

EXHIBIT 153

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Claim Chart for U.S. Patent No. 9,512,025: EAGLE XG Glass

Corning manufactures EAGLE XG Glass for use as a substrate material that is incorporated into active matrix liquid crystal display (“AMLCD”) panels used in AMLCD televisions, monitors, notebook and laptop computers, and tablets sold in the United States. The claim chart below illustrates how EAGLE XG Glass, as incorporated into EAGLE XG Glass products, practices independent claim 15 of U.S. Patent No. 9,512,025 (the “’025 patent”).

The information and figures in the claim chart are from the following exhibits to the Complaint:

- Ex. 2: United States Patent No. 8,627,684 (the “’684 patent”)
- Ex. 3: United States Patent No. 9,512,025
- Ex. 8: Declaration of Shawn R. Markham
- Ex. 148: Corning webpage, *How It Works: Corning’s Fusion Glass Manufacturing Process*, <https://www.corning.com/worldwide/en/innovation/the-glass-age/science-of-glass/how-it-works-cornings-fusion-process.html>

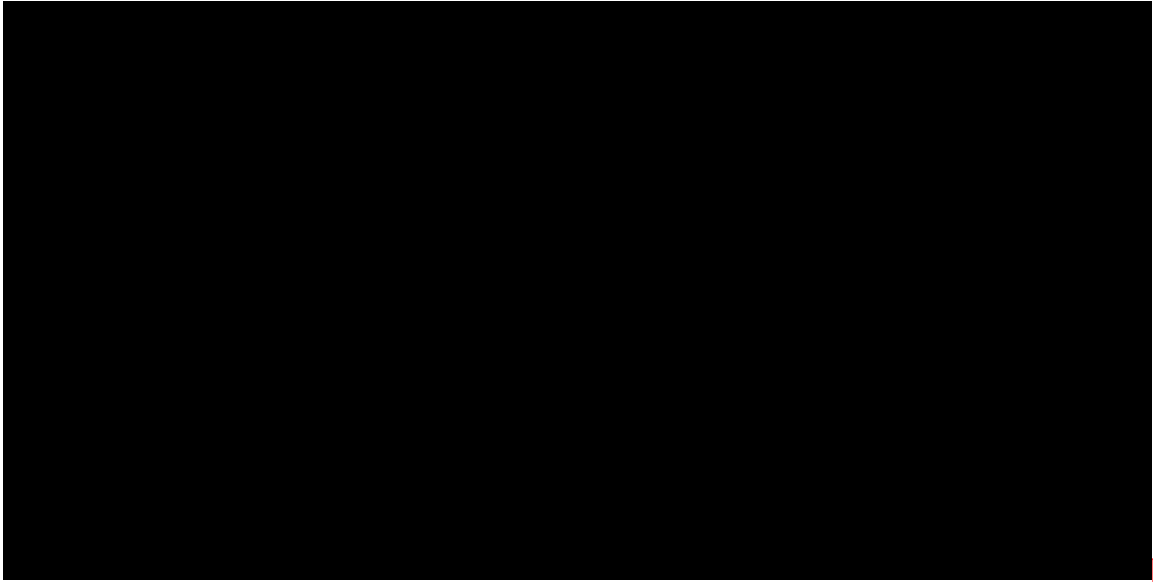
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9,512,025 Claim 15	EAGLE XG Glass
15. A method of making a glass ribbon comprising:	<p>EAGLE XG Glass comprises a glass ribbon. Ex. 8 (Markham Decl.) ¶ 22, Figure 1.</p> <p>Markham Figure 1 depicts at a high-level the process of forming an EAGLE XG glass sheet.</p> <div data-bbox="787 370 1793 1133"></div> <p>Ex. 8 (Markham Decl.) at Figure 1.</p>

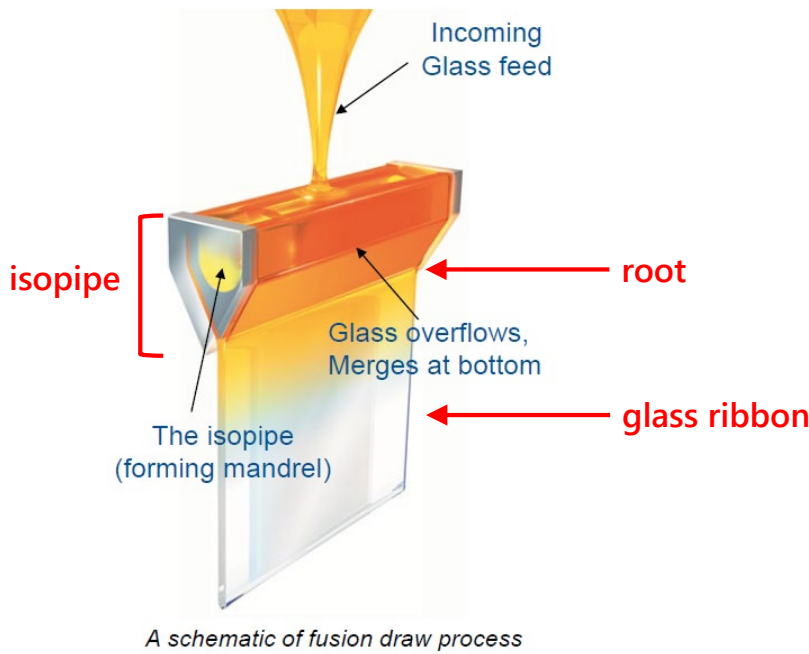
PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
<p>flowing molten glass over a pair of downwardly inclined forming surface portions of a forming wedge, the pair of downwardly inclined forming surface portions converging along a downstream direction to form a root;</p>	<p>EAGLE XG Glass is made by flowing molten glass over a pair of downwardly inclined forming surface portions of a forming wedge, the pair of downwardly inclined forming surface portions converging along a downstream direction to form a root. Ex. 8 (Markham Decl.) ¶¶ 21, 23, Figures 1 & 7.</p> <p>Markham Figure 1 depicts a “Forming” step that includes use of an isopipe with downwardly inclined forming surfaces that converge to form a root.</p> <div data-bbox="777 511 1795 1266"></div> <p>Ex. 8 (Markham Decl.) at Figure 1.</p> <p>(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p>Markham Figure 7 is an annotated Corning engineering drawing showing the isopipe used to make EAGLE XG Glass, which likewise shows downwardly inclined forming services that converge to form a root.</p> <div data-bbox="718 383 1864 961"></div> <p>Ex. 7 (Markham Decl.) at Figure 8.</p> <p>(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	<p data-bbox="680 201 934 233">EAGLE XG Glass</p> <p data-bbox="680 250 1894 428"><i>See also Ex. 148 (Corning webpage: How It Works) (“In a continuous flow, the molten glass pours into a large collection trough with a V-shaped bottom, known as an isopipe. Molten glass flows evenly over the top edges of the isopipe, forming two thin, sheet-like streams along the outer surfaces. The two sheets meet at the V-shaped bottom point of the isopipe and fuse into a single sheet.”).</i></p> <div data-bbox="905 467 1709 1117">  <p data-bbox="1045 1089 1423 1117"><i>A schematic of fusion draw process</i></p> </div> <p data-bbox="680 1143 1894 1360">Dr. Indrajit Dutta & Dr. Jay Zhang, Corning Incorporated, <i>Fundamentals of Glass Technology & Applications for Advanced Semiconductor Packaging</i>, Presentation at the 2019 IEEE 69th ECTC, at 55 (May 28-May 31, 2019), https://www.corning.com/media/worldwide/csm/documents/Fundamentals%20of%20Glass%20Technology%20&%20Applications%20for%20Advanced%20Semiconductor%20Packaging_ECTC%202019.pdf (annotated in red).</p>
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PUBLIC VERSION

9,512,025 Claim 15

flowing the molten glass over an edge director intersecting with at least one of the pair of downwardly inclined forming surface portions;

EAGLE XG Glass

EAGLE XG Glass is made by flowing molten glass over an edge director intersecting with at least one of the pair of downwardly inclined forming surface portions. Ex. 8 (Markham Decl.) ¶¶ 21, 24, Figures 8 & 9.

The downdraw fusion process used to manufacture EAGLE XG Glass involves the overflow of molten glass over an edge director that intersects with the downwardly inclined surface of an isopipe.

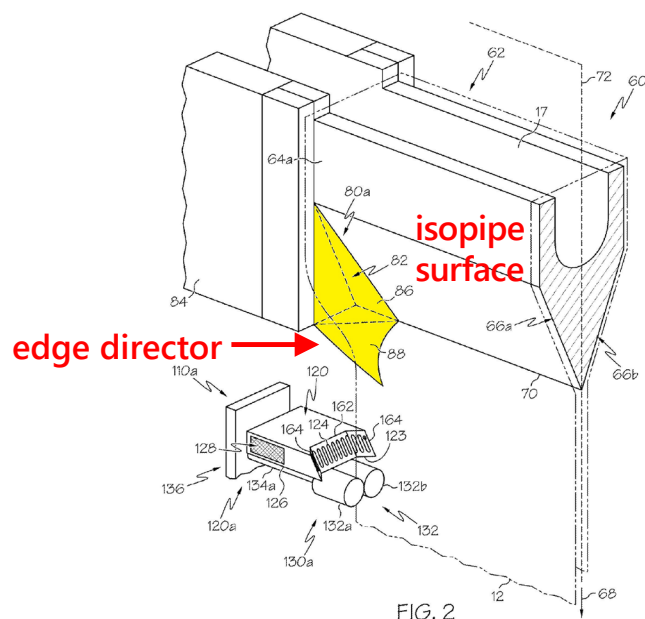


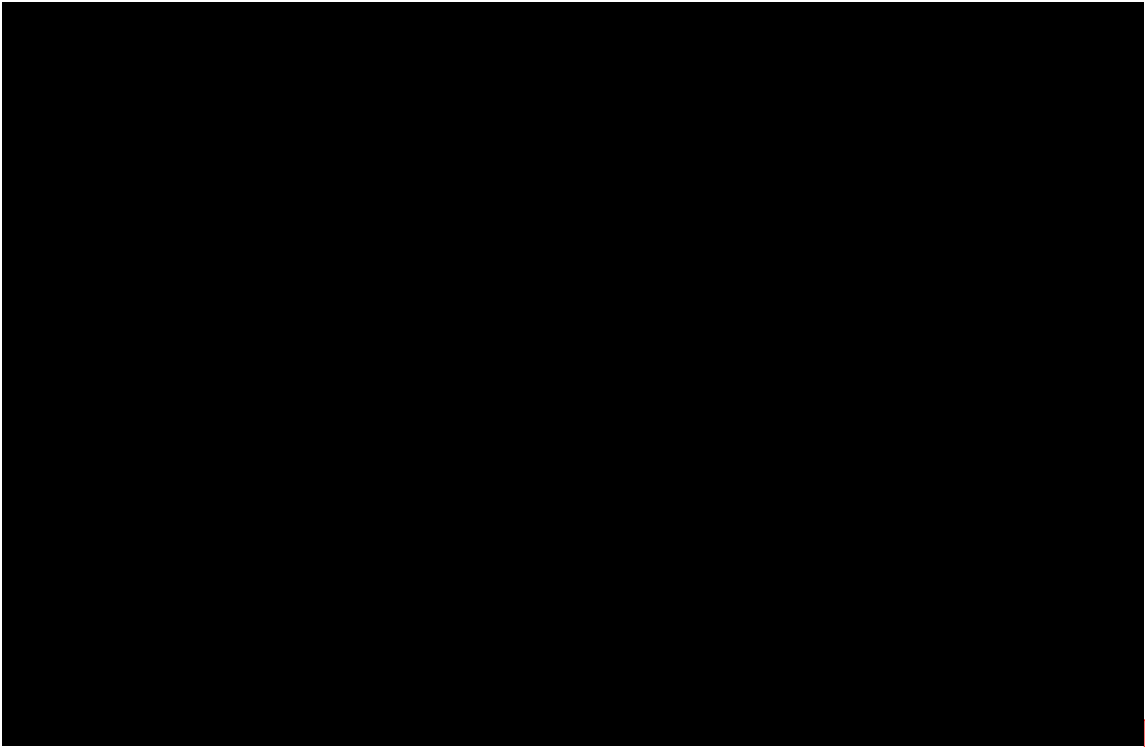
FIG. 2

Ex. 3 ('025 Patent) at Figure 2 (annotated in red and yellow).

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9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="680 248 1862 354">Markham Figure 8 is an annotated Corning engineering drawing of the edge director used to make EAGLE XG Glass. It shows that the edge director intersects with the bottom of the isopipe.</p> <div data-bbox="751 375 1829 1143"></div> <p data-bbox="1062 1159 1514 1195">Ex. 8 (Markham Decl.) at Figure 8.</p> <p data-bbox="680 1222 999 1258">(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="680 248 1764 321">Markham Figure 9 is another annotated Corning engineering drawing that shows the intersection of the isopipe and the edge director.</p> <div data-bbox="722 342 1860 1084"></div> <p data-bbox="1060 1101 1514 1141">Ex. 8 (Markham Decl.) at Figure 9.</p>

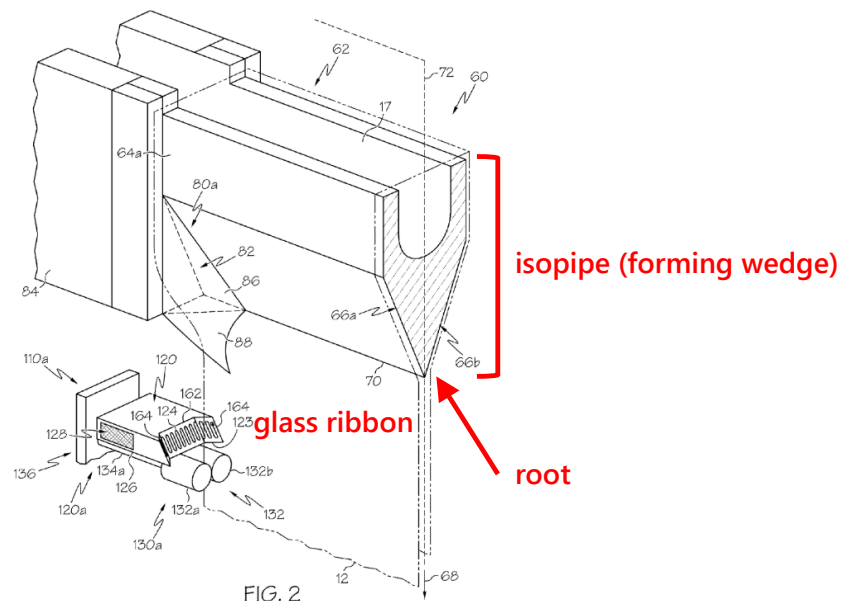
PUBLIC VERSION

9,512,025 Claim 15

drawing the molten glass from the root of the forming wedge to form the glass ribbon;

EAGLE XG Glass

EAGLE XG Glass is made by drawing the molten glass from the root of the forming wedge to form the glass ribbon. Ex. 8 (Markham Decl.) ¶¶ 21, 25, Figures 1, 4.



Ex. 3 ('025 Patent) at Figure 2 (annotated in red).

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PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="682 248 1881 321">Markham Figure 1 also shows, at a high level, how EAGLE XG glass is made by drawing the molten glass away from the root to form a glass ribbon.</p> <div data-bbox="760 342 1822 1149"></div> <p data-bbox="1062 1177 1514 1214">Ex. 8 (Markham Decl.) at Figure 1.</p> <p data-bbox="688 1242 1010 1279">(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="680 248 1879 321">Markham Figure 4 similarly shows, at a high level, how the molten glass is drawn away from the root of the isopipe to form the glass ribbon.</p> <div data-bbox="846 342 1734 1040"></div> <p data-bbox="1062 1060 1514 1092">Ex. 8 (Markham Decl.) at Figure 4.</p> <p data-bbox="680 1122 1885 1341"><i>See also</i> Ex. 148 (Corning webpage: <i>How It Works</i>) (“In a continuous flow, the molten glass pours into a large collection trough with a V-shaped bottom, known as an isopipe. Molten glass flows evenly over the top edges of the isopipe, forming two thin, sheet-like streams along the outer surfaces. The two sheets meet at the V-shaped bottom point of the isopipe and fuse into a single sheet. The sheet then begins to cool in midair as it is drawn downward by gravity and a series of precise controls.”).</p> <p data-bbox="680 1370 999 1403">(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<div data-bbox="903 276 1722 876"><p>A schematic of fusion draw process</p></div> <p>Dr. Indrajit Dutta & Dr. Jay Zhang, Corning Incorporated, <i>Fundamentals of Glass Technology & Applications for Advanced Semiconductor Packaging</i>, Presentation at the 2019 IEEE 69th ECTC, at 55 (May 28-May 31, 2019), https://www.corning.com/media/worldwide/csm/documents/Fundamentals%20of%20Glass%20Technology%20&%20Applications%20for%20Advanced%20Semiconductor%20Packaging_ECTC%202019.pdf (annotated in red).</p>

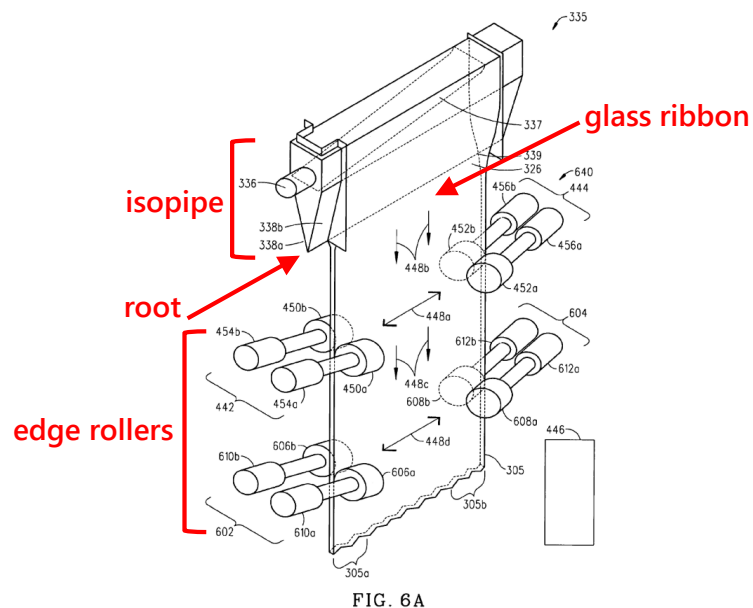
PUBLIC VERSION

9,512,025 Claim 15

engaging an edge portion of the glass ribbon with a plurality of edge rollers positioned downstream from the root and edge director, the plurality of edge rollers extending through a housing; and

EAGLE XG Glass

EAGLE XG Glass is made by engaging an edge portion of the glass ribbon with a plurality of edge rollers positioned downstream from the root and edge director, the plurality of edge rollers extending through a housing. Ex. 8 (Markham Decl.) ¶¶ 21, 26, Figures 10-12.



Ex. 2 ('684 Patent) at Figure 6A (annotated in red).

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PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="682 248 1860 321">Markham Figure 10 is an annotated Corning engineering drawing of the edge rollers used to make EAGLE XG glass, which shows how the rollers extend through their housing.</p> <div data-bbox="747 337 1831 1057"></div> <p data-bbox="730 1027 747 1057">[[</p> <p data-bbox="1831 1027 1848 1057">]]</p> <p data-bbox="1056 1076 1520 1110">Ex. 8 (Markham Decl.) at Figure 10.</p> <p data-bbox="682 1138 999 1172">(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="682 248 1816 321">Markham Figure 11 is an annotated Corning engineering drawing that shows the relative positioning of the edge rollers downstream from the root and edge director.</p> <div data-bbox="777 337 1801 987"></div> <p data-bbox="1056 1003 1522 1039">Ex. 8 (Markham Decl.) at Figure 11.</p> <p data-bbox="682 1063 1001 1101">(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="680 248 1881 321">Markham Figure 12 is another annotated Corning engineering drawing that shows the relative positioning of the edge rollers downstream from the root and edge director.</p> <div data-bbox="743 339 1824 1062"></div> <p data-bbox="1052 1084 1520 1117">Ex. 8 (Markham Decl.) at Figure 12.</p>

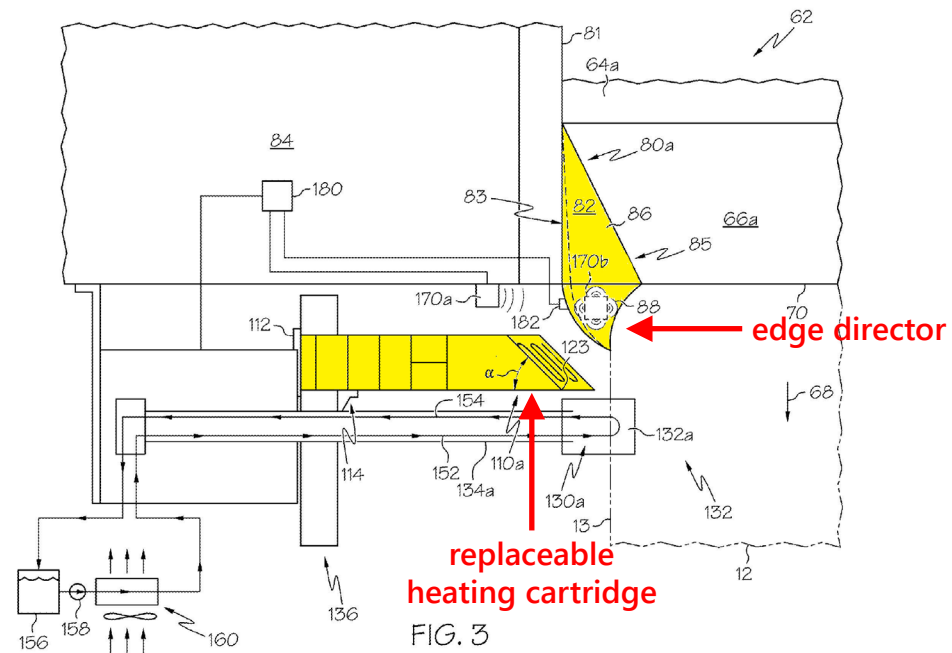
PUBLIC VERSION

9,512,025 Claim 15

heating the edge director with a replaceable heating cartridge located in a port in the housing,

EAGLE XG Glass

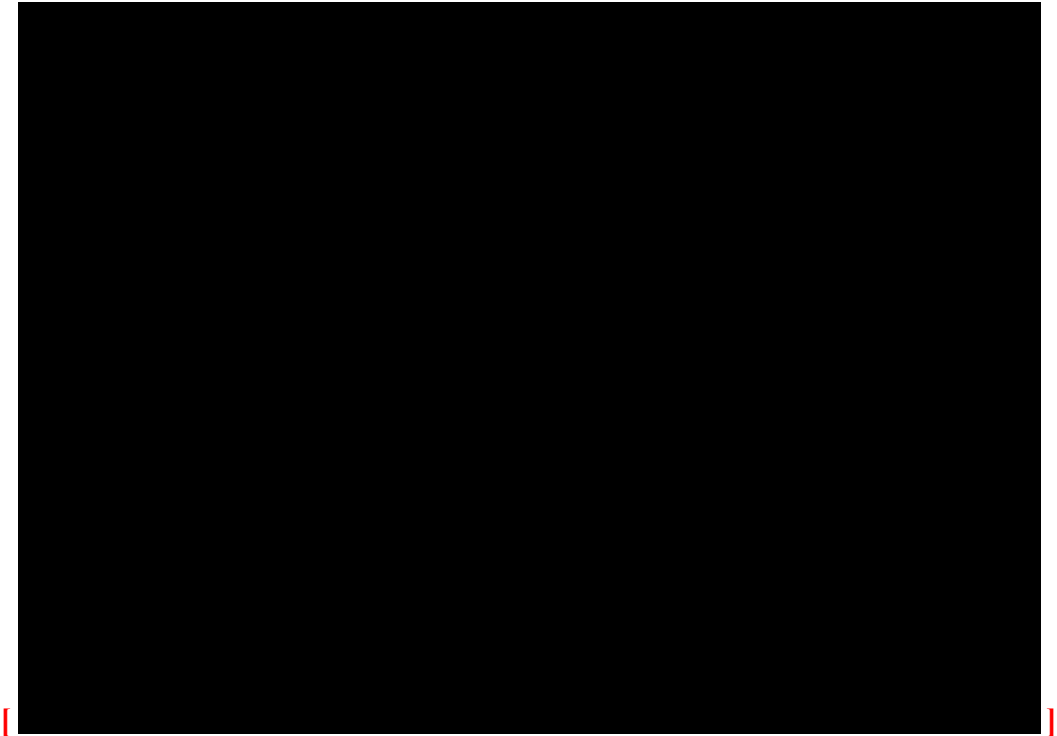
EAGLE XG Glass is made by heating the edge director with a replaceable heating cartridge located in a port in the housing. Ex. 8 (Markham Decl.) ¶¶ 21, 27, Figures 13-14.



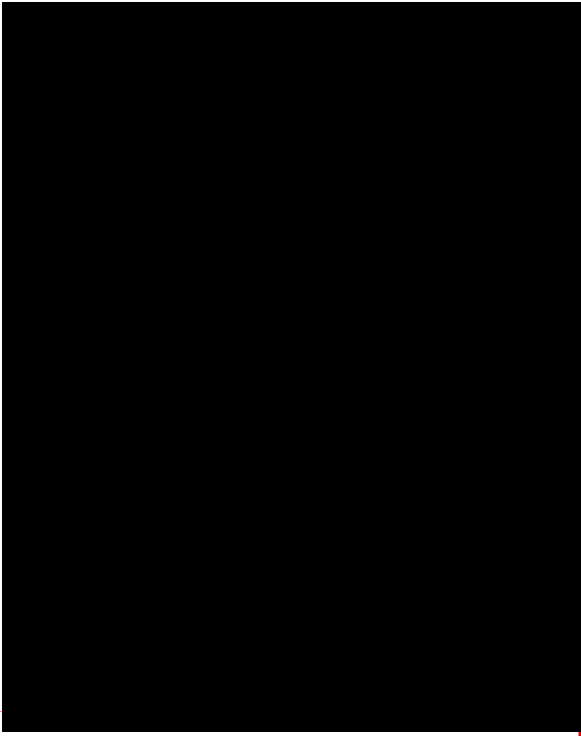
Ex. 3 ('025 Patent) at Figure 3 (annotated in red and yellow).

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PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="680 248 1787 321">Markham Figure 13 is an annotated Corning engineering drawing showing the heating cartridge and the edge detector, both of which are contained in a housing.</p> <div data-bbox="764 337 1814 1068"></div> <p data-bbox="1052 1089 1520 1122">Ex. 8 (Markham Decl.) at Figure 13.</p> <p data-bbox="680 1149 999 1187">(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="680 248 1877 321">Markham Figure 14 is an annotated Corning drawing that illustrates the edge director and the replaceable heating cartridge within the housing.</p> <div data-bbox="1003 342 1579 1073"></div> <p data-bbox="1052 1097 1524 1130">Ex. 8 (Markham Decl.) at Figure 14.</p>

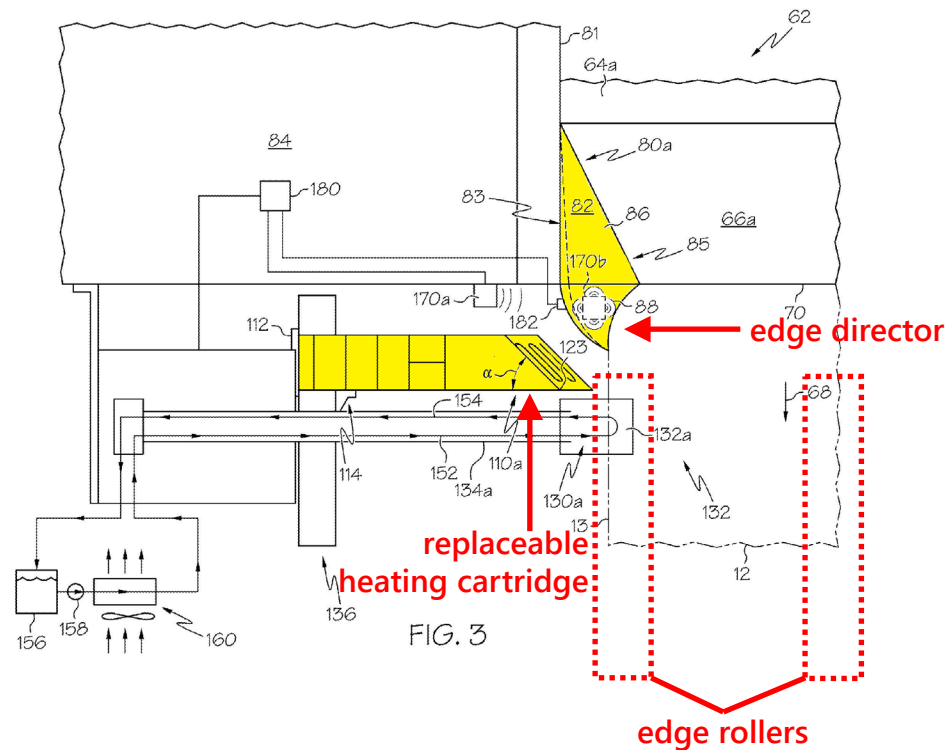
PUBLIC VERSION

9,512,025 Claim 15

wherein the replaceable heating cartridge is positioned between the plurality of edge rollers and the edge director,

EAGLE XG Glass

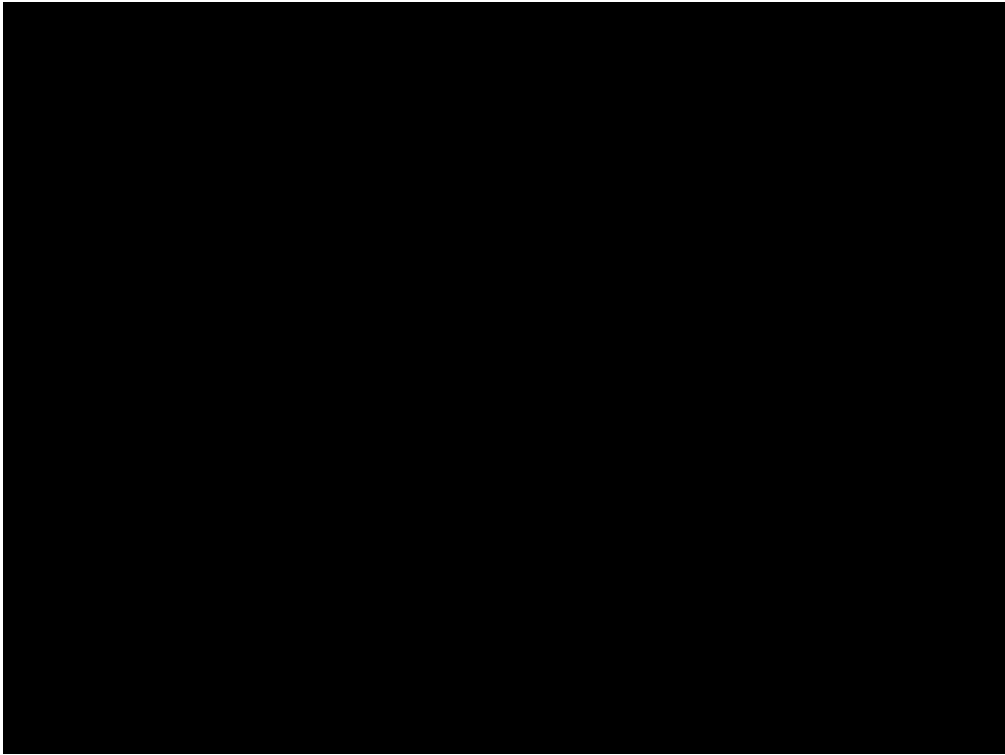
EAGLE XG Glass is made using a replaceable heating cartridge positioned between the plurality of edge rollers and the edge director. Ex. 8 (Markham Decl.) ¶¶ 21, 28, Figure 15.



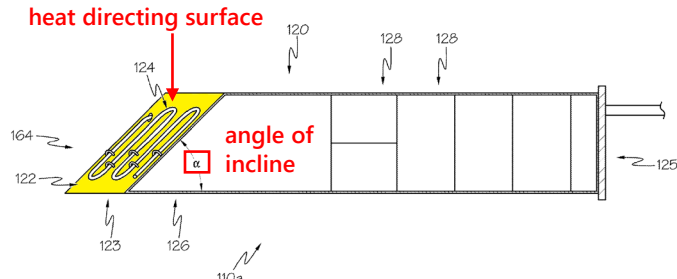
Ex. 3 ('025 Patent) at Figure 3 (annotated in red and yellow).

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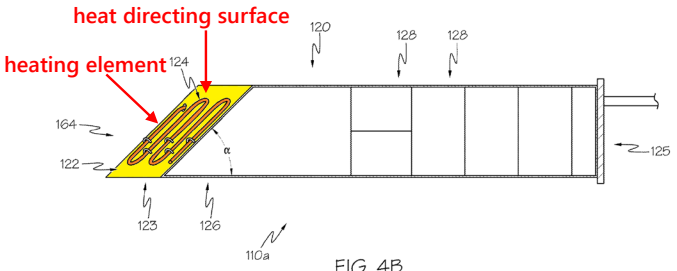
PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="682 248 1885 321">Markham Figure 15 illustrates the positioning of the replaceable heating cartridge between the edge rollers and edge director.</p> <div data-bbox="789 339 1787 1089"></div> <p data-bbox="1056 1110 1522 1146">Ex. 8 (Markham Decl.) at Figure 15.</p>

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<p>9,512,025 Claim 15</p> <p>the replaceable heating cartridge comprising an enclosure having a heat directing surface that is inclined at an angle of less than about 90° with respect to a bottom surface of the enclosure,</p>	<p>EAGLE XG Glass</p> <p>EAGLE XG Glass is made using a replaceable heating cartridge comprising an enclosure having a heat directing surface that is inclined at an angle of less than about 90° with respect to a bottom surface of the enclosure. Ex. 8 (Markham Decl.) ¶¶ 21, 29, Figure 15.</p>  <p>FIG. 4B</p> <p>Ex. 3 ('025 Patent) at Figure 4B (annotated in red and yellow).</p> <p>Markham Figure 15 is an annotated Corning engineering drawing showing the heat directing surface of the heating element is inclined at an angle θ of less than 90 degrees relative to the bottom surface of the heating element enclosure.</p>  <p>Ex. 8 (Markham Decl.) at Figure 15.</p>
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PUBLIC VERSION

<p>9,512,025 Claim 15</p>	<p>EAGLE XG Glass</p>
<p>the heat directing surface comprising at least one heating element positioned on or adjacent to a face thereof,</p>	<p>EAGLE XG Glass is made using a heat directing surface comprising at least one heating element positioned on or adjacent to a face thereof. Ex. 8 (Markham Decl.) ¶¶ 21, 30, Figure 15.</p>  <p>FIG. 4B</p> <p>Ex. 3 ('025 Patent) at Figure 4B (annotated in red, yellow, and orange).</p> <p>Markham Figure 15 depicts the heating element positioned on the face of the heat directing surface.</p>  <p>Ex. 8 (Markham Decl.) at Figure 15.</p>

PUBLIC VERSION

9,512,025 Claim 15

wherein the replaceable heating cartridge is oriented such that the heat directing surface faces the edge director,

EAGLE XG Glass

EAGLE XG Glass is made using a replaceable heating cartridge oriented such that the heat directing surface faces the edge director. Ex. 8 (Markham Decl.) ¶¶ 21, 31, Figures 13-15.

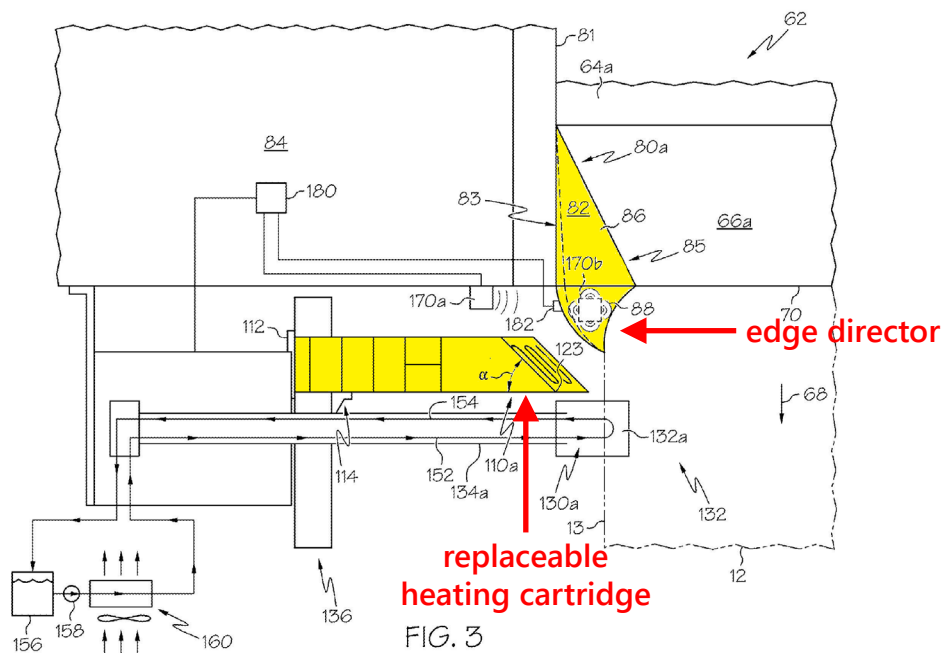


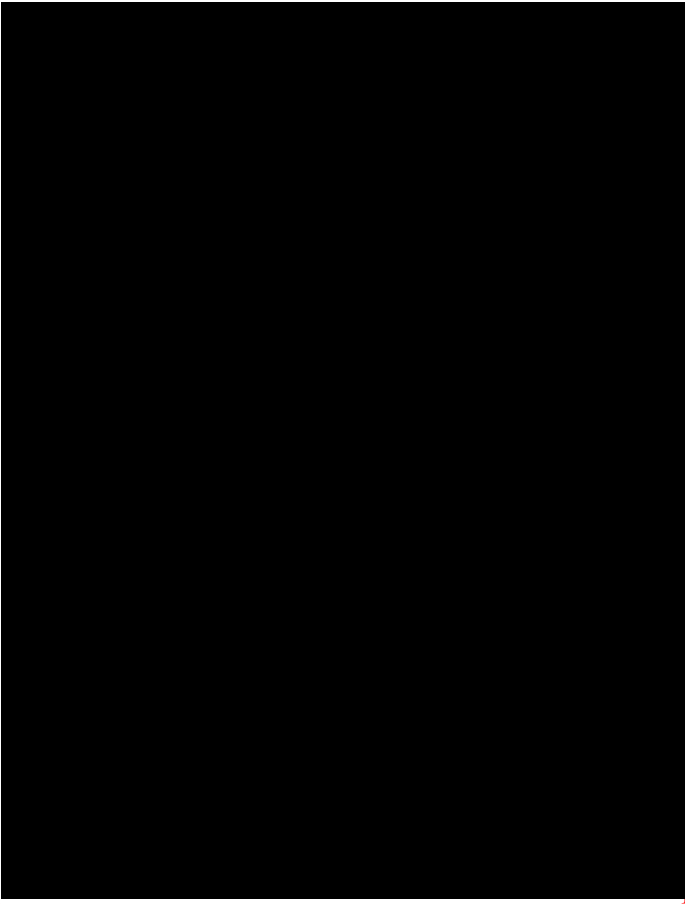
FIG. 3

Ex. 3 ('025 Patent) at Figure 3 (annotated in red and yellow).

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PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="680 248 1835 321">Markham Figure 13 shows that the heat directing surface of the heating cartridge faces the edge director.</p> <div data-bbox="781 339 1801 1068"></div> <p data-bbox="1056 1084 1520 1125">Ex. 8 (Markham Decl.) at Figure 13.</p> <p data-bbox="680 1149 999 1190">(continued on next page)</p>

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="682 245 1837 315">Markham Figure 14 shows that the heat directing surface of the heating cartridge faces the edge director.</p> <div data-bbox="951 342 1631 1240"></div> <p data-bbox="1056 1260 1522 1294">Ex. 8 (Markham Decl.) at Figure 14.</p> <p data-bbox="682 1321 1001 1356">(continued on next page)</p>

PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="682 245 1835 315">Markham Figure 15 shows that the heat directing surface of the heating cartridge faces the edge director.</p> <div data-bbox="795 339 1770 1081"></div> <p data-bbox="1056 1105 1522 1138">Ex. 8 (Markham Decl.) at Figure 15.</p>

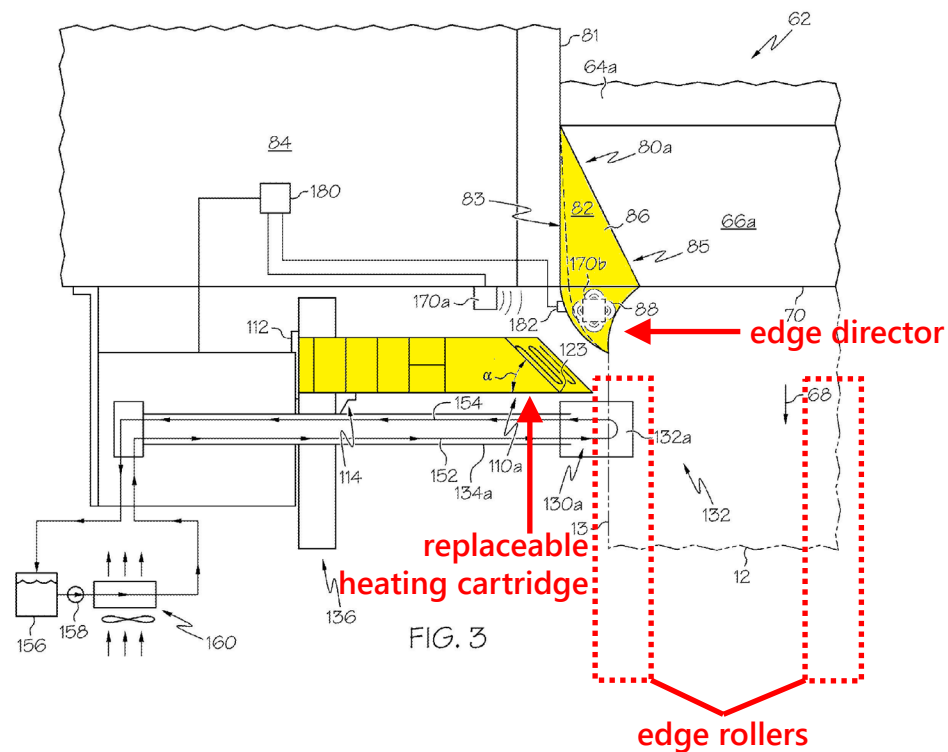
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9,512,025 Claim 15

a view factor from the heat directing surface is greater at the edge director than at the plurality of edge rollers, and

EAGLE XG Glass

EAGLE XG Glass is made using a replaceable heating cartridge oriented such that the view factor from the heat directing surface is greater at the edge director than at the plurality of edge rollers. Ex. 8 (Markham Decl.) ¶¶ 21, 32, Figures 11-15. As used in the '025 patent, a “view factor” refers to the relative proportion of thermal radiation from the heat directing surface reaching a specified surface. See '025 Patent at 8:14-18.



Ex. 3 ('025 Patent) at Figure 3 (annotated in red and yellow).

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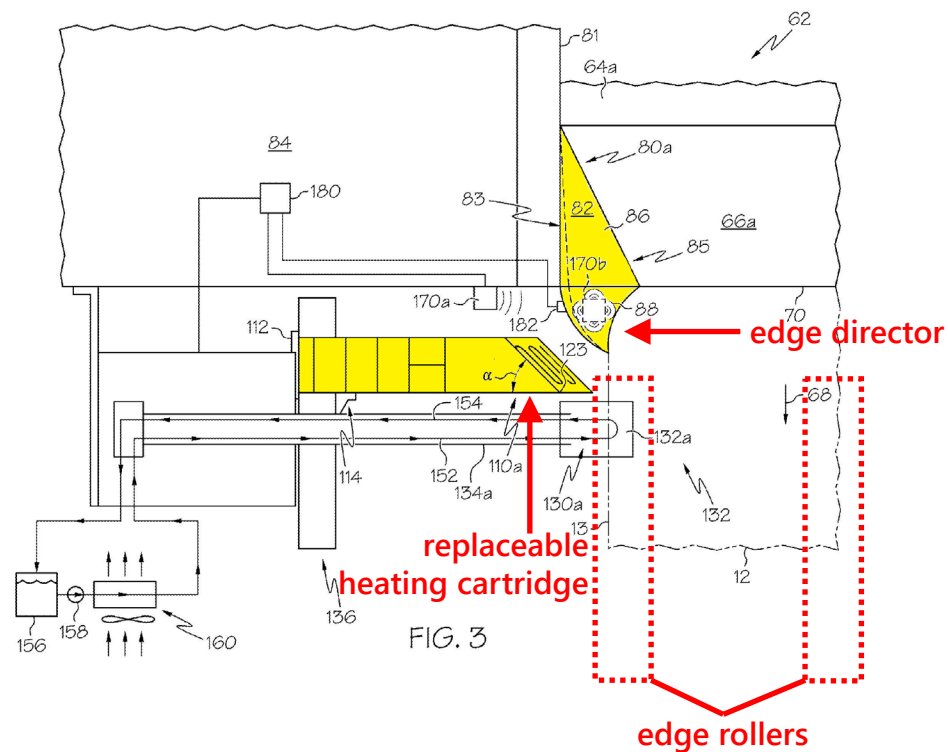
9,512,025 Claim 15	EAGLE XG Glass
	<p>Markham Figures 11-15 each show that the view factor is greater at the edge director than at the edge rollers. Markham Figure 15 is reproduced here as an example.</p> <div data-bbox="793 337 1768 1084"></div> <p>Ex. 8 (Markham Decl.) at Figure 15. <i>See also id.</i> at Figures 11-14.</p>

9,512,025 Claim 15

a lower edge of the heat directing surface and the bottom surface of the replaceable heating cartridge are at least partially positioned between the edge director and the plurality of edge rollers to thermally shield the edge director from the plurality of edge rollers.

EAGLE XG Glass

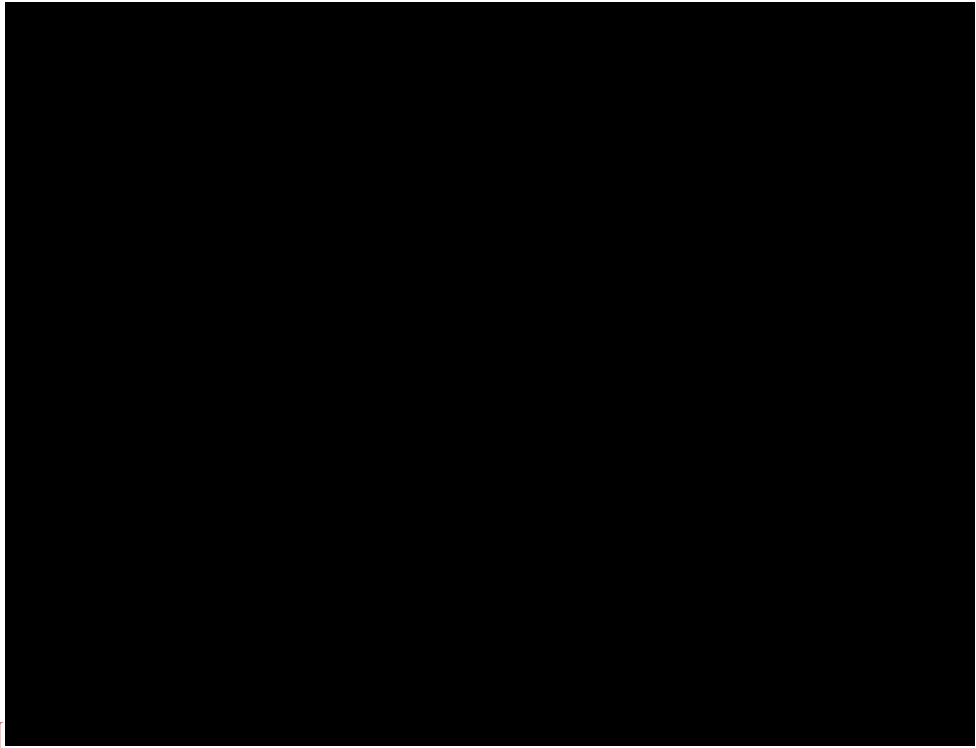
EAGLE XG Glass is made using a replaceable heating cartridge oriented such that the lower edge of the heat directing surface and the bottom surface of the replaceable heating cartridge are at least partially positioned between the edge director and the plurality of edge rollers to thermally shield the edge director from the plurality of edge rollers. Ex. 8 (Markham Decl.) ¶¶ 21, 33, Figures 11-15.



Ex. 3 ('025 Patent) at Figure 3 (annotated in red and yellow).

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PUBLIC VERSION

9,512,025 Claim 15	EAGLE XG Glass
	<p data-bbox="680 248 1377 284">Markham Figure 15 is reproduced here as an example.</p> <div data-bbox="795 302 1764 1045"></div> <p data-bbox="856 1063 1717 1101">Ex. 8 (Markham Decl.) at Figure 15. <i>See also id.</i> at Figures 11-14.</p>