

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD**

In re U.S. Patent No. 8,708,487 B2

Filed: September 4, 2013

Issued: April 29, 2014

Inventor: Stephen Kurtin

Assignee: Superfocus Holdings LLC

Title: Adjustable Focus Eyeglasses With Eye-By-Eye Actuation

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**PETITION FOR *INTER PARTES* REVIEW OF UNITED
STATES PATENT NO. 8,708,487 PURSUANT TO
35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42**

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Exhibit 1001	U.S. Patent No. 8,708,487 to Kurtin
Exhibit 1002	U.S. Patent No. 8,967,797 to Kurtin
Exhibit 1003	Declaration of Nickolaos Savidis
Exhibit 1004	U.S. Published Application 2008/0084532 to Kurtin (Published April 10, 2008)
Exhibit 1005	U.S. File History Application No. 12/928,241
Exhibit 1006	U.S. Patent No. 5,526,067 to Cronin (Issued June 11, 1996)
Exhibit 1007	U.S. Patent No. 1,269,422 to Gordon (Issued June 11, 1918)
Exhibit 1008	U.S. File History Application No. 14/018,186
Exhibit 1009	U.S. Patent No. 5,371,629 to Kurtin <i>et al.</i> (Issued Dec. 6, 1994)

I. INTRODUCTION

Petitioner Adlens USA, Inc. and Adlens, Ltd. Inc. (collectively “Adlens”) requests an *Inter Partes* Review (“IPR”) of claims 1–5 (collectively, the “Challenged Claims”) of U.S. Patent No. 8,708,487 (the “’487 Patent” or “Kurtin ‘487” (“Ex. 1001)) in accordance with 35 U.S.C. §§ 311–19 and 37 C.F.R. § 42.100 *et seq.*

II. MANDATORY NOTICES

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner certifies that Adlens USA, Inc. and Adlens, Ltd. are the real parties in interest (collectively, “RPI”). The RPI hereby certifies the following information: Adlens USA, Inc. is a wholly owned subsidiary of Adlens, Ltd.

B. Related Judicial and Administrative Matters Under 37 C.F.R. § 42.8(b)(2)

Pursuant to 37 C.F.R. § 42.8(b)(2), Petitioner states that the ‘487 Patent has been the subject of the following lawsuit: Superfocus Holdings LLC. v. Adlens USA, Inc. and Lenscrafters, Inc., D.Mass 1:14-cv-14189-LTS (D. Mass) (the “Superfocus litigation.”). Superfocus Holdings LLC (“Superfocus”) filed a complaint against Adlens USA, Inc. and Lenscrafters, Inc., alleging patent infringement of the ‘487 Patent. On March 11, 2015, the parties filed a Joint

Stipulation of Dismissal Without Prejudice of All Claims and Counterclaims. The case was thereafter dismissed without prejudice on March 11, 2015.

The ‘487 Patent is also related to U.S. Patent No. 8,967,797 to Kurtin (the “‘797 Patent” (Ex. 1002)), which is a continuation of and claims priority to the ‘487 Patent. Filed concurrently with this Petition is another petition requesting institution of an IPR of the ‘797 Patent.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Adlens provides the following designation of counsel:

LEAD COUNSEL	BACK-UP COUNSEL
John A. Bauer, Reg. No. 32,554 Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, P.C. The Chrysler Center 666 Third Avenue, Floor 24 New York, New York 10017 Telephone: (212) 692-6795 Fax: (212) 983-3115 E-mail: jbauer@mintz.com	Boris Matvenko, Reg. No. 48,165 Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, P.C. The Chrysler Center 666 Third Avenue, Floor 24 New York, New York 10017 Telephone: (212) 692-6858 Fax: (212) 983-3115 E-mail: bamatvenko@mintz.com

D. Service Information Under 37 C.F.R. § 42.8(b)(4)

Adlens respectfully requests that all correspondence/service be addressed to counsel at the address provided in Section II.C. Adlens also consents to electronic service by e-mail at jbauer@mintz.com and bamatvenko@mintz.com.

III. PAYMENT OF FEES – 37 C.F.R. § 42.103

Adlens authorizes the United States Patent and Trademark Office (“USPTO”) to charge Deposit Account No. 50-0311 for the fee set forth in 37

C.F.R. § 42.15(a) for this Petition and further authorizes payment for any additional fees to be charged to this Deposit Account.

IV. REQUIREMENTS FOR IPR UNDER 37 C.F.R. § 42.104

A. Grounds For Standing Under 37 C.F.R. § 42.104(a)

Adlens certifies that the ‘487 Patent is available for an IPR and that Adlens is not barred or estopped from requesting an IPR challenging claims 1-5 of the ‘487 Patent on the grounds identified in this Petition.

B. Challenge Under 37 C.F.R. § 42.104(b) and Relief Requested

Petitioner respectfully requests review under 35 U.S.C. § 311 of claims 1-5 of the ‘487 Patent, and the cancellation of these claims as unpatentable. Further, Adlens requests that claims 1-5 of the ‘487 Patent be cancelled as unpatentable on the grounds set forth in the below chart outlining the statutory grounds on which each challenge to the claims is based and the patents relied upon for each ground. The claim construction, reasons for unpatentability, and specific evidence supporting this request are detailed below.

Ground	‘487 Patent Claims	Basis for Rejection
Ground 1	Claims 1-5	Unpatentable under 35 U.S.C. §103(a) as Being Rendered Obvious by Kurtin ‘532 in View of Kurtin ‘629 and Gordon (Pre AIA)

C. Person of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSA”) would have at least an undergraduate degree in optics or mechanical engineering, and 3 years of work

experience (or a graduate degree) in the field of fluid filled optical lenses, including the design thereof. *See* Declaration of Nickolaos Savidis Decl., ¶19 (Ex. 1003).

D. Claim Construction Under 37 C.F.R. § 42.104(b)(3)

1. Broadest Reasonable Construction

A claim subject to an IPR receives the “broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see In re Cuozzo Speed Techs., LLC*, No. 2014-1301, 2015 U.S. App. LEXIS 1699, at *21 (Fed. Cir. Feb. 4, 2015) Unless otherwise noted below, Petitioner accepts, for purposes of this IPR only, that the claim terms of the ‘487 Patent are presumed to take on the ordinary and customary meaning that they would have to one of ordinary skill in the art.¹

V. REASONS FOR THE REQUESTED RELIEF

The full statement of the reasons for the relief requested is as follows.

¹ Because the standards of claim interpretation applied in litigation differ from USPTO proceedings, any interpretation of claim terms in this IPR is not binding upon Petitioner in any litigation related to the ‘487 Patent, or any related patent or patent application. *See In re Zletz*, 13 U.S.P.Q.2d 1320, 1322 (Fed. Cir. 1989).

A. The Kurtin ‘487 Patent (Ex. 1001)

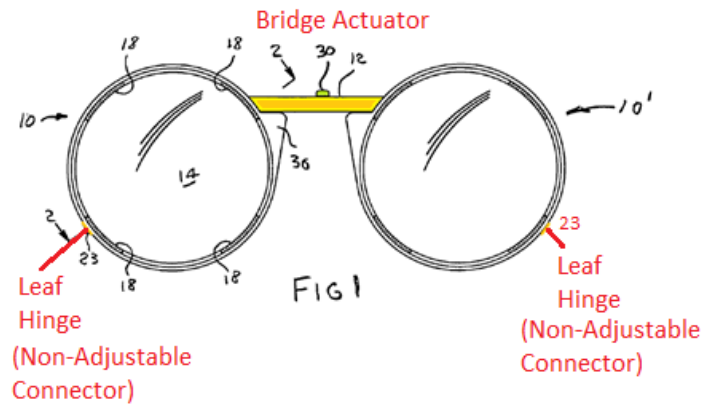
The ‘487 Patent is directed to adjustable, liquid filled, variable focus eyeglasses in which the optical power of each liquid filled lens can be independently and manually adjusted. *See* Ex. 1001: Abstract; 1:56-58; Savidis Decl., ¶34 (Ex. 1003).

Manually adjustable, liquid filled, variable focus eyeglasses were known in the art well prior to December 6, 2010, the priority filing date of the ‘487 Patent. In these eyeglasses, a fixed volume of non-compressible liquid is typically encased between a rigid lens on one side, a flexible membrane having circumferential structural support on the other, and a flexible side wall that forms a seal between the rigid lens and the membrane’s circumferential structural support. By changing the distance between the circumferential structural support of the membrane and the rigid lens, the optical power of the liquid filled lens can be changed. For example, by decreasing the distance between the circumferential structural support of the membrane and the rigid lens, the non-compressible liquid will cause the membrane to increase its convexity by bulging out, resulting in an increase in optical power. Alternatively, extending the length between the circumferential structural support of the membrane and the rigid lens will cause the membrane to decrease its convexity, thereby decreasing the optical power of the liquid filled lens. *See* Ex. 1001: 2:13-28; Savidis Decl., ¶35 (Ex. 1003).

A specific example of prior art eyeglasses having manually adjustable, liquid filled, variable focus lenses is found in U.S. published application 2008/0084532 to Kurtin (the “’532 Application,” or “Kurtin ‘532” (Ex. 1004)). This application, incorporated by reference into the disclosure of the ‘487 Patent (1:57-67), provides the vast majority of the structural features of the eyeglasses described and claimed in the ‘487 Patent, and therefore, will be described in this section in detail. *See* Savidis Decl., ¶¶36.

The ‘532 Application’s manually adjustable, liquid filled, variable focus lenses have a bridge “actuator” that changes the optical power of each lens simultaneously by simultaneously changing the distance between each lens’ membrane support structure and its respective rear lens at a location near the bridge. *See* Ex.1004: ¶¶ 27, 34, and 37. *See* Savidis Decl., ¶¶37. Figure 1 shows the eyeglasses of the ‘532 Application. (Shading and red annotations are added).² *See* Savidis Decl., ¶¶37.

² All colored shading and red labeling of the Figures in the Petition and supporting Exhibits has been added by Petitioner.



Figures 2, 3 and 4 show the eyeglasses of Figure 1 in more detail. To adjust the optical power of the fluid filled lens, Figure 3 shows that extending actuator link 13 increases the distance between membrane support structure front ring 19 and rear lens 15 holding rear ring 20. Consequently, membrane 22 will assume a less convex shape and liquid filled lens 16 will provide decreased optical power. Conversely, Figure 4 shows retracting actuator link 13 will decrease the distance between membrane support structure front ring 19 and rear lens 15 holding rear ring 20. Consequently, membrane 22 will assume a more convex shape, resulting in liquid filled lens 16 providing increased optical power. *See* Ex.1004: ¶¶ 18, 19, 27, 34, and 37; Savidis Decl., ¶38.

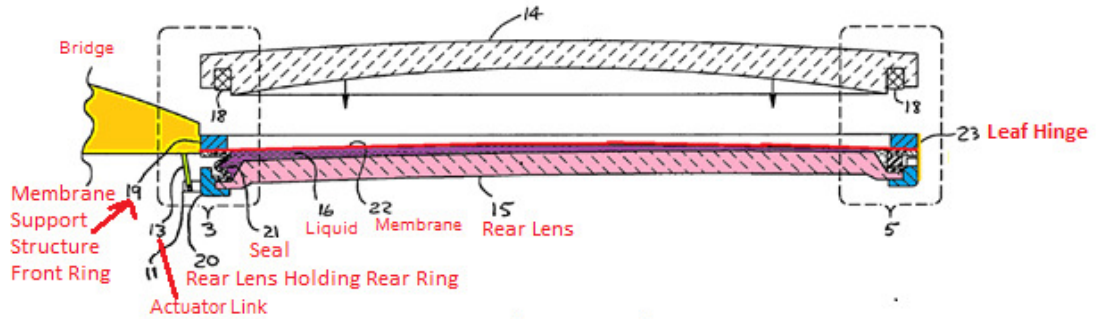


Figure 2 - '532 Application

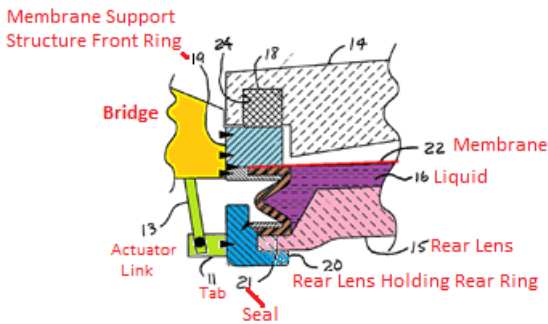


Figure 3-'532 Application

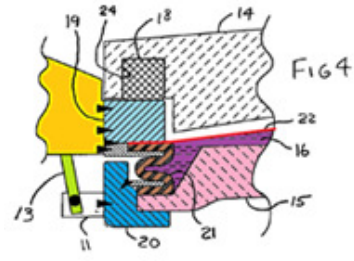


Figure 4 - '532 Application

Located across from the eyeglass frame's bridge at location 5 in Figure 2 is a non-adjustable "leaf hinge" connector 23 that connects membrane support structure front ring 19 to rear lens 15 holding rear ring 20. An exploded view of the non-adjustable leaf hinge connector 23 is shown in Figures 5 and 6 of the '532 application. See Ex.1004: ¶¶ 20, 21, 33, and 40; Savidis Decl., ¶¶39.

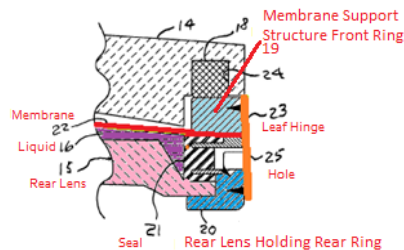


Figure 5 - '532 App.

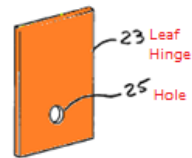


Figure 6 - '532 App.

The purported invention of the ‘487 Patent is the replacement of the non-adjustable connector of the ‘532 Application with an adjustable connector (called a “vision compensation mechanism” in the specification (Ex. 1001: 3:31-40)) that (a) connects membrane support structure front ring 19 to rear lens holding rear ring 20, and (b) adjusts the distance between the two, thereby changing the focal length (optical power) of the fluid filled lens. *See* Savidis Decl., ¶40.

The ‘487 Patent states:

The invented fluctuating vision compensation mechanism is shown herein ...

The variable lens described in US Patent Application Publication No. 2008/0084532 includes a rigid lens (referred to as the “rear” lens) spaced away from a distensible membrane, the intervening space being filled with a transparent optical liquid. Both the rigid lens and the membrane are held by spaced rings (which, in the preferred embodiment, are circular). A flexible sealing member in the space between the rings keeps the optical liquid from escaping. The inter-ring spacing at a point near the bridge is varied by an actuator located within the bridge, and the inter-ring spacing at a point substantially opposite said point near the bridge is set by a leaf hinge [23]...

In the present invention the leaf hinge [23] mentioned above is replaced by a hinge means with controllable axial length (‘H/CAL’) which can be manually set by the wearer.

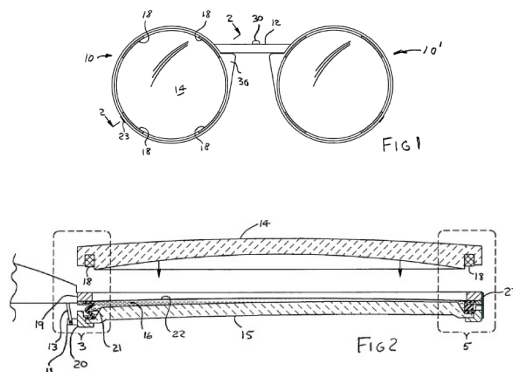
Ex. 1001: 3:36-37; 2:13-24, 31-33, respectively (emphasis added); *see also* 3:37–4:11.

In lieu of a leaf hinge as is the case in the '532 application, at location 100, the lens unit has an adjustable connector (also called vision compensation mechanism)...

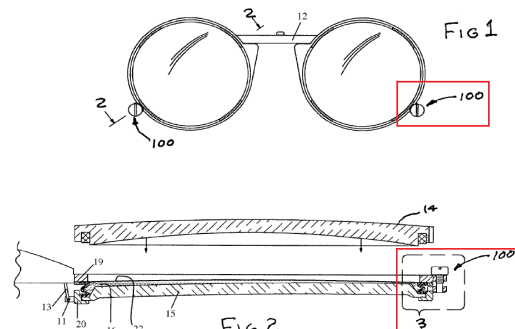
Ex. 1005, pg. 107 (emphasis added). *See* Savidis Decl., ¶41.

Indeed, a side by side comparison of Figures 1 and 2 of the '532 Application and '487 Patent, respectively, confirms that the sole structural difference between the two specifications is the adjustable connector located near the temples at position 100 (marked in red).

'532 Application – Figs 1 and 2



'487 Patent – Figs. 1 and 2



In that regard, the '487 Patent states:

The [invention] is shown herein as applied to a pair of variable focus spectacles similar to those described in Patent Application Publication 2008/0084532. For convenience, each component that also appears in the ['532] patent publication is shown having the same

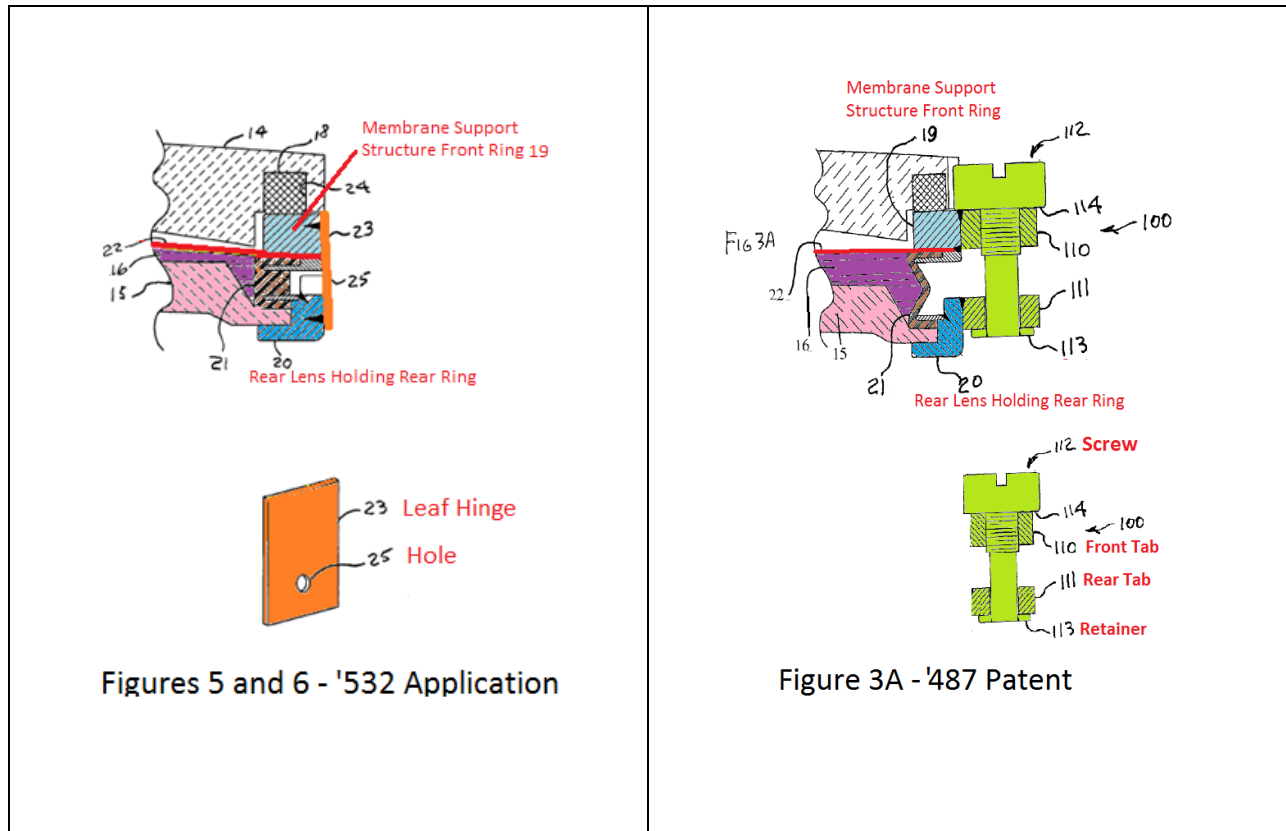
identification number as in that publication, including, in particular, the distensible membrane 22, the transparent optical liquid 16, rear lens 15, bridge 12, the actuator link 13, and the tab 11 of the rear ring 20. The link 13, which is a part of the above-mentioned actuator, pushes the tab 11 to accomplish a change of the inter-ring spacing at a point near the bridge as described earlier. Components that are unique to the fluctuating vision compensation mechanism are given numbers over 100.

3:36-49 (emphasis added). *See* Savidis Decl., ¶43.

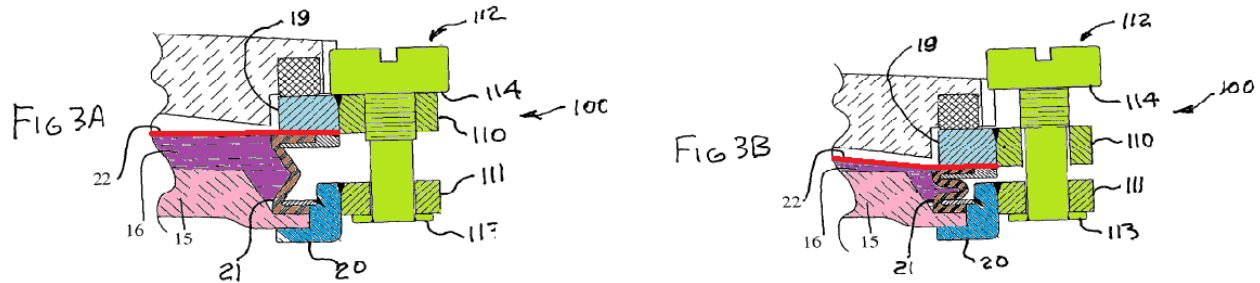
The ‘532 Application’s non-adjustable connector and ‘487 Patent’s adjustable connector are shown side by side below. The Figures plainly reveal that the inventor merely replaced (a) the perpendicularly³ oriented non-adjustable leaf hinge 23 that connects membrane support structure front ring 19 to rear lens holding rear ring 20 with (b) a perpendicularly oriented retained screw 112 that similarly connects membrane support structure front ring 19 to rear lens 15 holding rear ring 20, albeit via front tab 110 and rear tab 111, respectively. *See* Savidis Decl., ¶44.

‘532 App. Non-Adjustable Connector (Prior Art)	‘487 Patent Adjustable Connector
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³ Perpendicular means perpendicular to the lens.



To adjust the optical power of the ‘487 Patent’s fluid filled lens, screw 112 is manually rotated, thereby changing the distance between membrane support structure front ring 19 and rear lens holding rear ring 20. *See* Ex.1001: 3:60- 4:2: “FIG. 3A shows the mechanism set to provide minimum optical sphere, whereas FIG. 3B shows the mechanism set to provide maximum optical sphere.” *Id.*, 3:60-62; Savidis Decl., ¶45.



B. Prosecution History of the '487 Patent (Ex. 1001)

1. Introduction

The '487 Patent was filed September 4, 2013 as application serial no. 14/018,186 (the "'186 application"). The '186 application was a continuation of parent application no. 12/928,241, filed December 6, 2010 (the "'241 application"). The '241 application issued as U.S. Patent No. 8,777,408.

2. Parent Application 12/928,241 (filed Dec. 6, 2010 (Ex. 1005))

The '241 application as originally filed contained a single claim, reproduced below. Like the claims of the '487 Patent, it claims adjustable, liquid filled, variable focus spectacles having an "adjustable connector connecting each of said first lenses to its associated membrane support structure." Unlike the claimed adjustable connector of the '487 Patent, the adjustable connector of the '241 application also requires that it allow for angular motion. Claim one of the '241 application reads:

Claim 1. Variable Focus Spectacles comprised of:

a first pair of lenses, each having a predetermined optical power;

a pair of membrane support structures, each having an opening therein, each of said membrane support structures being associated with and mounted adjacent to and within the field of view of one of said first pair of lenses;

an adjustable connector connecting each of said first lenses to its associated membrane support structure, each said adjustable connector allowing angular motion between its respective first lens and its associated membrane support structure at the location of said connector and also allowing adjustment of the distance between its respective first lens and its associated membrane support structure at the location of said connector;

a transparent membrane attached to each of said membrane support structures across said openings;

a flexible seal extending between each of said first lenses and its associated membrane support structure, said flexible seals permitting motion between said first lenses and their associated membrane support structures; and

liquid having a predetermined index of refraction substantially filling the spaces between each of said first pair of lenses and its associated membrane support structure within its respective seal.

Ex. 1005, pp. 226-227 (emphasis added).

A first office action issued October 10, 2012. Ex. 1005, pp. 190-199. Claim one was alleged to be anticipated by Kurtin's '532 Application (Ex. 1004) which disclosed a bridge actuator allegedly having the features of the claimed adjustable connector. Ex. 1005, pp. 193-194.

On January 10, 2013, Applicant filed an Amendment amending claim 1 and adding new dependent claims 2-5. Ex. 1005, pp. 170-172. Applicant's amendment consisted solely of amending the "adjustable connector" limitation to allow for angular motion when the distance between its connected lens and membrane support structure remained constant. The amended claim language reads:

... an adjustable connector connecting each of said first lenses to its associated membrane support structure, each said adjustable connector allowing angular motion between its respective first lens and its associated membrane support structure while a distance between its respective first lens and its associated membrane support structure ~~at the~~ a location of said connector is held constant, and also allowing adjustment of the distance between its respective first lens and its associated membrane support structure at the location of said connector;

Ex. 1005, p. 170 (emphasis in original). Applicant asserted that because angular motion of the '532 Application's bridge actuator occurred only when the distance between its lens and respective membrane support structure was changed, *i.e.*, not held constant, the amended claim language distinguished over the bridge actuator of the '532 Application. *Id.*, p. 175.

On January 25, 2013, Kurtin submitted an IDS listing the art cited in a March 20, 2012 PCT ISR. Ex. 1005, pp. 153-155. The IDS included two U.S. Patents that included Kurtin as a named inventor: U.S. Patent Nos. 5,138,494 and 5,956,183. *Id.*

On March 6, 2013, the Examiner issued a final rejection (Ex. 1005, pp. 135-145) based on newly cited prior art: U.S. Patent No. 5,526,067 to Cronin et al. (“Cronin” (Ex. 1006)) in view of U.S. Patent No. 1,269,422 to Gordon (“Gordon” (Ex. 1007)). The Examiner alleged that Cronin disclosed every element of claim 1, except for the limitation that the adjustable connector allowed “adjustment of the distance between its respective first lens and its associated membrane support structure at the location of said connector.” While Cronin did disclose screws 22 that connected the rear lens to its associated membrane support structure, those screws could not adjust the distance between the two. Ex. 1005, pp. 138-139. Gordon, however, disclosed adjustable screw 5 that allegedly provided the missing element. *Id.* Further, dependent claim two’s limitation of independent adjustment of each lens was also supplied by Gordon. *Id.*

On May 21, 2013, applicant filed an Amendment⁴ and argued that it was not obvious to combine Cronin with Gordon. Applicant argued, *inter alia*, that there

⁴ The claim scope was not amended. Applicant merely corrected typographical errors in the claims.

were significant structural differences between Cronin's non-adjustable screw 22 and Gordon's adjustable screw 5. In particular, Gordon's adjustable screw was oriented parallel to the lens surfaces whereas Cronin's non-adjustable screw was oriented perpendicular to the lens surface. Furthermore, because of that orientation, Gordon's adjustable screw 5 did not function to change the distance between a transparent member and a membrane support structure. *Id.*, pp. 140-141.

On May 30, 2013, an Advisory Action issued maintaining rejection of all the claims. Ex 1005, pp. 123-124.

On July 31, 2013, Applicant filed an Appeal Brief and reiterated the arguments presented in their May 21, 2013 Amendment. In their Summary of Claimed Subject Matter, applicant confirmed that the invention comprised adding the ability to independently adjust the focus of each lens described in the Kurtin's '532 Application by substituting an adjustable connector for the non-adjustable connector of the '532 patent.

The claimed invention is directed to variable focus spectacles. This application incorporates by reference the disclosure of US Pat. Appl. No. 2008/0084532 (the '532 application) (See 3:6-14, 9:2-91). The '532 application describes variable focus spectacles that provides a manually adjustable, bilaterally tracking, spherical ADD power (See 1:19-23). The variable focus spectacles described in the instant application is based on those described in the '532 application, but

also provide a correction, separately for each eye, for fluctuating vision of the user (See 2:5-3:20).

Ex. 1005, p. 106 (emphasis added).

In lieu of a leaf hinge as is the case in the '532 application, at location 100, the lens unit has an adjustable connector (also called vision compensation mechanism) which functions in conjunction with the actuator.

Ex. 1005, p. 107 (emphasis added).

The Examiner filed an Answer on September 12, 2013 and reiterated the outstanding rejection. Ex. 1005, pp. 96-104.

On November 6, 2013, Applicant filed an RCE and Amendment and amended the “adjustable connector” element of claim one. Ex. 1005, pp. 83-92, at 84-86. Applicant required the adjustable connector to change the distance between the membrane support structure and its respective lens at the location of the connector and also in a direction perpendicular to the lens. *Id.*, p. 84. Applicant argued that these amendments distinguished over the cited prior art. *Id.*, pp. 90-92.

On December 13, 2013, a Notice of Allowance issued. Ex. 1005, pp. 57-66. On April 10, 2014, Applicant filed an RCE and included an IDS that listed four patents that were of record in related application 14/108,186. Ex. 1005, pp. 38-41. None of the patents named Kurtin as an inventor. On May 8, 2014, a second

Notice of Allowance issued (*Id.*, pp. 15-22) and U.S. Patent No. 8,777,408 issued on July 15, 2014.

3. Application 14/018,186 (Ex. 1008)

The '186 application was filed September 4, 2013 as a continuation application of the '241 application. Ex. 1008, pp. 101-115. The application included a Preliminary Amendment amending claim one and adding new claims two through five. *Id.*, pp. 122-124. Amended claim one reads:

1. (currently amended) Variable Focus Spectacles ~~comprised of~~
comprising:

~~a first pair of lenses, each having a predetermined optical power;~~

first and second transparent members;

~~a pair of~~ first and second membrane support structures, each having an opening therein, ~~each of said~~ the first and second membrane support structures being respectively associated with and mounted adjacent to and within the field of view of ~~one of said first pair of lenses~~ the first and second transparent members;

~~an~~ first and second adjustable ~~connector~~ connectors respectively connecting ~~each of said first lenses to its associated~~ the first and second transparent members to the first and second membrane support ~~structure~~ structures, each ~~said~~ of the first and second adjustable ~~connector allowing angular motion between its respective first lens and its associated membrane support structure at the location of said connector and also~~ connectors allowing adjustment of ~~the~~ a distance between its respective ~~first lens~~ transparent member and its associated

membrane support structure at ~~the~~ a location of said connector, the first and second adjustable connectors being manually adjustable independently of each other;

a transparent membrane attached to each of said first and second membrane support structures across said openings;

a flexible seal extending between each one of said first ~~lenses~~ and second transparent members and its associated membrane support structure, said flexible seals seal permitting motion between ~~said first lenses~~ one of the first and second transparent members and ~~their~~ its associated membrane support ~~structures~~ structure; and

liquid having a predetermined index of refraction substantially filling ~~the~~ spaces between each of said first ~~pair of lenses~~ and second transparent members and its associated membrane support structure within its respective seal.

Ex. 1008, pp. 121-122.

On October 23, 2013, Applicant filed an IDS which listed eight references, two of which were patents naming Kurtin as inventor; 5,138,494 and 5,956,183.

Ex. 1008, pp. 52-56. On February 19, 2014, Applicant filed a second Preliminary Amendment (Ex. 1008, pp. 33-38) in which amended claim one reads.

1. (currently amended) Variable Focus Spectacles comprising:

first and second transparent members;

first and second membrane support structures, each having an opening therein, the first and second membrane support structures being respectively

associated with and mounted adjacent to and within the field of view of the first and second transparent members;

first and second adjustable connectors respectively connecting the first and second transparent members to the first and second membrane support structures, each of the first and second adjustable connectors allowing adjustment of a distance between its respective transparent member and its associated membrane support structure at a location of said connector while, at another location along a perimeter of the transparent member spaced apart from the location of the connector, a distance between the respective transparent member and its associated membrane support structure is kept unchanged, the first and second adjustable connectors being manually adjustable independently of each other;

a transparent membrane attached to each of said first and second membrane support structures across said openings;

a flexible seal extending between each one of said first and second transparent members and its associated membrane support structure, said flexible seal permitting motion between one of the first and second transparent members and its associated membrane support structure; and

liquid having a predetermined index of refraction substantially filling spaces between each of said first and second transparent members and its associated membrane support structure within its respective seal.

Ex. 1008, p. 35.

On March 7, 2014, a Notice of Allowance along with a Notice of Allowability issued. Ex. 1008, pp. 3-12. The Examiner's reasons for allowance state:

As to claims 1-5, although the prior art teaches variable focal spectacles, the prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of claim(s) 1 and 4, in such a manner that a rejection under 35 U.S.C. §102 or §103 would be proper, including the adjustable connectors, their location and structural/adjustment relationship to the transparent members and membrane support structure as claimed, in combination with the structural limitations recited together with the totality of particular features/limitations recited therein.

Ex. 1008, pp. 9-10.

C. The Prior Art of the Present Request

1. Kurtin '532 Application (Ex. 1004)

The '532 Application published April 10, 2008, more than one year prior to December 10, 2006, the earliest priority date of the '487 Patent. Accordingly, the '532 Application is §102(b) prior art to the '487 Patent. (Pre AIA)

As discussed in Section V.A., the disclosure of manually adjustable, liquid filled, variable focus eyeglasses of the '532 Application was incorporated by reference into the '487 Patent. Furthermore, as discussed in Section V.A., the only

structural difference between the eyeglasses of the ‘532 Application and those of the ‘487 Patent is the replacement of the ‘532 Application’s non-adjustable leaf hinge connector 23 with the adjustable connector of the ‘487 Patent. *See* Savidis Decl., ¶62. Accordingly, because the structure and operation of the manually adjustable, liquid filled, variable focus eyeglasses of the ‘532 Application were discussed in detail in Section V.A., for the sake of brevity, that description need not be repeated here.

2. U.S. Patent No. 5,317,629 to Kurtin *et al.* (“Kurtin ‘629” or “the ‘629 Patent”)(Ex. 1009)

The ‘629 Patent, directed to manually adjustable, liquid filled, variable focus eyeglasses, issued December 6, 1994. Accordingly, the ‘629 patent is §102(b) prior art to the ‘487 Patent. (Pre AIA.) It was not cited to the USPTO during the prosecution of the ‘487 Patent or any application from which the ‘487 Patent claims priority. *See* Savidis Decl., ¶63.

The ‘629 Patent describes manually adjustable, liquid filled, variable focus eyeglasses in which a perpendicularly oriented, adjustable connector comprising a nut 20 and screw 21 connect membrane support structure front annular rim 14 to rear lens 12 via actuating tab 19 and part of rear frame 10. Manually adjusting the nut 20 on screw 21 results in changing the distance between the membrane support structure front annular rim 14 and the rear lens 12, thereby changing the optical power of the liquid filled lens. *See* Ex.1009: 3:18-4:9; Savidis Decl.,¶64.

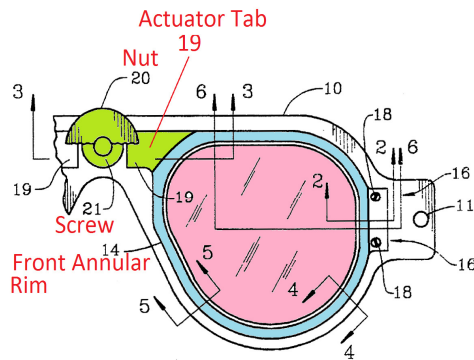


FIG. 1

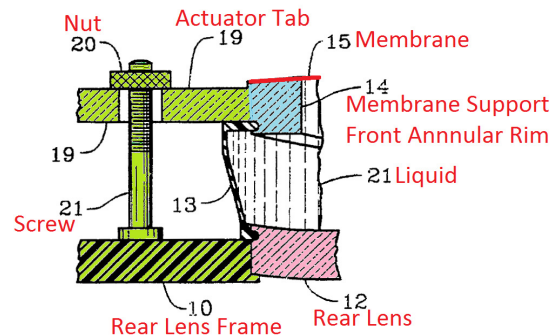


FIG. 3

As explained in the '629 Patent:

As seen in FIG. 1, the spectacles include a frame 10 to which temples (indicated schematically by the numeral 11) are attached. A rigid lens 12... is cemented in the frame 10. The rigid lens 12 is not visible in FIG. 1, but can be seen in FIGS. 2-6. A flexible seal 13 surrounds and is cemented or otherwise sealed to the rigid lens 12. Flexible seal 13 is also cemented or otherwise sealed to membrane support 14. Membrane support 14 is in the form of an annular rim having a non-circular opening through which the wearer looks, and to which membrane 15 is cemented.

The membrane 15 is comprised of a thin transparent distensible plastic film such as saran. The enclosed volume defined by membrane 15, membrane support 14, seal 13, and rigid lens 12 is filled with a transparent liquid 21, which preferably has an index of refraction close to that of the rigid lens.

The membrane support 14 is attached to frame 10 via a pair of hinges 16, one of which can be seen in FIG. 2.

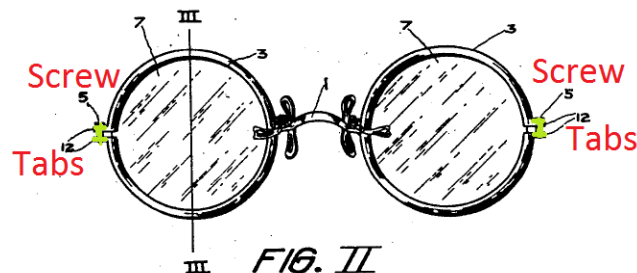
The membrane support 14 includes an actuating tab 19 extending outward from the support at a point remote from the hinges. The actuating tabs 19 from both lenses of the spectacles shown in FIG. 1 are engaged by a nut 20, which is threaded onto screw 21... As nut 20 is turned ... the membrane supports rotate about the hinges 16. Since the liquid 21 is sensibly incompressible, membrane 15, the softest wall member, distends as needed to enclose a fixed volume. Flexible seal 13 is constructed so that the volume change due to its motion is relatively low.

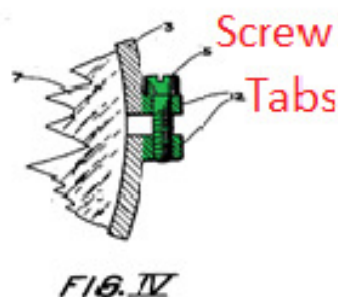
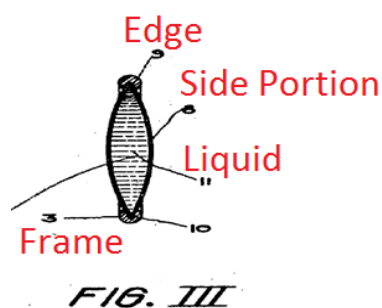
Moving the tabs 19 toward the frame 10 causes the membranes 15 to bulge outward, resulting in an increased optical power ... The optical power simply changes as the position of tabs 19 with respect to frame 10 changes.

See Ex. 1009: 3:18- 4:9; Savidis Decl., ¶¶65.

3. U.S. Patent No. 1,269,422 to Gordon (“Gordon” (Ex. 1007))

Gordon, directed to manually adjustable, liquid filled, variable focus eyeglasses, issued June 11, 1918. Accordingly, Gordon is §102(b) prior art to the ‘487 Patent. (Pre AIA.)





As shown in Gordon's Figures II-IV above, each liquid filled lens 7 is formed by two distensible side portions 8 that merge together at their circumferential edges 9, thereby forming a pocket which is filled with a liquid 11. The merged circumferential edge is held by the frame 3. Screw 5, housed in upper and lower tabs 12 and threadably engaged with one of the tabs 12, connects the two ends of the frame together via upper and lower tabs 12. Rotation of screw 5 adjusts the distance between upper and lower tabs, thereby changing the optical power of the liquid filled lens. Specifically, by rotating the screw in one direction, the distance between upper and lower tabs 12 is decreased, thereby causing the side walls of the liquid filled lens to become more convex, and thereby increasing the optical power of the liquid filled lens. Alternatively, by rotating the screw in the opposition direction, the distance between upper and lower tabs 12 is increased, thereby causing the side walls of the liquid filled lens to become less convex, and thereby decreasing the optical power of the liquid filled lens. *See* Ex.1007: p. 2:9-15, 68-75, p. 2:88-p. 3:1, p. 3:5-24; Savidis Decl., ¶67.

4. U.S. Patent No. 5,526,067 to Cronin (“Cronin” (Ex. 1006))

Cronin, directed to manually adjustable, liquid filled, variable focus eyeglasses, issued June 11, 1996. Accordingly, Cronin is §102(b) prior art to the ‘487 Patent. (Pre AIA.) More specifically, Cronin describes double adjustable, liquid filled, variable focus eyeglasses in which one level of adjustment comprises manually adjusting the focus of both lenses simultaneously and collectively (Ex. 1006: Figs. 2, 3A, 3B, 4, 5A, 5B; 2:47-3:4. 5:23-36), and another level of adjustment comprises manually adjusting each lens individually by independent adjusters for each lens that have a screw and tab configuration. *Id.*, Figs. 2, 3A, 3B; 5:8-23, 16-21. Savidis Decl., ¶¶68.

VI. GROUNDS FOR UNPATENTABILITY OF EACH CLAIM

As required by 37 C.F.R. § 42.104(b)(4), the following section identifies how claims 1-5 of the ‘487 Patent are unpatentable under 35 U.S.C. §35 U.S.C. §103(a). (Pre AIA.)

A. Ground 1: Claims 1-5 are Unpatentable under 35 U.S.C. §103(a) As Being Obvious by Kurtin ‘532 in View of Kurtin ‘629 and Gordon

The claims of the ‘487 Patent cover adjustable, liquid filled, variable focus eyeglasses in which the optical power of each liquid filled lens can be adjusted independently. Claim 1 of the ‘487 Patent reads:

1.[(a)]Variable Focus Spectacles comprising: first and second transparent members;

[(b)] first and second membrane support structures, each having an opening therein, the first and second membrane support structures being respectively associated with and mounted adjacent to and within the field of view of the first and second transparent members;

[(c)] *first and second adjustable connectors respectively connecting the first and second transparent members to the first and second membrane support structures, each of the first and second adjustable connectors allowing adjustment of a distance between its respective transparent member and its associated membrane support structure at a location of said connector while,*

[(d)] *at another location along a perimeter of the transparent member spaced apart from the location of the connector, a distance between the respective transparent member and its associated membrane support structure is kept unchanged,*

[(e)] *the first and second adjustable connectors being manually adjustable independently of each other;*

[(f)] a transparent membrane attached to each of said first and second membrane support structures across said openings;

[(g)] a flexible seal extending between each one of said first and second transparent members and its associated membrane support structure, said flexible seal permitting motion between one of the first and second transparent members and its associated membrane support structure; and

[(h)] liquid having a predetermined index of refraction substantially filling spaces between each of said first and second transparent members and its associated membrane support structure within its respective seal.

Ex. 1001: 4:37- 5:2 (emphasis added).

Except for the italicized claim language claiming features of the adjustable connector, the remaining claim language reads on the '532 Application's adjustable, liquid filled, variable focus eyeglasses. This is most easily seen by comparing Figure 2 of Kurtin's '532 Application with Figure 2 of the Kurtin's '487 Patent. *See also* Ex. 1001: 2:13-33; 3:36-49; Ex. 1005, p. 107; Savidis Decl., ¶71.

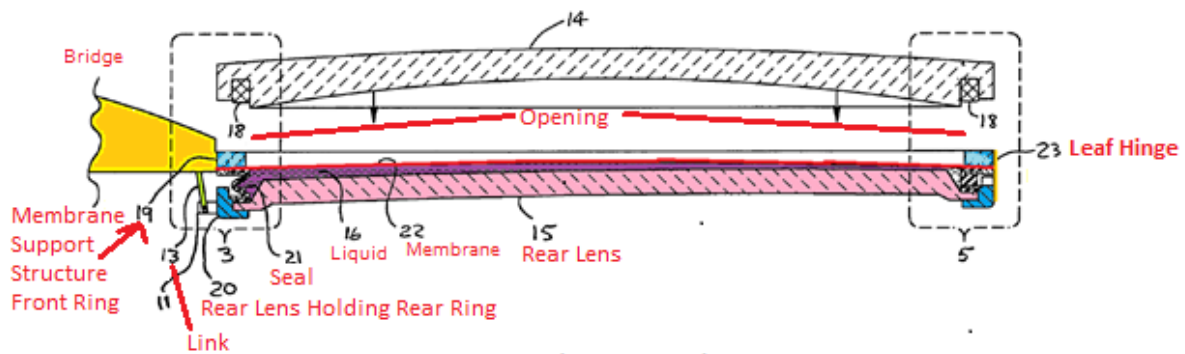


Figure 2 - '532 Application

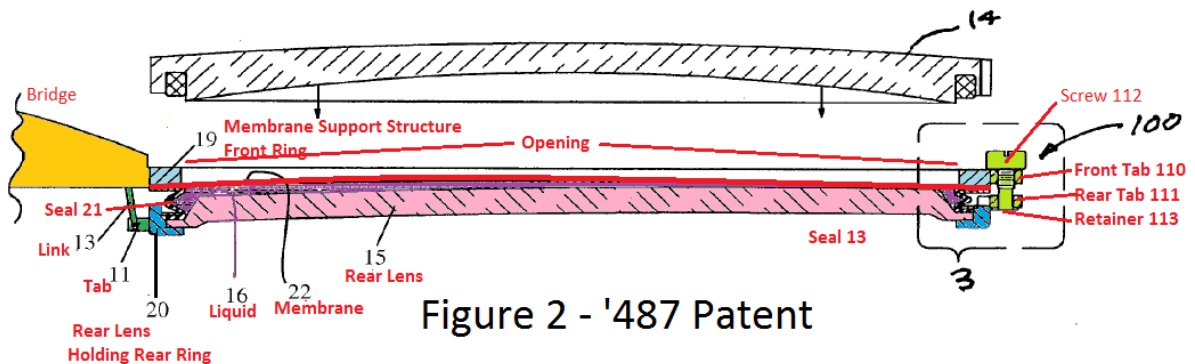


Figure 2 - '487 Patent

Turning to the specific claim language.

1. Independent Claim 1

- i. **1[(a)]. “Variable Focus Spectacles comprising: first and second transparent members;”**

Kurtin ‘532 (Ex. 1004) describes “variable focus spectacles for presbyopes” (¶001) having transparent member “fixed power rear lens 15” (¶0028). *See also* Ex. 1004: Figures 1 and 2, ¶0026, ¶0031; and Ex. 1001: Figure 2 and 3:36-48; Savidis Decl., ¶72.

- ii. **[1(b)] “first and second membrane support structures, each having an opening therein, the first and second membrane support structures being respectively associated with and mounted adjacent to and within the field of view of the first and second transparent members;”**

This structure is shown in Figure 2 of the ‘532 Application and described therein. *See* Ex. 1004: ¶ 0032 (“front ring 19 ... referred to as a membrane support member or structure;” ... “rear lens 15 is held by rear ring 20”); *see also* Ex. 1001: 2:13-19, 3:36-48, and Figure 2; Savidis Decl., ¶73.

- iii. **[1(f)] “a transparent membrane attached to each of said first and second membrane support structures across said openings;”**

This structure is shown in Figure 2 of the ‘532 Application and described therein. *See* Ex. 1004: ¶ 0032 (“a thin membrane is attached ... to the rear of front ring...referred to as a membrane support member or structure”); *see also* Ex. 1001: 2:13-19, 3:36-48, and Figure 2; Savidis Decl., ¶74.

- iv. **[1(g)] “a flexible seal extending between each one of said first and second transparent members and its associated membrane support structure, said flexible seal permitting motion between one of the first and second transparent members and its associated membrane support structure; and”**

This structure is shown in Figure 2 of the ‘532 Application and described therein. *See* Ex. 1004: ¶ 0032 (“Rear lens 15 is held by rear ring 20, and the combination is coupled to the front ring 19 through an elastomeric bellows 21 which allows the rear ring to move with respect to the front ring”); *see also* Ex. 1001: 2:13-19, 3:36-48 and Figure 2; Savidis Decl., ¶75.

- v. **[1(h)] “liquid having a predetermined index of refraction substantially filling spaces between each of said first and second transparent members and its associated membrane support structure within its respective seal.”**

This structure is shown in Figure 2 of the ‘532 Application and described therein. *See* Ex. 1004: ¶ 0032 (“space between the film and the rear lens is filled with a clear liquid 16”), ¶ 0035 (“For purposes of explanation, the rear lens, the filling liquid, and the film are assumed to have approximately the same index of refraction, although this is not an essential requirement.”), claim 16 (“16. Variable Focus Spectacles which are comprised of: liquid having a predetermined index of refraction...”); Ex. 1001: 2:13-19 and Figure 2; Savidis Decl., ¶ 76.

- vi. **[1(c)] “first and second adjustable connectors respectively connecting the first and second transparent members to the first and second membrane support structures, each of the first and second adjustable connectors allowing adjustment of a distance between its respective transparent member and its associated membrane support structure at a location of said connector while,**
[(d)] at another location along a perimeter of the transparent member spaced apart from the location of the connector, a distance between the respective transparent member and its associated membrane support structure is kept unchanged,
[(e)] the first and second adjustable connectors being manually adjustable independently of each other;”

While Kurtin ‘532 does not describe manual independent adjustability of each lens, the desirability of having independently and manually adjustable, liquid filled, variable focus lenses was known in the art well prior to 2010. For example, Gordon (Ex. 1007), issued in 1918, describes independently and manually adjustable, liquid filled, variable focus lenses in which a manually adjustable connector comprising a screw and tabs located near each temple functions to individually adjust each fluid filled lens. *See* Section V.C.3, *supra*. Cronin (Ex. 1006), issued in 1996, describes double adjustable, liquid filled, variable focus eyeglasses in which one level of adjustment comprises manually adjusting the focus of both lenses simultaneously and collectively, and another level of adjustment comprises manually adjusting each lens individually by independent adjusters for each lens that have a screw and tab configuration. *See* Section V.C.4,

supra. Given the motivation to have manual independent adjustability of each lens unit as taught at least by Gordon (or Cronin), a POSA would have been motivated to seek a suitable adjuster structure to replace the non-adjustable connector of Kurtin '532. *See* Savidis Decl., ¶¶77. Indeed, during the prosecution of the '487 Patent, Applicant did not ever dispute that the prior art provided a motivation to have independent manual adjustability. *See, e.g.*, Ex. 1005, p. 110 (The Examiner argued that "...as taught by Gordon, it is well known in the art for the purpose of adjusting lenses so as to obtain different foci."); *see* Savidis Decl., ¶ 78.

In the '487 Patent, Kurtin describes using a perpendicularly oriented, retained screw 112 and tabs 110 & 111 for this. But perpendicularly oriented, manually adjustable connector structures comprising a screw and tabs to connect membrane support structures to rigid lenses in adjustable, liquid filled, variable focus lenses for the purpose of adjusting the distance between the two, and thereby, the optical power of the liquid filled lens, were also well known in the prior art.⁵ And that prior art is none other than the inventor's own patent, U.S. Patent No. 5,371,629

⁵ During the prosecution of parent '241 Application, Applicant repeatedly asserted that the perpendicular orientation of the claimed adjustable connector distinguished over the parallel orientation of the Gordon's adjustable screw. Ex. 1005, pp. 120 and 130. During the subsequent prosecution of the child '186 Application, Gordon was not cited against the pending claims.

(“Kurtin ‘629”) Ex. 1009)), which the inventor did not disclose to the USPTO.

See Savidis Decl., ¶79.

Kurtin ‘629 describes manually adjustable, liquid filled, variable focus eyeglasses in which a perpendicularly oriented, adjustable connector comprising nut 20 and screw 21 connect membrane support structure front annular rim 14 to transparent member rear lens 12 via actuator tab 19 and part of rear frame 10. Manual rotation of nut 20 results in its axial movement, thereby changing the distance between the membrane support structure front annular rim 14 and the transparent member rear lens 12 at the location of nut 20 and screw 21, but not at another location along the perimeter such as directly across from the adjustable connector. See Figures 1 and 3 below, 3:18- 4:9; Savidis Decl., ¶80.

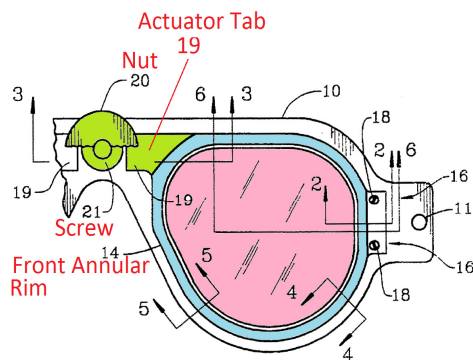


FIG. 1

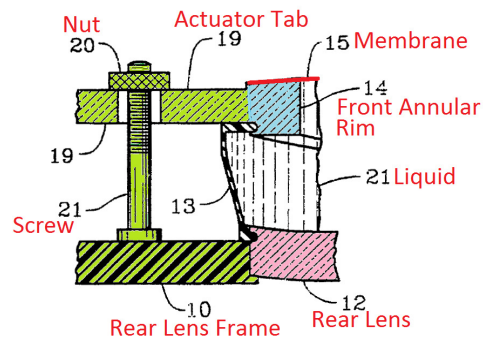
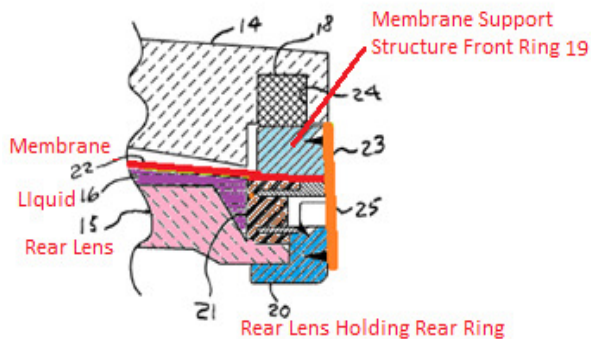


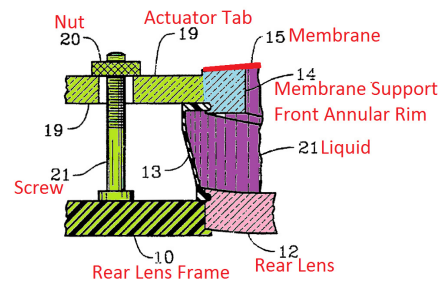
FIG. 3

To obtain the desired manual independent adjustability of each lens unit as taught at least by Gordon (or Cronin), a POSA would have been motivated to substitute Kurtin’s ‘629 adjustable connector for the non-adjustable connector of

Kurtin '532 on both lens assemblies. Further, given their similarity in structures, as demonstrated in the figures below, a POSA would have exercised no more than routine skill in the art to implement said substitution by utilizing existing seal 21 of Kurtin '532 shown in Figure 3 and by attaching tabs to or creating tabs for Kurtin's '532 front and rear rings to accommodate Kurtin's '629 screw and nut. *See Savidis Decl., ¶81.*



Kurtin '532 Figure 5



28 pt

FIG. 3

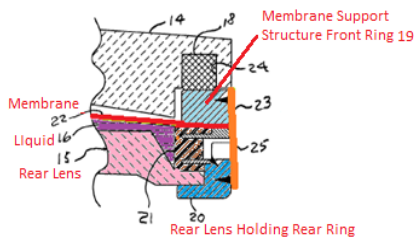
Kurtin '629 Figure 3

The resulting structure is a manually adjustable connector comprising (a) a tab attached to or integral with membrane support structure front ring 19 (b) a tab having screw 21 attached thereto, said tab attached to or integral with rear lens holding rear ring 20 and (c) nut 20 that connects (i) said tab attached to or integral with membrane support structure front ring 19 and (ii) said screw 21 attached to the tab attached to or integral with rear lens holding rear ring 20. Implementing this substitution for each lens results in the ability to manually change, at the location of each adjustable connector, the distance between the membrane support structure front ring 19 and rear lens 15, thereby providing the desired independent

adjustment of the optical power of each fluid filled lens. Put simply, the aforementioned substitution is nothing more than a simple mechanical substitution comprising combining known prior art elements according to routine methods to yield predictable results. *See* Savidis Decl., ¶82.

Indeed, the Kurtin ‘629 adjustable connector, once attached via tabs to Kurtin’s ‘532 membrane support structure front ring 19 and rear lens 15 holding rear ring 20, performs the same function it performs in the Kurtin ‘629 patent, *i.e.*, manually adjusting, at the location of the adjuster, the distance between a membrane support structure and rigid transparent lens, thereby adjusting the optical power of the fluid filled lens, while allowing the distance between the membrane support structure and its respective rigid lens at another location on the perimeter to remain unchanged. Accordingly, for each lens unit, it was obvious to substitute the adjustable connector of Kurtin ‘629 for the non-adjustable connector of Kurtin ‘532 and such substitution describes and thus renders obvious limitations 1(c)-(e). *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416, 127 S. Ct. 1727, 167 [*758] L. Ed. 2d 705 (2007)(“A court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions... The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results”); *see* Savidis Decl., ¶83.

In addition, as an alternative combination based on the same prior art references, it was obvious to substitute, for the non-adjustable connector of Kurtin '532, the adjustable connector of Kurtin '629 as modified by Gordon. Gordon describes independently and manually adjustable, fluid filled, variable focus eyeglasses having adjustable connectors located near the temples for each lens comprising screw 5 and upper and lower tabs 12. Screw 5 is inserted through a hole in one tab 12 and threadably engaged with other tab 12. Manual rotation of the screw in the tabs changes the distance between the upper and lower tabs to thereby change the optical power of the fluid filled lens. *See* Ex. 1007, Figures II-IV, p. 2:68-75, p.3:5-24, Savidis Decl., ¶¶84.



Kurtin '532 App. Figure 5

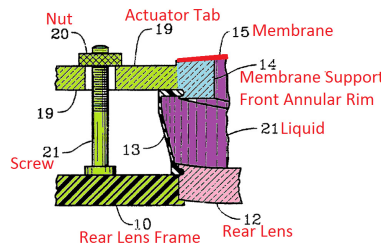


FIG. 3

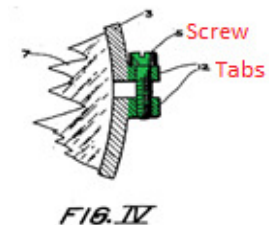


FIG. IV

It would have been an obvious and routine design choice to replace Kurtin's '629 nut and screw combination, connected via tabs to Kurtin's '532 membrane support structure front ring 19 and rear lens 15 holding rear ring 20, with Gordon's threadably engaged screw by having one tab have a hole and the other tab have threads for receiving the threaded screw, resulting in the screw connecting (i) the tab attached to or integral with membrane support structure front ring 19 and (ii)

the tab attached attached to or integral with rear lens holding rear ring 20. This is because both the Kurtin's '629 screw and nut combination and Gordon's threadably engaged screw connect tabs and both connectors function to adjust the distance between the tabs, thereby resulting in changing the optical power of the fluid filled lens. Furthermore, such a substitution results in the ability to manually adjust, at the location of the connector, the membrane support structure front ring 19 closer to or further from rear lens 15, thereby providing the desired independent adjustment of the optical power of each fluid filled lens, while allowing the distance between the membrane support structure and its respective rigid lens at another location on the perimeter to remain unchanged. This combination thus also describes and renders obvious limitations 1(c)-(e). In sum, as explained above, claim 1 is rendered obvious by Kurtin '532 in view of Kurtin '629 and Gordon under 35 U.S.C § 103(a). *See KSR Int'l Co. v. Teleflex Inc.*, supra, 550 U.S. at 416, 127 S. Ct. at 167; *see also* Savidis Decl., ¶84.

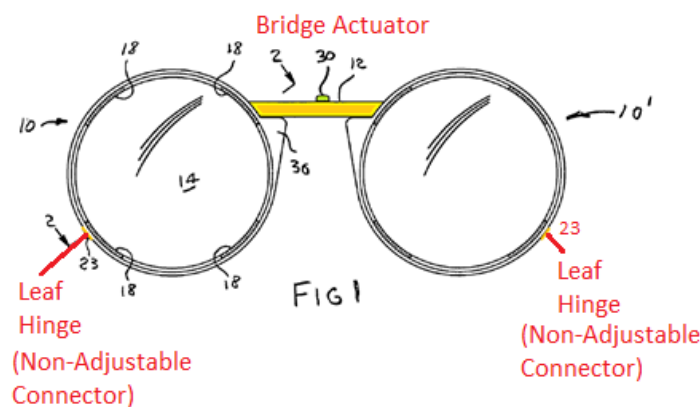
2. Claim 2 “The variable focus spectacles of claim 1, wherein the first and second transparent members are first and second lenses each having a predetermined optical power.”

Kurtin '532 describes rear lens 15 of each lens unit as having a predetermined optical power. Ex. 1004: ¶28 (“Each lens unit includes three physically distinct lenses: a fixed power front lens 14, a fixed power rear lens 15,

‘532 in view of Kurtin ‘629 and Gordon. *See* Savidis Decl., ¶85.

3. Claim 3 “3[a]. The variable focus spectacles of claim 1, further comprising a bridge disposed between the first and second transparent members and between the first and second membrane support structures, the bridge being connected to the first transparent member or the first membrane support structure at a first bridge support location and connected to the second transparent member or the second membrane support structure at a second bridge support location,
- [3(b)] wherein the first and second adjustable connectors are located at respective locations spaced apart from the first and second bridge support locations, respectively.”

Figures 1 and 2 of Kurtin ‘532 show the yellow shaded bridge between the transparent member rear lens 15 and the membrane support structure front ring 19. Figure 2 shows that the the bridge is connected to the membrane support structure front ring 19. Ex. 1004: ¶25; *see also* Savidis Decl., ¶86.



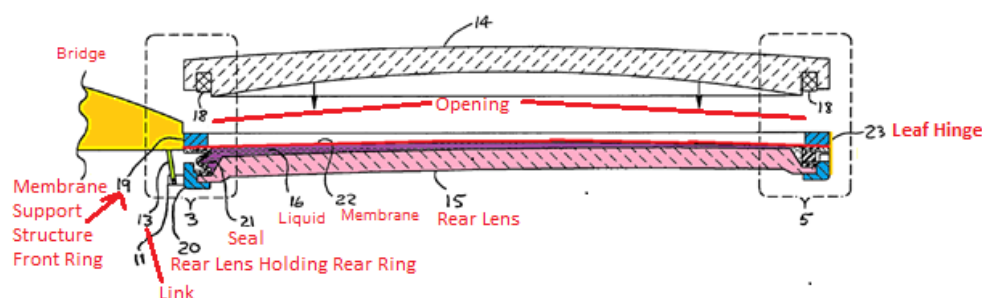


Figure 2 - '532 Application

As previously explained, Gordon describes independently adjustable connectors located near the temples for each lens. Accordingly, the combination of Kurtin '532 in view of Kurtin '629 and Gordon expressly teaches locating the adjustable connectors away from the bridge, and indeed, across from the bridge. Thus, claim 3 is rendered obvious by Kurtin '532 in view of Kurtin '629 and Gordon. *See* Savidis Decl., ¶¶87.

4. Independent Claim 4

Independent claim 4 claims the same subject matter as dependent claim 3, except that claim 4 does not include the limitation that the adjustable connectors are “manually adjustable independently of each other.” In other words, claim 4 is broader than claim 3. This is shown by the comparison below comparing dependent claim 3, rewritten to include all the limitations of independent claim 1, to independent claim 4. *See* Savidis Decl., ¶¶88.

Claim 3 Incorporating Limitations of Independent claim 1	Claim 4
<p>1. Variable Focus Spectacles comprising:</p> <p>first and second transparent members;</p> <p>first and second membrane support structures, each having an opening therein, the first and second membrane support structures being respectively associated with and mounted adjacent to and within the field of view of the first and second transparent members;</p> <p>first and second adjustable connectors respectively connecting the first and second transparent members to the first and second membrane support structures,</p> <p>each of the first and second adjustable connectors allowing adjustment of a distance between its respective transparent member and its associated membrane support structure at a location of said connector while, at another location along a perimeter of the transparent member spaced apart from the location of the connector, a distance between the respective transparent member and its associated membrane support structure is kept unchanged,</p> <p><i>the first and second adjustable connectors being manually adjustable independently of each other;</i></p>	<p>4. Variable Focus Spectacles comprising:</p> <p>first and second transparent members;</p> <p>first and second membrane support structures, each having an opening therein, the first and second membrane support structures being respectively associated with and mounted adjacent to and within the field of view of the first and second transparent members;</p> <p>first and second adjustable connectors respectively connecting the first and second transparent members to the first and second membrane support structures,</p> <p>each of the first and second adjustable connectors allowing adjustment of a distance between its respective transparent member and its associated membrane support structure at a location of said connector while, at another location along a perimeter of the transparent member spaced apart from the location of the connector, a distance between the respective transparent member and its associated membrane support structure is kept unchanged,</p> <p><i>corresponding limitation not in claim 4</i></p>

<p>further comprising a bridge disposed between the first and second transparent members and between the first and second membrane support structures</p> <p>the bridge being connected to the first transparent member or the first membrane support structure at a first bridge support location and connected to the second transparent member or the second membrane support structure at a second bridge support location,</p> <p>wherein the first and second adjustable connectors are located at respective locations spaced apart from the first and second bridge support locations, respectively.</p> <p>a transparent membrane attached to each of said first and second membrane support structures across said openings;</p> <p>a flexible seal extending between each one of said first and second transparent members and its associated membrane support structure, said flexible seal permitting motion between one of the first and second transparent members and its associated membrane support structure; and</p> <p>liquid having a predetermined index of refraction substantially filling spaces between each of said first and second transparent members and its associated membrane support structure</p>	<p>a bridge disposed between the first and second transparent members and between the first and second membrane support structures,</p> <p>the bridge being connected to the first transparent member or the first membrane support structure at a first bridge support location and connected to the second transparent member or the second membrane support structure at a second bridge support location,</p> <p>wherein the first and second adjustable connectors are located at respective locations spaced apart from the first and second bridge support locations, respectively;</p> <p>a transparent membrane attached to each of said first and second membrane support structures across said openings;</p> <p>a flexible seal extending between each one of said first and second transparent members and its associated membrane support structure, said flexible seal permitting motion between one of the first and second transparent members and its associated membrane support structure; and</p> <p>liquid having a predetermined index of refraction substantially filling spaces between each of said first and second transparent members and its associated membrane support structure</p>
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within its respective seal.	within its respective seal.
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Kurtin ‘532 in view of Kurtin ‘629 and Gordon thus disclose all the elements of independent claim 4 for the same reasons that said combination of prior art discloses all the limitations of claim 3. Accordingly, claim 4 is rendered obvious by Kurtin ‘532 in view of Kurtin ‘629 and Gordon. *See* Savidis Decl., ¶¶89.

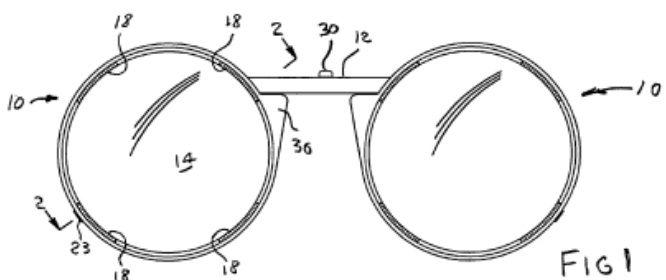
5. Claim 5 “The variable focus spectacles of claim 4, wherein the first and second transparent members are first and second lenses each having a predetermined optical power.”

Dependent claim 5 incorporates the same limitations as dependent claim 2. Thus, Kurtin ‘532 in view of Kurtin ‘629 and Gordon discloses all the limitations of dependent claim 5 for the same reasons that said combination of prior art discloses all the limitations of claims 1, 2, and 3. Accordingly, claim 5 is rendered obvious by Kurtin ‘532 in view of Kurtin ‘629 and Gordon. *See* Savidis Decl., ¶¶90.

VII. CLAIM CHARTS

The claim chart below shows a detailed analysis of how each element of Claims 1-5 of the ‘487 Patent is unpatentable as obvious over Kurtin ‘532 in view of Kurtin ‘629 and Gordon. *See* Savidis Decl., ¶¶91.

Claim 1	Kurtin ‘532 in view of Kurtin ‘629 and Gordon
1[(a)]. “Variable Focus Spectacles comprising: first and second transparent members;”	<p>Kurtin ‘532: [001] “[0001] The invention described herein is a new type of variable focus spectacles for presbyopes...”</p> <p>Kurtin ‘532: Figure 1 “[0016] FIG. 1 is a front view of the invented spectacles, looking inward toward a where a wearer would be.”</p>



Kurtin '532 Figure 1

Kurtin '532 [0026]:

“[0026] Inasmuch as the two lens units are mirror images of each other, only one will be discussed.”

Kurtin '532 Figure 2:

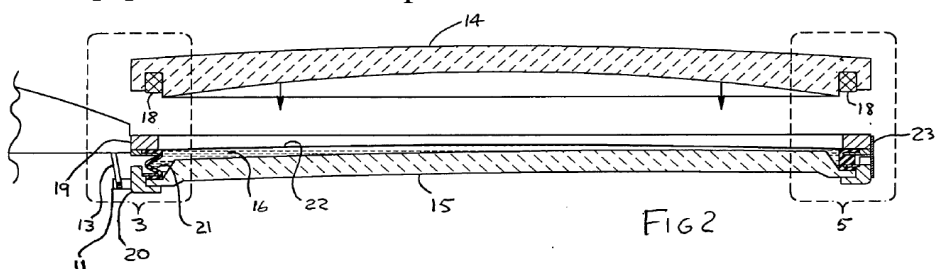
“[0017] FIG. 2 is a partially exploded cross sectional view of one of the lens units of the spectacles of FIG. 1 taken at 2-2 of FIG. 1 with the lens unit set for distance viewing”

Kurtin '532 [0028]:

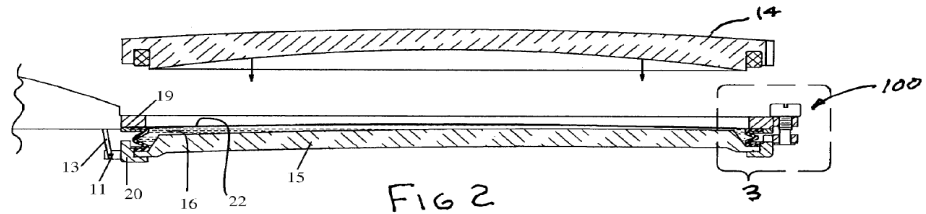
“[0028] Each lens unit includes three physically distinct lenses: a fixed power front lens 14, a **fixed power rear lens 15**, and a variable power liquid lens 16.”

Kurtin '532 [0031]:

“[T]he lens 14 is transparent...”



Kurtin '532 Figure 2



Kurtin '487 Figure 2

Kurtin '487: Figure 2

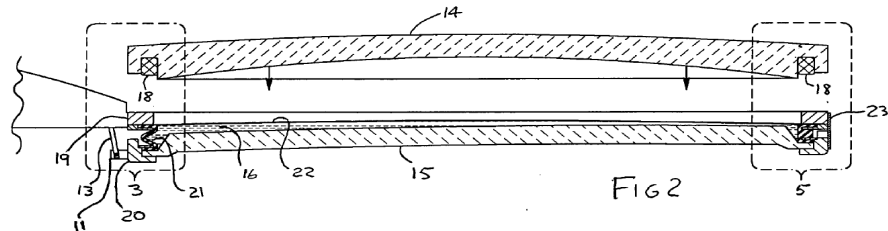
"FIG. 2 is a partially exploded cross sectional view of one of the lens units of the glasses of FIG. 1, taken at 2-2 of FIG. 1"

Kurtin '487: 3:36-48

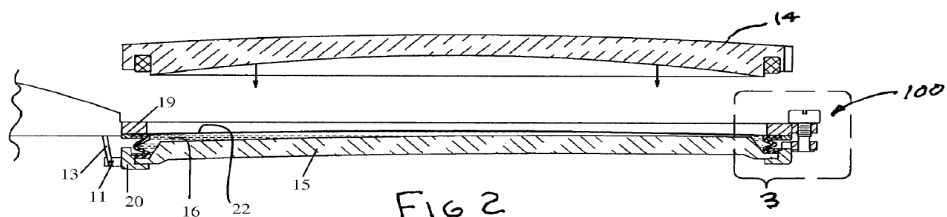
"The invented fluctuating vision compensation mechanism is shown herein as applied to a pair of variable focus spectacles similar to those described in **Patent Application Publication 2008/0084532**. For convenience, each component that also appears in the ['532] patent publication is shown having the same identification number as in that publication, including, in particular, the distensible membrane 22, the transparent optical liquid 16, **rear lens 15**, bridge 12, the actuator link 13, and the tab 11 of the rear ring 20. ... Components that are unique to the fluctuating vision compensation mechanism are given numbers over 100."

[1(b)] "first and second membrane support structures, each having an opening therein, the first and second membrane support structures being respectively associated with and mounted adjacent to and

See citations to claim element 1(a).



Kurtin '532 Figure 2

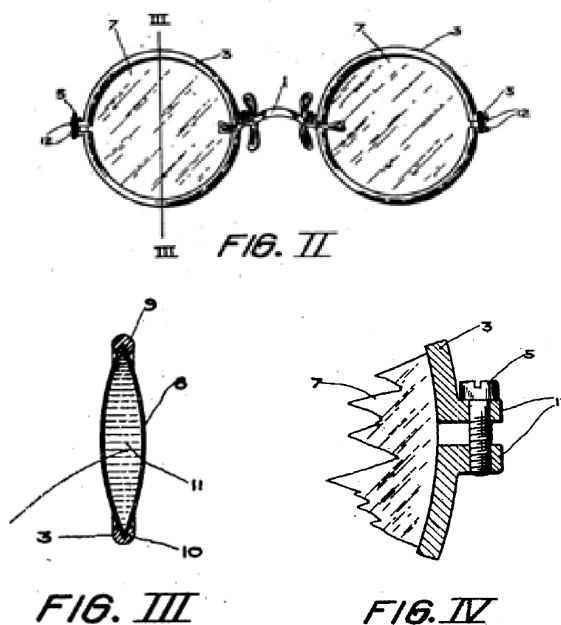


Kurtin '487 Figure 2

<p>within the field of view of the first and second transparent members;”</p>	<p>Kurtin ‘532 [0032]: “[0032] Rear lens 15 is held by rear ring 20, and the combination is coupled to the front ring 19 through an elastomeric bellows 21, which allows the rear ring to move with respect to the front ring. A thin membrane of transparent distensible plastic film 22, such as saran, is attached to the rear of the front ring [19], between it and the bellows. For purposes of convenience, the front ring may be referred to as a membrane support member or structure. The space between the film and the rear lens is filled with a clear liquid 16, such as Dow-Corning DC-705 silicone fluid [which liquid (and the film) forms the liquid lens referred to above]. The clear liquid 16 is retained between the rear lens 15 and the film 22 by the elastomeric bellows 21”</p> <p>Kurtin ‘487: 2:13-19. “The variable lens described in US Patent Application Publication No. 2008/0084532 includes a rigid lens (referred to as the “rear” lens) spaced away from a distensible membrane, the intervening space being filled with a transparent optical liquid. Both the rigid lens and the membrane are held by spaced rings (which, in the preferred embodiment, are circular).”</p>
<p>[1(c)] “first and second adjustable connectors respectively connecting the first and second transparent members to the first and second membrane support structures, each of the first and second adjustable connectors</p>	<p>See citations to claim elements 1(a) - 1(b).</p> <div data-bbox="565 1266 1360 1608"> <p>FIG. 1 and FIG. 3 are cross-sectional views of a lens assembly. FIG. 1 shows a front ring 19, a rear ring 20, a bellows 21, a membrane 22, and a clear liquid 16. FIG. 3 shows a front ring 19, a rear ring 20, a bellows 21, a membrane 22, and a clear liquid 16.</p> </div> <p>Kurtin ‘629: Figures 1 and 3</p> <p>Kurtin ‘629: 3:15-18. “The following description will generally refer to only a single lens but, of course, it will be understood that there are actually two lenses in a pair of spectacles.”</p>

<p>allowing adjustment of a distance between its respective transparent member and its associated membrane support structure at a location of said connector while,”</p>	<p>Kurtin ‘629: 3:27-2-33 Membrane support 14 is in the form of an annular rim having a non-circular opening through which the wearer looks, and to which membrane 15 is cemented. Membrane 15 can be cemented to the outboard surface (as shown) or the inboard surface of membrane support 14, as is convenient</p> <p>Kurtin ‘629: 3:40-4:9 “The membrane 15 is comprised of a thin transparent distensible plastic film such as saran. The enclosed volume defined by membrane 15, membrane support 14, seal 13, and rigid lens 12 is filled with a transparent liquid 21...</p> <p>The membrane support 14 includes an actuating tab 19 extending outward from the support at a point remote from the hinges. The actuating tabs 19 from both lenses of the spectacles shown in FIG. 1 are engaged by a nut 20, which is threaded onto screw 21. For clarity, only a portion of the nut 20 is illustrated in FIG. 1. As nut 20 is turned (by the wearer's finger acting on the knurled circumference of the nut), the membrane supports [14] rotate about the hinges 16. Since the liquid 21 is sensibly incompressible, membrane 15, the softest wall member, distends as needed to enclose a fixed volume. Flexible seal 13 is constructed so that the volume change due to its motion is relatively low.</p> <p>Moving the tabs 19 toward the frame 10 causes the membranes 15 to bulge outward, resulting in an increased optical power... The optical power simply changes as the position of tabs 19 with respect to frame 10 changes.”</p> <p>Kurtin ‘629: 5:28-33. “variable spacing means acting between said rigid lens and said membrane support for adjusting the spacing between said membrane support and said rigid lens at the location of said variable spacing means,”</p> <p>Gordon: p.2:9-15. “This invention relates to new and useful improvements in lenses, and more particularly to a multiple focus lenses, the main objective ... being ... an adjustable focus lens whereby the lens can be quickly and readily adjusted to any focus desired.”</p>
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Gordon: Figures II, III and IV



Gordon: p.2:30-40

“Fig. II is a similar view illustrating a pair of eyeglasses constructed in accordance with my invention.

Fig. III is a transverse sectional view taken on the line III—III of Fig. II.

Fig. IV is a detail transverse section illustrating the manner of connecting the ends of the lens frames.”

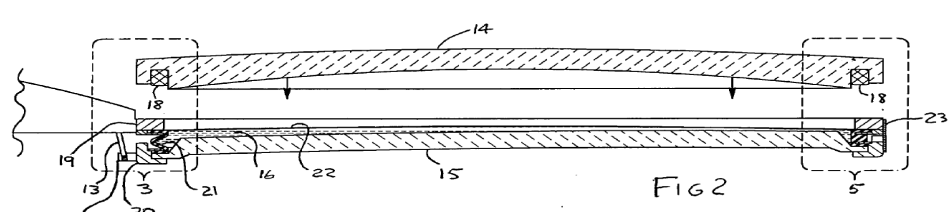
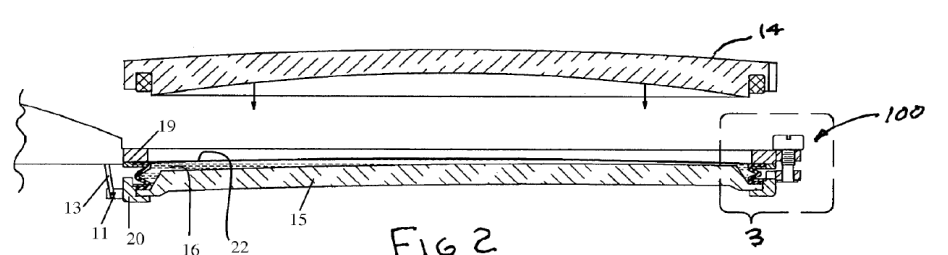
Gordon: p.2:68 -75:

“[T]wo arcuately curved side portions 8 which are merged together at their circumferential edges, as shown at 9... so as to form a pocket or cell there between, and a suitable amount of transparent liquid is placed.”

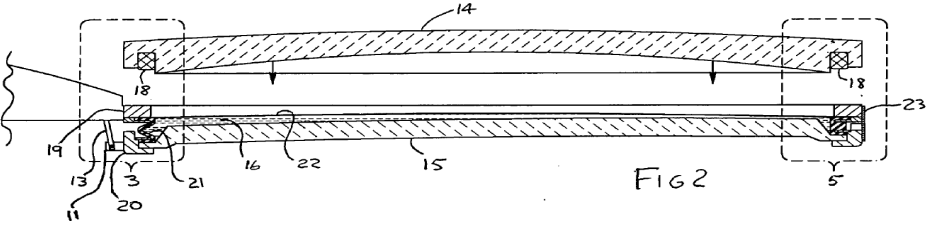
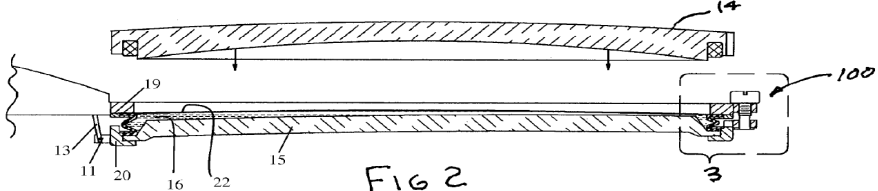
Gordon: p.3:5-24

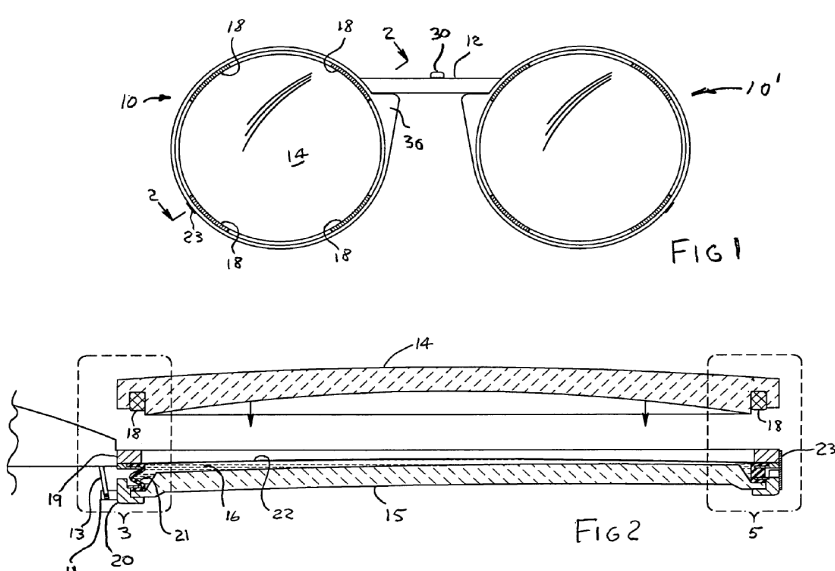
In Fig. II, ... the lenses are mounted within eyeglass rims, and ... adjusting screw 5 is disposed upon the outer sides of the lens frames...[T]he lens frames are provided with the ears 12 arranged in opposed relation, one of said ears being adapted to receive the screw 5, and the screw having threaded engagement with the other of the ears to adjust said ears toward or away

	<p>from each other to increase or decrease the diameter of the frames to provide for adjustment of the lens. It will be apparent from the foregoing that by adjusting the screw 5 the side portions of the lenses may be adjusted to obtain various foci. The side portions 8 of the lenses may be of different refractive indices...</p> <div data-bbox="604 499 1373 739"> </div> <p>'532 Fig. 5 Kurtin '629 Fig. 3 Gordon '422 Fig. IV</p>
<p>[1(d)] “at another location along a perimeter of the transparent member spaced apart from the location of the connector, a distance between the respective transparent member and its associated membrane support structure is kept unchanged,”</p>	<p>See citations to claim elements 1(b) -1(c).</p>
<p>[1(e)] “the first and second adjustable connectors being manually</p>	<p>See citations to claim elements 1(b)-1(c)</p>

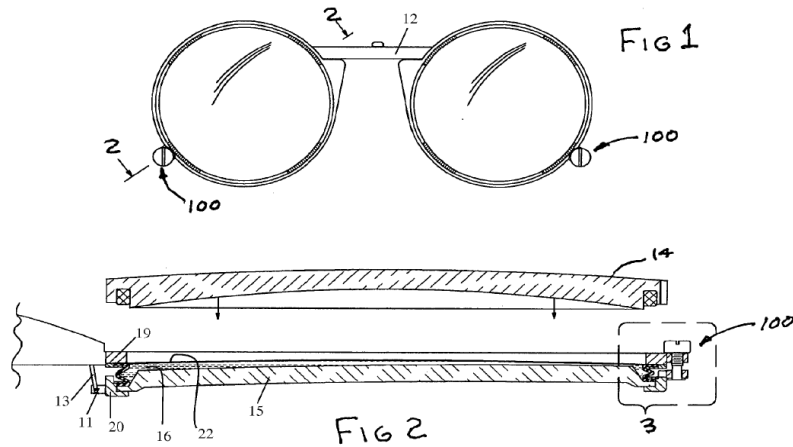
adjustable independently of each other;”	
[1(f)] “a transparent membrane attached to each of said first and second membrane support structures across said openings;”	<p>Kurtin ‘532 [0032]: “[0032] Rear lens 15 is held by rear ring 20, and the combination is coupled to the front ring 19 through an elastomeric bellows 21, which allows the rear ring to move with respect to the front ring. A thin membrane of transparent distensible plastic film 22, such as saran, is attached to the rear of the front ring [19], between it and the bellows. For purposes of convenience, the front ring [19] may be referred to as a membrane support member or structure. The space between the film and the rear lens is filled with a clear liquid 16, such as Dow-Corning DC-705 silicone fluid [which liquid (and the film) forms the liquid lens referred to above]. The clear liquid 16 is retained between the rear lens 15 and the film 22 by the elastomeric bellows 21”</p>  <p style="text-align: center;">Kurtin ‘532 Figure 2</p>  <p style="text-align: center;">Kurtin ‘487 Figure 2</p> <p>Kurtin ‘487: 2:13-19. “The variable lens described in US Patent Application Publication No. 2008/0084532 includes a rigid lens (referred to as the "rear" lens) spaced away from a distensible membrane [22], the intervening space being filled with a transparent optical</p>

	liquid. Both the rigid lens and the membrane [22] are held by spaced rings (which, in the preferred embodiment, are circular)."
[1(g)] "a flexible seal extending between each one of said first and second transparent members and its associated membrane support structure, said flexible seal permitting motion between one of the first and second transparent members and its associated membrane support structure; and"	<p>See citations to claim element 1(f).</p> <p>Kurtin '532 [0032]: "[0032] Rear lens 15 is held by rear ring 20, and the combination is coupled to the front ring 19 through an elastomeric bellows 21, which allows the rear ring to move with respect to the front ring."</p>
[1(h)] " liquid having a predetermined index of refraction substantially filling spaces between each of said first and second transparent members and its associated membrane support	<p>Kurtin '532: [0032] [0032] Rear lens 15 is held by rear ring 20, and the combination is coupled to the front ring 19 through an elastomeric bellows 21, which allows the rear ring to move with respect to the front ring. A thin membrane of transparent distensible plastic film 22, such as saran, is attached to the rear of the front ring, between it and the bellows 21. For purposes of convenience, the front ring may be referred to as a membrane support member or structure. The space between the film and the rear lens is filled with a clear liquid 16, such as Dow-Corning DC-705 silicone fluid [which liquid (and the film) forms the liquid lens referred to above]. The clear liquid 16 is retained between the rear lens 15 and the film 22 by the elastomeric bellows 21.</p>

<p>structure within its respective seal.”</p>	<p>Kurtin ‘532: [0035] [0035] For purposes of explanation, the rear lens, the filling liquid, and the film are assumed to have approximately the same index of refraction, although this is not an essential requirement. The preferred liquid, Dow-Corning DC-705, one of the preferred lens materials, polycarbonate, and the preferred film, saran, all have indices of refraction about 1.58</p> <p>Kurtin ‘532: Claim 16 16. Variable Focus Spectacles which are comprised of: liquid having a predetermined index of refraction...</p>  <p>Kurtin ‘532 Figure 2</p>  <p>Kurtin ‘487 Figure 2</p> <p>Kurtin ‘487: 2:13-19. “The variable lens described in US Patent Application Publication No. 2008/0084532 includes a rigid lens (referred to as the “rear” lens) spaced away from a distensible membrane, the intervening space being filled with a transparent optical liquid [16]. Both the rigid lens and the membrane are held by spaced rings (which, in the preferred embodiment, are circular).”</p>
<p>Claim 2</p>	<p>Kurtin ‘532 in view of Kurtin ‘629 and Gordon</p>
<p>2. The variable</p>	<p>Kurtin ‘532:[0008]</p>

<p>focus spectacles of claim 1, wherein the first and second transparent members are first and second lenses each having a predetermined optical power</p>	<p>[0008] As will be further discussed below, each lens unit is comprised of three lenses (a front lens, a variable liquid lens, and a rear lens). In the presently preferred embodiment of the invention, the front lens incorporates the intended user's distance prescription, including the spherical, cylindrical and prismatic components thereof, but if desired, portions (or possibly all) of the prescription could alternatively be incorporated in the rear lens.</p> <p>Kurtin '532:[0028] [0028] Each lens unit includes three physically distinct lenses: a fixed power front lens 14, a fixed power rear lens 15, and a variable power liquid lens 16.</p>
<p>Claim 3</p> <p>"3[a]. The variable focus spectacles of claim 1, further comprising a bridge disposed between the first and second transparent members and between the first and second membrane support structures, the bridge being connected to the first transparent member or the first membrane support structure at a first bridge support location and connected to the second</p>	<p>Kurtin '532 in view of Kurtin '629 and Gordon</p> <p>Kurtin '532: [0025] [0025] FIG. 1 depicts a front view of one embodiment of the invention. Two lens units, 10 and 10', are shown, held in relative position by a bridge 12. Within bridge 12, but not shown in detail, is an actuator for adjusting the optical powers of the lens units.</p>  <p>Kurtin '532 Figures 1 and 2</p>

transparent member or the second membrane support structure at a second bridge support location,



Kurtin '487 Figures 1 and 2

Kurtin '487: 3:36-48

“The invented fluctuating vision compensation mechanism is shown herein as applied to a pair of variable focus spectacles similar to those described in **Patent Application Publication 2008/0084532**. For convenience, each component that also appears in the ['532] patent publication is shown having the same identification number as in that publication, including, in particular, the distensible membrane 22, the transparent optical liquid 16, rear lens 15, **bridge 12**, the actuator link 13, and the tab 11 of the rear ring 20. ... Components that are unique to the fluctuating vision compensation mechanism are given numbers over 100.”

[3(b)] “wherein the first and second adjustable connectors are located at respective locations spaced apart from the first and second bridge support locations, respectively”

See citations to claim elements 1(b)-1(c).

Claim 4	Kurtin ‘532 in view of Kurtin ‘629 and Gordon
4[(a)] “Variable Focus Spectacles comprising: first and second transparent members;”	<i>See citations to claim element 1(a).</i>
[4(b)] “first and second membrane support structures, each having an opening therein, the first and second membrane support structures being respectively associated with and mounted adjacent to and within the field of view of the first and second transparent members;”	<i>See citations to claim element 1(b).</i>
[4(c)] “first and second adjustable connectors respectively connecting the first and second transparent members to the first and second membrane support structures, each of the first and second adjustable connectors allowing adjustment of a distance between its respective transparent member and its associated membrane support structure at a location of said connector while,”	<i>See citations to claim element 1(c).</i>
[4(d)] “at another location along a perimeter of the transparent member spaced apart from the location of the connector, a distance between the respective transparent member and its associated membrane support structure is kept unchanged,”	<i>See citations to claim element 1(d).</i>

<p>[4(e)] a bridge disposed between the first and second transparent members and between the first and second membrane support structures, the bridge being connected to the first transparent member or the first membrane support structure at a first bridge support location and connected to the second transparent member or the second membrane support structure at a second bridge support location,</p>	<p><i>See citations to claim element 3(a).</i></p>
<p>[4(f)] “wherein the first and second adjustable connectors are located at respective locations spaced apart from the first and second bridge support locations, respectively”</p>	<p><i>See citations to claim element 3(b).</i></p>
<p>[4(g)] a transparent membrane attached to each of said first and second membrane support structures across said openings;</p>	<p><i>See citations to claim element 1(f).</i></p>
<p>[4(h)] “a flexible seal extending between each one of said first and second transparent members and its associated membrane support structure, said flexible seal permitting motion between one of the first and second transparent members and its associated membrane support structure; and”</p>	<p><i>See citations to claim element 1(g).</i></p>
<p>[4(i)] “liquid having a predetermined index of refraction substantially filling spaces between each of said first and second transparent members and its associated membrane support structure within its respective seal.”</p>	<p><i>See citations to claim element 1(h).</i></p>
<p>Claim 5</p>	<p>Kurtin ‘532 in view of Kurtin ‘629 and Gordon</p>

5. The variable focus spectacles of claim 4, wherein the first and second transparent members are first and second lenses each having a predetermined optical power	<i>See citations to claim elements in claim 2.</i>
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VIII. CONCLUSION

For the foregoing reasons, claims 1-5 of the '487 Patent are unpatentable. Petitioner therefore requests that an IPR of these claims be instituted pursuant to 35 U.S.C. § 314. Petitioner reserves the right to apply additional prior art and arguments, depending on any arguments and/or amendments Patent Owner might present. Petitioner also reserves the right to cite and apply any additional art that it might discover as relevant to the issued claims or any amended claims, as the post-grant review proceeds.

Petition for IPR of U.S. Patent No. 8,708,487

Respectfully submitted,

MINTZ, LEVIN, COHN, FERRIS
GLOVSKY & POPEO P.C.

/John A. Bauer/

John A. Bauer

Attorney of Record

Registration No. 32,554

Customer Number 35,437

Tel: (212) 692- 6975

Fax: (212) 983-3115

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing PETITION FOR INTER PARTES REVIEW OF UNITED STATES PATENT NO. 8,708,487 and all Exhibits and other documents filed together with the Petition were served on August 26, 2015, via Express Mail to:

Chen Yoshimura LLP
Attention: Ying Chen
2975 Scott Blvd.
Suite 110
Santa Clara, CA 95054

MINTZ, LEVIN, COHN, FERRIS
GLOVSKY & POPEO P.C.

/John A. Bauer/
John A. Bauer
The Chrysler Center
666 Third Avenue
New York, NY 10017
(212) 692-6755