IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

LEADER DEVELOPMENT INDUS. CORP.,	§	
	§	
Plaintiff,	§	
	§	Case No. 2:18-CV-00254-JRG
v.	§	
	§	
INTERCROWN ENTERPRISE, LTD.,	§	
	§	
Defendant.	§	

CLAIM CONSTRUCTION OPINION AND ORDER

In this patent case, Leader Development Industrial Corp. alleges Intercrown Enterprise, Ltd., infringes certain claims of U.S. Patent 7,832,453. The parties now dispute the scope of six terms or phrases from the asserted claims, and Intercrown alleges two of the terms are indefinite. Having considered the parties' claim construction briefing and arguments of counsel during a June 24, 2019 hearing, the Court construes the disputed claim terms as follows.

I. BACKGROUND

The technology concerns window coverings, such as curtains and blinds. According to the '453 Patent, conventional bladed curtains (often commonly referred to as venetian blinds) have two adjusting mechanisms: One controls the rise of fall of the curtain, and another controls the angle of the blades once they are in the desired vertical position. But

the patent describes this use of two mechanisms as difficult to assemble and expensive. ’453 Patent at 1:20–33.

To address these disadvantages, the ’453 Patent teaches a single mechanism that controls both the vertical position of the curtain and the angle of the blades. Using a pulling string, the blades may be first raised or lowered to a desired position. *See* ’453 Patent figs. 4 & 5 (showing the blades in raised and lowered positions, respectively). After the desired position is reached, the same pulling string may be used to adjust the blade angle. *See id.* figs. 3 & 4 (showing the blades at different angles).

The key to this functionality is the use of two adjacent cylindrical elements, a “winding tube” disposed with a “rubbing wheel,” in combination with the pulling string and a suspending string. The ’453 Patent teaches an end of the pulling string connected to the bottom blade.[1] The pulling string is wound around the winding tube, with the opposing end of the string either free or connected to a winder. ’453 Patent fig.3 (showing a manual string 22); *id.* fig.4 (showing the pulling string 21 connected to a winder 2). As the string is pulled, the bottom blade changes position, either lifting or releasing the other blades as it moves up or down. Because the pulling string is wound around the winding tube, pulling the string causes the winding tube to rotate, which in turn rotates the connected rubbing wheel. And because each blade connects to a suspending string hung from the rubbing wheel, the blades rotate as well, at least until they contact one another. After the bottom blade is moved to

[1] The patent does not expressly teach that the pulling string is connected to a bottom blade, but this is inherent given the described operation of the device and the figures.

the desired position relative to the rail, the user can move the pulling string in the opposite direction to rotate and open the blades the desired amount. *See generally* ’453 Patent at 2:42–3:6 (describing operation of certain embodiments).

Claim 1 recites

> a winding tube rotatably disposed in an upper rail of a curtain having curtain blades;
>
> a rubbing wheel rotatable with the winding tube;
>
> a pulling string controlling the rise and fall of the curtain, with the pulling string having a first end and a second end, with the pulling string being wound around the winding tube such that the winding tube is intermediate the first and second ends of the pulling string, with the first and second ends of the pulling string being spaced from the winding tube, with a portion of the pulling string which is intermediate the winding tube and the second end being passed through the curtain blades, with the second end of the pulling string having different spacing from the winding tube when the pulling string is wound on the winding tube;
>
> . . . ; and
>
> a suspending string for insertion of the curtain blades, with the suspending string having a top end hung on the rubbing wheel, thereby during the rise and fall of the curtain blades, the suspending string is capable of being actuated in the rotating direction of the winding tube, allowing for adjustment of the angle of the curtain blades, with the first end of the pulling string being pulled to rotate the winding tube to control the rise and fall of the curtain and to rotate the rubbing wheel.

’453 Patent at 3:22–4:7.

II. GENERAL LEGAL STANDARDS

"[T]he claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). As such, if the parties dispute the scope of the claims, the court must determine their meaning. *See, e.g.*, *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1317 (Fed. Cir. 2007); *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), *aff'g*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc).

When construing claims, "[t]here is a heavy presumption that claim terms are to be given their ordinary and customary meaning." *Aventis Pharm. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) (citing *Phillips*, 415 F.3d at 1312–13). Courts must therefore "look to the words of the claims themselves . . . to define the scope of the patented invention." *Id.* (citations omitted). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1313. This "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.*

Intrinsic evidence is the primary resource for claim construction. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) (citing *Phillips*, 415 F.3d at 1312). For certain claim terms, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim

construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314; *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) ("We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history."). But for claim terms with less-apparent meanings, courts consider "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean . . . [including] the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Id.*

III. LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art is the level of skill of a hypothetical person who is presumed to have known the relevant art at the time of the invention. In resolving the level of ordinary skill, courts consider the types of and solutions to problems encountered in the art, the speed of innovation, the sophistication of the technology, and the education of workers active in the field. *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Importantly, "[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

Here, the parties dispute the proper level of ordinary skill in the art. Leader contends a person of ordinary skill must either (1) have at least a bachelor's degree in mechanical engineering, or (2) at least two years of experience in the design and analysis of mechanical

devices. Pl.'s Open'g Br. [Dkt. # 56] at 3–4. Intercrown responds that a person without relevant actual experience will not understand practical design considerations for window coverings, and argues that an ordinarily skilled artisan would have at least three years of experience in the design and fabrication of blinds. Def.'s Resp. Br. [Dkt. # 60] at 6. Neither party provides any underlying rationale for the level of skill it claims is correct.

The Court, however, need not resolve the level of ordinary skill to resolve the scope of the disputed terms, because there is no dispute presented by the parties that depends on which skill level is most proper. In other words, regardless of whether Leader's or Intercrown's level of ordinary skill is most proper, the outcome is the same concerning construction of the disputed terms.

IV. CONSTRUCTION OF DISPUTED TERMS

A. "curtain" (Claims 1–2, 4–7, 9, and 11)

Pl.'s Proposed Construction	Def.'s Proposed Construction
Plain and ordinary meaning; no construction necessary; not indefinite.	Indefinite. To the extent this term is construable, a type of drapery, not a venetian blind.

1. Whether the term is indefinite

"Curtain" appears prolifically throughout the claims and, more generally, the '453 Patent. *See, e.g.*, '453 Patent at (54) ("Adjusting Structure of a Curtain for Adjusting the Angle of Curtain Blade"); *id.* at 1:20–23 (describing conventional curtains as having adjustable curtain blades); *id.* at 3:22 (reciting, in the preamble of Claim 1, "[a]n adjustable

structure of a curtain"). Yet despite such prolific use of the term, Intercrown contends "curtain" is indefinite. A "curtain," says Intercrown, is "a cloth or cloth-like material that is hung from a curtain rod," whereas the figures show what an ordinarily skilled artisan would consider a venetian blind with slats. Def.'s Resp. Br. [Dkt. # 60] at 28. Intercrown thus argues the claims are indefinite and, alternatively, that "curtain" excludes a venetian blind.[2] *Id.* at 29.

But Intercrown's reasoning ignores the Federal Circuit's mandate not to read the claims in a vacuum. *See Medrad, Inc.*, 401 F.3d at 1319 ("We cannot look at the ordinary meaning of the term . . . in a vacuum."). Although "curtain" may refer, in a vacuum, to a cloth window covering without slats, there is no such vacuum here. As Intercrown acknowledges, all the figures show slats, which the patent calls "blades." Indeed, the very purpose of the patent is to provide for altering both the vertical position and angle of the blades using a single mechanism. '453 Patent at 1:31–33. Construing "curtain" as simply cloth hung on a rod would make the purpose of the patent nonsensical. Given the content of the written description and figures, "curtain" is not indefinite.

2. Claim scope

Intercrown is correct that some construction is warranted. Leader contends, without support, that the term should be given its plain and ordinary meaning, but Intercrown's extrinsic evidence shows the patent uses "curtain" more broadly. *See, e.g.*, Kollman Decl.

[2] During the hearing, however, Intercrown argued that "curtain" should be construed as a venetian blind. H'rg Tr. (June 24, 2019) [Dkt. # 73] at 9:15–16.

[Dkt. # 60-2] ¶¶ 15–16 (noting that "[a] curtain does not have slats or blades that are tiltable[,] "[a] curtain typically has curtain material that hangs from a curtain rod[,]" and that the patent illustrates a venetian blind). Here, it is enough to say that the '453 Patent uses "curtain" to mean, more generally, a "window covering." The type of window covering is then set forth by the claim limitations.

The Court therefore construes "curtain" to mean "window covering."

B. "rubbing wheel" (Claims 1, 4–7, 9, and 11)

Pl.'s Proposed Construction	Def.'s Proposed Construction
Plain and ordinary meaning; no construction necessary.	a wheel having a diameter that is larger than a diameter of the winding tube about which the suspending string is hung to obtain greater friction between the suspending string and the rubbing wheel. The rubbing wheel rubs the winding tube.

Intercrown's proposed construction for "rubbing wheel" has three components. First, Intercrown urges that the diameter of the wheel must be larger than the diameter of the winding tube. Second, Intercrown contends "rubbing wheel" must be construed such that the suspension string is hung for the purpose of obtaining greater friction. Finally, Intercrown says the rubbing wheel must rub the winding tube.

1. Whether the rubbing wheel must have a diameter larger than a diameter of the winding tube

Intercrown contends the proper scope of "rubbing wheel" requires this size relationship with the winding tube. To support that contention, Intercrown stresses that the patent teaches "*in the present invention*, the rubbing wheel is a little bigger than the winding tube." Def.'s Resp. Br. [Dkt. # 60] at 10 (quoting '453 Patent at 3:10–13 (emphasis added)). This language, says Intercrown, makes the size requirement a critical structural requirement of the rubbing wheel. *Id.* Leader responds that the claims do not require a size relationship with the other claim elements, and that the "present invention" language is referring to the specifically described embodiment. Pl.'s Reply [Dkt. # 66] at 6.

Use by the patentee of language such as "the present invention includes . . .", "the present invention is . . .", or "all embodiments of the present invention are . . ." can, but does not always, limit the scope of the claims. *See Pacing Techs., LLC v. Garmin Int'l, Inc.*, 778 F.3d 1021, 2024 (Fed. Cir. 2015); *Verizon Servs. Corp.*, 503 F.3d at 1308 ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention."). But when the intrinsic evidence does not support applying the limitation to the entire patent despite the patentee's use of such phrases, there is no limiting effect. *See Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1136–37 (Fed. Cir. 2011); *Voda v. Cordis Corp.*, 536 F.3d 1311, 1320–22 (Fed. Cir. 2008) (rejecting any limiting effect of "present invention" because the specification did not uniformly refer to the invention as being so limited and the prosecution history did not reveal such a limitation).

Here, the patentee uses "present invention" in a definitional sense. The language follows immediately after the statement that "the size of the winding tube 3 and the rubbing wheel 31 can be different" and thus modifies that statement. Although Leader argues that the applicant referred to many different embodiments as "the present invention," H'rg Tr. (June 24, 2019) [Dkt. # 73] at 55:14–57:3, the patent refers to different embodiments as being "*in accordance* with the present invention," *see, e.g.*, '453 Patent at 2:7–25 (emphasis added). This is an important distinction meaning only that the described embodiment is within the scope of the claims.

Intercrown also claims the prosecution history of related foreign applications requires this construction. *Id.* at 11–12. Specifically, the claims of those related foreign patents and applications require that the rubbing wheel's diameter is greater than the associated winding tube's diameter. *See, e.g.*, U.K. Patent GB 2 440 740 [Dkt. # 60-25] at Leader_0000667 (reciting, in Claim 1, that "the diameter of each rubbing wheel is greater than the diameter of the associated winding tube"); Australian Appl. No. AU 2006203460 82 [Dkt. # 60-26] at Leader_0000309 (same). Thus, says Intercrown, the claims of the '453 Patent must also have this feature. Def.'s Resp. Br. [Dkt. # 60] at 12.

But while "statements made before foreign patent offices are sometimes relevant to interpreting the claims," *see Starhome Gmbh v. AT&T Mobility LLC*, 743 849, 858 (Fed. Cir. 2014), Intercrown would have the Court import *amendments* made to claims in the related foreign applications. Intercrown has not cited and the Court is unaware of any authority justifying that as part of the claim construction process. The Court therefore rejects

this part of Intercrown's argument.

2. Whether a suspending string must be hung about the rubbing wheel to obtain greater friction

Intercrown proposes an intent element for the construction of "rubbing wheel." But such language departs from the notion that apparatus claims only cover structure.[3] Accordingly, the Court rejects this component of Intercrown's proposed construction.

3. Whether the rubbing wheel must "rub" the winding tube

Intercrown argues the rubbing wheel "must rub the winding tube as the name of this term implies . . . ." *Id.* at 14. To construe the term otherwise, says Intercrown, would not give effect to all the claim terms. *Id.* Leader counters that the '453 Patent does not address or discuss "rubbing" of these elements, and suggests any "rubbing" by the wheel occurs with the suspending string rather than the winding tube. Pl.'s Reply [Dkt. # 63] at 6–7 (calling Intercrown's assumption about the rubbing wheel "conjecture that could easily be explained with reference to rubbing the 'suspending string'").

There are three problems with this aspect of Intercrown's proposed construction. First, apparatus claims cover structure, not the structure's function. *See Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469 (Fed. Cir. 1990) ("[A]pparatus claims cover what a device *is*, not what a device *does*." (emphasis in original)). Here, however, Intercrown asks the Court to impose functional language where none otherwise exists.

[3] *But see, e.g.*, *Invensas Corp. v. Renesas Elecs. Corp.*, No. 11-448-GMS, 2013 WL 3753621 at *2, nn.10–12 (D. Del. July 15, 2013). In *Invensas Corp.*, the court concluded "[t]here is no rule barring a patentee from including an intent requirement in its claims," but the language at issue was functional in nature. Here, the disputed term is purely structure, and there is no reason to impose any intent element on that structure.

Second, the patent describes an alternative embodiment in which the winding tube is connected to the rubbing wheel through a gear, which cuts against Intercrown's "rubbing" requirement. '453 Patent at 3:13–16 ("[T]he direction of the rubbing wheel 31 can be reversed to that of the winding tube 3 (for example, the winding tube 3 and the rubbing wheel 31 are connected by a gear).").

Finally, even if the Court's construction were to include some functional language, "rubs" is a poor choice. To "rub" means to move surfaces against each other rather than together. *See, e.g.*, *Rub*, Webster's II New Riverside Univ. Dictionary 1023 [Dkt # 60-14] at ICN0005532 ("to cause to move along a surface with friction and pressure"); *Rub*, The American Heritage Dictionary 1075 (2d college ed. 1991) [Dkt # 60-14] at ICN0005522 (same definition); *Rub*, Webster's 3d New Int'l Dictionary (2002) [Dkt # 60-14] at ICN0005545 ("to move along the surface of a body with pressure"). The Detailed Description, however, describes that the rubbing wheel and winding tube rotate *together*—i.e., without "rubbing."

4. Construction

Having found the patentee's "present invention" statement definitional, the Court construes "rubbing wheel" to mean "a wheel that is a little bigger than the winding tube."

C. "winding tube" (Claims 1–2, 4–7, 9, and 11)

Pl.'s Proposed Construction	Def.'s Proposed Construction
Plain and ordinary meaning; no construction necessary.	a tube that is longer than the rubbing wheel and has a diameter about which the first pulling string is wound that is smaller in diameter than the diameter of the rubbing wheel about which the suspension string is hung

The parties have two disputes concerning "winding tube." First, the parties dispute whether there is a size-limiting relationship between the winding tube and the rubbing wheel—specifically, whether the winding tube must be longer and have a smaller diameter than the rubbing wheel. Second, the parties dispute whether the proper construction requires that the winding tube must have a string wound about its diameter.

1. Whether the winding tube must be longer than and have a smaller diameter than the rubbing wheel

Intercrown's arguments with respect to this proposed requirement tracks its argument for the size requirement of the winding tube. *See* Part IV.B.1 *supra*. Nothing in the patent or the prosecution history, however, suggests that the winding tube must be longer than the rubbing wheel. Moreover, because the construction of "rubbing wheel" already accounts for the required size relationship with the winding tube, the Court rejects the notion that this term needs further construction relating to the sizes of these two elements.

2. Whether the winding tube must have a string wound about its diameter

Intercrown argues that both the patent and prosecution history require this as part of the construction of "winding tube" despite the fact that Claim 1 already recites similar language. Def.'s Resp. Br. [Dkt. # 60] at 8–10. For example, Intercrown notes that the specification describes a "pulling string wound around the winding tube," Def.'s Resp. Br. [Dkt. # 60] at 8 (citing the abstract), and that "[a] pulling string 21 is wound around the winding tube." *Id.* (citing '453 Patent at 2:33–34).

But Claim 1 already recites this structure, and Intercrown does not explain why it should also be included in the construction of this term. Intercrown says its proposed construction is consistent with the specification and prosecution history, but consistency is not by itself a reason to construe claim language. Ultimately, the Court finds no reason to incorporate that requirement into the meaning of "winding tube" when Claim 1 recites similar language elsewhere.

3. Construction

The Court construes "winding tube" to have its plain and ordinary meaning.

D. "the pulling string being wound around the winding tube such that . . . the second end of the pulling string having different spacing from the winding tube when the pulling string is wound on the winding tube" (Claim 1)

Pl.'s Proposed Construction	Def.'s Proposed Construction
Plain and ordinary meaning; no construction necessary.	The pulling string must be wound on the winding tube so the winding tube is spaced from and between the opposite ends of the pulling string. The pulling string is wound around the winding tube so that more of the pulling string is wound onto the winding tube as the curtain is raised.

1. Whether the disputed phrase requires that the pulling string must be wound on the winding tube so the winding tube is spaced from and between the opposite ends of the pulling string

Claim 1 already requires that "the pulling string hav[e] a first end and a second end, with the pulling string being wound around the winding tube such that the winding tube is intermediate the first and second ends." '453 Patent at 3:27–30. While there are differences between this language and the first sentence of Intercrown's proposed construction (e.g., "wound around" versus "wound on," first and second ends versus "opposite ends," "intermediate" versus "spaced from and between"), they convey the same meaning. Therefore, the Court need not change the claim language. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and *when necessary* to explain what the patentee

covered by the claims . . . . It is not an obligatory exercise in redundancy.").

2. Whether the pulling string is wound around the winding tube so that more of the pulling string is wound onto the winding tube as the curtain is raised

With the second sentence of its proposed construction, Intercrown suggests that the winding tube gathers up the pulling string, like a fishing rod reeling in fishing line. Intercrown acknowledges the figures don't show this, H'rg Tr. (June 24, 2019) [Dkt. # 73] at 22:1–23:1, but relies on its expert's declaration about the plain and ordinary meaning of winding tube for this interpretation, *id.* at 23:1–11. Intercrown also contends the prosecution history supports this part of its construction, claiming the patentee made this distinction relative to the prior art and that the examiner interpreted the claims this way in the Notice of Allowance. Def.'s Resp. Br. [Dkt. # 60] at 8–10.

But contrary to Intercrown's assertions, the patentee did *not* argue that the pulling string accumulates on the winding tube, or anything resembling that. Rather, the patentee argued:

- "[C]laim 1 has been amended to more clearly define that the winding tube and rubbing wheel are rotated by pulling on the pulling string." Prosecution History Pt. I [Dkt. # 60-22] at Leader_0000071.
- "[Chen] provides no teaching or suggestion that pulling the string could also rotate a wheel for adjusting the angle of the curtain blades. . . ." Prosecution History Pt. II [Dkt. # 60-23] at Leader_0000110.
- "[T]he recited guide 7 which is not taught or suggested by Chen allows the winding wheel 3 to be generally parallel to the pulling string 21 as it leaves the winder 2 so that the rubbing wheel 31 can be orientated parallel to suspending string 5." *Id.* at Leader_000110–111.

- "[Ipekgil's] guides . . . are not located intermediate the winding tube and the first end of the pulling string . . . and thus is not within the recitations of claim 1." Prosecution History Pt. III [Dkt. # 60-24] at Leader_0000141.

None of this compels a conclusion that the claims require the winding tube to gather up the pulling string.

Nor is Intercrown's expert's opinion helpful given that the device could not work in the manner taught by the patent if the pulling string were to accumulate on the winding tube. The winding tube would have to rotate at an angular velocity greater than the corresponding linear velocity with which the user pulls the end of the pulling string. Given that movement of the pulling string drives rotation of the winding tube—not the other way around—the second sentence of the Intercrown's construction cannot be an accurate interpretation of the phrase.

Intercrown also contends that the patentee's failure to respond to the examiner's Reasons for Allowance means the patentee acquiesced to the examiner's interpretation of the claims. Def.'s Resp. Br. [Dkt. # 60] at 8–10. But an applicant's silence in response to the examiner's Reasons of Allowance is not a clear disavowal of claim scope. *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1348 (Fed. Cir. 2005); *accord Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 978–79 (Fed. Cir. 1999) (finding disavowal based on the written description and the applicant's statements during prosecution when the applicant did not respond to the examiner's Statement of Reasons for Allowance).[4]

[4] Even if the examiner's reasons for allowance might somehow be limiting, the Court does not find that the examiner's "360 degrees" statement requires the pulling string to accumulate on the winding tube. The best

3. Construction

Because the Court rejects both aspects of Intercrown's proposed construction, the Court construes the term "the pulling string being wound around the winding tube such that . . . the second end of the pulling string having different spacing from the winding tube when the pulling string is wound on the winding tube" to have its plain and ordinary meaning.

E. "pulling string being directed by the guide generally tangentially onto the winding tube" (Claim 1)

Pl.'s Proposed Construction	Def.'s Proposed Construction
Plain and ordinary meaning; no construction necessary; not indefinite.	Indefinite. To the extent this term can be construed, it requires the guide to be positioned below and to the side of the winding tube between a winder and the winding tube to direct the pulling string to pass along the winding tube at an angle as shown in Fig. 7.

In addition to requiring a winding tube and a pulling string, Claim 1 requires "a guide abutting the pulling string spaced from and intermediate the winding tube and the

explanation of the examiner's statement, considering the specification, is that the pulling string is directed vertically upward by the guide on one side of the winding tube and then vertically downward on the opposing side before extending through the blades. In contrast, Chen's pulling string is generally horizontal before contacting the winding tube and then extends vertically downward through the blades. *See* U.S. Patent 7,168,476 fig.1. Thus, Chen's pulling string only extends 270 degrees around the winding tube before extending through the blades.

first end of the pulling string, with the pulling string being directed by the guide *generally tangentially* onto the winding tube." '453 Patent at 3:38–41 (emphasis added). The parties' dispute centers on the clarity and scope of "generally tangentially," a phrase that otherwise appears only once in the patent. *See id.* at 2:47–50 ("As shown in FIG. 7, the pulling string 21 extending from the winder 2 is directed by a guide 7 *generally tangentially* onto the winding tube 3." (emphasis added)); *see also id.* fig.7 (showing a profile view of the pulling string at an angle from straight down).

Intercrown has two complaints about this phrase. First, Intercrown complains it is indefinite. Second, if the language is not indefinite, Intercrown says the language must be construed to limit the position of the guide and the angle of the pulling string relative to the winding tube's axis to that shown in Figure 7.

1. Whether the phrase is indefinite

When filed, the underlying application did not recite a "guide" or describe the relationship between the pulling string and the winding tube. *See generally* Prosecution History Pt. I [Dkt. # 60-22] at Leader_0000001–22. During prosecution, however, the applicant amended the specification and claims to recite the guide and refer to the orientation between the pulling string and the guide as "generally radially." Prosecution History Pt. II [Dkt. # 60-23] at Leader_0000107–108. But the patent examiner rejected the amendments as not supported by the written description. *Id.* at Leader_0000120. In response, the applicant amended the language to replace "radially" with "tangentially," which overcame the rejection. Prosecution History Pt. III [Dkt. # 60-24] at Leader_0000136–137.

"[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). The claims "must be precise enough to afford clear notice of what is claimed," but that consideration must be made while accounting for the inherent limitations of language. *Id.*

Terms of degree are not inherently indefinite. *See Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). To the contrary, "[a]s long as claim terms [afford clear notice of what is claimed], relative terms and words of degree do not render patent claims invalid." *One-E-Way, Inc. v. I.T.C.*, 859 F.3d 1059, 1063 (Fed. Cir. 2017). But ultimately there must be some standard for measuring the term of degree. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015).

Here, Intercrown asserts the '453 Patent provides no standard against which to measure how far the pulling string can be moved from the position shown in Figure 7 while remaining within the scope of the claims. Def.'s Resp. Br. [Dkt. # 60] at 18. Leader responds that words like "generally" and "substantially" are acceptable, commonly used terms to avoid a strict numerical boundary for a limitation. Pl.'s Reply [Dkt. # 63] at 8. Leader urges that a person of ordinary skill "would recognize that the angle between the front and back portions of the pulling string allows the pulling string to be efficiently directed by the guide onto the winding tube, while not interfering with the back portion of the pulling string." Pl.'s Open'g Br. [Dkt. # 56] at 12 (citing Pratt Decl. [Dkt. # 56-2] ¶¶ 35–

36, 42).

To resolve the parties' dispute, the Court must first consider the meaning of "tangentially" as used in the patent. Intercrown recognizes that "tangentially" means "merely touching or slightly connected" and that a tangent "touches but does not intersect," but Intercrown contends these meanings do not apply to the patent's subject matter. Def.'s Resp. Br. [Dkt. # 60] at 18. Leader, through its expert, contends "tangentially" means the portion of the pulling string between the guide and the point of contact with the winding tube is within a plane that is normal to the rotational axis of the winding tube. *See, e.g.*, Pratt Decl. [Dkt. # 56-2] ¶¶ 36–37. Leader further contends that "generally tangentially" includes tangentially and any other way the pulling string smoothly contacts the winding tube's curved surface. *Id.* ¶ 38. The parties agree, however, that "tangentially" does not mean "radially."[5] Def.'s Resp. Br. [Dkt. # 60] at 19–20; Pl.'s Reply [Dkt. # 63] at 9.

In geometry, a line may be tangential to a circle, in which case it intersects the circle at a point. Here, considering the winding tube as a cylinder with a circular cross-section and the portion of the pulling string between the winding tube and the guide as a line

[5] During the hearing, Defendant suggested that the examiner rejected "generally radially" under § 112 because the figures showed the pulling string at a slight angle from vertical. *See, e.g.*, Hr'g Tr. (June 24, 2019) [Dkt. # 73] at 79:18–81:10 (asserting "the radius direction -- is clearly the up and down or vertical direction, which is not shown here. . . . [I]t's pretty much acknowledged that there's some slight angle."); *id.* at 82 ("So generally radially would encompass that slight variation which they said isn't covered by . . . Figure 7."); *id.* at 89–90 ("the radius runs perfectly vertically. So it's from the center of the tube to the very bottom of the tube . . . in a straight line. . . . [T]he string here is directed to the circumference. It isn't directed to the radius. It isn't directed up and down. It's at this slight angle."). But "radially" in the context of the '453 Patent means from the center of the winding tube in *any* direction—not just "up and down"—within a plane normal to the rotational axis of the tube. In the Court's view, the examiner properly rejected the use of "radially" under § 112 because the figures do not show the pulling string intersecting the center of the tube.

segment, "tangentially" means that, during the winding, the portion of the pulling string between the guide and the winding tube occupies a reference plane intersecting the winding tube and to which the winding tube's rotational axis is normal—i.e., in the figures, a vertical plane. More simply, the pulling string is directed onto the winding tube in line with the rotational direction of the tube.

The harder question is the impact of "generally" on the word "tangentially." When a "word of degree" is used, the court must determine whether the patent provides "some standard for measuring that degree." *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010). If such a standard is not expressly provided, that standard might be found in the function associated with the limitation. *See, e.g.*, *Exmark Mfg. Co. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1346 (Fed. Cir. 2018) (concluding the disputed phrase was not indefinite because a skilled artisan would understand the scope of the phrase considering the function of the limitation in question). Alternatively, the patent can include enough examples to inform a skilled artisan about the scope of the language. *Enzo Biochem*, 599 F.3d at 1335 (noting that if the intrinsic evidence provides "a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine [claim scope], the claims are not indefinite"). Regardless of the method used, the question is whether an ordinarily skilled artisan would understand the claim scope considering the specification. *Seattle Box Co., Inc. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984).

Here, Intercrown presents evidence that the applicable meaning of "generally" is

"for the most part" and "in disregard of particular instances and details." *See, e.g.*, *Generally*, Webster's II New Riverside Univ. Dictionary 524 [Dkt # 60-18] at ICN0005529; *Generally*, The American Heritage Dictionary 552 (2d college ed. 1991) [Dkt # 60-18] at ICN0005519 (same definition). Intercrown also contends the level of ordinary skill requires at least some actual experience in the design and fabrication of window coverings. Def.'s Resp. Br. [Dkt. # 60] at 6–7. The Court concludes that such an artisan would understand that "generally tangentially" simply means, for the most part, in line with the rotational direction of the winding tube and simply envisions some deviation from exactly tangential.[6]

2. Claim scope

The Court rejects Intercrown's proposed construction for two reasons. First, having resolved the meaning of "generally tangentially," the Court need not limit the scope of the phrase to exactly what is shown in Figure 7, and it is not necessary to impose further positional limitations on the guide. The claim language only limits the position of the guide as abutting the pulling string and intermediate to the winding tube and the first end of the pulling string.

Second, contrary to Intercrown's proposed construction, the guide does not require using a winder. In fact, the claims suggest otherwise. Claim 1 recites the guide without specifying the use of a winder or a manual string. Claim 2 depends from Claim 1 and recites a winder. '453 Patent at 4:8–12. And Claim 3 depends from Claim 1 and recites that the

[6] The Court would reach the same conclusion under Leader's proposed level of ordinary skill.

pulling string is a manual string. *Id.* at 4:13–14. This creates a presumption that Claim 1 does not include a winder, which contravenes Intercrown's construction. *See Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006) ("'[C]laim differentiation' refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim.").

3. Construction

For these reasons, the Court rejects Intercrown's construction and construes "pulling string being directed by the guide generally tangentially onto the winding tube" to mean "pulling string being directed by the guide generally in line with the rotational direction of the winding tube."

F. "the first end of the pulling string being pulled to rotate the winding tube to control the rise and fall of the curtain and to rotate the rubbing wheel" (Claim 1)

Pl.'s Proposed Construction	Def.'s Proposed Construction
Plain and ordinary meaning; no construction necessary.	The first end of the pulling string must be pulled to control the rise of the curtain and also must be pulled to control the fall of the curtain. The rubbing wheel must rotate when the winding tube rotates due to the pulling on the first end of the pulling string.

The parties dispute two issues concerning this phrase. First, the parties dispute whether rotation of the winding tube can only be caused by pulling the first end of the

pulling string. Second, they dispute whether the rubbing wheel must rotate when the winding tube rotates and, by extension, when the first end of the string is pulled.

1. Whether rotation of the winding tube can only be caused by pulling the first end of the pulling string

Intercrown asks the Court to clarify that the first end of the pulling string is pulled to rotate the winding tube to control the rise and fall of the curtain. Def.'s Resp. Br. [Dkt. #60] at 27. Leader replies that there is no reason to depart from the claim language. Pl.'s Reply [Dkt. # 63] at 10.

While the Detailed Description describes the pulling string, only the claims reference a "first end." Specifically, Claim 1 recites

> a pulling string . . . having a *first end* and a second end, with the pulling string being wound around the winding tube such that *the winding tube is intermediate the first and second ends of the pulling string, with the first and second ends of the pulling string being spaced from the winding tube* . . . .

'453 Patent at 3:26–37 (emphasis added). Based on this language, the pulling string has a terminal first end *and* a portion between the first end and the winding tube. This means the winding tube may rotate when any part of the pulling string between the first end and the winding tube is pulled. Rather than requiring the first end to be pulled to control the curtain's position, the disputed phrase recites the *result* of changing the position of the first end of the pulling string during normal operation: the rise and fall of the curtain. But because pulling *any* portion of the pulling string between the first end and the winding tube causes the same result, Intercrown's proposed construction is too narrow.

2. Whether the rubbing wheel must rotate when the winding tube rotates due to pulling the first end of the pulling string

Leader claims there is no reason to depart from the claim language, which recites "the first end of the pulling string being pulled . . . to rotate the rubbing wheel." Nothing in the written description contradicts this claim language or suggests a different result. *See, e.g.*, '453 Patent at 2:44–47 ("The winding tube will be rotated by pulling the pulling string 21."); *id.* at 3:7–8 ("Since the rubbing wheel 31 rotates along with the winding tube 3 . . . ."). In fact, Leader agrees that the rubbing wheel must rotate when the winding tube rotates. Def.'s Reply [Dkt. # 63] at 7 ("[T]he patent discloses a structure where the rubbing wheel and winding tube are contiguous and rotate together.").

3. Construction

This phrase describes the result of pulling the first end of the pulling string. The Court construes "the first end of the pulling string being pulled to rotate the winding tube to control the rise and fall of the curtain and to rotate the rubbing wheel" to mean "the first end of the pulling string being pulled to rotate the winding tube, which controls the rise and fall of the curtain, and rotates the rubbing wheel." For clarity, pulling the first end of the string in the same direction does not cause both the rise and fall of the curtain.

V. THE EFFECT OF PLAINTIFF'S ALLEGED ACQUIESCENCE

Intercrown argues that Leader's acquiescence prior to this lawsuit prevents Leader from challenging Intercrown's proposed constructions. Specifically, Intercrown alleges that, in responding to a 2014 letter from Leader claiming infringement, Intercrown

explained its noninfringement position, which was based on similar (if not identical) positions now taken during claim construction. In an April 2015 letter, Leader disagreed with Intercrown's noninfringement position, and Intercrown again responded. After that second response, the parties did not communicate further about infringement until this lawsuit. Intercrown alleges this constitutes acquiescence by Leader to Intercrown's 2015 claim construction positions and that Leader disavowed claim scope regarding "generally tangentially." *See generally* Def.'s Br. [Dkt. # 60] at 29–30.

But Intercrown provides no authority for the proposition that acquiescence applies to a litigation opponent's claim construction positions. Rather, Intercrown cites *Aspex Eyewear, Inc. v. Clariti Eyewear, Inc.*, 605 F.3d 1305 (Fed. Cir. 2010), in which the appellate court affirmed a summary judgment that the plaintiff was equitably estopped from pursuing its infringement claim. The case did not concern claim construction. Without some authority supporting the application of acquiescence to claim construction, the Court must reject this argument.

VI. CONCLUSION

The Court adopts the constructions above for the disputed terms of the Asserted Patents. The Court **ORDERS** each party not to refer, directly or indirectly, to its own or any other party's claim construction positions in the presence of the jury. Likewise, the Court **ORDERS** the parties to refrain from mentioning any part of this opinion, other than the actual positions adopted by the Court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the positions adopted by

the Court.

SIGNED this 26th day of July, 2019.

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE