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The Precedent: Federal Circuit Affirms Nonobviousness and Upholds Damages Methodology in *Willis Electric Co. v. Polygroup Ltd.*

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In this edition of *The Precedent*, we outline the decision in *Willis Electric Co. v. Polygroup Ltd.*

Overview

In *Willis Electric Co. v. Polygroup Ltd.*, the Federal Circuit affirmed the denial of judgment as a matter of law on obviousness and denial for a new trial on damages in a dispute over pre-lit Christmas trees. The Federal Circuit upheld the district court's decision that substantial evidence supported the jury's finding that a skilled artisan would not have been motivated to modify the prior-art tree to use coaxial connectors as claimed. It also upheld the district court's decision to not grant Polygroup's motion for a new trial, arguing that the testimony from the patentee's damages expert had fatal flaws. The Federal Circuit left intact a roughly $42.5 million reasonable royalty award awarded by the district court.

Issues

1. Was Polygroup entitled to judgment as a matter of law that Willis's asserted claim would have been obvious over a prior-art tree combined with known coaxial connectors?
2. Did the district court abuse its discretion in denying Polygroup's motion for a new trial on damages?

Holdings

1. Substantial evidence supported the jury's finding that a skilled artisan would not have been motivated to replace the Loomis GKI tree's fixed-orientation connectors with coaxial connectors in the claimed way.
2. The district court did not abuse its discretion because the patentee's expert damages opinions were adequately apportioned

and tied to the evidence, and the jury's royalty award did not warrant a new trial.

Background and Reasoning

Willis's patent covers pre-lit artificial trees whose trunk sections connect mechanically and electrically in a single step and at any rotational orientation. Earlier products often required separate wiring or fixed rotational alignment. Willis's "One Plug" trees use coaxial connectors inside the trunk that automatically make an electrical connection regardless of how the sections are rotated.

The only claim at issue on appeal, claim 15, depends from claim 10 and adds that the trunk connectors "form coaxial trunk connectors." In effect, the additional contribution of claim 15 is using coaxial connectors to implement the one-step, rotation-independent connection set out in claim 10.

Polygroup's "Quick Set" trees also use an internal trunk connection system that allows single-step mechanical and electrical connection at any rotational orientation. Willis accused those trees of infringing claim 15. A jury found the claim not invalid and infringed, and awarded a per-tree reasonable royalty. Polygroup moved for judgment as a matter of law on obviousness and for a new trial on damages. The district court denied both motions. Polygroup appealed.

Obviousness

Polygroup argued that claim 15 was obvious over the prior-art Loomis GKI tree combined with well-known coaxial barrel connectors. The Loomis tree used internal wiring and plug-and-socket connectors but required aligning a notch and dimple to assemble the trunk, resulting in a fixed orientation. Coaxial connectors that allow rotation while maintaining electrical contact were known for low-voltage LED applications.

Polygroup contended that a person of ordinary skill would have been motivated simply to swap the Loomis connectors for coaxial barrel connectors to improve ease of use and support LEDs. On appeal, Polygroup argued that no reasonable jury could conclude otherwise.

The Federal Circuit applied the standard obviousness framework and focused on motivation to combine. Whether a skilled artisan would have been motivated to combine prior art references is a question of fact. As such, the court asks only whether substantial evidence supports the jury's finding.

Willis's technical expert testified that implementing Polygroup's proposed modification was not a straightforward swap. He explained that a skilled artisan would need to remove the notch-and-dimple alignment feature, eliminate the existing plug-and-socket connectors, redesign the trunk moldings to house coaxial connectors and integrate specially designed coaxial contacts. In his view, the Loomis GKI design taught improvements for fixed-orientation trees and did not point toward abandoning fixed alignment in favor of a rotation-independent design. He also testified that for LED use, a designer could choose among "nearly an infinite number" of connector types.

The Federal Circuit agreed with the district court that substantial evidence supported the jury's finding. The jury evaluated Polygroup's evidence and expert testimony regarding the motivation to combine and both parties had the opportunity to cross-examine experts and highlight any perceived flaws in the

evidence. With substantial evidence to support Willis's contention regarding a motivation to combine, the Federal Circuit affirmed the denial of judgment as a matter of law on obviousness.

Damages

The jury's damages award equated to about $4 per-accused tree. Willis's damages expert, Michele Riley, had proposed a $5 per-tree reasonable royalty. She used an income-based apportionment method and a market-based method, then selected a rate within the resulting range using the *Georgia-Pacific* factors.

Polygroup argued on appeal that Ms. Riley failed to apportion properly to the value added by claim 15 and that her reliance on certain licenses and customer data was methodologically flawed.

On apportionment, Polygroup contended that because claim 10 had been found unpatentable in an earlier *inter partes* review, Willis could not recover for the one-step, rotation-independent connection under claim 15 and that damages should be limited to the value of a coaxial connector itself. The Federal Circuit rejected this framing. The earlier *inter partes* review used a different construction standard (broadest reasonable interpretation) of claim 10 than the district court (the *Phillips* standard). Under the district court's construction, claim 10's combination of features remained part of the asserted invention of claim 15. Claim 15's incremental value was using coaxial connectors to implement that functionality. Ms. Riley testified that she was apportioning to that incremental contribution. The Federal Circuit agreed that this provided a sound legal basis for her analysis.

For her income approach, Ms. Riley compared profits on Willis's One Plug trees to similar non-One Plug trees and profits on Polygroup's Quick Set trees to Polygroup trees without Quick Set. She used Willis sales data and Polygroup quote data, adjusted for incremental costs, to calculate incremental profitability and derive a reasonable royalty range. Polygroup criticized details of these calculations, including the use of price quotes and the presence of other premium features.

The Federal Circuit upheld the district court's holding that Polygroup's criticisms went to credibility and weight of Ms. Riley's testimony, not admissibility. Ms. Riley's testimony explained how she filtered data and averaged across product lines to control for other features. The district court was aware of those choices when it admitted her testimony and allowed cross-examination to explore them. The Federal Circuit noted that district courts, under Rule 702 and *Daubert*, perform a gatekeeping function to ensure that admitted expert testimony is relevant and reliable. Here, the Federal Circuit held that the district court properly executed this function because Polygroup's criticisms went to credibility and weight of Ms. Riley's testimony, not admissibility.

For her market approach, Ms. Riley relied on several agreements, including a license to H.S. Craft that used a $2 per-tree royalty and four other agreements involving analogous tree technology that reflected a 5% royalty. She applied that 5% rate to the average tree price ($100) to suggest a reasonable royalty of $5 per tree. Polygroup argued that those licenses were not sufficiently comparable. The Federal Circuit noted that perfect comparability is not required. Ms. Riley described the differences between the licenses and explained why the economic context still made them informative. The district court allowed the jury to weigh those explanations, which the Federal Circuit found proper.

Finally, Ms. Riley used the *Georgia-Pacific* factors qualitatively to pick a rate within an already apportioned range. The Federal Circuit reiterated that reasonable royalty analysis does not demand numerical precision for each factor. Her methodology, anchored in evidence of competition between the parties, the commercial success of the patented feature and comparable licenses, was sufficiently reliable to go to the jury.

Because the jury awarded a rate slightly below Ms. Riley's proposal and well within the supported range, and because the district court did not abuse its discretion in admitting her testimony, the Federal Circuit affirmed the denial of a new trial on damages.

Takeaway

With respect to validity, this case shows that detailed evidence about design complexity and the direction of the prior art can carry the day on motivation to combine. As to damages, the decision underscores that courts will generally admit expert opinions that clearly apportion the patented contribution, are grounded in actual financial data and comparable agreements and use *Georgia-Pacific* in a transparent, fact-driven way. Challenges to data selection and license comparability are typically for the jury to resolve, not a basis for exclusion.