

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TRW AUTOMOTIVE U.S. LLC,
Petitioner,

v.

MAGNA ELECTRONICS INC.,
Patent Owner.

Case IPR2014-01355
Patent 8,481,916 B2

Before JAMES P. CALVE, MICHAEL J. FITZPATRICK, and
BARRY L. GROSSMAN, *Administrative Patent Judges*.

CALVE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. BACKGROUND

Petitioner TRW Automotive U.S. LLC (“TRW”) filed a Petition (Paper 1, “Pet.”) seeking *inter partes* review of claims 58–76, 78–80, and 82–86 of U.S. Patent No. 8,481,916 B2 (Ex. 1002, “the ’916 Patent”). Patent Owner Magna Electronics Inc. (“Magna”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Based on these submissions, we instituted trial as to all challenged claims of the ’916 patent. Paper 7 (“Institution Decision”).

After institution, Magna filed a Response (“PO Resp.”). Paper 9. TRW filed a Reply (“Pet. Reply”). Paper 13. TRW proffered the Declaration of Homayoon Kazerooni (Ex. 1011, “Kazerooni Declaration”) with the Petition. Magna proffered the Declaration of Michael Nranian (Ex. 2003, “Nranian Declaration”) with its Response.

Oral argument was conducted on October 7, 2015. A transcript of the argument is entered in the record as Paper 20 (“Hearing Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a).

A. Related Proceedings

The parties inform us that the ’916 patent is the subject of a co-pending district court case titled *Magna Electronics Inc. v. TRW Automotive Holdings Corp.*, Case 1:13-cv-00324 (W.D. Mich.). Pet. 3; Paper 5, 3.

B. The ’916 Patent (Ex. 1002)

The ’916 patent discloses an interior mirror assembly with housing 10 with front end 12 releasably attached to an interior surface of windshield 22 by an annular mounting button (not shown). Ex. 1002, 3:18–24, 32–37, Fig. 2. Housing 10 is subdivided into two compartments by internal wall 16. *Id.*

at 3:24–26. First compartment 18 contains rain sensor 26, which is biased into optical contact with windshield 22 by steel spring 28. *Id.* at 5:58–66. Second compartment 20 contains at least one electrical component such as printed circuit board 30 bearing a compass sensor. *Id.* at 6:2–8, Fig. 8. Figure 2, which is reproduced below, illustrates these features.

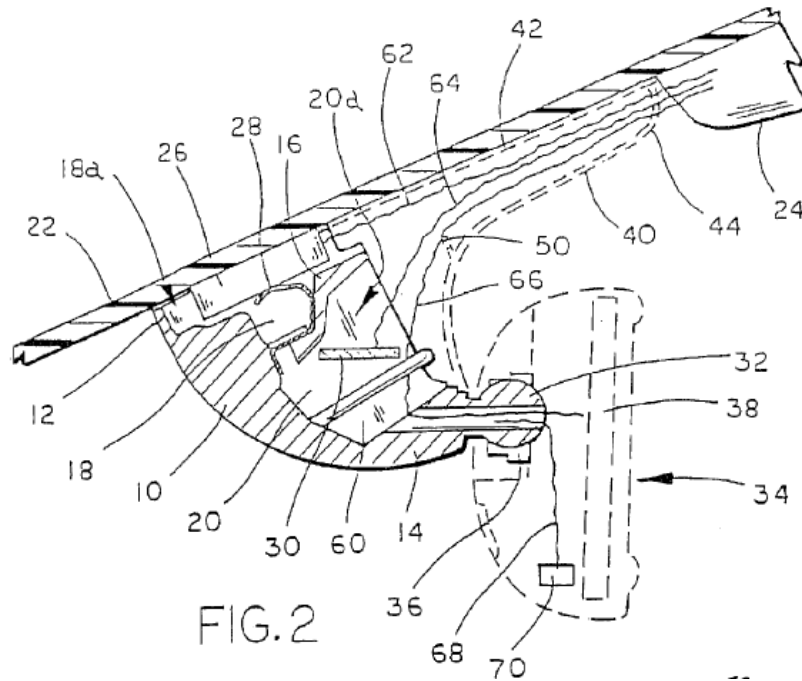


Figure 2 is a cross-section through the mirror assembly of Figure 1. Rear end 14 of housing 10 includes ball 32 for mounting rearview mirror unit 34 in a conventional manner. *Id.* at 6:9–11. A ceramic black frit layer can be placed on the inner surface of windshield 22 to hide the attachment location of rain sensor module 26. *Id.* at 3:46–49. The center portion of the ceramic layer should include a central opening or at least provide efficient transmission for the output of the light emitters and rain sensor unit. *Id.* at 3:49–54. A camera (not shown) may be located on housing, mirror unit, or cover, and arranged to look forwardly or rearwardly relative to the motion of the vehicle, or in another desired direction. *Id.* at 7:43–46.

C. Illustrative Claim

Claims 58, 71, and 79 are independent. Claims 59–70 depend from claim 58. Claims 72–76 and 78 depend from claim 71. Claims 80 and 82–86 depend from claim 79. Claim 58 is illustrative of the claimed subject.

58. An accessory mounting system suitable for use in a vehicle, said accessory mounting system comprising:
a structure adhesively attached at a region of an interior surface of a windshield of a vehicle;
said structure configured to accommodate an accessory;
wherein said accessory comprises a camera;
a light absorbing layer at the region of the interior surface of the windshield of the vehicle, said light absorbing layer at least partially hiding said structure from view by a viewer, who is external the vehicle, viewing through the windshield with said structure attached at the region of the interior surface of the windshield;
wherein said light absorbing layer includes a light transmitting portion;
said camera viewing through said light transmitting portion of said light absorbing layer and through the windshield to the exterior of the vehicle when said structure is attached at the region of the interior surface of the windshield and when said accessory is accommodated thereat;
wherein said light transmitting portion of said light absorbing layer comprises a light transmitting aperture through said light absorbing layer; and
wherein said structure is fabricated of one of (i) metal and (ii) a polymer material.

D. The Prior Art

TRW relies on the following references:

Reference	Patent/Printed Publication	Date	Exhibit
IEEE	IEEE Standard 696 Interface Devices	Aug. 7, 2014	1004

Reference	Patent/Printed Publication	Date	Exhibit
Blank	U.S. Patent No. 5,708,410	Jan. 13, 1998	1005
Kakinami	U.S. Patent No. 5,096,287	Mar. 17, 1992	1006
Carter	U.S. Patent No. 5,667,896	Sept. 16, 1997	1007
Anderson	U.S. Patent No. 5,602,457	Feb. 11, 1997	1008
Lisowski	<i>Specifications of a Small Electric Vehicle: Modular and Distributed Approach</i> , 2 Intelligent Robots & Systems 919	Sept. 7, 1997	1009
Schofield	U.S. Patent No. 5,796,094	Aug. 18, 1998	1010

E. The Asserted Grounds of Unpatentability

TRW challenges the patentability of claims 58–76, 78–80, and 82–86 of the '916 patent on the following grounds:

References	Basis	Claims Challenged
Blank, Kakinami, Carter, Anderson	§ 103(a)	58, 59, 62–66, 68–71, 79, 80, 82
Blank, Kakinami, Carter, Anderson, Lisowski	§ 103(a)	60, 61
Blank, Kakinami, Carter, Anderson, Schofield	§ 103(a)	67, 72, 74–76, 78, 83, 85, 86
Blank, Kakinami, Carter, Anderson, Schofield, Lisowski	§ 103(a)	73, 84

II. ANALYSIS

A. Claim Interpretation

In an *inter partes* review, claims of an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. *In re Cuozzo Speed Techs. LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015) (“Congress implicitly approved the broadest reasonable interpretation standard in enacting the AIA,” and “the standard was properly

adopted by PTO regulation”); 37 C.F.R. § 42.100(b). Claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

No terms require express construction to reach our decision.

B. Asserted Grounds of Unpatentability

1. Obviousness of Claims 58, 59, 62–66, 68–71, 79, 80, and 82 Over Blank, Kakinami, Carter, and Anderson

a. Overview of Blank (Ex. 1005)

Blank discloses vehicle information display concealed substantially by rear view mirror and viewable by a vehicle operator. Ex. 1005, 1:15–18, Figs. 1, 2, 3A, 3B. Figures 1 and 3B of Blank are reproduced below.

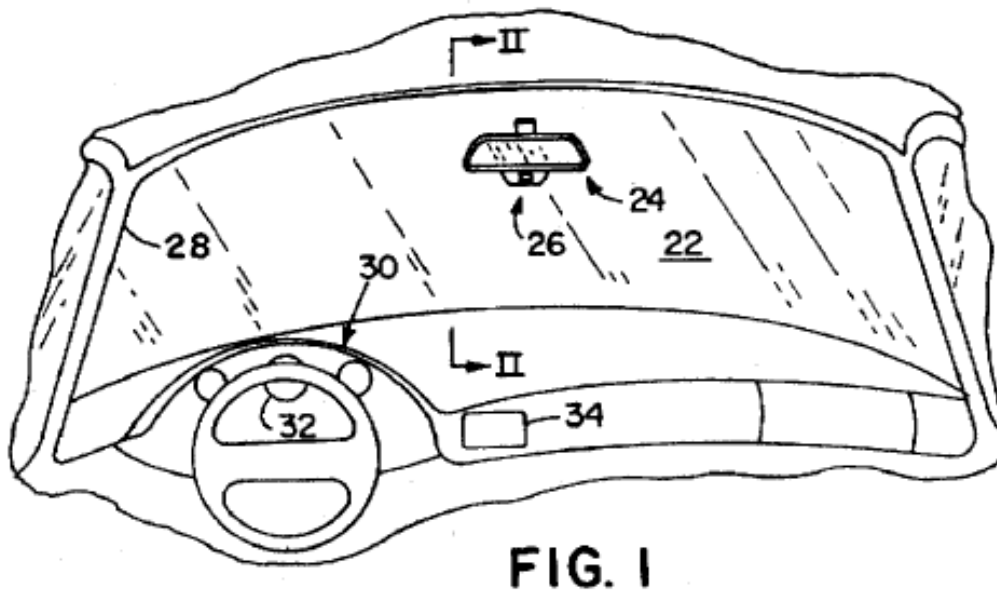


Figure 1 is a view of a display mounted behind a rearview mirror.

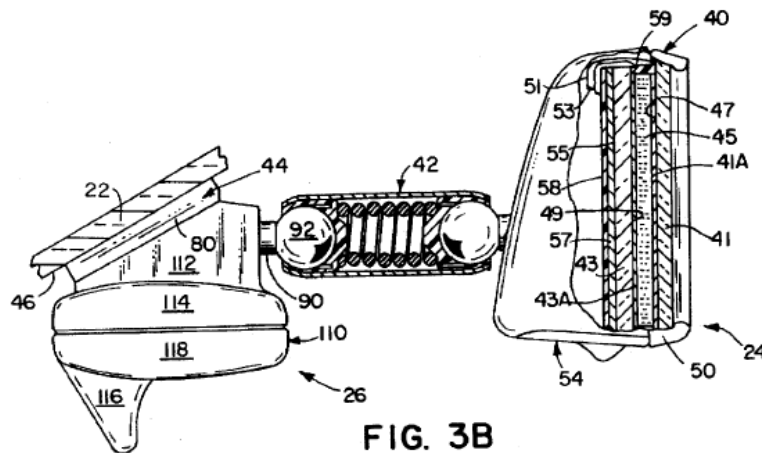


Figure 3B is a side elevation view of an interior rearview mirror and information display assembly secured to a windshield-mounted button.

Blank discloses rearview mirror assembly 24 is connected by support arm 42 to mount 44, which is fastened to inner surface 46 of windshield 22 by conventional mounting button 70. *Id.* at 5:10–12, 6:11–13. Mount 44 includes coupler body 80 that is adapted to receive button 70 in a sliding fashion during installation to retain mount 44 on button 70. *Id.* at 6:34–58. Housing 110 includes upper portion 114 coupled detachably to lower portion 118. *Id.* at 7:25–26. Upper portion 114 includes attachment member 112 that extends from upper housing portion 114 for receiving coupler body 80 to couple housing 110 to button 70. *Id.* at 6:64–67, 8:5–23, Figs. 4B, 6–8.

Circuit board 150 is located within housing 110 and is configurable as a standalone compass, or a display for a clock, odometer, speed indicator, hazard warning indicator, turn indicator, thermometer (interior and exterior), a trip computer, a global positioning satellite system, a cellular telephone, a supplemental vision system (such as camera, sonar, infrared, and microwave detection), and/or warning lights (such as a low fuel indicator). *Id.* at 7:46–59. Display 154 is coupled operably to circuit board 150 and may be analog, digital, or both, and may display compass information. *Id.* at 7:59–66.

b. Overview of Kakinami (Ex. 1006)

Kakinami discloses a video camera mounted in an automobile to take pictures of scenes ahead of the automobile. Ex. 1006, 1:5–8, Fig. 2a. As shown in Figure 2a, reproduced below, video camera 20 is mounted in arm 11 that also supports rear view mirror 1. *Id.* at 2:15–16.

Fig. 2a

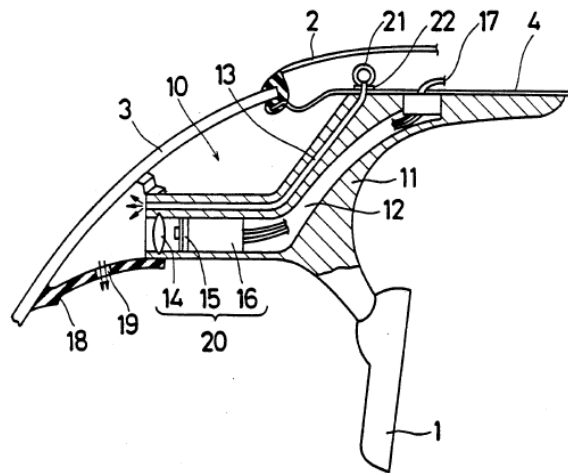


Figure 2a is a cross-sectional view of the vehicle with video camera.

Cable 17 from signal processing unit 16 of video camera 20 extends through passage 12 into a space between vehicle roof 2 and ceiling 4 and is connected to an image processing device (not shown). *Id.* at 2:26–32.

c. Overview of Carter (Ex. 1007)

Carter discloses a vehicle window assembly for mounting interior vehicle accessories to glass. Ex. 1007, 1:12–14. Carter discloses that it is preferable to provide and deposit a black, frit layer or coating 40 on inner surface 30 of glass panel 28 to cover and conceal at least a portion of inner surface 30. *Id.* at 4:14–18, Fig. 2B. Carter also discloses that such an opaque coating 40 conceals from exterior view any adhesive or mounting member attaching window panel 28 to the vehicle. *Id.* at 4:18–22.

Carter discloses the use of black frit layer or coating 40 around the periphery of glass window panel 28 from the peripheral edge 34 inward by two or more inches to conceal from exterior view any adhesive or mounting member that attaches window panel 28 to the vehicle. Ex. 1007, 4:14–31. Carter illustrates this arrangement in Figure 2B and a similar arrangement in Figure 10, both reproduced below.

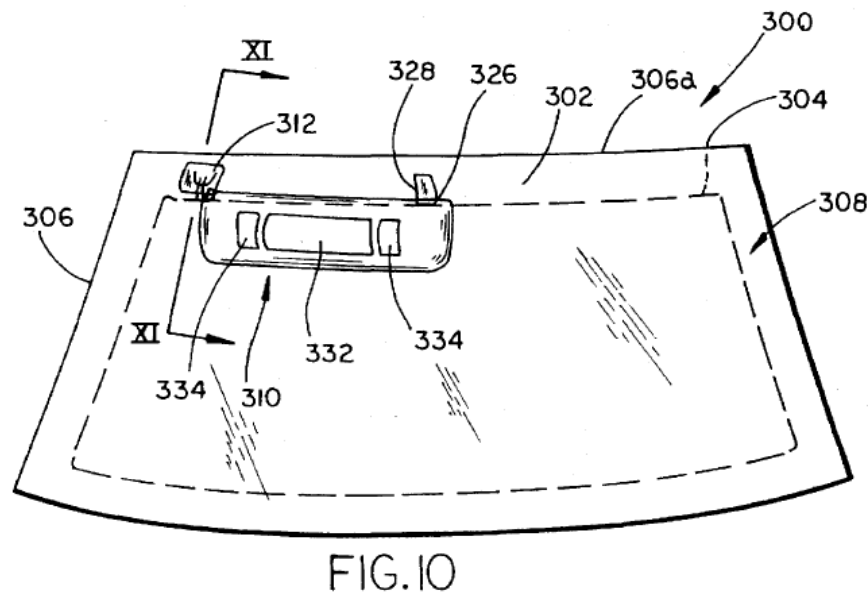
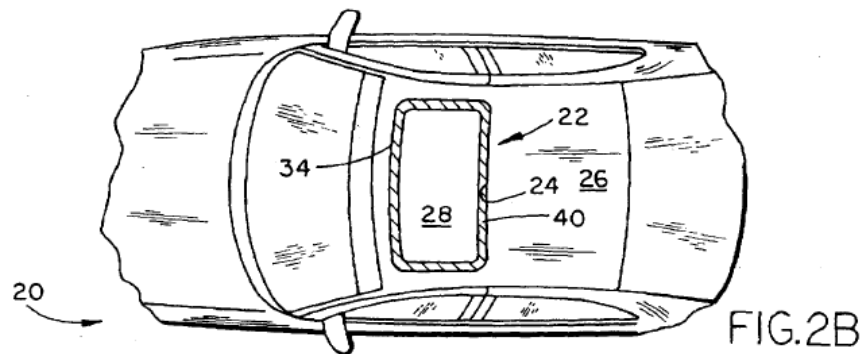


Figure 2B is a top plan view of a vehicle roof area. Figure 10 is an embodiment applied to the windshield. *Id.* at 3:3–5 and 22–23.

Carter discloses the use of a frit layer to conceal from exterior view a perimeter of a window panel and the “footprint” or place where accessories such as storage compartments attach to window panels. Carter illustrates

these embodiments in Figures 4 and 5, of which Figures 4A and 4C are reproduced immediately below.

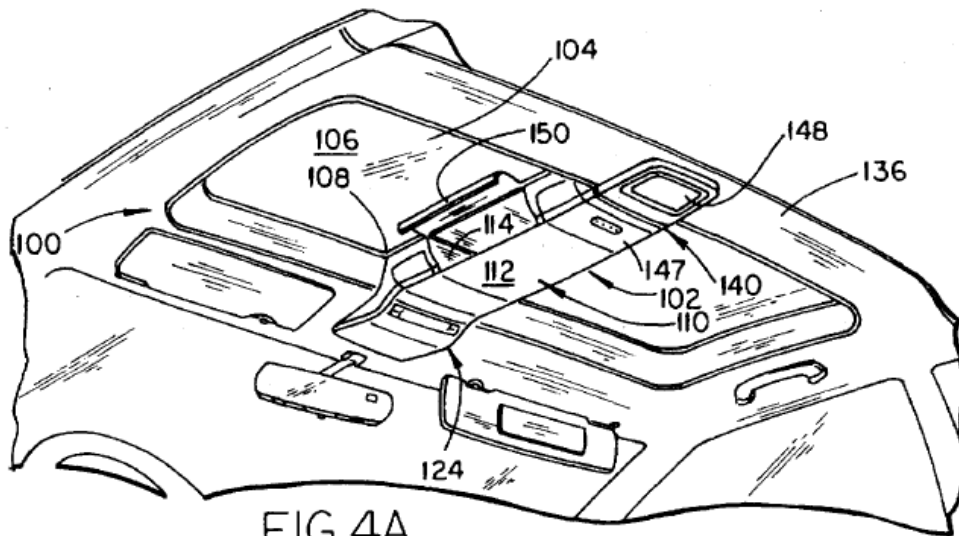


FIG. 4A

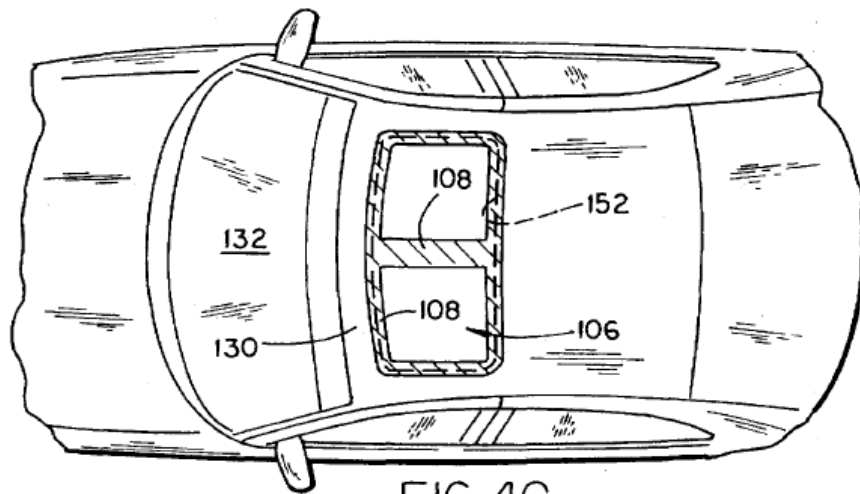


FIG. 4C

Figure 4A shows console 102 depending from interior surface 104 of window panel 106. Figure 4C shows opaque layer 108 concealing console 102 and the peripheral edge of window panel 106 at window opening 152. *Id.* at 6:57–7:58.

Figures 5A and 5C, which are reproduced below, also illustrate concealment of a peripheral edge of a glass panel and a footprint of an accessory depending from the center of the glass panel.

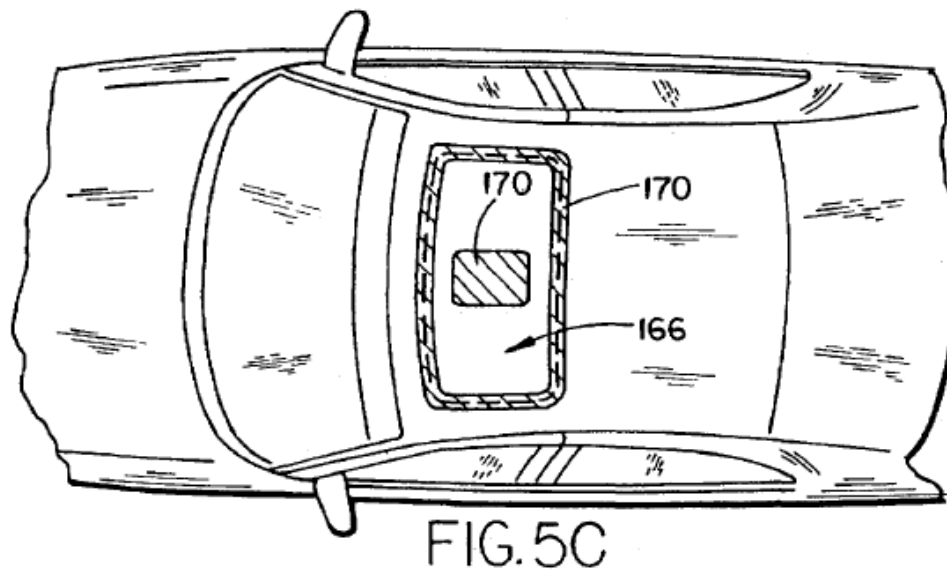
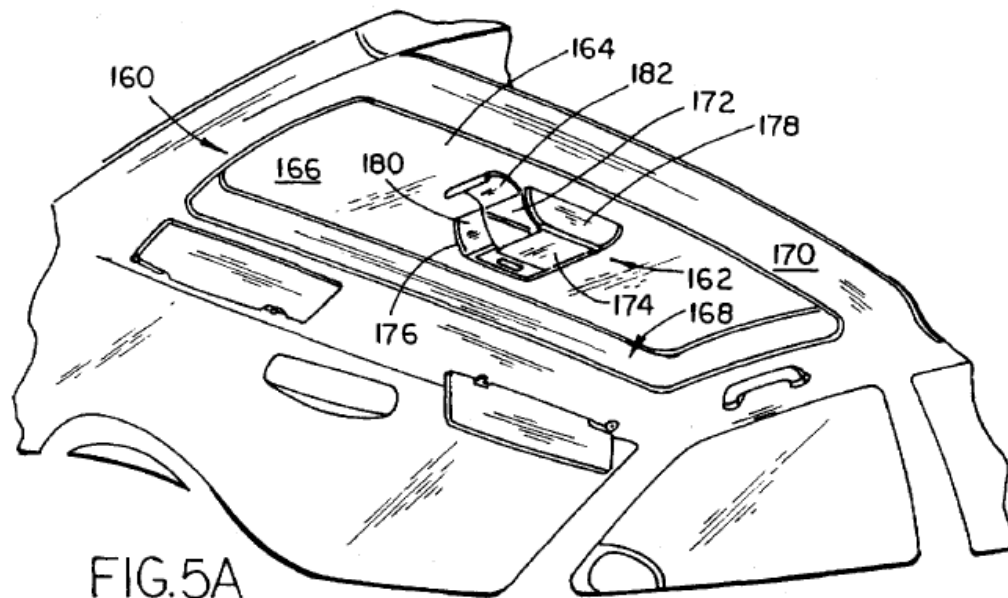


Figure 5A shows accessory island 162 suspended from central portion of inner surface 164 of window panel 166. Figure 5C shows opaque coating 170 concealing the island from exterior view and the peripheral edge of glass panel 166. *Id.* at 7:59–8:4.

d. Overview of Anderson (Ex. 1008)

Anderson discloses photovoltaic solar cells laminated in windshield 10, as illustrated in Figure 1, reproduced below. Ex. 1008, 1:10–12.

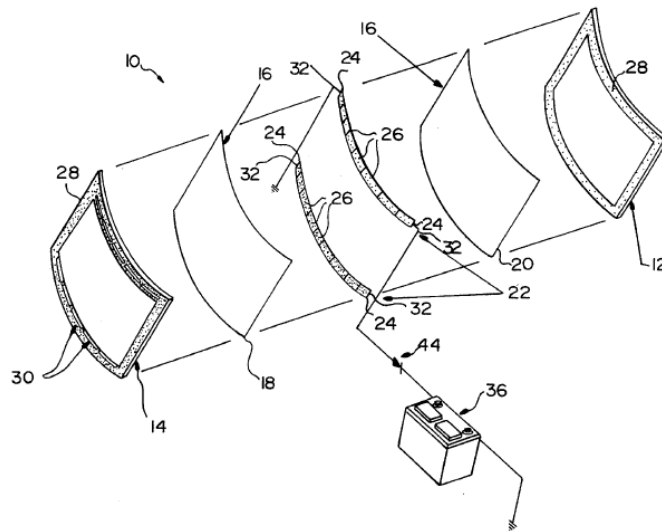


FIG. 1

Figure 1 is an exploded view of windshield 10 with a solar cell layer.

Solar cell strings 26 are located at a periphery of windshield 10 where visibility through windshield 10 is not needed. *Id.* at 4:64–66. Anderson also discloses that most windshields have a black frit border area 28 that is silk screened onto glass layers 12, 14 of windshield 10, and clear openings 30 may extend through outside glass layer 14 for solar cells 26. *Id.* at 4:66–5:2, Fig. 1. The portions of solar cell strings 26 that convert light into electricity are aligned with openings 30 to receive sunlight through outer layer 14 of laminated windshield 10, as shown in Figure 1. *Id.* at 5:2–6.

e. Analysis

TRW contends that claims 58, 59, 62–66, 68–71, 79, 80, and 82 are unpatentable under 35 U.S.C. § 103(a) over Blank, Kakinami, Carter, and Anderson. Pet. 13–41.

Independent claims 58, 71, and 79 each recite “a light absorbing layer at the region of the interior surface of the windshield . . . wherein said light absorbing layer includes a light transmitting portion.” Ex. 1002, 15:10–18, 16:14–21, 17:1–8. TRW asserts that Carter teaches an opaque, frit layer 40

to “conceal from the exterior any adhesive or mounting member attaching window panel 28.” Pet. 19–20; Ex. 1011 ¶ 38. TRW asserts that a skilled artisan would have been motivated to use Carter’s frit layer with Blank and Kakinami to conceal from the exterior any adhesive or mounting member attaching window panel 28 to the vehicle as taught by Carter. *Id.* at 20. TRW further asserts that Carter teaches the use of a frit layer to conceal accessories or accessory mounting members attached to a glass panel at the “footprint” where accessories attach to the window panel. Pet. Reply 20–21; Ex. 1012 ¶¶ 22–23.

TRW contends that Anderson teaches “clear openings” that provide a light transmitting portion in a frit layer. Pet. 21–22. TRW argues that a skilled artisan would have been motivated to incorporate Anderson’s clear openings into Blank, Kakinami, and Carter because “if Carter’s black frit layer covers Blank’s entire bracket, the camera of Kakinami may not be able to receive light through windshield.” *Id.* at 22; Ex. 1011 ¶ 42. TRW also contends that a skilled artisan would align the active portion of Kakinami’s camera with clear openings 30 of Anderson so the camera can view through the black frit layer of Carter via the circular openings of Anderson. Pet. 22; Pet. Reply 22.

Magna argues that a skilled artisan would have used Carter’s frit layer only to cover Blank’s adhesive and mounting structure so there would be no frit layer in front of Kakinami’s forward-facing camera because the camera of Kakinami requires an unobscured view through windshield 22 to operate, as illustrated by Magna on Figure 3B of Blank, which is reproduced below. PO Resp. 44.

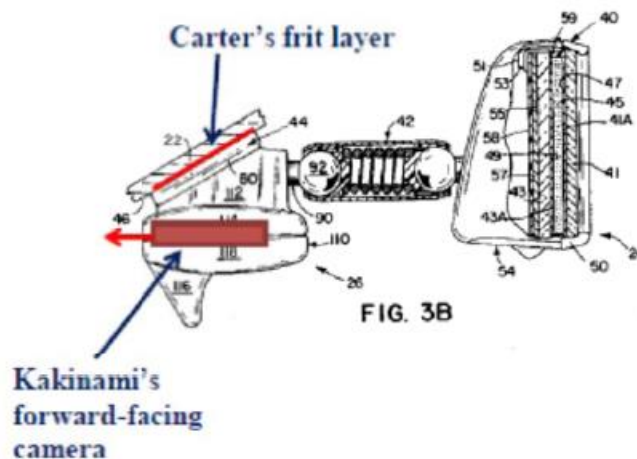


Figure 3B is a side elevation view of an interior rearview mirror and information display assembly 26 secured to windshield mount 44 with Magna's annotations of Carter's frit layer concealing only mount 44.

Magna argues that a skilled artisan would not have been motivated to extend the frit layer beyond Blank's mounting button to cover the portion of the windshield in front of the camera because Carter does not teach a frit layer to conceal accessories that are not attached at a windshield. *Id.* at 44–46. Without extending a frit layer in front of Kakinami's camera, Magna argues that a skilled artisan would not have needed to include Anderson's clear openings because the camera already receives light.

Carter teaches the use of a frit layer to hide places where a glass panel attaches to a vehicle's structure, and places where accessories are attached to a glass panel. Ex. 1007, 1:56–60, 2:4–8. Carter discloses frit layers 108, 170 in the middle of window panels 106, 166 in a vehicle roof to conceal where those overhead accessories and storage compartments 102, 162 attach to an inner surface 30 of window panels 106, 166. Ex. 1007, 7:6–22, 7:59–8:4, 8:33–43, Figs. 4C, 5C. Carter discloses “the basic concept can be applied to vehicle windscreens, side windows, backlights, and the like as well as other

areas where it is desirable to depend a structure from a transparent or opaque, glass, plastic or laminate panel.” *Id.* at 11:19–26; Pet. Reply 22.

Although Carter teaches the use of a frit layer to hide mounting points of accessories from exterior view, the frit coating “conforms substantially to the regions of the window panel which receive the accessory [which] is referred to as the *footprint* of the accessory.” Ex. 1007, 8:33–38 (emphasis added). As shown in Figures 4A, 4C, 5A, and 5C of Carter, reproduced above, frit layers 108, 170 conceal storage compartments 102, 162 where those accessories attach to window panels 106, 166. *Id.* at 6:57–67, 7:6–22, 7:59–8:5; Ex. 1016 ¶ 28. Frit layers 108, 170 conform to “footprints” where accessories 102, 162 attach to window panel 106, 166. Ex. 1016 ¶¶ 28, 29.

Carter discloses a frit layer that extends beyond an attachment point or footprint of an accessory in Figure 2C and Figures 3A–3E. Opaque layer 40 extends beyond where storage compartment 42 and outer wall 52 attach to inner surface 30 of window panel 28. However, Carter extends frit layer 40 from top wall 48 of storage compartment 42 only to gasket/grommet 36 at peripheral edge 34 of upper window panel 28. *See id.* at 3:59–61, Fig. 2C. Carter does not extend frit layer 40 to the front windshield. Thus, we are not persuaded that this teaching would have motivated a skilled artisan to extend a frit layer beyond the footprint of Blank’s mounting button 70 or mount 44 at windshield 22. The issue is not whether a skilled artisan could extend a frit layer beyond an attachment point or whether it would have been trivial to do so. *See* Pet. Reply 23. The issue is whether a skilled artisan would have been motivated to do so based on teachings of the references; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in

the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

Figure 10 illustrates frit layer 308 placed around peripheral edge 306 of front windshield 300. Frit layer 308 hides the attachment point of visor assembly 310. Opaque layer 308 extends very slightly beyond the footprint of visor assembly 310. Ex. 1008, Fig. 11. Carter does not extend frit layer 308 over the windshield to conceal visor from view when it is deployed. *Id.*

Carter's teachings apply to front, rear, side windows, and sunroofs. *Id.* at 18:19–34. Carter uses frit layers to conceal (1) footprints of vehicle accessories, i.e., the area where an accessory attached as a window panel, and (2) peripheral edges of glass panels. Thus, in Figure 2C and 3A–3E opaque layer 40 extends around the entire peripheral edge of window panel 28, as shown in Figure 2B. These figures illustrate a frit layer or band of uniform width extending along an entire peripheral edge of a window panel to covers footprints of accessories mounted at the peripheral edge and other areas of the periphery where no accessories are attached. Figures 2B, 4C, 5C, 8, 9, and 10 illustrate this teaching.

Carter's teaching of applying a frit layer to “areas where it is desirable to depend a structure from a transparent . . . glass” (Pet. Reply 21–22 (citing Ex. 1007, 11:19–27)) simply means that a frit layer is applied to the footprint of an accessory that depends from a glass panel. Carter extends a frit layer beyond a footprint of an accessory only in a peripheral area of a glass panel.

Carter notes concerns in the art for visual impairment resulting from attaching accessories to windshields and overhead roofs. Ex. 1007, 1:19–24. Anderson places solar cell strings near a periphery of a windshield where

visibility through the windshield is not needed. Ex. 1008, 4:64–66. In light of these teachings, we are not persuaded that a skilled artisan would have extended a frit layer beyond Blank’s mount 44 to hide module 26 from view. Module 26 forms no footprint on windshield 22. Kakinami’s camera has an unimpeded view of a forward scene through windshield 22 if frit layer is placed only at the footprint of mount 44. PO Resp. 44. Thus, we are not persuaded that a skilled artisan would have extended a frit layer beyond button 70 and formed an opening in that extended frit layer so a camera in module 26 could view through the opening. Pet. Reply 21–22.

Thus, TRW has not established the unpatentability of claims 58, 59, 62–66, 68–71, 79, 80, and 82 over Blank, Kakinami, Carter, and Anderson by a preponderance of evidence. TRW likewise has not established the unpatentability of claims 60, 61, 67, 72–76, 78, and 83–86, each of which depends from one of claims 58, 71, or 79. *See In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (“Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.”).

2. *Additional Grounds*

In its other grounds, TRW additionally relies on Lisowski and/or Schofield to disclose certain features of dependent claims 60, 61, 67, 72–76, 78, and 83–86, but not a frit layer with an opening, as recited in independent claims 58, 71, and 79. Thus, TRW has not demonstrated by a preponderance of evidence that claims 60, 61, 67, 72–76, 78, and 83–86 are unpatentable under 35 U.S.C. § 103(a).

III. CONCLUSION

TRW has not demonstrated by a preponderance of evidence that any of: (1) claims 58, 59, 62–66, 68–71, 79, 80, 82 of the '916 patent are unpatentable under 35 U.S.C. § 103(a) over Blank, Kakinami, Carter, and Anderson; (2) claims 60 and 61 are unpatentable under 35 U.S.C. § 103(a) over Blank, Kakinami, Carter, Anderson, and Lisowski; (3) claims 67, 72, 74–76, 78, 83, 85, and 86 are unpatentable under 35 U.S.C. § 103(a) over Blank, Kakinami, Carter, Anderson, and Schofield; or (4) claims 73 and 84 are unpatentable under 35 U.S.C. § 103(a) over Blank, Kakinami, Carter, Anderson, Schofield, and Lisowski.

IV. ORDER

Accordingly, it is

ORDERED that claims 58–76, 78–80, and 82–86 of the '916 patent are not unpatentable on the record before us; and

FURTHER ORDERED that this is a Final Decision. Parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2014-01355
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