

EXHIBIT 152

PUBLIC VERSION

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Claim Chart for U.S. Patent No. 8,627,684: Corning 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 in EAGLE XG Glass products, practices independent claim 1 of U.S. Patent No. 8,627,684 (the “’684 Patent”).

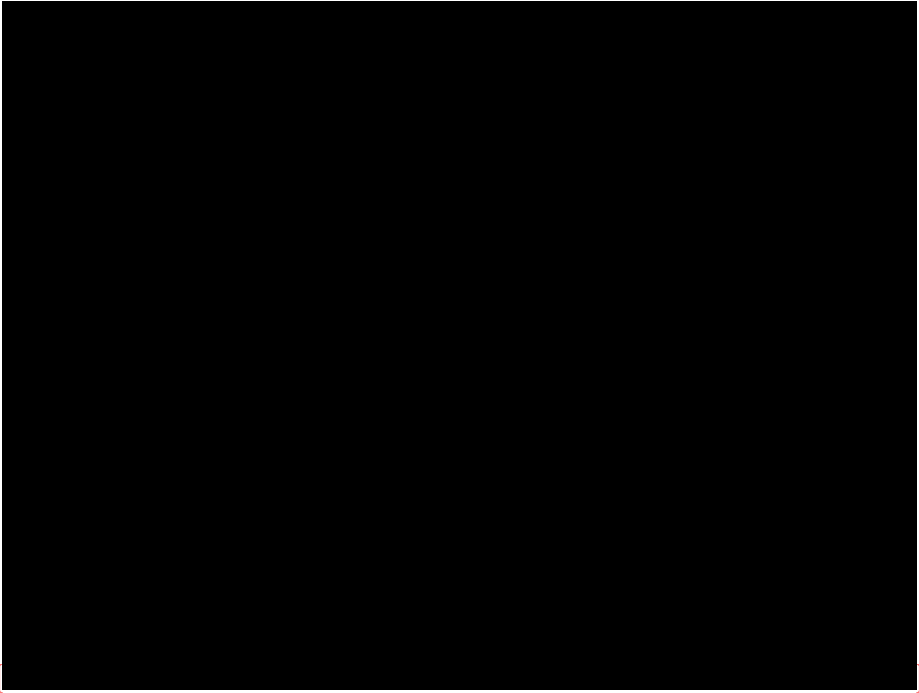
The information and figures in the claim chart are from the following exhibits to the Complaint:

- Ex. 2: United States Patent No. 8,627,684
- Ex. 8: Declaration of Shawn R. Markham
- Ex. 146: 2021 Corning EAGLE XG Product Information Sheet
- 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>
- Ex. 149: Corning webpage, *How to Make Glass Out of Thin Air* (Oct. 2022), <https://www.corning.com/worldwide/en/the-progress-report/vital-voices/profile-shawn-markham>

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8,627,684 Claim 1	Corning EAGLE XG Glass
1. A method for manufacturing a glass sheet, said method comprising the steps of:	<p>EAGLE XG Glass comprises a glass sheet. Ex. 8 (Markham Decl.) ¶ 10, Figure 1.</p> <p>Markham Figure 1 depicts the high-level process of forming an EAGLE XG glass sheet.</p> <div data-bbox="886 409 1793 1094"></div> <p>Ex. 8 (Markham Decl.) at Figure 1.</p> <p><i>See also</i> Ex. 149 (Corning webpage: <i>How to Make Glass Out of Thin Air</i>) (“Corning engineers can make glass sheets as large as two king-size mattresses and as thin as a business card. . . . The world’s most pristine, thin glass sheets form.”); Ex. 146 (2021 Corning EAGLE XG Product Information Sheet) (“Exceptional Dimensional Stability and Surface Quality in Thin, Large-Size Sheets”).</p>

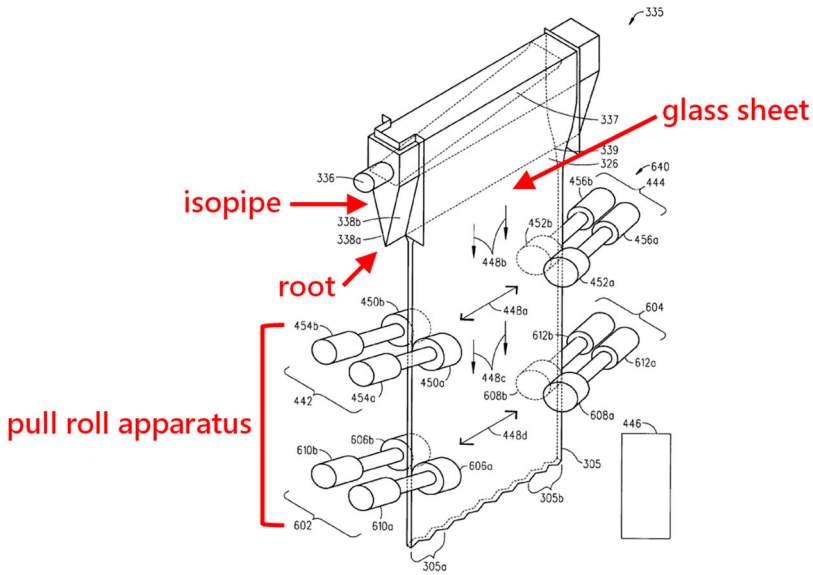
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8,627,684 Claim 1	Corning EAGLE XG Glass
a) melting batch materials and forming the glass sheet;	<p>EAGLE XG Glass is made using the downdraw method of glass formation. The downdraw process involves the melting of batch materials to form glass sheets. Ex. 8 (Markham Decl.) ¶ 10, Figure 1.</p> <p>Markham Figure 1 depicts the high-level process of forming a glass sheet.</p>  <p>Ex. 8 (Markham Decl.) at Figure 1.</p> <p>(continued on next page)</p>

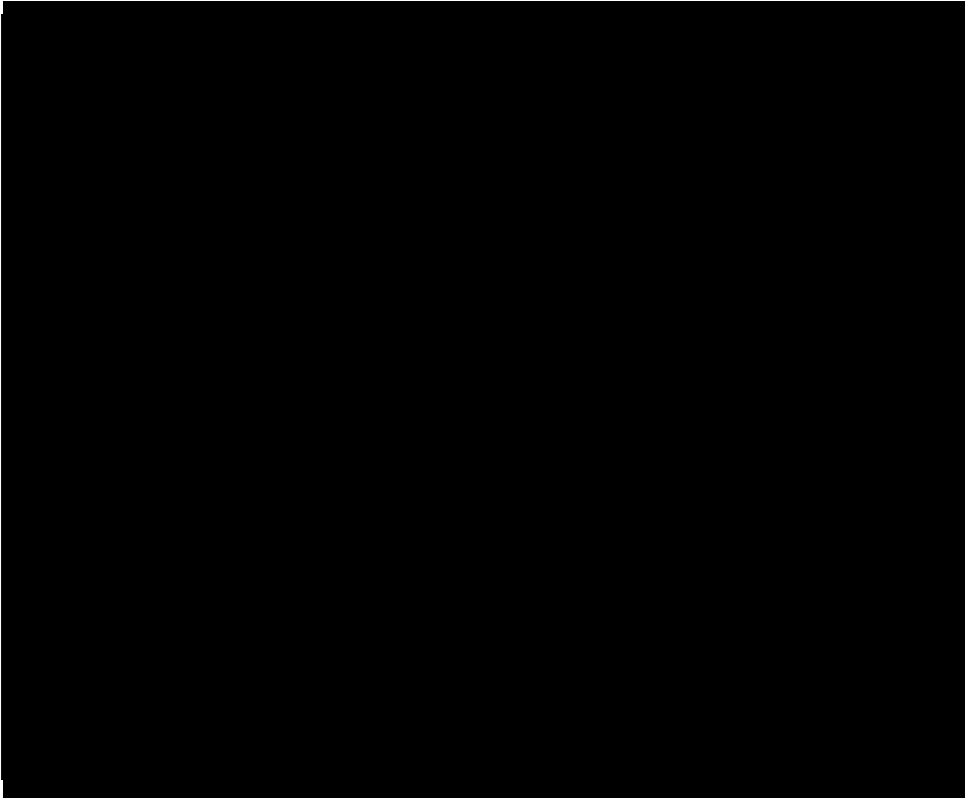
PUBLIC VERSION

8,627,684 Claim 1	Corning EAGLE XG Glass
	<p>How it Works – Fusion Glass Manufacturing Process . . .</p> <p>Our process starts with sand. A precise recipe of pure sand and other inorganic materials mix together to form a homogenous batch of raw materials. The mixture is poured into a large, brick-walled melting tank – heated with a majority of electricity versus natural gas – where raw materials turn molten. In a continuous flow, the molten glass pours into a large collection trough with a V-shaped bottom, known as an isopipe.</p> <p>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.</p> <p>The sheet then begins to cool in midair as it is drawn downward by gravity and a series of precise controls.</p> <p>When the sheet reaches the bottom of the fusion draw, it has cooled and stabilized. The continuous stream of thin glass is cut into sheets at the bottom of the draw.</p> <p>Ex. 148 (Corning webpage: <i>How It Works</i>).</p> <p>“Corning’s prized invention, the fusion machine, melts raw materials – sand and so much more, painstakingly calculated and concocted – until molten. The lava-like substance pours powerfully into a specially designed trough. When the substance overflows its trough, science seemingly turns to magic. The world’s most pristine, thin glass sheets form, harnessing gravity as the enormous substrates cascade to the ground.” Ex. 149 (Corning webpage: <i>How to Make Glass Out of Thin Air</i>).</p>

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<p>8,627,684 Claim 1</p>	<p>Corning EAGLE XG Glass</p>
<p>b) delivering the glass sheet to a pull roll apparatus;</p>	<p>EAGLE XG Glass is manufactured by delivering a glass sheet to a pull roll apparatus. Ex. 8 (Markham Decl.) ¶¶ 9, 12, Figures 2-3.</p>  <p>FIG. 6A</p> <p>Ex. 2 ('684 patent) at Figure 6A (annotated in red).</p> <p>Markham Figures 2 and 3 below are annotated engineering drawings showing the pull roll apparatus used to manufacture EAGLE XG Glass from an end view and cross-sectional view, respectively.</p> <p>(continued on next page)</p>

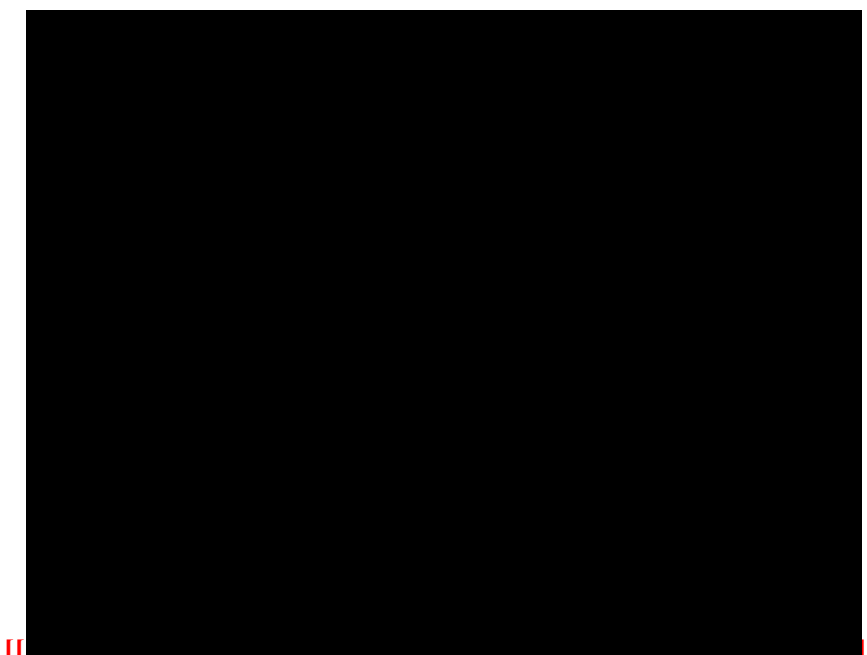
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8,627,684 Claim 1	Corning EAGLE XG Glass
	<div data-bbox="848 253 1808 1047"></div> <div data-bbox="802 1003 827 1036"> </div> <div data-bbox="1852 1003 1877 1036"> </div> <div data-bbox="1115 1053 1566 1088">Ex. 8 (Markham Decl.) at Figure 2.</div> <div data-bbox="785 1117 1104 1151">(continued on next page)</div>

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8,627,684 Claim 1	Corning EAGLE XG Glass
	<div data-bbox="800 261 1877 899"></div> <p data-bbox="1108 915 1566 951">Ex. 8 (Markham Decl.) at Figure 3.</p> <p data-bbox="785 979 1887 1089"><i>See also</i> Ex. 148 (Corning webpage: <i>How It Works</i>) (“The sheet . . . begins to cool in midair as it is drawn downward by gravity and a series of precise controls.”) (emphasis added).</p>

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8,627,684 Claim 1	Corning EAGLE XG Glass
c) drawing the glass sheet and creating a cross-tension in the glass sheet using the pull roll apparatus which comprises:	<p data-bbox="785 250 1873 321">EAGLE XG Glass is created by drawing the glass sheet and creating cross-tension in the glass sheet using a pull-roll apparatus. Ex. 8 (Markham Decl.) ¶¶ 9, 13, Figure 4.</p> <p data-bbox="785 347 1894 565">Markham Figure 4 is a Corning document that shows a simplified drawing of the pull-roll apparatus depicted in Markham Figures 2 & 3 above. It is annotated to show the relative location of each pull roll pair (one in front of the glass sheet and one behind, as seen in Figure 2). It shows a glass sheet being drawn through the pull-roll apparatus; the cross-tension is created from the use of rollers on both sides of the sheet as it is drawn through the rollers.</p> <div data-bbox="903 584 1764 1234"></div> <p data-bbox="1113 1263 1566 1299">Ex. 8 (Markham Decl.) at Figure 4.</p> <p data-bbox="785 1328 1852 1399"><i>See also</i> '684 Patent, Figure 4A, 305 (depicting a glass sheet), 440 (depicting a pull roll apparatus), 448a (depicting cross-draw tension in a glass sheet).</p>

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8,627,684 Claim 1

- (i) a cantilevered vertically downtilted first stub roll pair for drawing a first edge portion of the glass sheet out away from a center of the glass sheet;

Corning EAGLE XG Glass

EAGLE XG Glass is created using a pull-roll apparatus that comprises a cantilevered vertically downtilted first stub roll pair for drawing a first edge portion of the glass sheet out away from the center of the glass sheet. Ex. 8 (Markham Decl.) ¶¶ 9, 14, Figure 4.

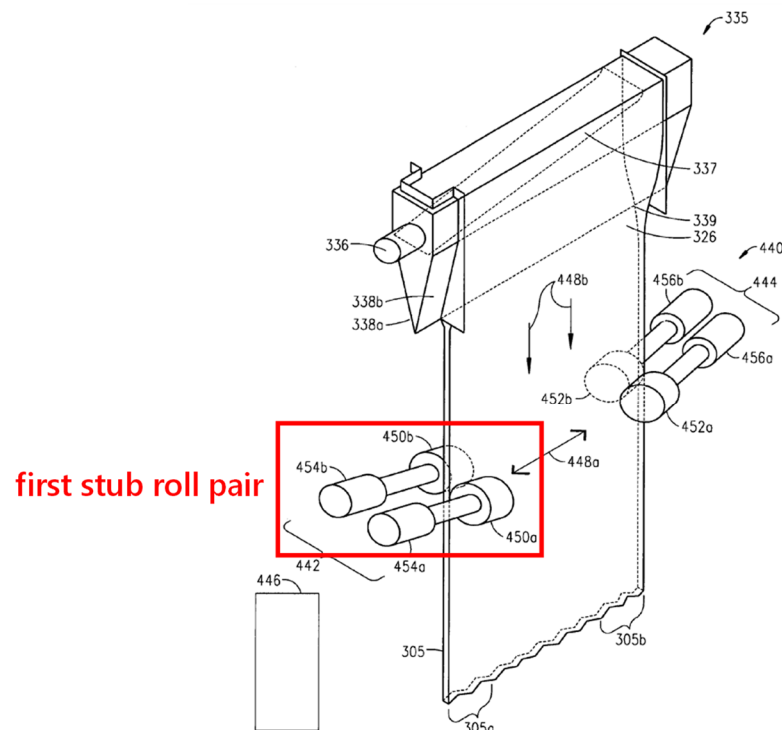
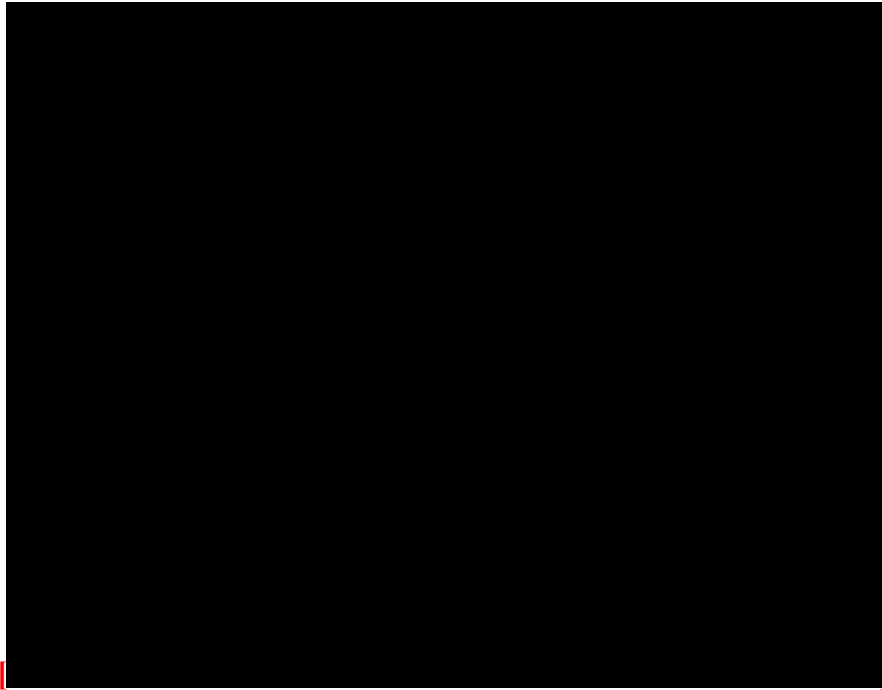


FIG. 4A

Ex. 2 ('684 patent) at Figure 4A (annotated in red).

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PUBLIC VERSION

8,627,684 Claim 1	Corning EAGLE XG Glass
	<p>Markham Figure 4 shows each roller pair is both cantilevered and vertically downtilted.</p> <div data-bbox="900 380 1776 1065"></div> <p>Ex. 8 (Markham Decl.) at Figure 4.</p>

8,627,684 Claim 1

- (ii) a cantilevered vertically downtilted second stub roll pair for, at a location transversely opposite the first stub roll pair, drawing a second edge portion of the glass sheet out away from the center of the glass sheet, thereby creating a cross-tension in the glass sheet between the first stub roll pair and the second stub roll pair;

Corning EAGLE XG Glass

EAGLE XG Glass is created using a pull-roll apparatus that comprises a cantilevered vertically downtilted second stub roll pair for, at a location transversely opposite the first stub roll pair, drawing a second edge portion of the glass sheet out away from the center of the glass sheet, thereby creating a cross-tension in the glass sheet between the first stub-roll pair and the second stub roll pair. Ex. 8 (Markham Decl.) ¶¶ 9, 15, Figure 4.

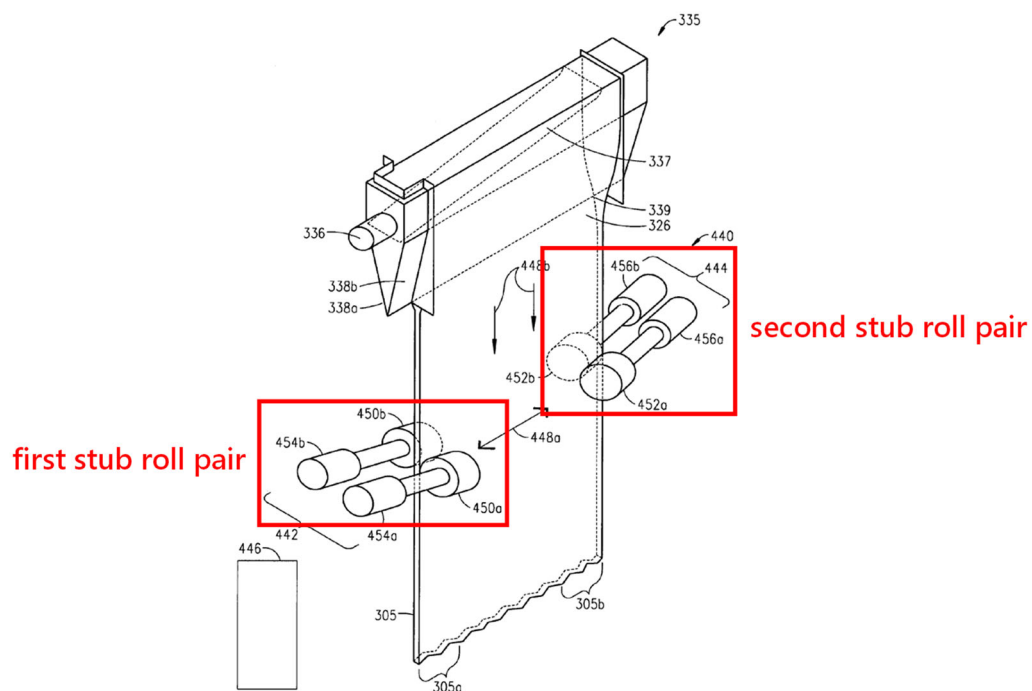


FIG. 4A

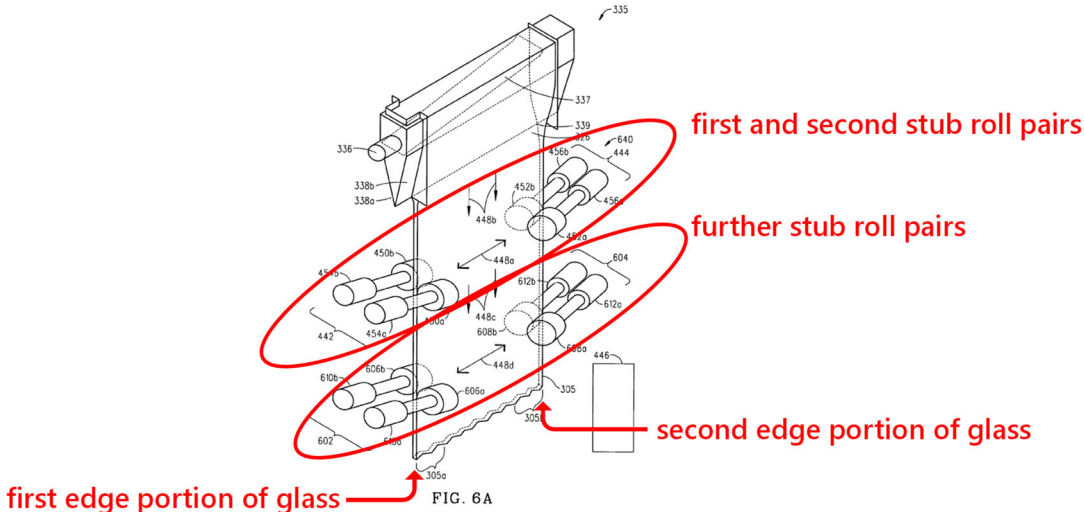
Ex. 2 ('684 patent) at Figure 4A (annotated in red).

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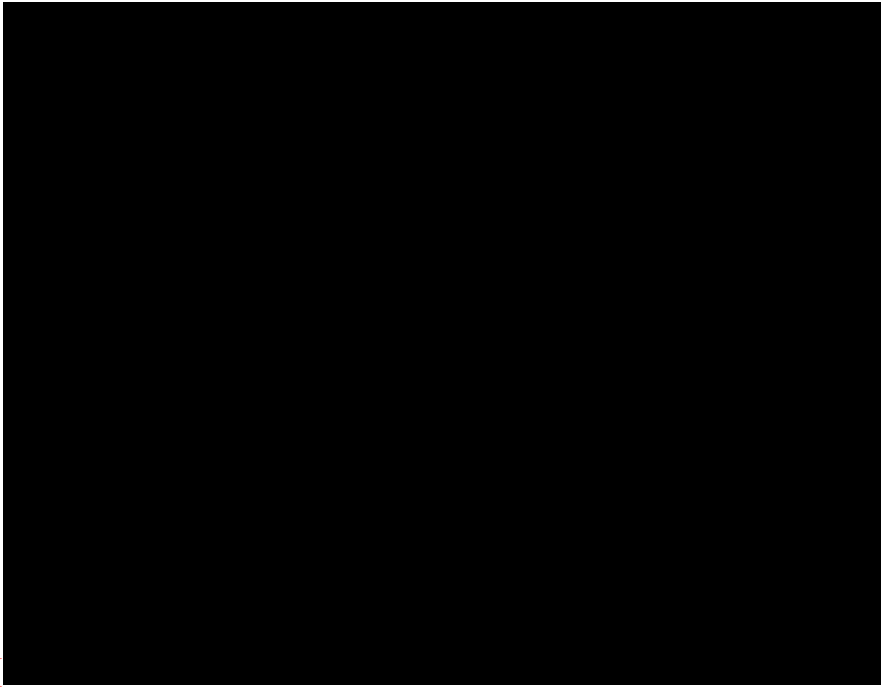
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8,627,684 Claim 1	Corning EAGLE XG Glass
	<p>Markham Figure 4 shows that the pair of rollers of the right side of the diagrams are also cantilevered and vertically downtilted, and located transversely opposite the pairs of rollers on the left side. This orientation creates cross tension in the glass sheet between the pull roll pairs.</p> <div data-bbox="898 415 1776 1101"></div> <p>Ex. 8 (Markham Decl.) at Figure 4.</p>

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<p>8,627,684 Claim 1</p>	<p>Corning EAGLE XG Glass</p>
<p>(iii) a pull roll pair disposed below the first and second stub roll pairs for drawing the first edge portion and the opposing second edge portion of the glass sheet and creating a vertical draw tension on the glass sheet between the pull roll pair and the first and second stub roll pairs;</p>	<p>EAGLE XG Glass is created using a pull roll pair disposed below the first and second stub roll pairs for drawing the first edge portion and the opposing second edge portion of the glass sheet and creating a vertical draw tension on the glass sheet between the pull roll pair and the first and second stub roll pairs. Ex. 8 (Markham Decl.) ¶¶ 9, 16, Figure 4.</p>  <p>first edge portion of glass</p> <p>FIG. 6A</p> <p>first and second stub roll pairs</p> <p>further stub roll pairs</p> <p>second edge portion of glass</p> <p>Ex. 2 ('684 patent) at Figure 6A (annotated in red).</p> <p>(continued on next page)</p>

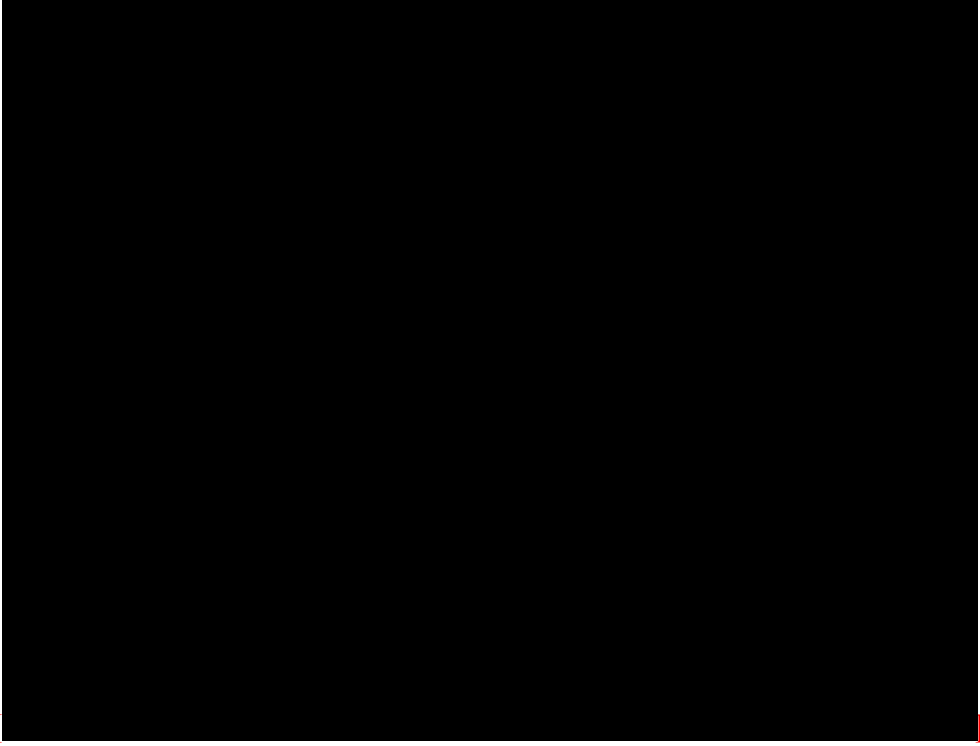
PUBLIC VERSION

8,627,684 Claim 1	Corning EAGLE XG Glass
	<p>Markham Figure 4 shows the third and fourth pull roll pairs are disposed below the first and second pull roll pairs and, in combination with the first and second pull roll pairs, create vertical tension on the glass.</p> <div data-bbox="905 383 1780 1065"></div> <p>Ex. 8 (Markham Decl.) at Figure 4.</p> <p>(continued on next page)</p>

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8,627,684 Claim 1	Corning EAGLE XG Glass
	<p data-bbox="785 250 1877 354"><i>See also</i> Ex. 8 (Markham Decl.) ¶ 67, Figure 3 (Modified). The modified version of Markham Figure 3 also shows a third and fourth pair of pull rollers located below the first two pairs of rollers, creating vertical tension.</p> <div data-bbox="806 380 1877 1029"></div> <p data-bbox="1037 1045 1646 1078">Ex. 8 (Markham Decl.) at Figure 3 (Modified).</p>
d) monitoring the torque of at least one of the pull rolls in the pull roll pair;	<p data-bbox="785 1115 1877 1187">EAGLE XG Glass is created by monitoring the torque of at least one of the pull rolls in the pull roll pair. Ex. 8 (Markham Decl.) ¶ 17, Figures 5-6.</p> <p data-bbox="785 1213 1115 1245">(continued on next page)</p>

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8,627,684 Claim 1	Corning EAGLE XG Glass
	<p data-bbox="783 248 1885 435">Markham Figures 5 and 6 are screenshots of the computerized system used to monitor torque for the roller pairs. Markham Figure 5 shows at that top that the current AWD Torque Operating Mode is set for constant velocity (“CV”) for the lower rollers and constant torque (“CT”) for the upper rollers. Markham Figure 5 also shows that one of the two Drive Mode options is Torque Mode.</p> <div data-bbox="856 456 1829 1198"></div> <p data-bbox="1115 1214 1566 1247">Ex. 8 (Markham Decl.) at Figure 5.</p> <p data-bbox="783 1279 1104 1312">(continued on next page)</p>

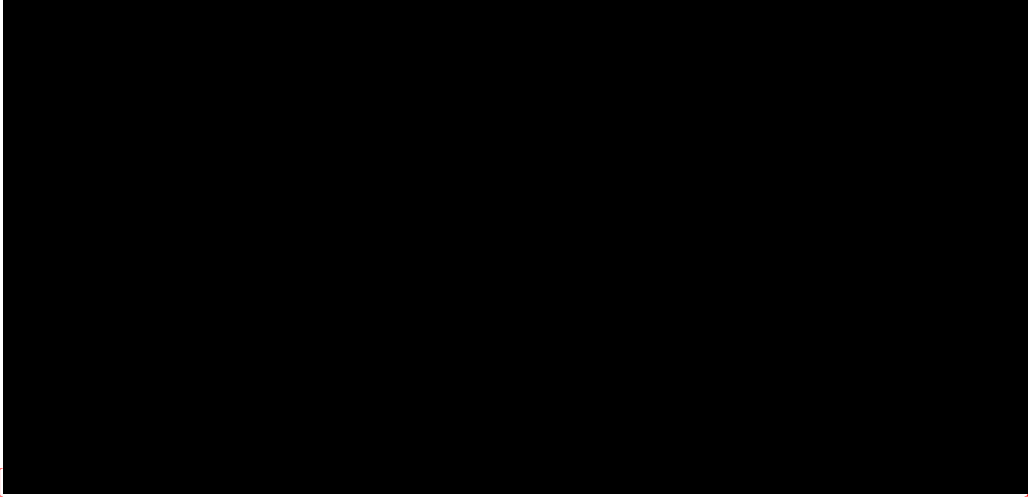
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8,627,684 Claim 1	Corning EAGLE XG Glass
	<p>Markham Figure 6 shows that when Torque Mode is selected, an input value can be entered to control the torque for the Inlet Side and Comp Side.</p> <div data-bbox="835 345 1848 841"></div> <p>Ex. 8 (Markham Decl.) at Figure 6.</p>

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8,627,684 Claim 1	Corning EAGLE XG Glass
<p>e) monitoring the torque of at least one of the stub rolls in the first stub roll pair and at least one of the stub rolls in the second stub roll pair;</p>	<p>EAGLE XG Glass is created by monitoring the torque of at least one of the stub rolls in the first stub roll pair and at least one of the stub rolls in the second stub roll pair. Ex. 8 (Markham Decl.) ¶ 18, Figures 5-6.</p> <p>Markam Figures 5 and 6 show the torque monitoring system for all of the roller pairs in the pull roll apparatus used to make EAGLE XG glass.</p> <div data-bbox="856 483 1829 1222"></div> <p>Ex. 8 (Markham Decl.) at Figure 5.</p> <p>(continued on next page)</p>

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8,627,684 Claim 1	Corning EAGLE XG Glass
	<div data-bbox="831 266 1852 760"></div> <p data-bbox="1115 776 1566 813">Ex. 8 (Markham Decl.) at Figure 6.</p>

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8,627,684 Claim 1	Corning EAGLE XG Glass
f) controlling the torque of at least one of the pull rolls in the pull roll pair; and	<p data-bbox="783 248 1885 321">EAGLE XG Glass is created by controlling the torque of at least one of the pull rolls in the pull roll pair. Ex. 8 (Markham Decl.) ¶ 19, Figures 5-6.</p> <p data-bbox="783 345 1896 418">Markham Figures 5 and 6 show that the torque of the pull rolls is controlled during the EAGLE XG manufacturing process.</p> <div data-bbox="852 443 1829 1187"></div> <p data-bbox="1115 1211 1566 1247">Ex. 8 (Markham Decl.) at Figure 5.</p> <p data-bbox="783 1271 1104 1312">(continued on next page)</p>

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8,627,684 Claim 1	Corning EAGLE XG Glass
	 <p data-bbox="1115 776 1566 813">Ex. 8 (Markham Decl.) at Figure 6.</p>
g) controlling the torque of at least one of the stub rolls in the first stub roll pair and the torque of at least one of the stub rolls in the second stub roll pair to be a predetermined percentage of the torque of the at least one pull roll.	EAGLE XG Glass is created by controlling the torque of at least one of the stub rolls in the first stub roll pair and the torque of at least one of the stub rolls in the second stub roll pair to be a predetermined percentage of the torque of the at least one pull roll. Ex. 8 (Markham Decl.) ¶ 20, Figures 5-6.