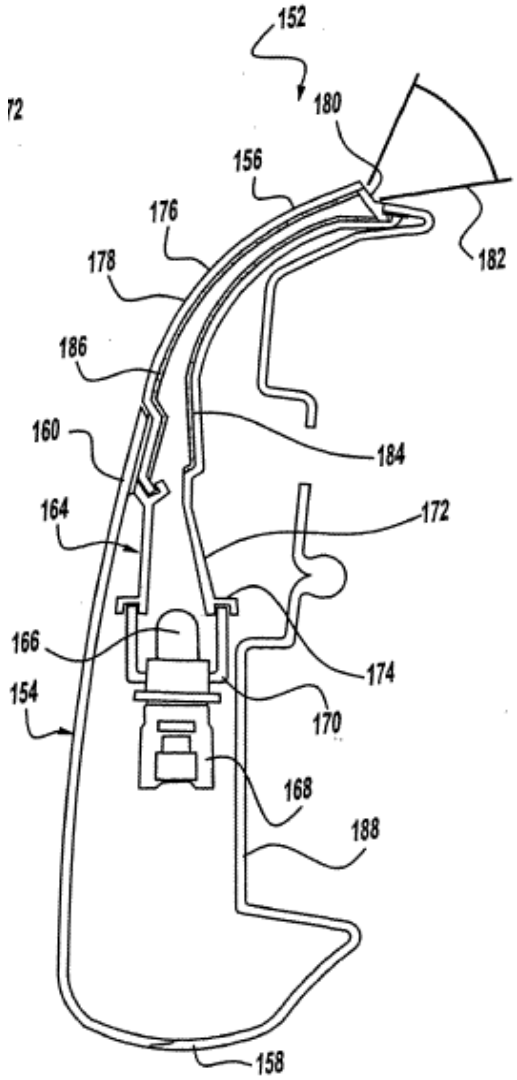
[a] wherein said plano reflective element comprises a glass substrate having a surface coated with a metallic reflector coating, wherein said auxiliary reflective element comprises a fixed reflectance mirror reflector and wherein said fixed reflectance mirror reflector comprises a spherically bent glass substrate coated with a metallic reflector coating,

344. Henion states that the plano reflective element may be comprised of a glass substrate with a metallic reflector coating: "First reflective element 32 may be implemented upon a glass or plastic substrate, each substrate receiving a

reflective coating in accordance with techniques known to those skilled in the art…." Henion 6:4-6; *see also id.* at 7:3-6, 10:7-9, 23:8-11, 23:17-21.

345. Construction of mirror elements by deposition of a metallic reflector coating upon a glass substrate was well-known in the art at the time of the invention. This technique provides a number of advantages: a glass substrate may be easily molded or bent to achieve certain optical properties, glass substrates and metallic reflector coatings are cheap, metallic reflector coatings provide a high degree of reflectance and durability, and metallic reflector coatings are easily applied to a variety of surfaces. As such, a POSA would have understood Henion's reflective coating created "in accordance with techniques known to those skilled in the art" as encompassing a metallic reflector coating.

346. Henion also describes a metallic reflector coating. One embodiment described in Henion is a rearview mirror with a light source or globe attached. Henion at 17:10-13, pictured in Fig. 17 below.



Henion Fig. 17.

347. In order to ensure adequate brightness of the light assembly, Henion discloses a reflector element "the interior of which is preferably metallized or coated with a reflective material to collect light projected from the globe and focus it into a light pipe…" Henion at 17:12-13. The light pipe of Henion "is formed by placing a metallized coating on opposing surfaces of housing 172 and lens 178. In

particular, a first metallized coating 184 is formed on housing 172, and a second metallized coating 186 is formed on lens 178 on a surface opposing metallized coating 184. Metallized coatings 184 and 186 cooperate to reflect light projected from globe 166 through to port 180." Henion at 18:10-16.

348. A POSA reading this description would have understood that the metallized coatings of the reflector element and light pipe operated to reflect light, as Henion explicitly states. Because these elements perform the same reflective function as the mirror coatings of claim element 1[q], a POSA would have understood that Henion's metallized reflector coatings could be used for the reflective coatings on Henion's mirror elements.

349. Further, Henion states that the curved reflective element may comprise a substrate coated with a chrome-reflective coating. Henion 7:3-6. A POSA would have understood that the surface of a reflective element is reflective by definition, and thus that the "chrome plated" substrate disclosed by Henion is reflective. A POSA would further understand that chrome is a reflective metallic element, and thus a chrome-reflective coating is a form of metallic coating. A POSA would have found it obvious to apply this disclosure of a reflector-coated glass substrate to form a primary reflective element to Henion's secondary mirror. Nowhere does Henion disclose differing methods of manufacture for the primary and secondary mirrors. The main difference between the mirrors that Henion

describes is their different shapes and the corresponding differences in field of view that each provides. For that reason, a POSA would have found it obvious that the chrome coating of Henion's auxiliary mirror would be equally applicable to Henion's primary mirror.

350. A POSA reading Henion would have found it obvious that either of Henion's mirror elements could have a fixed reflectance for the same reasons as I describe above in claim element 23[r].

351. Henion teaches that the auxiliary mirror may be spherical. Henion states that the secondary mirror may be a convex-curved "fisheye" or "spotter" mirror in a "convex shape to provide the desired wide angle field of view." Henion 6:13-17. A POSA would have understood that fish-eye mirrors are typically manufactured with convex spherical surfaces.

352. Henion further states that reflective elements in certain embodiments "may be any suitable type such as flat, concave, convex …" Henion 9:14-15. Henion thus discloses a range of curvatures for mirror elements ranging from concave to convex. A POSA reading Henion would understand that a wide variety of convex curvatures could provide the desired "wide-angle" field of view, because convex reflective surfaces have a wide-angle field of view due to their curvature, which causes the mirror to reflect incident light from a wider set of points to the driver's eye than a flat plano mirror.

353. Further, a POSA would have understood that a spherically-curved mirror is merely one type of convex-curved mirror, namely one with a constant radius of curvature. The spherical mirror of claim 23 would thus provide a wide-angle field of view by the same geometric reasoning as for other convex-curved mirrors. And such a mirror would likewise be "suitable" for providing a wide-angled field of view. For that reason, a POSA would have found it obvious to use a spherically convex mirror to achieve the wide-angle field of view in Henion. Further, spherically convex mirrors were well known in the art as bugeye and spotting mirrors. The spherical form is one of the easiest to manufacture and would have been an obvious choice.

354. A POSA would have found it obvious to apply Henion's disclosure of a reflector-coated glass substrate with a primary element to Henion's secondary mirror to meet claim element 24[a]'s requirement that the auxiliary mirror substrate be made of glass: "[f]irst reflective element 32 may be implemented upon a glass or plastic substrate, each substrate receiving a reflective coating in accordance with techniques known to those skilled in the art." Henion 6:4-6. Nowhere does Henion disclose differing methods of manufacture for the primary and secondary mirror. The primary difference between the mirrors that Henion describes is their different shapes, and the corresponding differences in field of view that each mirror's shape provides. For that reason, a POSA would have found it obvious that the reflector-

coated glass substrate of Henion's first mirror, established in accordance with techniques "known to those skilled in the art," would be equally applicable to Henion's auxiliary mirror.

355. Finally, Henion discloses a "chrome plated" secondary mirror for the auxiliary mirror, which a POSA would have understood to constitute a metallic coating. Henion 7:3-6. Thus, claim element 24[a] is disclosed by Henion.

2. [b], [c], [d] Curved Backing Plate Adapted to Rearview Mirror With Wall Separator

356. Claim 24 element [b] recites:

> [b] wherein said curved portion of said backing plate element comprises a curvature corresponding to a curvature of said auxiliary reflective element,

357. Henion states that "spotter mirror or second reflective element 36 is supported by multi-function backing plate 34. Multi-function backing plate 34 preferably includes an integral spotter support section 38 which is shaped to the desired shape of second reflective element 36." Henion 6:18-7:6. As demonstrated in Fig. 3 below, second support portion 38 of the backing plate is curved to accommodate auxiliary reflective element 36. Because the spotter support section of the backing plate "is shaped to the desired shape of second reflective element 36," the backing plate for a curved mirror element would match the curvature of the mirror. Henion 6:19-21, Fig. 3.

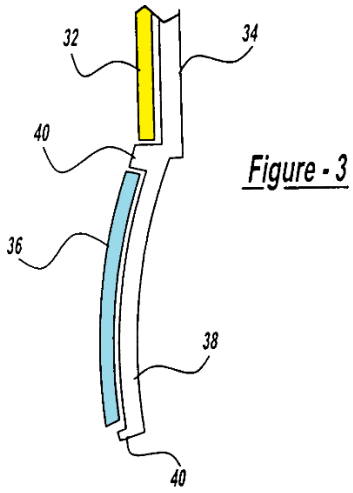


Figure - 3

358. Claim 24 element [c] recites:

> [c] wherein said wall at least partially partitions said backing plate element into a first region where said plano reflective element is disposed and a separate and adjacent second region where said auxiliary reflective element is disposed, and wherein said first region is adapted to receive said plano reflective element and said second region is adapted to receive said auxiliary reflective element and

359. As I discussed above, Henion's cross-sectional view of the mirror backing plate demonstrates a wall element raised from the mirror backing plate between primary support section 34 and auxiliary support section 38. This backing demarcation element, labeled the "ears" element because it also assists in holding the auxiliary mirror in place, constitutes a partition separating the primary mirror from the secondary mirror as shown in Fig. 3. Henion 7:1-2.

360. Henion Figure 2 shows a frontal view of the mirror element. As seen in Figure 2, the demarcation element wholly partitions the primary from the secondary mirror.

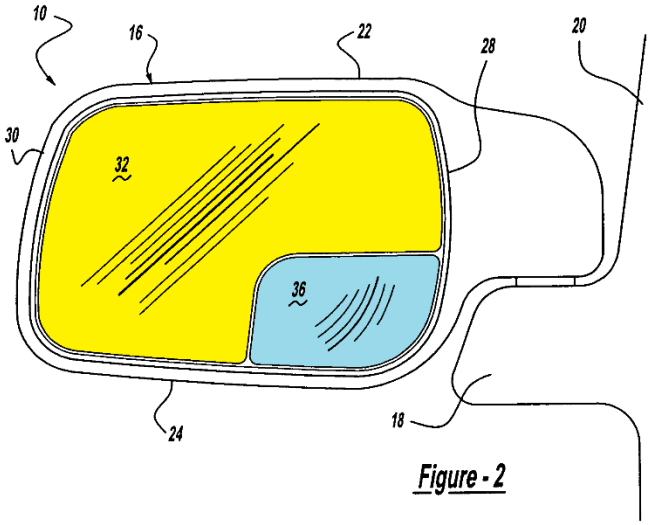


Figure - 2

361. This element is thus disclosed.

362. Claim 24 element [d] recites:

> [d] wherein said exterior sideview mirror assembly including said plano-auxiliary reflective element having a rearward field of view when attached to the side of the automobile comprises a driver-side exterior sideview mirror assembly, and

363. As I discussed above with respect to claim 23's preamble and elements [a] and [b], Henion discloses a driver's side exterior sideview mirror assembly with a rearward field of view in Fig. 1, which depicts the assembly attached to the driver's side of an automobile. Henion Fig. 1, 5:14-16 ("Preferably,

two mirror assemblies 10 will be mounted on vehicle 14, one on each side thereof to provide rearward and sideward fields of view with respect to the vehicle for the driver."). And as I discussed above with respect to claim 23 element [d], Henion discloses a plano-auxiliary mirror assembly comprising flat and curved reflecting elements.

364. This element is thus disclosed.

3. [e] At Least 25 Degrees to Side of Automobile

365. Claim 24 element [e] recites:

> [e] wherein, when attached to the side of the automobile, said driver-side exterior sideview mirror assembly provides to the driver of the equipped automobile a total field of view that generally subtends an angle of at least about 25 degrees with respect to the side of the equipped automobile.

366. This limitation is taught by Henion in combination with Platzer. As discussed above in the section on prior art references, Platzer discloses a dual-mirror system and a mathematical explanation of the various fields of view typically available to primary and auxiliary mirrors. Platzer Figure 1 "shows a mid-sized passenger car 10 in the middle lane of a three-lane highway with 12-foot wide lanes. The vehicle 10 is equipped with a driver's side outside mirror 12." Platzer 8:26-28; *see also id.* 4:20-21 ("Figure 1, is a plan view of an automobile on

a three-lane highway depicting the field of view of the outside mirrors and the blindzones;").

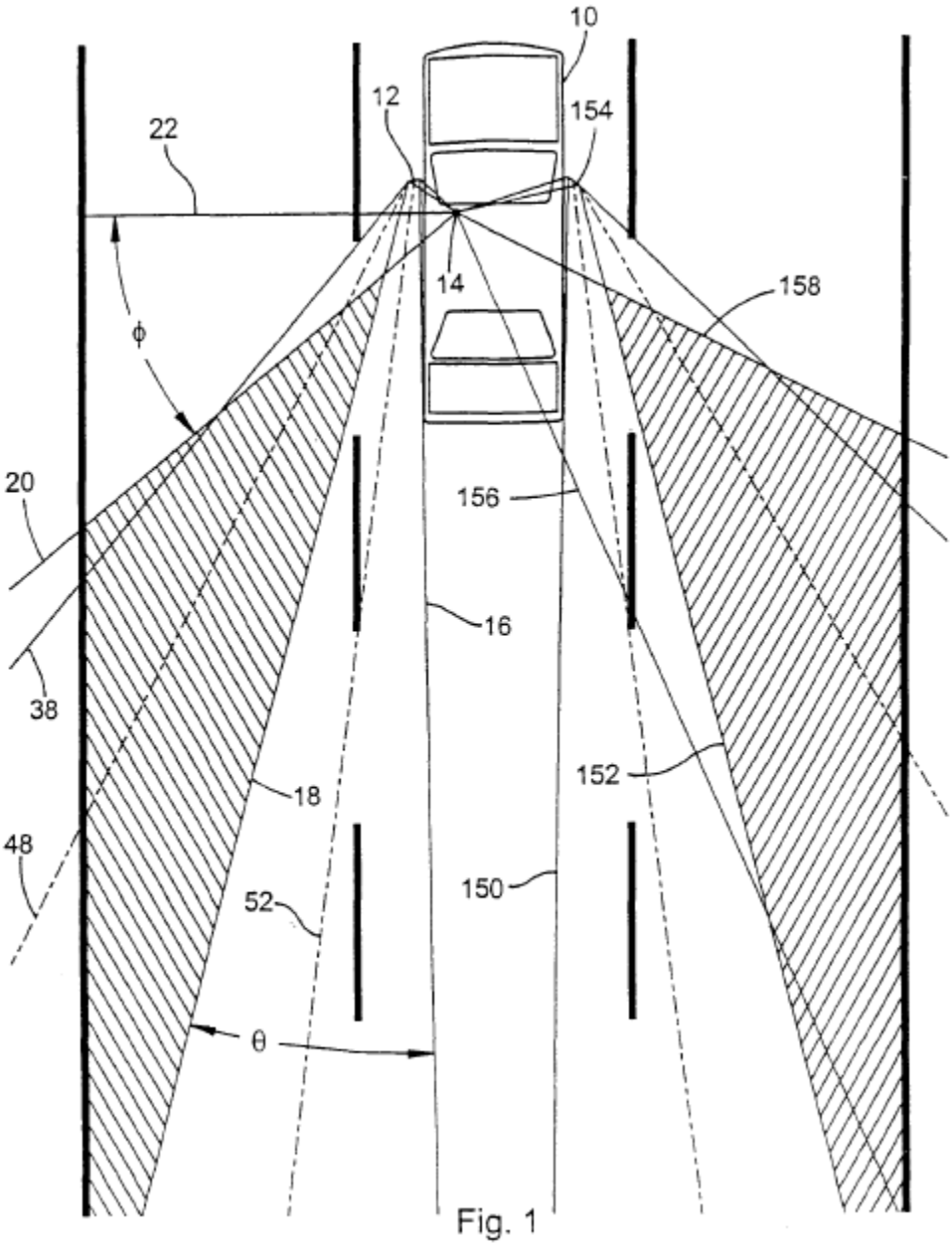


Fig. 1

367. Platzer states that the "horizontal field of view of a plane mirror" is "a function of the mirror's dimensions and the position of the [driver's] eyes

relative to the mirror." Platzer 9:5-6. Platzer states that the field of view of the plane mirror is "the angle θ subtended by lines 16 and 18" in the above diagram, and that θ typically "is in the order of 15° to 20°." Platzer 9:4-5.

368. Platzer provides a mathematical equation governing the field of view θ of the primary reflective element:

$$\theta = 2\tan^{-1}\left[\frac{w\cos\lambda + D}{2\sqrt{s_L^2 + s_T^2}}\right], \qquad \text{Eq.1}$$

where: w = mirror width;
D = interpupillary distance;
S_L = the longitudinal distance along the axis of the vehicle form the driver's eyes to the center of the mirror;
S_T = the transverse distance perpendicular to the longitudinal axis from the driver's eyes to the center of the mirror; and
$\lambda = \frac{1}{2}\tan^{-1}(s_T/s_L)$.

369. Platzer also discloses "a spherically convex mirror having dimensions and an orientation such that its field of view encompasses the region in Figure 1 between lines 18 and 38." Platzer 12:9-12. Platzer states that "[t]he angle between lines 18 and 38 is about 25°." Platzer 12:26.

370. Platzer discloses an equation governing the auxiliary mirror's field of view:

$$\theta = 2\left[2\tan^{-1}\frac{w}{2r} + \tan^{-1}\frac{w\cos\lambda + D}{2\sqrt{s_L^2 + s_T^2}}\right]. \qquad \text{Eq.7}$$

See also Platzer 12:21-24 ("All of the variables in Equation 7 are the same as Equation 1 except for r, which is the radius of curvature of the convex mirror. Angle θ in Equation 7 is to be taken as the angle between lines 18 and 38 in Figure 1.").

371. The field of view of Platzer's spherically convex auxiliary mirror relative to the side of the automobile can thus be determined by taking the minimum angle at which the auxiliary field of view begins relative to the side of the automobile, defined by line 18. The minimum such value under Platzer is 15 degrees, and the maximum is 20 degrees. The 25 degree field of view of Platzer's curved mirror can be added to these values to obtain an outboard limit on the spherical mirror's field of view of 40 to 45 degrees relative to the side of the automobile, depicted by line 16 in Platzer Fig. 1. Thus, Platzer discloses that the field of view of the full mirror assembly is 40 to 45 degrees, greater than the "at least about 25 degrees" of claim element 24[e].

372. A POSA reading Henion would have been motivated to combine it with Platzer's disclosure of a 40 to 45 degree mirror assembly field of view for several reasons.

373. *First*, both Henion and Platzer address the problem of improving the fields of view of rearward mirror systems through a combination of flat and curved mirrors. Henion at 1:1-4:6; Platzer at 1:14-4:14. Similarly, both disclose the same

key parts, including primary flat and auxiliary curved mirrors, mirror assemblies and housings, mirror backing plates, and angled fields of view. Henion at 1:3-18, 5:9-7:10 & Figs.; Platzer at 2:6-4:14, 15:21-25 & Figs. Due to this overlap in function and composition, a POSA would have understood that applying Platzer's 40 to 45 degree field of view to Henion's mirror assembly would have produced a predictable, non-novel result: a combined field of view greater than at least about 25 degrees.

374. *Second*, Henion provides no explicit value for the field of view of the primary mirror reflective element. Henion instead states that "First, reflective element 32 is preferably a flat mirror to provide a generally unaltered field of view to the user." Henion 5:22-6:1. A POSA reading Henion would have been motivated to seek out a publication explaining the typical field of view subtended by such a flat plano reflective element to better understand the area viewable to the driver, consistent with Henion's stated purpose of improving mirror assemblies that enable the driver to view rearward and sideward portions of the vehicle for obstacles. Henion at 1:1-5. Platzer discloses a typical range for a primary mirror: 15 to 20 degrees. Platzer 9:1-15: Platzer further discloses an equation for calculating the field of view of such a mirror based on specific parameters. *Id.* A POSA would thus have found it obvious to combine Platzer's geometrically described primary mirror field of view with Henion's primary mirror.

375. *Third*, Henion does not provide explicit numerical ranges for the field of view of its auxiliary reflective element, instead stating that the auxiliary mirror "provides a wide angle of view of the area rearward and sideward of the vehicle" and that the primary mirror Henion 6:13-16. As such, a POSA would have been motivated to determine numerical value for Henion's stated "wide angle field of view" to better understand the area viewable to driver in the auxiliary mirror element, consistent with Henion's stated purpose of improving mirror assemblies that enable the driver to view rearward and sideward portions of the vehicle for obstacles. Henion at 1:1-5. A POSA would have been further motivated to determine approximate angular ranges for the auxiliary mirror FOV because such mirrors were commonly used at the time of the invention to view into the driver's blind spot. Platzer, Blind Spot Detection Paper at 143-44. A POSA would have appreciated that blind spot detection had safety implications for drivers, and would thus have been further motivated to seek out references like Platzer, which explicitly disclose fields of view for auxiliary mirror elements commonly used in blind spot detection. A POSA would also have appreciated that specific fields of view for the auxiliary mirror could be calculated using Platzer's equation, and that the ability to perform such calculations could be applied to Henion's assembly to numerically determine the auxiliary mirror's "desired wide angle of view." Henion 6:17. A POSA would thus have been motivated to supplement Henion's desired

wide angle field of view with the explicit ranges of Platzer to achieve a predictable result – the same wide angle field of view of Henion with an explicit angular range. A POSA would thus be motivated to use Platzer's disclosed angle range with Henion's mirror assembly. Doing so would (1) provide the POSA with a specific angle range to work with and (2) provide the POSA with a mathematical derivation of that angle range. And combining Henion with Platzer would produce a predictable result – the two mirror system of Henion wherein the combined mirror assembly FOV ranges from 40 to 45 degrees. Claim element 17[s]'s "at least 25 degrees" requirement would thus have been obvious over Henion in view of Platzer.

C. Claim 25

1. Elements [a]-[q]

376. Claim 25 elements [a]-[q] are the same as claim 23 elements [a]-[q]. They would thus have been obvious over Platzer and Catlin for the same reasons as I described above with respect to claim 23 elements [a]-[q].

2. [r] Fixed Reflectance, Spherically Bent

377. Claim 25 element [r] recites:

> [r] wherein said auxiliary reflective element comprises a fixed reflectance mirror reflector and wherein said fixed reflectance mirror reflector comprises a spherically bent glass substrate coated with a metallic reflector coating;

378. As I described above with respect to claim element 24[a], Henion teaches that either the primary or auxiliary reflective elements may be of fixed reflectance and covered with a metallic reflector coating, and that the auxiliary mirror may include a spherically bent glass substrate.

3. [s] Outwardly and Downwardly

379. Claim 25 element [s] recites:

> [s] wherein the rearward field of view of said auxiliary reflective element is generally directed at least one of outwardly and downwardly with respect to the longitudinal axis of the equipped automobile when said exterior sideview mirror assembly is attached to the side of the automobile; and

380. One of Henion's embodiments permits the orientation of the second reflective element to be adjusted relative to the first reflective element: "[b]y simply pressing upon different positions of second reflective element 36, the operator may adjust the orientation of second reflective element 36 about a horizontal axis independently of first reflective element 32." Henion at 8:9-12; *see also id.* at 7:11-13 ("the orientation of second reflective element or spotter mirror 36 is adjustable with respect to first reflective element 32").

381. Henion also states that this system may be used to adjust the second reflective element in the horizontal view by rotating it around a vertical axis relative to the automobile. Henion 8:17-19 ("one skilled in the art will yet

recognize that a similar configuration can be provided to enable adjustability in the horizontal field of view").

382. A POSA reading Henion would have understood the basic geometry resulting from the two directions of rotation disclosed in this embodiment: that the auxiliary mirror's field of view could be adjusted vertically by rotating it around a horizontal axis, and horizontally by rotating it around a vertical axis. A POSA would have further understood that horizontal adjustment of the auxiliary mirror's field of view would result in the auxiliary mirror being angled inboard, outboard, or parallel to the side of the automobile, and that vertical adjustment would result in the auxiliary mirror being angled up, down, or parallel to the side of the automobile. A POSA would further have understood that Henion did not specify any particular orientation of the auxiliary element, merely that it could be rotated vertically and horizontally. Consequently, a POSA would have understood that the auxiliary mirror could be placed in any combination of these vertical and horizontal orientations, including downwardly and outwardly from the vehicle.

383. A POSA would have been motivated to select this downward/outward combination. First, a POSA would have understood that the blind spot exists outboard of the plano mirror's field of view. For that reason, a POSA would be motivated to angle the auxiliary mirror outward with respect to the vehicle in order to cover the blind spot. Second, most obstacles, obstructions, and hazards that pass

through the blind spot of a vehicle, such as overtaking automobiles, are on the road surface. For that reason, a POSA would have been motivated to angle the mirror downwardly, to capture more of the area in which objects of interest or concern are most likely to appear.

384. This same motivation applies to Henion's embodiment wherein the primary and secondary mirrors are set at a fixed angle corresponding to the angle between the support sections of the backing plate. Henion Fig. 3. First, the above embodiment in which the mirrors are adjustable may contain an integrally formed, angled backing plate. Henion 7:17-19 ("support member 34, support section 38, extension member 42, and hinge 44 may but need not, be integrally formed.").

385. Additionally, a POSA reading Henion would have had reason to fix the auxiliary mirror at an outward and downward angle. A POSA would understand that drivers may not understand the proper angle between mirrors required to establish optimal blind-spot coverage, and might improperly adjust their mirrors were they given the option to do so. Similarly, a POSA would have understood that driver-adjustable mirrors may be inadvertently adjusted via incidental and/or accidental contact with the mirror surface or actuator controls. A POSA would also have understood that drivers would not want to adjust their own mirrors to establish the optimal coverage of the blind spot, but would instead want it calculated and set for them. In order to prevent these problems and ensure

persistent optimal blind spot coverage and driver convenience, a POSA would have found it obvious to fix the auxiliary mirror at an outward and downward angle with respect to the equipped automobile. Henion further discloses that the second reflective element is a fisheye or spotter mirror, and that it may be oriented independently of the first mirror. Henion at 8:3-21. A POSA would have understood that the field of view of the second element would have been oriented outwardly with respect to the longitudinal axis of the equipped automobile.

386. This element is thus disclosed.

4. [t] Driver's-Side Mirror Assembly

387. Claim 25 element [t] recites:

> [t] wherein said exterior sideview mirror assembly including said plano-auxiliary reflective element having a rearward field of view when attached to the side of the automobile comprises a driver-side exterior sideview mirror assembly, and

388. As I described above with respect to claim 23's preamble and elements [a] and [b], Henion teaches a driver-side exterior sideview mirror assembly having a rearward field of view when attached to the side of the automobile. As I described above with respect to claim 23 element [d], the mirror assembly is plano-auxiliary.

5. [u] At least about 25 degrees

389. Claim element 25[u] recites

[u] wherein, when attached to the side of the automobile, said driver-side exterior sideview mirror assembly provides to the driver of the equipped automobile a total field of view that generally subtends an angle of at least about 25 degrees with respect to the side of the equipped automobile.

390. As I described above with respect to claim element 24[e], the assembly's field of view being greater than at least about 25 degrees relative to the side of the automobile when attached to the side of the automobile would have been obvious over Henion combined with Platzer.

D. Claim 26

1. [a] Metallic Reflector Coating, Curved Backing Plate

391. Claim 26's preamble and element [a] recite:

26. The exterior sideview mirror system of claim 25,

[a] wherein said plano reflective element comprises a glass substrate having a surface coated with a metallic reflector coating, wherein said curved portion of said backing plate element comprises a curvature corresponding to a curvature of said auxiliary reflective element, and

392. As I discussed above with respect to claim element 24[a], Henion teaches that the plano reflective element may comprise a glass substrate coated with a metallic reflector coating.

393. As I discussed above with respect to claim element 24[b], Henion teaches that the secondary support portion of the backing plate has a curvature matching that of the auxiliary reflective element.

2. [b] Wall Element

394. Claim 26 element [b] recites:

> [b] wherein an element of said backing plate element at least partially partitions said backing plate element into a first region where said plano reflective element is disposed and a separate and adjacent second region where said auxiliary reflective element is disposed and

395. As I discussed above with respect to claim element 24[c], Henion discloses "ears" element that wholly partitions the backing plate between the primary and secondary portions.

3. [c] Adapted Backing Plate

396. Claim 26 element [c] recites:

> [c] wherein said first region is adapted to receive said plano reflective element and said second region is adapted to receive said auxiliary reflective element.

397. As I discussed above with respect to claim 23 elements [l] and [m], the primary support portion of the backing plate is flat to accommodate the flat mirror, and the auxiliary portion of the backing plate is curved to accommodate the curved mirror.

XII. CONCLUSION

398. For the foregoing reasons, it is my opinion that claims 1-26 of the ’244 patent are anticipated by the ’026 publication and that claims 23-26 of the ’244 patent would have been obvious in light of Henion combined with Platzer and Catlin.

All statements made herein of my own knowledge are true, and all statements made on information and belief are believed to be true. Further, I am aware that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001. I declare under penalty of perjury that the foregoing is true and correct.

Executed on 1-18, 2018 in Tucson, Arizona.

Jose Sasian

Dr. Jose Sasian