UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF INDIANA
INDIANAPOLIS DIVISION

| | | |
|---|---|---|
| BONUTTI RESEARCH, INC., JOINT ACTIVE SYSTEMS, INC., Plaintiffs, | ) | 1:14-cv-00609-SEB-MJD |
| vs. | ) | |
| LANTZ MEDICAL, INC., Defendant. | ) | |

**ORDER ON CLAIM CONSTRUCTION**

This matter comes before the Court for construction of certain patent terms relevant to the underlying infringement action. Plaintiffs Bonutti Research, Inc. and Joint Active Systems, Inc. (collectively, "Plaintiffs") and Lantz Medical, Inc. ("Defendant"), each present their respective proposed constructions for eighteen disputed terms found in five of Plaintiffs' patents relating to orthoses for increasing the range of motion of various joints in the human body. We conducted a *Markman* hearing on July 8, 2015, at which the parties presented oral arguments as to the disputed terms. Having considered those presentations as well as the parties' briefings, we now enter the following factual and legal findings relating to the construction of the disputed patent terms.

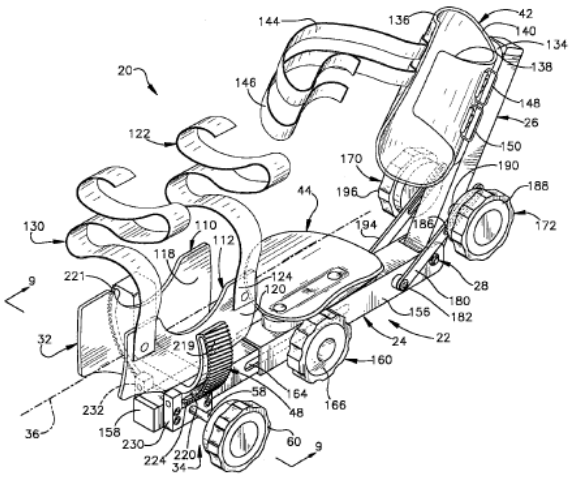
**Factual Background**

This patent infringement suit concerns the following five patents, all issued between 1998 and 2014 and all generally directed to orthoses for increasing the range of motion of joints in the human body: United States Patent No. 5,848, 979 ("the '979

patent"), issued by the United States Patent and Trademark Office ("PTO") on December 15, 1998; United States Patent No. 7,955,286 ("the '286 patent"), issued by the PTO on June 7, 2011; United States Patent No. 7,404,804 ("the '804 patent"), issued by the PTO on July 29, 2008; United States Patent No. 7,112,179 ("the '179 patent"), issued on September 26, 2006; and United States Patent No. 8,784,343 ("the '343 patent"), issued on July 22, 2014.

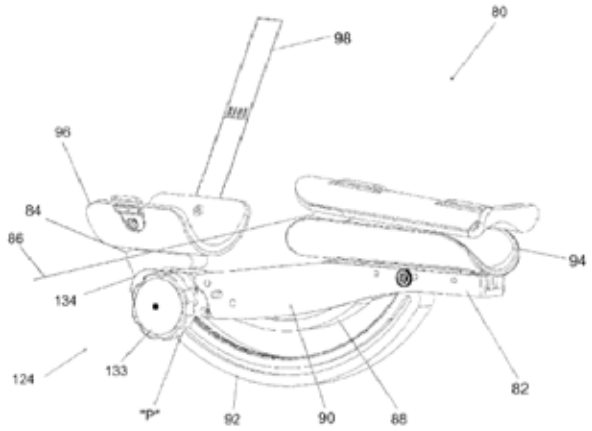
Connective tissues surrounding a joint, such as joint capsules, tendons, ligaments, skin, and adhesions, can shorten in response to trauma, including surgery, disease, and prolonged immobilization, which typically results in a decreased range of motion of the affected joint. The orthoses referenced in the patents at issue in this litigation stretch and lengthen these shortened tissues in order to increase the range of motion of various joints, including, *inter alia,* in the elbow, wrist, and fingers.

The '979 patent covers apparatuses for use in effecting relative movement between the bones in the arm of a patient. An orthosis constructed in accordance with the '979 patent is illustrated below:

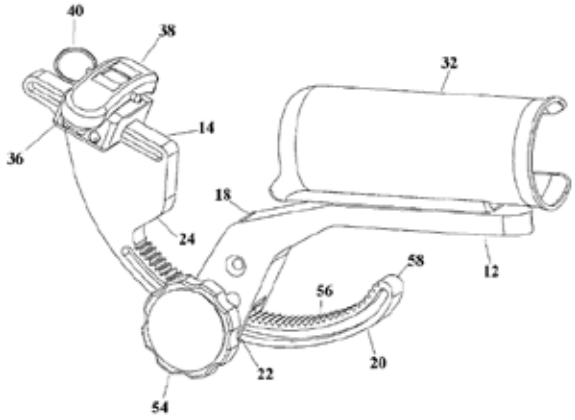


The ‘286 and the ‘179 patents generally cover apparatuses for stretching tissue around a joint of a patient between the first and second relatively pivotable body portions. Embodiments of the ‘286 patent and the ‘179 patent are illustrated below:

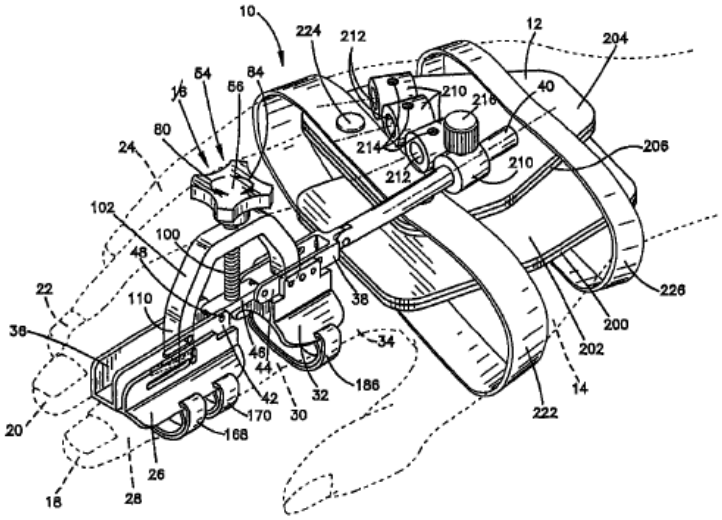
The ‘286 Patent



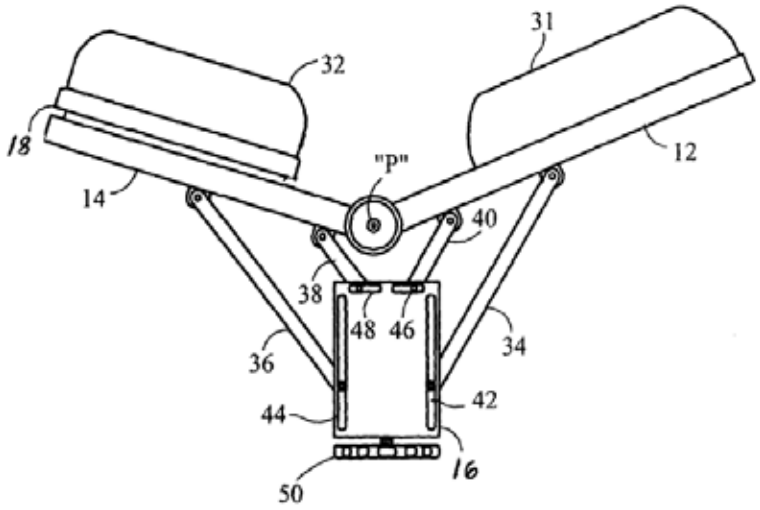

The ‘179 Patent




The ‘804 patent generally covers apparatuses for positioning a joint in a finger on the hand of a patient. An illustration of an orthosis constructed in accordance with the ‘804 patent is pictured below:



The ‘343 patent generally covers apparatuses for increasing the range of motion of a tissue in the body of a patient. One embodiment of the invention is illustrated below:




Plaintiff Bonutti is the owner by assignment of all five patents at issue in this litigation, and Plaintiff JAS is the exclusive licensee of the patents-in-suit. Among the products that JAS has developed and markets are the following products covered by the patents-in-suit, including the JAS Pro/Sup, JAS EZ Pro/Sup, JAS EZ Elbow, JAS EZ Wrist, JAS EZ Knee-Ext, JAS EZ Knee-Flex, and JAS EZ Finger products.

Defendant Lantz manufactures and sells, among other products, the Stat-A-Dyne® ESP, Stat-A-Dyne® Pro/Sup, Stat-A-Dyne® Elbow, Stat-A-Dyne® Knee, and Stat-A-Dyne® WHFO products, all of which are described as tissue elongation devices. Plaintiffs have brought this action against Lantz alleging that Lantz’s State-A-Dyne® line of products infringes upon the five named patents. The specific claims asserted in this litigation and the corresponding accused products from the Stat-A-Dyne® line are as follows:

| Patent Number | Asserted Claims | Accused Product(s) |
|---|---|---|
| '979 patent | 28, 29, 34, 37 | ESP; PRO/SUP |
| | 44, 45, 48, 52, 53, 56, 57, 63, 97, 98, 102, 106, 125, 126, 128 | ESP |
| '286 patent | 26, 27, 28, 29, 30, 31, 33 | ESP; ELBOW; KNEE |
| '804 patent | 1 | WHFO |
| '179 patent | 26 | ESP; PRO/SUP; ELBOW; WHFO |
| '343 patent | 1, 2, 3, 4 | ESP; PRO/SUP; ELBOW; KNEE; WHFO |

Plaintiffs filed this action against Defendant on April 18, 2014. As noted above, the Court held a *Markman* hearing on July 8, 2015, at which the parties presented oral argument as to the disputed terms at issue in this litigation.

## Claims in Dispute

The parties dispute the meaning of various claims within the five patents. The relevant claims are excerpted below, with the disputed terms highlighted.

### A. The '979 Patent

**Claim 28:**

> An apparatus for use in effecting relative movement between bones in an arm of a patient, said apparatus comprising a ***base***, first cuff means for gripping a wrist portion of the arm of a patient, second cuff means for gripping an upper portion of the arm of the patient, said second cuff means is connected with said ***base***, and ***drive means*** connected with said ***base*** and said first cuff means for rotating said first cuff means relative to said ***base*** about an axis which extends along the lower portion of the arm of the patient, said ***drive means*** includes ***a main gear which is connected with said first cuff means and is rotable with said first cuff means relative to said base*** and a second gear which is disposed in meshing engagement with said main gear, said ***second gear is at least partially disposed in a recess in said base***.

**Claim 34:**

An apparatus for use in effecting relative movement between bones in an arm of a patient, said apparatus comprising a ***base***, first cuff means for gripping a wrist portion of the arm of a patient, second cuff means for gripping an upper portion of the arm of the patient, said cuff means is connected with said ***base***, and ***drive means*** connected with said ***base*** and said first cuff means for rotating said first cuff means relative to said ***base*** about an axis which extends along the lower portion of the arm of the patient, said first cuff means having first and second end portions which are disposed at spaced apart locations along the axis which extends along the lower portion of the arm of the patient, said ***drive means*** includes a main gear which is connected to said first cuff means at a location between said first and second end portions of said first cuff means and a second gear which is rotatably mounted on said ***base*** and is disposed in meshing engagement with said main gear.

**Claim 37:**

An apparatus as set forth in claim **34** wherein said second gear is a worm which is mounted on said ***base*** and is rotatable relative to said ***base*** about an axis which extends transverse to the axis which extends along the lower portion of the patient's arm, said worm is rotatable relative to said ***base*** to rotate said first cuff means and said main gear relative to said ***base***.

**Claim 44:**

An apparatus for use in effective relative movement between bones in an arm of a patient, said apparatus comprising a ***base***, first cuff means for gripping a wrist portion of the arm of a patient, second cuff means for gripping an upper portion of the arm of the patient, said second cuff means is connected with said ***base***, and ***drive means*** connected with said ***base*** and said first cuff means for rotating said first cuff means relative to said ***base*** about an axis which extends along the lower portion of the arm of the patient, said ***base*** includes a lower cuff arm which is connected with said ***drive means*** and said first cuff means, an upper cuff arm which is connected with said second cuff means, and a pivot connection which extends through and interconnects end portions of said lower and upper cuff arms, said lower cuff arm having a longitudinal axis which extends generally parallel to an axis about which said first cuff means is rotated by said ***drive means***, said upper cuff arm having a longitudinal axis which intersects the longitudinal axis of said lower cuff arm at said pivot connection.

**Claim 45:**

An apparatus as set forth in claim **44** wherein said first cuff means grips distal end portions of ulna and radius bones in the arm of the patient, said ***drive means*** includes a gear which is rotatable relative to said ***base*** to rotate said first cuff means and the distal end portions of the ulna and radius bones in the arm of the patient together about the axis which extends along the lower portion of the arm of the patient.

**Claim 48:**

An apparatus as set forth in claim **44** wherein said ***drive mean***s includes a main gear and a worm which is connected with said ***base*** and is disposed in meshing engagement with said main gear, said mean gear is connected with said first cuff means, said worm is rotatable relative to said ***base*** to rotate said main gear relative to said ***base*** about the axis which extends along the lower portion of the arm of the patient.

**Claim 52:**

An apparatus as set forth in claim **44** wherein said ***drive means*** includes a main gear which is connected with said first cuff means and a worm which is disposed in meshing engagement with said main gear, said worm is mounted on said lower cuff arm and is rotatable about an axis which extends perpendicular to the longitudinal axis of said lower cuff arm.

**Claim 53:**

An apparatus as set forth in claim **44** wherein said ***drive means*** includes a main gear which is connected with said first cuff means and is rotatably mounted on said lower cuff arm, said main gear is rotatable with said first cuff means relative to said lower cuff arm about the axis which extends along the arm of the patient, said ***drive means*** further includes a worm which is disposed in meshing engagement with said main gear and is rotatably mounted on said lower cuff arm, said worm is rotatable about an axis which extends perpendicular to the axis about which said main gear is rotatable.

**Claim 56:**

An apparatus for use in rotating a first portion of a patient's body relative to a second portion of the patient's body which is connected with the first

portion of the patient's body by a joint, said apparatus comprising a ***base***, a first cuff to grip the first portion of the patient's body, a second cuff to grip the second portion of the patient's body, said second cuff is connected with said ***base***, and ***gear means*** connected with said first cuff and said ***base*** for rotating said first cuff about an axis which extends through the first portion of the patient's body and through the joint interconnecting the first and second portions of the patient's body, said ***gear means*** includes a worm which is rotatably mounted on said ***base*** for rotation about an axis which extends transverse to the axis which extends through the first portion of the patient's body, and a main gear disposed in meshing engagement with said worm and connected with said first cuff, said worm is rotatable relative to said ***base*** to rotate said main gear and said first cuff relative to said base about the axis which extends through the first portion of the patient[']s body, said ***base*** includes a first section which is connected with said ***gear means*** and said first cuff, a second section which is connected with said second cuff, and connector means which interconnects said first and second sections of said ***base*** and enables relative movement to occur between said first and second sections of said ***base*** about an axis which extends transverse to the axis about which said first cuff is rotated by said ***gear means***.

**Claim 57:**

An apparatus set forth in claim **56** further including ***drive means*** connected with said first and second sections of said ***base*** for moving said first and second sections of said ***base*** about an axis extending through said connector means to bend the joint which is connected with the first and second portions of the patient's body.

**Claim 63:**

An apparatus as set forth in claim **56** further including ***drive means*** connected with said first and second sections of said ***base*** for effecting relative movement between said first and second sections of said ***base*** to bend the joint which is connected with the first and second portions of the patient's body about an axis which extends transverse to the axis about which said first cuff is rotated by said ***gear means***.

**Claim 97:**

An apparatus for use in effecting relative movement between bones in an arm of a patient, said apparatus comprising a ***base***, first cuff means for gripping a wrist portion of the arm of a patient, second cuff means for

gripping an upper portion of the arm of the patient, said second cuff means is connected with said ***base***, and ***drive means*** connected with said ***base*** and said first cuff means for rotating said first cuff means relative to said ***base*** about an axis which extends along the lower portion of the arm of the patient, said ***base*** includes a lower cuff arm which is connected with said ***drive means*** and said first cuff means, an upper cuff arm which is connected with said second cuff means, and a pivot connection which interconnects end portions of said lower and upper cuff arms, said lower cuff arm includes a first section which is connected with said ***drive means*** and said first cuff means and a second section which is connected with said pivot connection, said first and second sections of said lower cuff arm are disposed in a telescopic relationship, said first and second sections of said lower cuff arm are extendable to decrease the telescopic relationship between said first and second sections of said lower cuff arm and to move said ***drive means*** and said first cuff means away from said pivot connection, said first and second sections of said lower cuff arm are retractable to increase the telescopic relationship between said first and second sections of said lower cuff arm and to move said ***drive means*** and said first cuff means toward said pivot connection, said lower cuff arm has a longitudinal axis which extends generally parallel to the axis about which said first cuff means is rotated by said ***drive means***, said upper cuff arm having a longitudinal axis which intersects the longitudinal axis of said lower cuff arm at said pivot connection.

**Claim 98:**

An apparatus as set forth in claim **97** wherein said first cuff means grips distal end portions of ulna and radius bones in the arm of the patient, said ***drive means*** includes a gear which is rotatable relative to said ***base*** to rotate said first cuff means and the distal end portions of the ulna and radius bones in the arm of the patient together about the axis which extends along the lower portion of the arm of the patient.

**Claim 102:**

An apparatus as set forth in claim **97** wherein said ***drive means*** includes a main gear and a worm which is connected with said first section of said ***base*** and is disposed in meshing engagement with said main gear, said main gear is connected with said first cuff means, said worm is rotatable relative to said ***base*** to rotate said main gear relative to said ***base*** about the axis which extends along a lower portion of the arm of the patient.

**Claim 106:**

An apparatus as set forth in claim **97** wherein said ***drive means*** includes a main gear which is connected with said first cuff means and a worm which is disposed in meshing engagement with said main gear.

**Claim 125:**

An apparatus for use in effecting relative movement between bones in an arm of a patient, said apparatus comprising a ***base***, first cuff means for gripping a wrist portion of the arm of a patient, second cuff means for gripping an upper portion of the arm of the patient, said second cuff means is connected with said ***base***, and ***drive means*** connected with said ***base*** and said first cuff means for rotating said first cuff means relative to said ***base*** about an axis which extends along the lower portion of the arm of the patient, said ***base*** includes a lower cuff arm which is connected with said ***drive means*** and said first cuff means, an upper cuff arm which is connected with said second cuff means, and a pivot connection which interconnects end portions of said lower and upper cuff arms, said lower cuff arm includes a first section which is connected with said ***drive means*** and said first cuff means and a second section which is connected with said pivot connection, said first and second sections of said lower cuff arm are disposed in a telescopic relationship, said first and second sections of said lower cuff arm are extendable to decrease the telescopic relationship between said first and second sections of said lower cuff arm and to move said ***drive means*** and said first cuff means away from said pivot connection, said first and second sections of said lower cuff arm are retractable to increase the telescopic relationship between said first and second sections of said lower cuff arm and to move said ***drive means*** and said first cuff means toward said pivot connection, said lower and upper cuff arms are pivotal relative to each other at said pivot connection about a pivot axis which extends transverse to the axis which extends along the lower portion of the arm of the patient, said ***drive means*** includes a main gear which is connected with said first cuff means and a worm which is disposed in meshing engagement with said main gear, said worm is rotatable about an axis which extends parallel to said pivot axis.

**Claim 126:**

An apparatus as set forth in claim **125** further including second ***drive means*** connected with said ***base*** and operable to effect pivotal movement of said lower and upper cuff arms relative to each other about the pivot axis which extends transverse to the axis which extends along the arm of the patient.

## B. The ‘179 Patent

**Claim 26:**

An orthosis for stretching tissue around a joint of a patient between first and second relatively pivotable body portions, comprising:

a first arm member affixable to the first body portion and including a ***first extension member*** extending therefrom;

a second arm member affixable to the second body portion and including a ***second extension member having an arcuate shape extending therefrom***, the second extension member is operatively connected to the first extension member and ***travels along an arcuate path through the first extension member*** when the second arm member is moved from a first position to a second position relative to the first arm member; and

a hand pad attached to the second arm member, wherein the hand pad is slidably mounted to the second arm member.

## C. The ‘804 Patent

**Claim 1:**

A finger orthosis for positioning a joint in a finger on a hand of a patient, the finger orthosis comprising:

a hand cuff positionable on the hand of the patient; and

a ***bending mechanism removably attachable to the finger*** and selectively attachable to the hand cuff, and including first and second bending portions and a force transmitting mechanism connected to and interposed between the first and second bending portions.

## D. The ‘286 Patent

**Claim 26:**

An orthosis for stretching tissue around a joint of a patient connecting a first body portion and a second body portion, the orthosis comprising:

***a first arm member for coupling to the first body portion and defining a curved path***;

a second arm member for coupling to the second body portion and ***operatively coupled*** to the first arm member, the second arm member ***movable along the curved path***, to rotate the second portion about an axis of rotation of the joint; and

an extension member movably coupled to the first arm member, wherein the extension member is configured to at least one of increase and decrease a range of motion of the orthosis.

**Claim 27:**

An orthosis in accordance with claim **26** wherein at least a portion of the ***curved path*** includes an arcuate path.

**Claim 28:**

An orthosis in accordance with claim **26** wherein a first end of the second arm member is selectively movable along the curved path to rotate the second body portion about the axis of rotation of the joint.

**Claim 30:**

An orthosis in accordance with claim **26** further comprising a drive assembly operatively coupled to the second arm member.

**Claim 31:**

An orthosis in accordance with claim **30** wherein the drive assembly comprises a gear rotatably mounted on the first arm member.

**E. The ‘343 Patent**

**Claim 1:**

A device for increasing the range of motion of a tissue in a body of a patient, the device comprising:

a first cuff configured to couple to a first body portion;

a second cuff configured to couple to a second body portion;

a drive assembly operatively connected to the first and second cuffs and operable to drive movement of the second cuff with respect to the first cuff to adjust a position of the second cuff relative to the first cuff;

a first arm member operatively connecting the first cuff to the drive assembly;

a second arm member operatively connecting the second cuff to the drive assembly, the second arm member movable with respect to the first arm member in response to the operation of the drive assembly to adjust a position of the second arm member relative to the first arm member;

a force element operatively connected to the second arm member, the force element comprising a spring configured to apply a spring force to the second arm member to urge movement of the second arm member relative to the first arm member; and

a ***lockout element*** having a locking position and configured to selectively inhibit the spring from urging movement of the second arm member relative to the first arm member when in the locking position;

wherein the drive assembly is configured to selectively operate to drive movement of the second arm member with respect to the first arm member independent of the spring when the ***lockout element*** is in the locking position.

## Legal Analysis

### I. Standard for Claim Construction

Before addressing the merits of a patent infringement suit, the district court is required to decide any outstanding issues of claim construction as a matter of law. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 384–386 (1996); *Vederi, LLC v. Google, Inc.*, 744 F.3d 1376, 1382 (Fed. Cir. 2014). As the scope of a claim "is

necessarily determined by the language of the claim, claim construction analysis must begin with these words." *Dow Agrosciences LLC v. Crompton Corp.*, 381 F. Supp. 2d 826, 831 (S.D. Ind. 2005). Absent an express intent otherwise, a claim term is to be given "the ordinary and customary 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 v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005).

The most important tools at the court's disposal in determining the ordinary and customary meaning of disputed terms constitute the intrinsic evidence—the claims themselves, the specification, and the prosecution history. *Dow Agrosciences*, 381 F. Supp. 2d at 831. Extrinsic evidence, such as dictionaries and treatises, may also be used to construe the claim=s meaning, but such evidence is afforded less legal significance than that from intrinsic sources. *See C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004). In short, as the Federal Circuit emphasized in *Phillips*:

> Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent=s description of the invention will be, in the end, the correct construction.

415 F.3d at 1316 (quoting *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)).

In some cases, 35 U.S.C. § 112, ¶ 6, authorizes patentees to draft claim terms "as a means or step for performing a specified function without the recital of structure,

material, or acts in support thereof." 35 U.S.C. § 112, ¶ 6. Such terms are called "means-plus-function" terms and are "construed to cover only 'the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.'" *Media Rights Techs., Inc. v. Capital One Fin. Group*, 800 F.3d 1366, 1371 (Fed. Cir. 2015) (quoting *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347-48 (Fed. Cir. 2015)). "Means-plus-function claiming is permitted because it is often much easier and more straightforward to claim a means for doing something rather than listing all the possible ways of accomplishing the task." *MyMedicalRecords, Inc. v. Walgreen Co.*, Nos. 2:13-cv-00631-ODW(SHx), 2:13-cv-07285-ODW(SHx), 2:13-cv-02538-ODW(SHx), 2:13-cv-03560-ODW(SHx), 2014 WL 4367949, at *4 (C.D. Cal. Sept. 3, 2014). However, while means-plus-function claiming "makes it easier to satisfy the statutory requirement of 'particularly pointing out and distinctly claiming the subject matter' of the claims, 35 U.S.C. § 112, ¶ 2, it increases the vulnerability of the claims to possible invalidity on other grounds." *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316 n.11 (Fed. Cir. 2011). For example, if a court determines that § 112, ¶ 6 applies and is "unable to identify any 'corresponding structure, material, or acts described in the specification,' the claim is indefinite." *Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1097 (Fed. Cir. 2014) (quoting *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012)).

Here, the parties dispute whether a number of the terms at issue are means-plus-function terms. "It is well-settled that a claim limitation that actually uses the word

'means' invokes a rebuttable presumption that § 112, ¶ 6 applies." *Appex v. Raritan Computer, Inc.*, 325 F.3d 1364, 1371 (Fed. Cir. 2003) (quotation omitted). Claim terms that do not use the word "means" on the other hand "will trigger the rebuttable presumption that § 112, ¶ 6 does not apply." *Id.* at 1371 (quotation omitted). But the Federal Circuit recently directed that in determining whether a particular term is a means-plus-function term subject to § 112, ¶ 6, "the essential inquiry is not merely the presence or absence of the word 'means' but whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *Williamson*, 792 F.3d at 1348. "When a claim term lacks the word 'means,' the presumption can be overcome and § 112, ¶ 6 will apply if the challenger demonstrates that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" *Id.* at 1349 (quoting *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed. Cir. 2000)). In the case of claims that use the word "means," courts "have been consistent in looking to the meaning of the language of the limitation in assessing whether the presumption is overcome." 792 F.3d at 1348.

Construction of a means-plus-function element requires a two-step analysis. First, the court must identify the claimed function, and second, the court must "determine what structure, if any, disclosed in the specification corresponds to the claimed function." *Cardiac Pacemakers, Inc. v. St. Judge Med., Inc.*, 296 F.3d 1106, 1113 (Fed. Cir. 2002). "Structure disclosed in the specification qualifies as 'corresponding structure' if the

intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Williamson*, 792 F.3d at 1352 (citations omitted). If the claim language identifies multiple functions, "the patentee must disclose adequate corresponding structure to perform all of the claimed functions." *Id.* at 1351-52.

## II. Claim Construction

### A. The '979 Patent

As noted above, the '979 patent generally covers apparatuses for use in effecting relative movement between the bones in the arm of a patient. The parties dispute the meaning of the following five claim terms within the '979 patent: (1) base; (2) drive means; (3) gear means; (4) a main gear which is connected with said first cuff means and is rotatable with said first cuff means relative to said base; and (5) second gear is at least partially disposed in a recess in said base. We address each of these claim terms below.

#### 1. "base"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| base | a bottom support; that on which a thing stands or rests; the point of attachment | a unique, discreet member from which other parts extend |

The term "base" appears in the following asserted claims: 28, 34, 37, 44, 45, 48, 56, 57, 63, 97, 98, 102, 125, and 126. Plaintiffs argue that the term "base" does not require construction, but if the Court determines otherwise, the term should be given its plain and ordinary meaning, to wit, "a bottom support; that on which a thing stands or

rests; the point of attachment." Dkt. 77 at 25. Defendant argues "base" should be construed as "a unique, discrete member from which other parts extend" because "the remaining elements of the claims require a physical structure from which other elements of the device are dependent for the device as a whole to function." Dkt. 78 at 5. Defendant contends that the words "unique and discreet" are necessary because "[i]f one cannot identify the base, because the base is not unique and discrete, you cannot identify anything else in the claim." *Id.*

Our review of the claim language persuades us that the '979 patent uses the term "base" according to its plain lay meaning. The claim language itself adequately describes the base such that it is readily identifiable without additional construction. Moreover, the patent specification includes a discussion of the base and nowhere does it provide a special definition for the term or include the limitation that it be a "unique, discrete member." It is well-established that "[i]t is improper to add extraneous limitations to a claim, that is, limitations added wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim." *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948 (Fed. Cir. 1993) (internal quotation marks and citation omitted). Because the meaning of the term "base" is made sufficiently clear in the claim language itself, we find that the term needs no further construction.

### 2. "drive means"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "drive means" | a mechanism designed or constructed to transfer power/energy from one part to another | a worm gear in meshed engagement to a "u"-shaped, non-circular, reciprocating gear having an opening and with a force inducing element attached to one of the gears |

The term "drive means" appears in claims 28, 34, 44, 45, 48, 52, 53, 57, 63, 97, 98, 102, 106, 125, and 126 of the '979 patent. We address first whether "drive means" is a means-plus-function limitation; Defendant posits that it is and Plaintiffs contend it is not. As discussed above, use of the word "means" in the claim language creates a presumption that § 112, ¶ 6 applies. *Appex*, 325 F.3d at 1371. However, "[i]f, in addition to the word 'means' and the functional language, the claim recites sufficient structure for performing the described functions in their entirety, the presumption of § 112, ¶ 6 is overcome – the limitation is not a means-plus-function limitation." *TriMed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259 (Fed. Cir. 2008) (citations omitted). "Sufficient structure exists when the claim language specifies the exact structure that performs the functions in question without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure." *Id.* at 1259-60 (citations omitted).

Here, there are two different "drive means" identified in the claims at issue. The function of the first drive means is to rotate the first cuff relative to the base. *E.g.*, '979 Patent, col. 18, ll. 12-15. The function of the second drive means is "to effect pivotal

movement of the lower and upper cuff arms relative to each other about the pivot axis which extends transverse to the axis which extends along the arm of the patient" (*i.e.*, to effect bending of the arm at the elbow). '979 Patent, col. 34, ll. 15-19. Thus, we next address the first and second drive means.

The asserted claims recite varying levels of structure for the first drive means, with certain claims (claims 44, 57, 63, 97, and 125) reciting only that the first "drive means" is connected with the base and first cuff means, which is clearly insufficient function to perform the recited function. The claims that provide the most detailed recitation of structure (claims 28, 34, 37, 48, 52, 53, 97, and 106) disclose that the first "drive means" includes two gears: "a main gear" that is connected with the first cuff means and "a second gear" or "a worm" which "is disposed in meshing engagement with said main gear." *E.g.*, '979 Patent, col. 18, ll.15-20; col. 20, ll. 41-43. It is undisputed that these are structural limitations. Accordingly, to determine whether the presumption that the first "drive means" is a means-plus-function limitation is rebutted here (at least as to the more detailed claims), we must decide whether that structure is sufficient to perform the recited function of the first drive means, to wit, rotate the first cuff means.

Plaintiff's expert, Dr. Marta Villarraga, testified by deposition that because the second gear, or worm, is in meshed engagement with the main gear, when the second gear or worm is turned, it will turn the main gear, which, in turn, rotates the first cuff. However, Dr. Villarraga further testified that the structure of the drive means which "will initiate the movement" of the gears is not described in the claim language. Without some

structure to start the movement of the second gear or worm gear, neither gear will turn on its own, meaning that the two gears alone are insufficient structure to rotate the first cuff.

Because the claim language fails to provide sufficient structure to perform the function of the first drive means in its entirety, Plaintiffs have failed to rebut the presumption that "drive means" is a means-plus-function limitation. Therefore, we turn to the specification to determine the corresponding structure for the first drive means, which is found in the embodiment depicted in Figure 9. In accordance with Figure 9 of the '979 Patent, the first "drive means" is construed to include: a main gear **48**, a worm or drive gear **56** (FIG. 9) that is disposed in meshing engagement with the main gear **48**, a shaft **58**, and a manually rotatable knob **60**. '979 Patent, col. 3, ll. 31-38.

With regard to the second drive means, the claim language recites no structure at all to perform the recited function, to wit, bending the arm at the elbow. Accordingly, the presumption that the second drive means is a means-plus-function limitation is not overcome, and we therefore turn to the specification to identify the corresponding structure to perform the function. "When multiple embodiments in the specification correspond to the claimed function, proper application of §112, ¶ 6 generally reads the claim element to embrace each of those embodiments." *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258-59 (Fed. Cir. 1999). Here, the specification discloses alternative embodiments of the invention with different types of second drive means. Therefore, the second drive means is construed to include the corresponding structure in both embodiments. First, in accordance with Figure 11 of the '979 Patent, the second drive means is construed to include: a main drive gear **302**, a shaft **304**, a rack

gear **308** that is disposed in meshing engagement with the drive gear **302**, and a rotable knob connected with the drive gear **302** through the shaft **304**. Patent '979, col. 12, ll. 30-39.

Alternatively, the second drive means is construed in accordance with Figure 12 of the '979 Patent to include: an externally threaded member or screw **330**, a housing **332**, pivot connections **334** and **336**, a manually rotable knob **340**, an actuator member block **344** with internal thread convolutions, and drive links **348** and **350**. Patent '979, col. 13, ll. 33-59.

### 3. "gear means"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "gear means" | one or more toothed or cogged elements | an open gear with an arcuate array of teeth forming a portion of a circle |

The disputed term "gear means" appears in independent claim 56 and dependent claim 63 of the '979 patent. The parties disagree regarding whether "gear means' is a means-plus-function limitation. Because the term contains the word "means," there is a rebuttable presumption that § 112, ¶ 6 applies. We find that the presumption is overcome here because the claim language itself defines the term and recites sufficient structure to perform the recited function, to wit, rotating the first cuff, therefore removing the term from the ambit of § 112, ¶ 6.

First, we note that, as the court recognized in *Williamson*, "the presence of modifiers" in the claim language can impart "structural significance." 792 F.3d at 1351.

Here, the prefix "gear" itself connotes structure. *See* MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 519 (11th ed. 2003) (defining gear in part as "a toothed wheel"). The claim language further defines gear means with structural terms, providing: "said gear means includes *a* worm which is rotatably mounted on said base for rotation about an axis which extends transverse to the axis which extends through the first portion of the patient's body, and a main gear disposed in meshing engagement with said worm and connected with said first cuff, said worm is rotatable relative to said base to rotate said main gear and said first cuff relative to said base about the axis which extends through the first portion of the patient[']s body …." '979 Patent, col. 21, ll. 50-58.

Plaintiff's expert, Dr. Villarraga, testified that because the two gears are enmeshed, when the worm gear is rotated, it will rotate the main gear, which will rotate the first cuff. Dr. Villarraga further testified that one of ordinary skill in the art would understand a worm gear to have a longitudinal shaft that is turned to initiate the movement. Accordingly, we find that the claim language recites sufficient structure to perform the function of rotating the first cuff. The detailed recitation of structure in the claim language, which includes both its location and operation for performing the recited function, removes this limitation from the purview of § 112, ¶ 6.[1] *See TI Grp. Auto. Sys. (N. Am.), Inc. v. VDO N. Am., LLC*, 375 F.3d 1126, 1135 (Fed. Cir. 2004); *Allen Engineering Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1348 (Fed. Cir. 2002). Because

[1] We also note that Defendant's construction of "gear means" is incomplete. It describes only an embodiment of the "main gear" disclosed in the '979 Patent and does not include "a worm," despite the plain language of claim 56 providing that the gear means is comprised of both a main gear and a worm.

the claim language itself is sufficiently clear, no additional construction of the term "gear means" is necessary.

#### 4. "a main gear which is connected with said first cuff means and is rotatable with said first cuff means relative to said base"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "a main gear which is connected with said first cuff means and is rotatable with said first cuff means relative to said base" | a main gear which is united, joined, or linked with said first cuff means and is rotatable with said first cuff means relative to said base | the first cuff means extends through the main gear, which is connected to the first cuff and is rotatable with the first cuff relative to the base |

This term appears in claim 28 of the '979 patent. Defendant argues that Plaintiffs' definition attempts to reclaim subject matter explicitly disclaimed by the patentee during the patent prosecution process. Specifically, Defendant argues that during prosecution of the '979 patent, "patentee limited the 'main gear' to an 'open gear' in order to achieve patentability and now wants to ignore its disclaimer of subject matter." Dkt. 91 at 9. Without further explanation, Defendant asserts that the term must therefore be construed to require the first cuff means to "extend through" the main gear. Even assuming that the patentee did in fact limit the "main gear" to an "open gear," as Defendant contends, Defendant has failed to articulate a reason explaining why that limitation in turn requires that the first cuff means must extend through the main gear.

The claim language itself makes no reference to whether the first cuff means must "extend through" the main gear. Moreover, Defendant's proposed instruction contradicts the written description of the '979 patent, which states only that "[t]he lower cuff *may*

extend through an opening in the main gear." '979 patent, col. 14, lines 17-20. The written description further explains that while "[i]n the illustrated embodiment of the invention, the lower cuff extends through a central opening in the main gear ..., if desired, the main gear could be connected with one end portion of the lower cuff so that the lower cuff *does not* extend through the main gear." '979 patent, col. 3, lines 21-25 (emphasis added).

Defendant's argument is premised on a statement made during prosecution regarding then-pending claim 86, which issued as claim 1 of the '979 patent, providing: "the gear has an opening which extends through a peripheral portion of the gear…." Dkt. 78-5 at 142. However, as Plaintiff argues, claim 1 is not asserted in this litigation and similar claim language does not appear in the claims that are asserted here. Under the doctrine of claim differentiation, it is presumed "that each claim in a patent has a different scope." *AllVoice Computing PLC v. Nuance Commc'n, Inc.*, 504 F.3d 1236, 1248 (Fed. Cir. 2007). For these reasons, we adopt Plaintiff's proposed construction of the term.

**5. "second gear is at least partially disposed in a recess in said base"**

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "second gear is at least partially disposed in a recess in said base" | at least a portion of the second gear is in a recess in the base | requires that the drive gear is at least partly contained within the base of the device |

This claim language appears in claim 28 of the '979 patent. It is not clear to us what the relevant distinction is between Plaintiffs' and Defendant's proposed constructions. The parties do not dispute that the term "second gear is at least partially disposed in a recess in said base" requires that the second gear be at least partly contained or housed in a recess and that that recess be located in the base of the device. Because the claim language itself is clear as to these two requirements, the term requires no additional construction.

### B. The '179 Patent

The '179 patent generally covers apparatuses for stretching tissue around a joint of a patient between first and second relatively pivotable body portions. The parties dispute the meaning of the following five claim terms within the '179 patent: (1) first extension member; (2) second extension member having an arcuate shape extending therefrom; (3) arcuate shape; (4) arcuate path; and (5) travels along an arcuate path through the first extension member. All of the disputed claim terms appear in claim 26 of the '179 patent.

#### 1. "first extension member"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "first extension member" | a part that extends, or extends from, the first arm member | a physical member that extends directly from the first arm member at an angle other than 180 degrees as measured within a plan perpendicular to the axis of rotation of the joint |

Plaintiffs contend that the term "first extension member" should be given its plain and ordinary meaning, to wit, "a part that extends, or extends from, the first arm member." Defendant argues that Plaintiffs' proposed definition improperly "ignores the special definition given to the term in the specification." Dkt. 91 at 10. Specifically, Defendant argues that the specification distinguishes between an extension member with a flat angle and an extension member with a non-flat angle, "stat[ing] specifically that the first extension member must extend at a non-flat angle." *Id.* (citing the '179 Patent, col. 3, ll. 11-23).

We have carefully reviewed the specification and nowhere does it "state specifically" that the first extension member cannot extend at a 180-degree angle. It is true that the specification provides that the first extension member "extends at angle α from the first arm member." '179 Patent, col. 3, ll. 11-13. However, the specification does not require that the angle be something "other than 180 degrees" as Defendant proposes. Nor has Defendant adduced any evidence to establish that the term "angle α" necessarily excludes a 180-degree angle or that the device would not function in the intended manner if the first extension member extended at a flat angle.

Defendant contends that the first arm member and the first extension member would be indistinguishable if the first extension member extended at a 180-degree angle from the first arm member. We agree that if the specification required that the first extension member and the first arm member be connected as one molded piece, it could be difficult to distinguish between the two parts when connected at a flat angle. However, as shown in Figures 4 and 5, the '179 patent specification discloses embodiments of the

invention that include "a pivotal connection **26**" which "permits the angle α between the first extension member **18** and the first arm member **12** to be selectively increased and decreased, increasing and decreasing the range of motion." '179 Patent, col. 3, ll. 63-67.

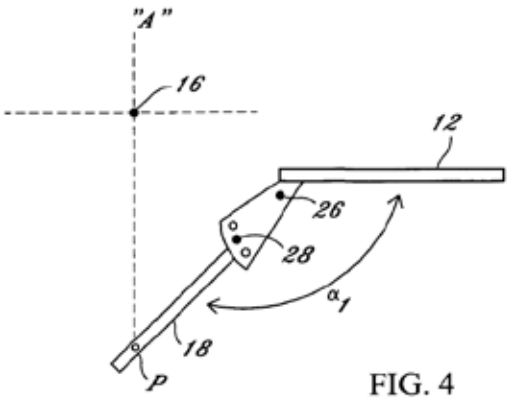


FIG. 4

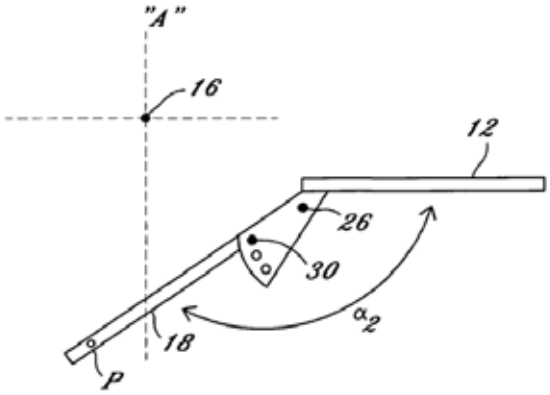


FIG. 5

As these diagrams depict, were the first extension member **18** to be extended to a 180-degree angle (which nothing in the claim language or specification prevents), there would still remain a clear distinction between the first arm member and the first extension member.

For these reasons, we see no justification for limiting the definition of "first extension member" as Defendant proposes. Because Plaintiffs' proposed construction is supported by the intrinsic evidence, we adopt their construction and define "first extension member" as "a part that extends or extends from the first arm member."

**2. "second extension member having an arcuate shape extending therefrom"**

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "second extension member having an arcuate shape extending therefrom" | a part that extends, or extends from, the second arm member, at least a portion of which is curved like a bow or circle | a non-circular, non-linear structure that extends outwardly from an arm member |

The primary disagreement between the parties as to the meaning of this term is with regard to the proper definition of "arcuate shape." Plaintiffs argue that if any definition is required, it should be given its plain and ordinary meaning, to wit, "a part that extends, or extends from, the second arm member, *at least a portion of which is curved like a bow or circle*." (emphasis added). Defendant, however, argues that Plaintiff's definition contradicts the specification, which Defendant represents "specifically states that the second extension member must be 'non-circular.'" Dkt. 91 at 11. Accordingly, Defendant argues that the term should be construed as "*a non-circular, non-linear structure* that extends outwardly from an arm member." (emphasis added).

The specification does discuss an embodiment of the invention that includes a "non-circular arcuate shaped second extension member," ('179 Patent, col. 9, ll. 56-57), illustrated below:

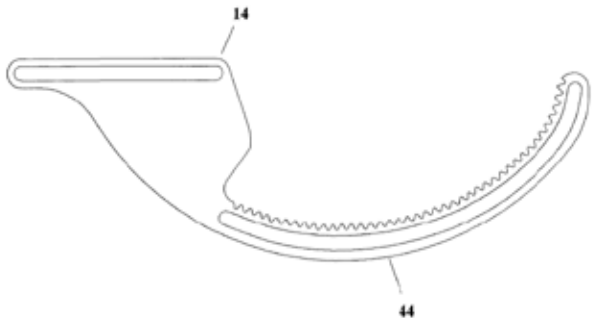



FIG. 10

However, the specification does not, as Defendant asserts, specifically require that the second extension member be "non-circular." Rather, the specification discloses multiple embodiments, including one described as having a second extension member with a "substantially circular arcuate shape." '179 Patent, col. 9, ll. 51-52. Defendant has failed to establish that the specification disavows the "substantially circular embodiment" or otherwise limits the scope of the claim to a "non-circular" embodiment. We agree with Defendant, however, that Plaintiffs' proposed construction does not completely align with the specification either as it describes an arcuate shape as "curved like a bow *or circle*," and, as noted above, the specification includes an embodiment of a "non-circular" arcuate-shaped second extension member. For these reasons, we are not persuaded that either side's proposed construction appropriately defines the term.

It is well-established that courts should look first to the intrinsic evidence of the record when construing disputed claim terms. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). However, where, as here, there is no indication that the patentee intended the term to be defined in a manner distinguishable from its plain and ordinary meaning, the Federal Circuit has recognized that dictionaries can be "valuable resources to assist in determining the ordinary meaning of claim language." *Intex Recreation Corp. v. Metalast, S.A. Sociedad Unipersonal*, 245 F. Supp. 2d 65, 69 (Fed. Cir. 2003). Accordingly, in construing the term "arcuate shape" as it is used in the '179 patent, we rely on the following two dictionary definitions of the word "arcuate": (1) "arched or curved; bow-shaped," MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND

TECHNICAL TERMS 133 (6th Ed. 2003); and (2) "curved like a bow," RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY 72 (1995).

Upon review of both the intrinsic and extrinsic evidence in the record, we therefore hold that the construction for the term "second extension member having an arcuate shape extending therefrom" that best aligns with the evidence before us is: "a part that extends from the second arm member, at least a portion of which is shaped or curved like an arc or bow."

**3. "arcuate shape"**

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "arcuate shape" | curved like a bow or circle | a non-circular, non-linear element having a defined first end and a defined second end |

Because there is no indication that the patentee intended "arcuate shape" to have different meanings throughout the patent, we construe the term in the same manner as above, to wit: "shaped or curved like an arc or bow."

**4. "arcuate path"**

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "arcuate path" | a bow or circular shaped path | a path defined by an arcuate shape as defined herein |

Based on the parties' respective proposed constructions of the term "arcuate path," it is clear that they intend for "arcuate" to be defined consistently throughout the patent.

Accordingly, we construe "arcuate path" to mean "a path shaped or curved like an arc or bow."

### 5. "travels along an arcuate path through the first extension member"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "travels along an arcuate path through the first extension member" | travels along a bow or circular shaped path and passes through the first extension member | the first extension member travels into one side of the second extension member into an opening or channel and out of the other side |

The parties' definitions of the term "travels along an arcuate path through the first extension member" differ with regard to the proper construction of "arcuate path" as well as the meaning of "through the first extension member." For the reasons detailed above, we construe the first part of the term, to wit, "travels along an arcuate path" to mean "travels along a path shaped or curved like an arc or bow."

Defendant argues that a person of ordinary skill in the art would construe the second part of the term – "through the first extension member" – to mean that "the first extension member travels into one side of the second extension member into an opening or channel and out the other side" as shown in Figure 9 of the '179 Patent. Plaintiffs maintain that "through" is not a technical term and does not require construction. According to Defendant, Plaintiffs "ignore[] the meaning of the word 'through' by not defining it at all" and "ignore the importance of [through] to the claimed invention, which is to hold the device together and to achieve the desired translational motion." Dkt. 78 at 19.

We disagree with Defendant. Defendant's only support for its contention is the conclusory opinion of its expert, Renee Rogge, Ph.D., which is not tied in any way to the intrinsic record. *See SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1210 (Fed. Cir. 2013) (giving no weight to expert opinion that is "conclusory and incomplete" and lacking "any substantive explanation tied to the intrinsic record"). Nothing in the specification or intrinsic evidence supports limiting the definition of "through" to the specific embodiment shown in Figure 9 of the '179 Patent nor is there any indication that the word is a technical term having a special meaning in the art of orthoses that requires construction beyond its readily understood plain and ordinary meaning.

For these reasons, the term "travels along an arcuate path through the first extension member" is construed to mean: "travels along a path shaped or curved like an arc or bow and passes through the first extension member."

### C. The '804 Patent

The '804 patent generally covers apparatuses for positioning a joint in a finger on the hand of a patient. The parties dispute the meaning of two claim terms within the '804 patent: (1) bending mechanism; and (2) removably attachable to the finger. Both of these disputed claim terms appear in claim 1 of the '804 patent.

#### 1. "bending mechanism"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "bending mechanism" | an assembly of parts designed or constructed to bend a finger | requiring a screw functionally attached to a frame having a link system with a pair of pivotable arms that are forced to move inwardly or outwardly as the screw is adjusted |

The term "bending mechanism" is used in claim 1 of the '804 patent, which provides in relevant part as follows: "a bending mechanism removably attachable to the finger and selectively attachable to the hand cuff, and including first and second bending portions and a force transmitting mechanism connected to and interposed between the first and second bending portions." '804 Patent, col. 9, ll. 5-9. Initially, we note that there is no function explicitly recited in claim 1. Rather, claim 1 merely recites where the bending mechanism is to be attached and its structural components, namely, first and second bending portions and a force transmitting mechanism. Despite the fact that claim 1 is not written in the classic § 112, ¶ 6 format, Defendant contends that "bending mechanism" is nonetheless a means-plus-function limitation that falls within the purview of § 112, ¶ 6 because the name itself discloses a function, to wit, "bending," and yet claim 1 fails to reference "any structure whatsoever." Dkt. 91 at 14. We disagree.

We recognize that the Federal Circuit recently observed in *Williamson* that a patentee's use of certain nonce words, including, "mechanism," is often tantamount to using the word "means," and therefore may invoke § 112, ¶ 6. 792 F.3d at 1350. However, we find that the term "bending mechanism" nonetheless does not fall within

the purview of § 112, ¶ 6 here because no function is identified in the claim and to the extent we conclude the function is "bending," the claim language recites sufficiently definite structure to render § 112, ¶ 6 inapplicable, as claim 1 of the '804 patent describes both the structural components of the bending mechanism as well as the manner in which the parts are connected. Specifically, claim 1 provides that the bending mechanism includes: "first and second bending portions" and "a force transmitting mechanism" that is "connected to and interposed between the first and second bending portions."[2] Accordingly, the claim language itself defines the term with sufficient structure to remove it from the ambit of § 112, ¶ 6 and we do not believe it requires further construction.

**2. "removably attachable to the finger"**

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "removably attachable to the finger" | capable of being attached to the finger in a way that it can be removed | a device capable of being directly and exclusively attached to a finger in a way that can be removed |

The claim term "removably attachable to the finger" appears in claim 1 of the '804 patent, which provides in relevant part: "a bending mechanism removably attachable to the finger and selectively attachable to the hand cuff…." '804 Patent, col. 9, ll. 5-6. Plaintiffs contend that the term should be construed to mean "capable of being attached to the finger in a way that it can be removed." Dkt. 77 at 22. Defendant concedes that a

[2] Defendant's own expert conceded that the first and second bending portions and the force transmitting mechanism are "structural limitations." Dkt. 78-7 at ¶ 44.

person of ordinary skill in the art would construe the term as Plaintiff has proposed and also agrees that this construction is supported by the specification, but argues that the prosecution history of the '804 Patent requires that the words "directly and exclusively" be included in the definition. Dkt. 91 at 15-16. Defendant asserts that the patentees added "removably attachable to the finger" during prosecution in order to overcome the examiner's rejection of the claim and "specifically disclaim[ed] devices that are not directly or exclusively attached to the finger." Dkt. 78 at 24, 26.

We do not accept Defendant's characterization of the prosecution history. During the '804 patent prosecution process, the patentee distinguished claim 1 of the '804 patent from the cited art as follows:

> The present invention is directed to an orthosis for positioning a joint in a finger on a hand of a patient. The Bonutti orthosis is for positioning the wrist of the user. Furthermore, Bonutti fails to disclose a bending mechanism removably attachable to the finger and selectively attachable to the hand cuff. The actuation mechanism of the Bonutti orthosis is positioned between the hand and forearm of the user, not to the finger. Additionally, the actuation mechanism of the Bonutti orthosis is permanently attached to the forearm and hand cuffs, and as such can[not] be selectively attachable to the hand cuff.

Dkt. 78-12 at 37-38. Accordingly, the patentee distinguished claim 1 of the '804 patent because the prior art was directed to a wrist orthosis whereas the '804 patent disclosed a finger orthosis for positioning a joint in a finger. As Plaintiffs argue, there was no clear and unambiguous disclaimer of devices with a "bending mechanism" that was not "directly or exclusively" attachable to a finger. In fact, the plain language of the claim also requires that the "bending mechanism" be "selectively attachable" to the hand cuff. Thus, a construction of "removably attachable to the finger" that required the device to be

"exclusively" attached to the finger would contradict the plain claim language, which is a point that Defendant's counsel essentially conceded at oral argument. Nor is there any support in either the plain claim language or the patent prosecution history for construing "removably attachable to the finger" to require that the device be "directly" attached to the finger.

For these reasons, we adopt Plaintiff's proposed construction of the term, to wit, "capable of being attached to the finger in a way that it can be removed." We note that this construction not only aligns best with the claim language and intrinsic evidence but is also the definition proposed by Defendant's own expert, Dr. Rogge. Exh. 12 ¶ 47 ("a person of ordinary skill in the art would construe this phrase ['removably attachable to the finger'] to mean 'capable of being attached to the finger in a way that it can be removed.'").

### D. The '286 Patent

The '286 patent generally covers apparatuses for stretching tissue around a joint of a patient between first and second relatively pivotable body portions. The parties dispute the meaning of the following five claim terms within the '286 patent: (1) curved path; (2) a first arm member for coupling to the first body portion and defining a curved path; (3) movable along the curved path; (4) operatively coupled; and (5) drive assembly.

#### 1. "curved path"; "a first arm member for coupling to the first body portion and defining a curved path; and "movable along the curved path"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "curved path" | curved line of travel | a nonlinear, noncircular physical structure bounded by two distinct end points along which another element may translate or rotate |
| "a first arm member for coupling to the first body portion and defining a curved path" | same definition of "curved path" | the first arm member has a nonlinear, noncircular, physical structure bounded by two distinct end pints along which another element may translate or rotate |
| "movable along the curved path" | same definition of "curved path" | an element is movable along a nonlinear, noncircular physical structure bounded by two distinct end points along which another element may translate or rotate |

The term "curved path" appears in the following three limitations that Defendant has identified for construction: (1) "curved path" (claims 26, 27, and 28); (2) "a first arm member for coupling to the first body portion and defining a curved path" (claim 26); and (3) "movable along the curved path" (claims 26 and 28). Defendant argues that in each limitation, "curved path" should be defined as "a nonlinear, noncircular physical structure bounded by two distinct end points along which another element may translate or rotate." Dkt. 91 at 18. Plaintiffs contend that the term does not need construction, but if the Court believes construction is necessary, they propose the plain and ordinary meaning of the term, to wit, "curved line of travel."

Defendant argues that its construction is "required" by the '286 Patent based solely on the description of Figure 9 (pictured below), which provides that the embodiment "shows a non-circular arcuate shaped second extension member" that is

attached to the second arm member and further provides that, as the second arm member moves, "the second body portion will exhibit both a rotational motion, about the joint axis, and a translational motion, distracting or compressing the joint." '286 Patent, col. 7, ll. 62-67; col. 8, ll. 1-4. However, the claim language itself does not include the limitations proposed by Defendant and interpreting claims "in light of the specification does not mean that everything expressed in the specification must be read into all the claims." *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1326 (Fed. Cir. 2002). Moreover, the specification also discloses an embodiment with a "substantially circular" shaped second extension member (**92** in Figure 14 below). Accordingly, we find Defendant's proposed construction of "curved path" being "noncircular and nonlinear" to be both an unhelpful description and an inaccurate definition when read in light of the intrinsic evidence.

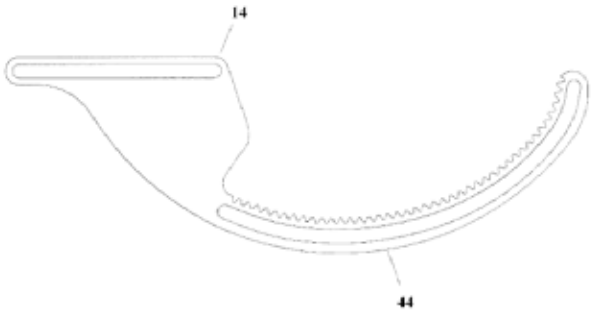



FIG. 9

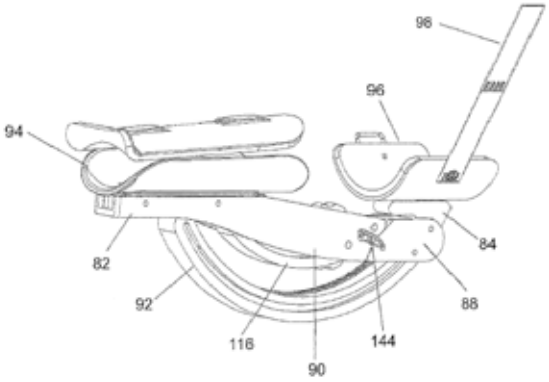



FIG. 14

For these reasons, we find no basis in the intrinsic record to read Defendant's limitations into the claim language and Defendant has failed to point to sufficient evidence to establish that the patentee acted as its own lexicographer in this case.

Accordingly, we hold that the plain and ordinary meaning of "curved path" is the appropriate construction here, and we therefore adopt Plaintiffs' proposed construction, to wit, "curved line of travel."

**2. "operatively coupled"**

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "operatively coupled" | connected so as to operate in an intended manner | the motion of the second arm member would be dependent upon the motion of the first arm member |

The term "operatively coupled" is used in independent claim 26 and dependent claim 30 of the '286 Patent. Claim 26 provides in relevant part: "a second arm member for coupling to the second body portion and operatively coupled to the first arm member, the second arm member movable along the curved path, to rotate the second body portion about an axis of rotation around the joint." '286 Patent, col. 16, ll. 53-57. Claim 30 provides: "[a]n orthosis in accordance with claim **26** further comprising a drive assembly operatively coupled to the second arm member." '286 Patent, col. 17, ll. 4-6.

Without either convincing support or elaboration Defendant argues simply that "[a] person having ordinary skill in the art at the time of the invention would have understood this term to mean that the motion of the second arm member would be dependent upon the motion of the first arm member." Dkt. 78 at 31. The only support for this construction cited by Defendant is the opinion of its expert, Dr. Rogge, that "'operatively coupled' is an important distinction of the device and should be construed

to mean that 'as the action of one element imparts translational and rotational motion of another element.' In other words[,] … the motion of the second arm member would be dependent upon the motion of the first arm member." Def.'s Exh. C, ¶ 59. But, as Plaintiffs argue, Defendant's definition is not supported by the actual claim language, which does not even require movement of the first arm member, but instead requires only that the second arm member be movable along the curved path. '286 Patent, col. 16, ll 53-57. In her report, Dr. Rogge failed to connect her conclusion to any specific piece of intrinsic evidence, instead stating in a wholly conclusory fashion that her opinion is based only on her review of "the '286 Patent, including the claim language as a whole, the specification, and its prosecution history …." *Id.* Absent a specific citation or more fully developed analysis to support her opinion, we do not find her testimony particularly helpful or persuasive.

In *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111 (Fed. Cir. 2004), the Federal Circuit construed a nearly identical term, holding that "operatively connected" is "a general descriptive term frequently used in patent drafting to reflect a functional relationship between claimed components." *Id.* at 1118. The court went on to hold that "[g]enerally speaking, … [operatively connected] means the claimed components must be connected in a way to perform a designated function." *Id.* The court then looked to the claim language and the specification to determine the particular "designated function" at issue in that case. *Id.*

Similarly here, there is no evidence in the case at bar that the term "operatively coupled" is a term with a special meaning in the art of orthoses or that the patentee acted as its own lexicographer when it included the term in the '286 patent. Accordingly, we find that the plain and ordinary meaning of the term as explicated in *Innova* is the proper construction here, to wit, that the term "operatively coupled" requires that the named parts be connected in a manner so as to perform their designated function(s).

In order to determine what the named parts are "operatively coupled" to do, we turn first to the claim language. Claim 26 provides that the second arm member and first arm member are "operatively coupled" such that the second arm member is "movable along the curved path, to rotate the second body portion about an axis of rotation of the joint." Claim 30 is dependent on claim 26 and recites an orthosis as described in claim 26 comprising a "drive assembly operatively coupled to the second arm member." Although the claim language itself does not describe the function of the drive assembly being connected to the second arm member, the specification provides that drive assembly is used "to move the second extension member through the first extension member." '286 Patent, col. 8, ll. 54-55. Accordingly we construe the term "operatively coupled" as used in claim 26 as follows: "connected in a manner to enable the second arm member to be moveable along the curved path." The term is construed in claim 30 to mean: "connected in a manner to enable the drive assembly to move the second extension member though the first extension member."

**3. "drive assembly"**

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "drive assembly" | an assembly designed or constructed to transfer power from one part to another | requiring a gear rotatable about point 'P' operable to directly engage and move an extension member, where the extension member has a nonlinear, noncircular curved shape and reciprocal gear teeth wherein a knob turns the gear to apply force to cause relative motion between the first and second members |

The term "drive assembly" appears in claims 30 and 31 of the '286 Patent. Claim 30 recites: "An orthosis in accordance with claim **26** further comprising a drive assembly operatively coupled to the second arm member." '286 Patent, col. 17, ll. 4-6. Claim 31 provides: "An orthosis in accordance with claim **30** wherein the drive assembly comprises a gear rotatably mounted on the first arm member." '286 Patent, col. 17, ll. 7-9.

Claims 30 and 31 are not written in traditional "means for" format. In order to overcome the presumption that § 112, ¶ 6 does not apply in this instance, Defendant must establish that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" *Williamson*, 792 F.3d at 1349 (quoting *Watts*, 232 F.3d at 880). Here, there is no function recited in the claim language. Nor has Defendant shown that the claims fail to recite sufficiently definite structure. In her report, Plaintiff's expert opined that one of ordinary skill in the art at the time of the invention would understand "drive assembly" to be a structural limitation. This conclusion is buttressed by the manner in which the term is discussed in

the specification, which provides that while the drive assembly described in the embodiment utilizes a "gear system," it is contemplated that "other known drive systems" such as "a friction type drive system" could be used. '286 Patent, col. 8, ll. 52-56. Accordingly, we hold that, when read in light of the specification, the term "drive assembly" connotes sufficiently definite structure to one of skill in the art to preclude the application of § 112, ¶ 6. We therefore adopt Plaintiffs' proposed construction of "an assembly designed or constructed to transfer power from one part to another."

### E. The '343 Patent

The '343 patent generally covers apparatuses for increasing the range of motion of a tissue in a body of a patient. The only claim term in dispute is "lockout element," which appears in claim 1 of the '343 patent.

#### 1. "lockout element"

| Disputed Term | Plaintiffs' Proposed Construction | Defendant's Proposed Construction |
|---|---|---|
| "lockout element" | an element that is designed or constructed to inhibit the relative movement of another element or part | limited to a hook and latch mechanism |

The claim term "lockout element" is found in independent claim 1 of the '343 patent, which provides in relevant part: "a lockout element having a locking position and configured to selectively inhibit the spring from urging movement of the second arm member relative to the first arm member when in the locking position." '343 patent, col. 23, ll. 9-12. Although it does not use the word "means," Defendant argues that the rebuttable presumption that it is not a means-plus-function limitation is overcome

because it recites the function of "locking" without reciting sufficient definite structure to perform the function. Plaintiffs rejoin that the term "lockout element" is not a means-plus-function limitation because one of ordinary skill in the art at the time of the invention would have understood the term as a name for structure and that if the term requires construction, it should be defined as "an element that is designed or constructed to inhibit the relative movement of another element or part."

We do not believe the Defendant has overcome the rebuttable presumption that § 112, ¶ 6 does not apply here. The Federal Circuit has recognized that "the fact that a particular mechanism … is defined in functional terms is not sufficient to convert a claim element containing that term into a 'means for performing a specified function' within the meaning of section 112(6)." *Greenburg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996). In *Greenburg*, the court cited a number of devices that take their names from the functions they perform, including "'filter,' 'brake,' 'clamp,' 'screwdriver,' or 'lock.'" *Id.*

While the term "lockout element" may not "call to mind a single well-defined structure," the Federal Circuit has observed that "the same could be said of other commonplace structural terms such as 'clamp' or 'container.' What is important is not simply that the [term being construed] is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art." *Id.* We do not view the term "lockout element" as being significantly different from the term "lock" and find that one of ordinary skill in the art at the time of the invention would have understood the former, like the latter, to be a name for a class of structures. *See*

Villarraga Dep. at 139-40. Accordingly, we hold that "lockout element" is not a means-plus-function limitation.

Defendant asserts that even if the court determines that § 112, ¶ 6 does not apply, "lockout element" should still be construed to be "limited to a hook and latch mechanism" because any broader definition was disavowed during the patent prosecution process when the patentee "specifically stated that the 'lockout element' is shown in 'paragraph [0071]; Fig. 2A.'" Dkt. 78 at 33. This argument by Defendant takes the patentee's statement out of context, however. During the patent prosecution process, the '343 Patent was amended to add what is now claim 1. As is common when an applicant amends claims during the prosecution process, the patentee stated that no new matter was added and pointed to the place in the specification that provided support for the amended claim. In so doing, the patentee stated: "Adequate support for new claim 58 [now claim 1] can be found, for example, as follows: … iv) lockout element: paragraph [0071]; FIG. 2A; and possible other locations in the application as filed; …." Dkt. 78-21 at 2010. This reference is simply insufficient to establish that the patentee made a "clear and unmistakable disavowal of scope during prosecution." *Purdue Pharma L.P. v. Endo Pharms., Inc.*, 438 F.3d 1123, 1136 (Fed. Cir. 2006). Accordingly, we adopt Plaintiffs' proposed construction of the term and "lockout element" is therefore defined as "an element that is designed or constructed to inhibit the relative movement of another element or part."

## III. Conclusion

The disputed terms are construed by the Court as follows:

| Disputed Term | Court's Construction |
|---|---|
| base | no construction required |
| drive means (first) | a main gear **48**, a worm or drive gear **56** (FIG. 9) that is disposed in meshing engagement with the main gear **48**, a shaft **58**, and a manually rotatable knob **60** |
| drive means (second) | a main drive gear **302**, a shaft **304**, a rack gear **308** that is disposed in meshing engagement with the drive gear **302**, and a rotatable knob connected with the drive gear **302** through the shaft **304**<br><br>an externally threaded member or screw **330**, a housing **332**, pivot connections **334** and **336**, a manually rotatable knob **340**, an actuator member block with internal thread convolutions, and drive links **348** and **350** |
| gear means | no construction required |
| a main gear which is connected with said first cuff means and is rotatable with said first cuff means relative to said base | a main gear which is united, joined, or linked with said first cuff means and is rotatable with said first cuff means relative to said base |
| second gear at least partially disposed in a recess in said base | no construction required |
| first extension member | a part that extends or extends from the first arm member |
| second extension member having an arcuate shape extending therefrom | a part that extends from the second arm member, at least a portion of which is shaped or curved like an arc or bow |
| arcuate shape | shaped or curved like an arc or bow |
| arcuate path | a path shaped or curved like an arc or bow |
| travels along an arcuate path through the first extension member | travels along a path shaped or curved like an arc or bow and passes through the first extension member |
| bending mechanism | no construction required |
| removably attachable to the finger | capable of being attached to the finger in a way that it can be removed |

| | |
|---|---|
| curved path | curved line of travel |
| a first arm member for coupling to the first body portion and defining a curved path | a first arm member for coupling to the first body portion and defining a curved line of travel |
| movable along the curved path | movable along a curved line of travel |
| operatively coupled (claim 26) | connected in a manner to enable the second arm member to be moveable along the curved path |
| operatively coupled (claim 30) | connected in a manner to enable the drive assembly to move the second extension member through the first extension member |
| drive assembly | an assembly designed or constructed to transfer power from one part to another |
| lockout element | an element that is designed or constructed to inhibit the relative movement of another element or part |

IT IS SO ORDERED.

Date: 1/21/2016

SARAH EVANS BARKER, JUDGE
United States District Court
Southern District of Indiana

Distribution:

Steven D. Groth
BOSE MCKINNEY & EVANS, LLP
sgroth@boselaw.com

Jacque Raynard Wilson
CARSON BOXBERGER, LLP
wilson@carsonboxberger.com

James Blake Hike
CARSON BOXBERGER, LLP
hike@carsonboxberger.com

Jon A. Bragalone
CARSON BOXBERGER, LLP
bragalone@carsonboxberger.com

Michael J. Hartley
SENNIGER POWERS LLP
mhartley@senniger.com

Robert M. Evans, Jr
SENNIGER POWERS LLP
revans@senniger.com