



In proprietary combination with

5,059,193

Spine-Tech, Inc. (Minneapolis, MN)

ClaimBot®

Software

Next Generation Freedom-to-Operate

Providing the tool and process for patent savvy, cost effective business decisions

| | | | 1 | 10 | 11 | 12 | 14 | 15 | 21 | 22 | 24 | 25 | 28 | 1 |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|---|----|----|----|----|----|----|----|----|----|----|---|
| (Red), 2=Med (Yel), 1=Low (Grn)) | | | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 1 |
| (Asc.) | Rating (1-3) | Claims Mapped | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 |
| | 3 | 726 | | | | | | | | | | | | |
| ribs, each rib deformable in response to a first shape to a second shape (hint: ribs force, from slits to defined and spaced ribs) | 1 | 11 | | | | | | | | | | | | |
| ndable (vertically or laterally) | 3 | 322 | | | | | | | | | | | | |
| y force (hint: linear force) to a plurality of from a first size and shape to a larger, | 1 | 10 | | | | | | | | | | | | |
| or hollow body configuration | 3 | 28 | | | | | | | | | | | | |
| uter portions, wherein the inner portion is | 2 | 3 | | | | | | | | | | | | |
| that includes a softer material than a material | 2 | 3 | | | | | | | | | | | | |
| aterial | 1 | 3 | | | | | | | | | | | | |
| prising flexible foamed polyethylene | 1 | 1 | | | | | | | | | | | | |
| n of a longitudinal implant to expand radially ape of the anatomical region of the disk space ed, and (ii) to a size greater than end portions | 1 | 11 | | | | | | | | | | | | |
| ped or substantially cylindrically shaped articles into a disk space between two | 3 | 5 | | | | | | | | | | | | |
| gth of an implant, the rotation causing an ant to expand radially outwardly to conform gion of the disk space into which the implant | 1 | 3 | | | | | | | | | | | | |

SLW

Schwegman, Lundberg & Woessner, P.A. (SLW) invested significant resources to develop an efficient, cost effective Freedom-to-Operate (FTO) charting software and corresponding process, which are detailed here.

SLW anticipated the need for a better FTO tool and process in 2005 after recognizing that the number of U.S. patents in force had grown from less than 1 million in 1995 to nearly 3 million in 2005. We have been working on perfecting our ClaimBot® charting software and corresponding legal process ever since. We are confident that you will enjoy the result!

“Chart Once, Use Forever”

ClaimBot® software produces claim charts that are updatable, reusable, and interactive, allowing concurrent, comprehensive, easily updatable, and accurate screening of claim coverage across hundreds of patents for infringement or protection concerns against an unlimited number of your target products or methods.

These claim charts are easily updatable, allowing patent matters to be added as needed, providing a strategic FTO knowledge base that can grow with your business and technology and become a valuable business asset. With ClaimBot® software and SLW, your company can:

- ✓ Provide Pathways to Commercialization
- ✓ Reduce Infringement Risks by Performing FTO Early and Often
- ✓ Visualize Your Own Patent Coverage and Needs
- ✓ Reveal Product Options Not Otherwise Readily Apparent
- ✓ Save Time and Money

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The information presented in this book should not be construed as legal advice. Contacting us through telephone or via e-mail does not imply nor create an attorney-client relationship. Any information sent by SLW may not be privileged or confidential.

Schwegman, Lundberg & Woessner, P.A.

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Freedom-to-Operate: What is it and Why is it Important?

Strategic management of your patent portfolio involves two distinct questions:

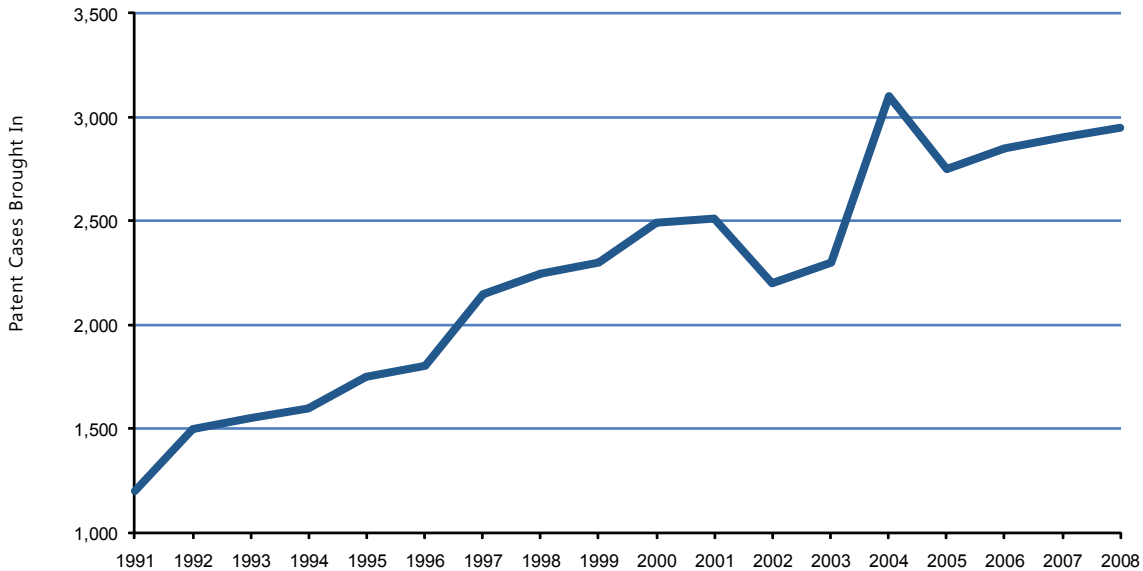
- 1. Patentability.** Can you exclude competitors from practicing your invention? If your invention is new and non-obvious, a patent can provide exclusive rights, ensuring that nobody else can use your invention without your authorization.
- 2. Freedom-To-Operate (FTO).** Even with such a right to exclude others from practicing your invention—getting a patent does not give you the right to practice your invention. For example, a third party may have an even broader (“dominant”) patent that encompasses your product or method, even if your product or method has been patented. An FTO determination can help ascertain whether your product or method can be practiced without infringing potentially valid patent rights of another.

Commercializing your product or method will involve considerable expense for product development, market forecasting, advertising, or other commercialization tasks. Therefore, risk management is important. The risk of being blocked from making, using, selling, or importing your product or method can be best managed by performing an FTO investigation early in product development to provide a roadmap that can help you steer clear of such risks.

The risk of being accused of patent infringement is growing. In today’s competitive landscape, patent holders are asserting their patents in the federal courts at a significant rate. In 2008, almost 3,000 patent infringement actions were filed, compared to less than 1,200 actions filed in the early 1990s. Thus, it is increasingly important to establish “freedom-to-operate” to reduce the risk of patent infringement before sinking resources into a project.



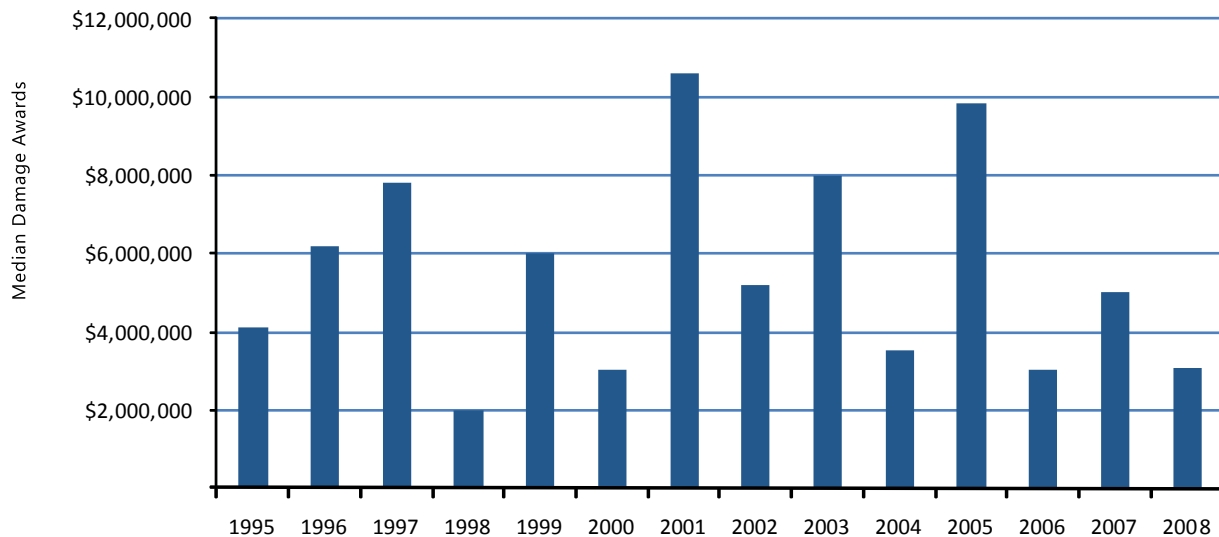
FIG. 1: Patent Cases Brought in U.S. Federal Courts Since 1991.



* Years are based on September year end. Sources: U.S. Patent and Trademark Office: Performance and Accountability; Report and U.S. Courts: Judicial facts and figures.

The annual median damage award over the past 10 years for these patent infringement actions has ranged from \$2.2 to \$10.6 million. Such damages are in addition to costly litigation fees and disbursements, which are typically on the order of \$1 million or more alone.

FIG. 2: Annual Median Damage Awards for Actions Brought before the Federal Courts.



Some patent infringement actions between 2005 and 2008 resulted in damage awards over \$100 million. With this in mind, the savvy business person will want to mitigate the substantial risks of patent infringement by proactively establishing “freedom-to-operate” before being exposed to such risks or committing resources.

Table 1: Selected Infringement Damage Awards in Excess of \$100 Million.

| Year | Plaintiff | Defendant | Technology | Award (in MM) |
|------|-------------------------|----------------------|--------------------------------------|---------------|
| 2009 | Johnson & Johnson | Abbott Laboratory | Treatment for inflammatory disorders | \$1,670 |
| 2007 | Alcatel-Lucent | Microsoft | MP3 technology | \$1,538 |
| 2005 | Karlin Technology | Medtronic | Spinal implant devices | \$1,350 |
| 2009 | Ric Richardson | Microsoft | Anti-piracy software program | \$537 |
| 2008 | Alcatel-Lucent | Microsoft | Data entry technology | \$368 |
| 2006 | Rambus | Hynix | Memory chips | \$307 |
| 2008 | C.R. Bard Inc. | WL Gore & Associates | Vascular and stent grafts | \$185 |
| 2005 | Freedom Wireless, Inc. | AT&T Wireless/Alltel | Prepaid wireless service | \$128 |
| 2006 | Advanced Medical Optics | Alcon, Inc. | Fluidics for eye surgery | \$121 |

Freedom-to-Operate: Revolutionary Process Change

Patent infringement and patent litigation can be expensive, uncertain, and risky. An FTO investigation can help manage such risk when developing, producing and launching a target product or method. As the saying goes, an ounce of prevention is worth a pound of cure. However, not all FTO investigation processes are equal in terms of expense, efficiency, transparency, reusability, and accuracy.

SLW has recognized that a traditional FTO investigation process can have many drawbacks:

- **Expensive.** The traditional FTO investigation can be costly, requiring many attorney hours for each target product or method analyzed. As an example, a Midwest firm recently quoted a start-up medical device company between \$80,000 and \$100,000 to complete an FTO search on spinal technology, review the pertinent search results, and draft a summary memorandum. SLW, using the efficiencies of ClaimBot® software (articulated below), completed the same work for less than 1/4 of the cost, delivering far superior results, including a comprehensive, reusable, business-friendly, interactive claim chart.

- **Time consuming.** The traditional FTO investigation process can include multiple repetitions¹ of analysis for each independent claim in a patent landscape of interest. SLW's FTO process, with the help from ClaimBot[®] software, can analyze hundreds or thousands of independent patent claims concurrently, such that infringement review of your company's target product or method relative to a large patent landscape can be reduced to minutes or hours, instead of days or months of work.
- **Lacking transparency.** The traditional FTO investigation process does not provide complete transparency into the legal analysis performed by the working attorney.² SLW's FTO output, including an interactive ClaimBot[®] software-produced claim chart, provides a verifiable result that can be rapidly repeated across multiple target products or methods. In addition, the claim chart provides recorded reasons for applicability or inapplicability of each claim for future use and reference.
- **Inaccuracies.** The traditional FTO investigation process will be limited by any technical misunderstandings or inaccuracies, relied upon by an attorney during analysis, that are not readily identifiable or visible. SLW's interactive ClaimBot[®] software produced claim chart can provide enough detail to allow real-time identification and correction of any such misunderstanding or inaccuracy.
- **Not readily updateable or reusable.** New patents are issued weekly by the US Patent and Trademark Office. An FTO process should be easily updatable to account for any applicable newly-issued patents. The traditional FTO investigation process typically does not lend itself to easy, cost-effective updating; this is not the case with SLW's process employing ClaimBot[®] software.
- **Experience communication difficulties.** The traditional FTO investigation, by nature, can be opaque to an engineer or business person. SLW's FTO process, using ClaimBot[®] software, allows the patent attorney to efficiently look across a wide swath of patents, locate like claim limitations, and aggregate these into easily understood "scope concepts." An index of these scope concepts can easily and efficiently be communicated to and reviewed by various audiences. This can enable quick but well-understood decision making, even in complex technologies.
- **Vague and non-comprehensive.** While no FTO can provide absolute certainty, risks can largely be minimized by a methodical, comprehensive review of each known claim limitation in a patent landscape. Before ClaimBot[®] software, such methodical, comprehensive review was often economically not possible due to the amount of attorney time required.
- **Lacking "white space" recognition.** Patent opportunities not otherwise readily apparent can sometimes be identified by locating "white space" in a ClaimBot[®] software-produced claim chart. (See, e.g., FIG. 6.)
- **Limited to small patent landscape field sizes.** During the traditional FTO process, as the number of patent claims increases, the likelihood for mistakes and oversights increases due to the lack of an efficient organizational system. SLW's process, including the use of ClaimBot[®] software, can easily arrange thousands of patent claims automatically without incurring any organizational cost.
- **Delayed design-around³ option analysis.** In the traditional FTO investigation, the entire FTO process must be repeated for each design change. In contrast, using ClaimBot[®] software, the benefits and risks of various design-around possibilities for your product or method can be explored in real-time, leveraging work that has already been performed, instead of repeating it.

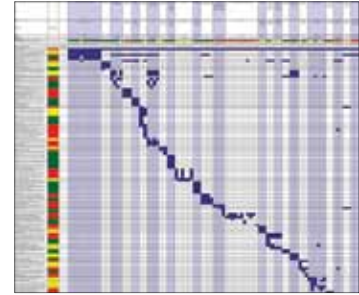
¹ In the traditional FTO investigation process, an attorney performs one or more of: (1) identifying all independent claims; (2) "triaging" each identified independent claim as relevant, irrelevant or unsure; (3) marking up hard copy printouts of each patent with reasons for non-infringement or potential infringement; (4) compiling lists of independent claims from various patents requiring in-depth review; (5) reviewing analysis of each claim requiring further review with a company's technical specialist; and (6) further analyzing claims flagged during review with the technical specialist.

² In the traditional FTO investigation process, an attorney summarizes FTO findings in an oral or written report, including 1-2 reasons for literal non-infringement of only those claims triaged as relevant. See note 1, *supra*.

³ In the field of patents, a "design-around" is a product or method intended to be a viable alternative to a patented invention that does not infringe the patent's claims.

SLW and ClaimBot® Software-Based FTO Process

The automated, cost effective ClaimBot® software, in combination with SLW's corresponding FTO process can overcome many of the traditional FTO drawbacks described above, thereby saving you time, money, and frustration.



ClaimBot® Claim Chart

1. Define Target Product or Method

It is most efficient to fully understand the scope of a target product or method prior to performing an FTO project, particularly before performing a comprehensive patent landscape search. To this end, SLW can interview your technical experts to better understand the target landscape scope and the target product or method of interest. We can then prepare a technology overview, using text and figures, to clearly define your company's target product or method. Once completed, we can seek feedback on the technology overview and search scope from you to ensure accuracy. As needed, we can revise the search scope, strategy, or the overview description of the target product or method.

2. Perform Comprehensive Patent Landscape Search

We can search patent literature for potentially relevant issued patents and pending published patent application. This can involve creating sophisticated search strings customized to your target technology and objectives, then conducting searches for U.S. Patents and Published Patent Applications (or other regional patent systems of interest), by using Lexis-Nexis®, Westlaw®, Innography®, or U.S. Patent Office databases.

As an example, SLW's patent landscape searches can include one or more of the following:

- Broad word search algorithm developed to cover the technology of your target product or method
- Competitor assignees (e.g., top 25 companies in the technology field of interest) in conjunction with applicable U.S. Patent Office classifications
- Prolific inventor names in the technology field of interest in conjunction with applicable U.S. Patent Office classifications
- Forward and backward searches of particularly interesting references

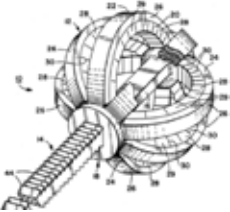
3. ClaimBot® Software Automatically Retrieves and Uploads Relevant Patent Data

After reviewing the results of the patent landscape search for applicability, a pared-down, focused patent landscape can be developed. Using this focused patent landscape, patent publication numbers can be input into ClaimBot® software’s user interface, such as shown in FIG. 3.

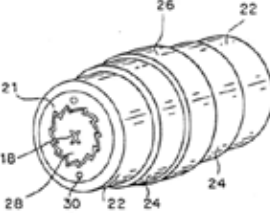
ClaimBot® software can automatically import patent data from the U.S. Patent Office, including, among other things, title information, assignee name information, filing date information, and the text of the abstract and claims.

FIG. 3: Example of Entering Three Patent Numbers of Interest into ClaimBot® Software’s User-Interface.

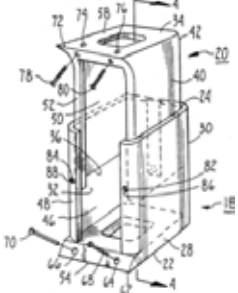
US 5,059,193




US 5,171,278



US 5,290,312





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Claim Mapping

[Matters](#) | [Portfolio](#) | [Product](#) | [Ontology](#) | [Report](#) | [Search](#) | [Contact](#)

Portfolio : Holding Area : Bulk Add

| | |
|------------------|----------------------------------------------------------------------------|
| Portfolio | Panoramic Claim Map Intellimap Portfolio |
| Title | FTO Instructional Booklet |
| Default Ontology | Interbody Fusion (v3) |

Details
Participants
Matters
Document
Holding Area
Search
Quick Rank
Ontology

Bulk Add
Job Status
Holding List

FTO Instructional Booklet : Scrape Patents

Please enter matter to be added into Portfolio

Force rescape

5,059,193

5,171,278

5,290,312

Patent numbers of interest are entered here.

Start Adding

Check Status

After the “Start Adding” icon is clicked, ClaimBot® software imports the various patent data from the patent numbers entered and outputs such data as shown in FIG. 4. Further, ClaimBot® software automatically parses independent and dependent claims. Each patent in the ClaimBot® software-produced chart is visually distinguished from the next by alternating purple and white backgrounds.

FIG. 4: Representative Patent Data and Information Retrieved, Aggregated, Filtered, Stored, and Displayed by ClaimBot® Software-Produced Interactive Claim Chart.

| Patent Data Types | Patent No. 1 | Patent No. 2 | Patent No. 3 |
|-----------------------|-----------------------------------------------------|------------------------------------------------|----------------------------|
| Title | Expandable spinal implant and surgical method | Middle expandable intervertebral disk implants | Artificial vertebral body |
| Patent # | 5,059,193 | 5,171,278 | 5,290,312 |
| Assignee Name | Spine-Tech, Inc. (Minneapolis, MN) | Perumala Corp. (Brownsville, TX) | Alphatec (Palm Desert, CA) |
| Filing Date | Apr 19, 1990 | Feb 22, 1991 | Sep 03, 1991 |
| Total Claims | 29 | 8 | 15 |
| Claim # (Independent) | 1 10 11 12 14 15 21 22 24 25 28 | 1 4 6 7 | 1 10 15 |

1. A spinal implant for insertion into a bore formed between opposing vertebrae of a spine, said implant comprising:
a plurality of deformable ribs;
said ribs deformable in response to a deforming force to change from a first shape to a second shape;
said ribs in said first shape presenting exterior surfaces cooperating to define a first exterior dimension sized to be received within a bore formed between adjacent vertebrae of a spine;
said ribs in said second shape presenting exterior surfaces cooperating to define a second exterior dimension greater than said first exterior dimension and sized to urge said adjacent vertebrae apart;
applying means for applying said deforming force to said ribs.

1. A method of implanting an intervertebral disk unit between two vertebrae after removal of a diseased or damaged intervertebral disk from therebetween, the disk unit being cylindrical in shape and comprising a member capable of adapting to the shape of an anatomical region of said disk space and means for variably expanding said member to substantially conform the shape of said member to the shape of a portion of said disk space, comprising the steps of:
(a) inserting said disk unit into said disk space;
(b) expanding the middle of said disk unit without changing the diameter of the dimensions of the ends thereof;
(c) introducing cancellous bone particles into said disk space and allowing said particles to fuse.

1. An implantable artificial vertebra which is biocompatible and sized for replacing a metastatic vertebra, comprising:
a first hollow component having an abutting end for abutting a vertebra of a living being and an anchoring window formed in said abutting end, an open first side establishing an access window, and an open end formed opposite said abutting end;
a second hollow component having a second abutting end for abutting a vertebra of a living being and a second anchoring window formed in said second abutting end, an open first side establishing a second access window, and a second open end formed opposite said second abutting end, the second component being slidably receivable through the open end of said first component; and
motion preventing means engageable with both of said components for substantially preventing slidable motion between said components.

In FIG. 4, claim 1 of each of U.S. patents Nos. 5,059,193 (‘193), 5,171,278 (‘278), and 5,290,312 (‘312) is recited by way of example. Notably, the recitations of the other independent claims of these patents (e.g., claims 10-12, 14-15, 21-22, 24-25 and 28 of ‘193; claims 4 and 6-7 of ‘278; and claims 10 and 15 of ‘312) are also imported into ClaimBot® software for analysis purposes.

4. “Parse Out” Claim Limitations and Combine into Simplified “Scope Concepts”

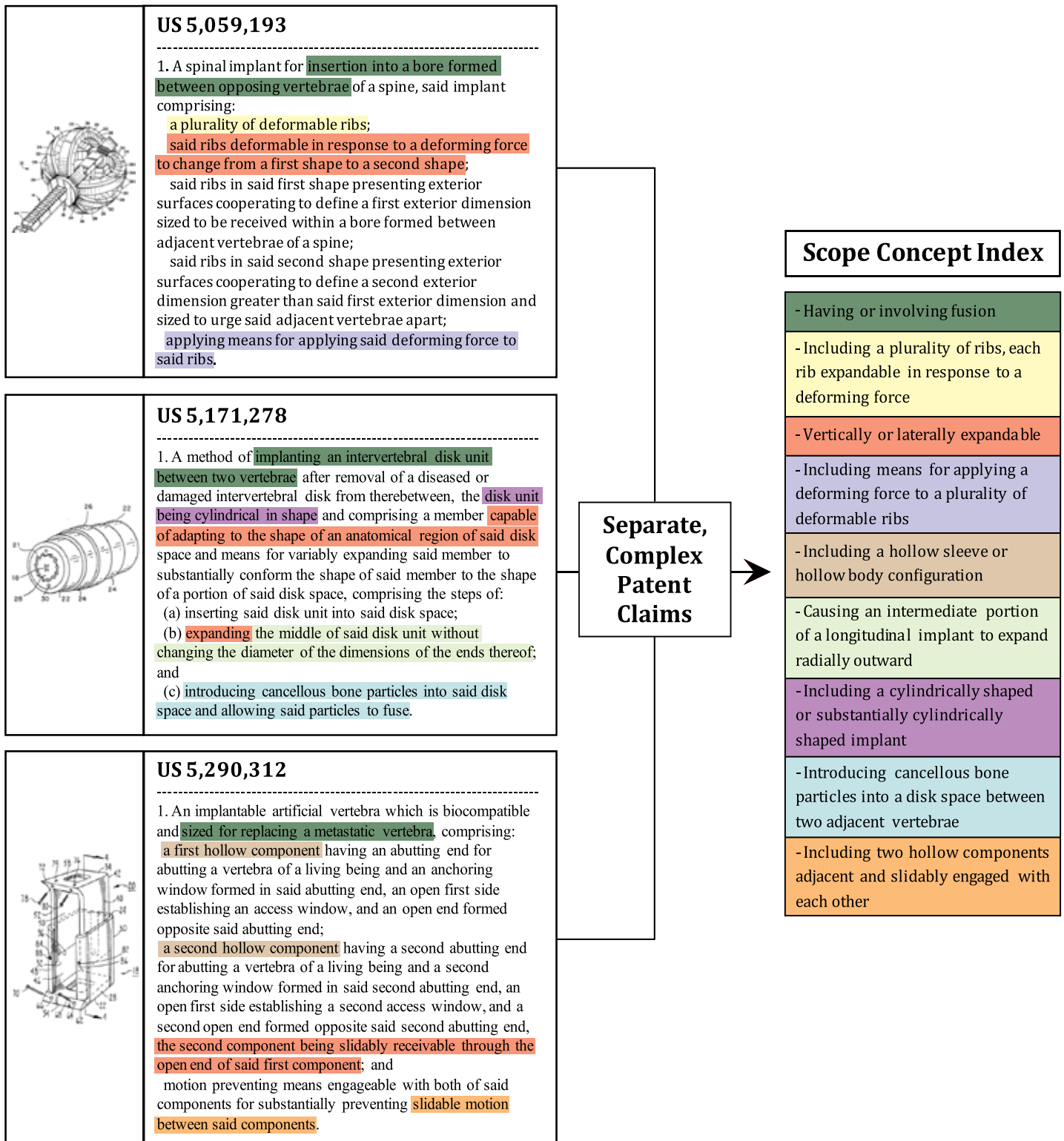
Once the independent claims of the patents of interest are scraped into ClaimBot® software, various limitations from the independent claims can efficiently be parsed out and, where appropriate, combined into simplified “scope concepts.”⁴

SLW has recognized that many sets of patent claims, such as the 18 independent claims of patents ‘193, ‘278, and ‘312, can be reduced to a set of constituent scope concepts that represent the limitations recited in the claims. These scope concepts can provide a powerful categorization, filtering and searching mechanism for quickly and accurately analyzing large numbers of patent claims concurrently. As the number of claims in the patents of interest increases, the more the efficiency of using ClaimBot® software increases over the traditional FTO process.

The coverage of a particular claim can be represented by a combination of scope concepts derived from the set of patent claims. As an example, similar colors across the independent claims recited in the example of FIG. 5 are intended to represent similar limitations. As shown in FIG. 5, for each of these limitations a broader, easier to understand scope concept can be drafted to represent the claim limitation.

⁴ *Conceptually, scope concepts can be thought of as editorial interpretations of the limitations recited in patent claims (e.g., similar to “headnotes” in a summary of a legal issue). Scope concepts can, and often do, have varying levels of abstraction.*

FIG. 5: Representative Scope Concept Index for three Independent Claims in the Spinal Medical Device Landscape.



In a similar manner, hundreds of independent patent claims with thousands of constituent claim limitations can be reduced to a relevant, greatly-reduced number of scope concepts. In FIG. 6, for example, the 18 independent claims of patents ‘193, ‘278, and ‘312 can be simplified into 9 scope concepts (which were first introduced in FIG. 5). Each dark blue box shown in FIG. 6 represents an inclusion of a scope concept within a particular claim.

FIG. 6: Representative Portion of a ClaimBot® Software-Produced Claim Chart Illustrating the Association of Patent Claims an Scope Concepts.

By way of example, claim 1 of ‘193 includes 4 of the 9 scope concepts, as indicated by the 4 dark blue boxes.

| Title | Potential Relevance | Expandable spinal implant and surgical method | | | | | | | | | | Middle expandable intervertebral disk implants | | | | Artificial vertebral body | | | | |
|----------------------------------------------------------------------------------------|------------------------|-----------------------------------------------|----|----|----|----|----|----|----|----|----|------------------------------------------------|---|---|---|----------------------------|---|----|----|--|
| Patent # | | 5,059,193 | | | | | | | | | | 5,171,278 | | | | 5,290,312 | | | | |
| Assignee Name | | Spine-Tech, Inc. (Minneapolis, MN) | | | | | | | | | | | | | | Alphatec (Palm Desert, CA) | | | | |
| Filing Date | | Apr 19, 1990 | | | | | | | | | | Feb 22, 1991 | | | | Sep 03, 1991 | | | | |
| Total Claims | | 29 | | | | | | | | | | 8 | | | | 15 | | | | |
| Claim # (Independent) | | 1 | 10 | 11 | 12 | 14 | 15 | 21 | 22 | 24 | 25 | 28 | 1 | 4 | 6 | 7 | 1 | 10 | 15 | |
| Potential Relevance - 3 High (Red), 2 Med (Yel), 1 Low (Green) | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | |
| Scope Concept Index | Relevance (1-3) | Claims Mapped | | | | | | | | | | | | | | | | | | |
| Having or involving fusion | 3 | 18 | | | | | | | | | | | | | | | | | | |
| Including a plurality of ribs, each rib expandable in response to a deforming force | 1 | 11 | | | | | | | | | | | | | | | | | | |
| Vertically or laterally expandable | 3 | 18 | | | | | | | | | | | | | | | | | | |
| Including means for applying a deforming force to a plurality of deformable ribs | 1 | 11 | | | | | | | | | | | | | | | | | | |
| Including a hollow sleeve or hollow body configuration | 3 | 3 | | | | | | | | | | | | | | | | | | |
| Causing an intermediate portion of a longitudinal implant to expand radially outward | 1 | 3 | | | | | | | | | | | | | | | | | | |
| Including a cylindrically shaped or substantially cylindrically shaped implant | 3 | 1 | | | | | | | | | | | | | | | | | | |
| Introducing cancellous bone particles into a disk space between two adjacent vertebrae | 2 | 3 | | | | | | | | | | | | | | | | | | |
| Including two hollow components adjacent and slidably engaged with each other | 1 | 3 | | | | | | | | | | | | | | | | | | |

White space examples – potentially patentable subject matter when combined with other claim limitations.

The most important part of an issued patent is the claims. The claims, and not the specification or the drawings, determine the protected “scope” of the patent. Using ClaimBot® software-produced claim charts, you can very quickly screen large numbers of patents for determining claim coverage.⁵

⁵ As an example, in a recent case study directed at the Spinal Medical Device patent landscape, 171 patents including 729 independent claims were consolidated into approximately 400 scope concepts. Each of these 729 independent claims was “charted” to at least three scope concepts. Accordingly, by answering approximately 400 simplified scope concept questions, 729 independent claims were concurrently reviewed for infringement analysis purposes.

5. ClaimBot® Software Automatically Generates Interactive MS Excel-Based Claim Charts

ClaimBot® software can automatically generate an interactive claim chart, an exclusionary tool allowing simple, accurate, real-time coverage analysis of a group of claims to a target product or method. Using this interactive feature, a user with domain expertise can help evaluate whether or not each scope concept is applicable to a target product or method and enter these findings into the interactive claim chart (e.g., as a “1,” “2,” or “3”—see designation below). For each scope concept that is not applicable to the product or method, all claims with that scope concept can be excluded as not covering the target product or method.

6. Review Interactive Claim Chart with your Engineers, Scientists, or Management

The results of the interactive claim chart can be reviewed with your engineers, scientists, or management. Scope concepts can be analyzed and deemed either:

“1” - not relevant to target product or method.

“2” - not relevant to target product or method, but possibly worth considering for future technology or design around opportunities.

“3” - worth further consideration in light of the known features of the target product or method.

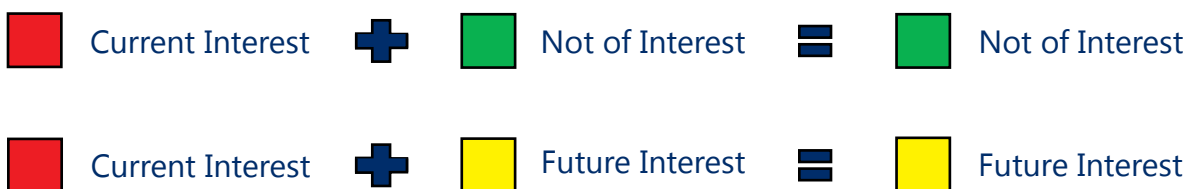
A claim inherits the lowest rating of any scope concept indexed to it. For example, if a particular claim requires two scope concepts—one of current interest (3), and one of no interest (1), then that particular claim is deemed to be of no interest (1). Similarly, if a particular claim requires two scope concepts—one of current interest (3), and one of future interest (2), then that particular claim is deemed to be of only future interest (2).

Domain expert reviews scope concepts to determine relevance:



Spreadsheet applies “all elements rule” to map scope concepts to independent claims.

If a particular claim requires two scope concepts ranked differently:

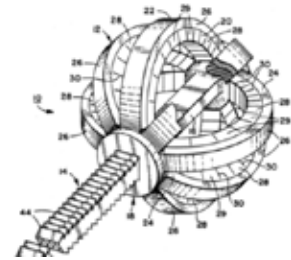


When all scope concepts in the chart have been evaluated in light of the target product or method, the completed interactive claim chart flags the claims excluded from coverage and the reasons for their exclusion (see, e.g., FIG. 7). Further, the completed interactive claim chart also flags claims that may require more detailed review to achieve FTO.

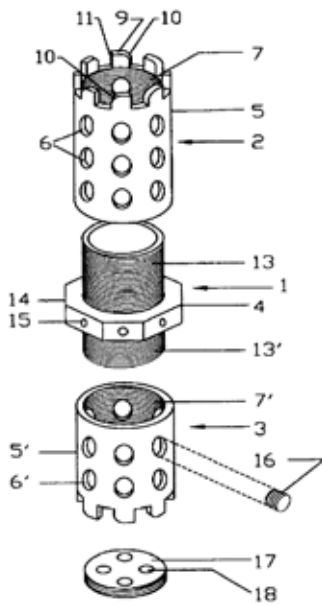
Representative Case Study: Spinal Medical Device

Question: Is the design of U.S. Patent No. 5,702,455 (target product) distinguishable from the patent claims of '193, '278, and '312?

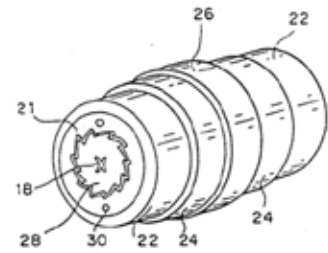
US 5,059,193



US 5,702,455



US 5,171,278



VS.

US 5,290,312

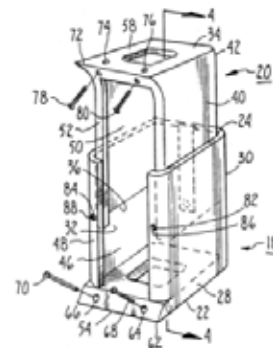


FIG. 7: (next page): Representative Example of ClaimBot® Software-Produced Interactive Claim Chart.

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | |
|----|----------------------------------------------------------------------------------------|---------------------|---------------|-----------------------------------------------|----|----|----|----|----|----|----|----|----|----|------------------------------------------------|---|---|----------------------------|---|----|----|----|
| 1 | Title | Potential Relevance | | Expandable spinal implant and surgical method | | | | | | | | | | | Middle expandable intervertebral disk implants | | | Artificial vertebral body | | 1 | | |
| 2 | Patent # | | | 5,059,193 | | | | | | | | | | | 5,171,278 | | | 5,290,312 | | 2 | | |
| 3 | Assignee Name | | | Spine-Tech, Inc. (Minneapolis, MN) | | | | | | | | | | | | | | Alphatec (Palm Desert, CA) | | 3 | | |
| 4 | Filing Date | | | Apr 19, 1990 | | | | | | | | | | | Feb 22, 1991 | | | Sep 03, 1991 | | 4 | | |
| 5 | Total Claims | | | 29 | | | | | | | | | | | 8 | | | 15 | | 5 | | |
| 6 | Claim # (Independent) | | | 1 | 10 | 11 | 12 | 14 | 15 | 21 | 22 | 24 | 25 | 28 | 1 | 4 | 6 | 7 | 1 | 10 | 15 | 6 |
| 7 | Potential Relevance - 3 High (Red), 2 Med (Yel), 1 Low (Green) | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 7 |
| 8 | | | | | | | | | | | | | | | | | | | | | | 8 |
| 9 | | | | | | | | | | | | | | | | | | | | | | 9 |
| 10 | Scope Concept Index | Relevance (1-3) | Claims Mapped | | | | | | | | | | | | | | | | | | | 10 |
| 11 | Having or involving fusion | 3 | 18 | | | | | | | | | | | | | | | | | | | 11 |
| 12 | Including a plurality of ribs, each rib expandable in response to a deforming force | 1 | 11 | | | | | | | | | | | | | | | | | | | 12 |
| 13 | Vertically or laterally expandable | 3 | 18 | | | | | | | | | | | | | | | | | | | 13 |
| 14 | Including means for applying a deforming force to a plurality of deformable ribs | 1 | 11 | | | | | | | | | | | | | | | | | | | 14 |
| 15 | Including a hollow sleeve or hollow body configuration | 3 | 3 | | | | | | | | | | | | | | | | | | | 15 |
| 16 | Causing an intermediate portion of a longitudinal implant to expand radially outward | 1 | 3 | | | | | | | | | | | | | | | | | | | 16 |
| 17 | Including a cylindrically shaped or substantially cylindrically shaped implant | 3 | 1 | | | | | | | | | | | | | | | | | | | 17 |
| 18 | Introducing cancellous bone particles into a disk space between two adjacent vertebrae | 2 | 3 | | | | | | | | | | | | | | | | | | | 18 |
| 19 | Including two hollow components adjacent and slidably engaged with each other | 1 | 3 | | | | | | | | | | | | | | | | | | | 19 |

The interactive claim chart can be used to evaluate any number of ip-related questions for a particular ip portfolio landscape, including, Freedom-To-Operate, accurate marking, patent needs, etc.

For a Freedom-To-Operate decision, keeping in mind a target product or method, a user enters a numerical value in "column B" according to a determined potential value of the corresponding scope concept to that product or method. The user assigns a potential "relevance value" of:

- "3" for a scope concept having a potential "High Value" (e.g., existing in the current target product or method);
- "2" for a scope concept having a potential "Medium Value" (e.g., believed to be of potential interest for a future (next 5 years) target product or method);
- "1" for a scope concept having a potential "Low Value" (e.g., believed to be of no current or future interest to the target product or method).

After entering the potential "relevance value" of all scope concepts, the background for each independent claim in the ip portfolio landscape (see row 7, columns D-U) will assume the "potential relevance" of the least valuable scope concept charted to it, with:

- "Red" illustrating an independent claim having a potential "High Relevance";
- "Yellow" illustrating an independent claim having a potential "Medium Relevance";
- "Green" illustrating an independent claim having a potential "Low Relevance".

This demonstrates the interactivity of ClaimBot®'s full claim chart output. As previously noted, claims inherit the lowest rating of any scope concept indexed (or mapped) to it. As shown, claim 6 of US Patent No. 5,171,278 is indexed to three scope concepts (see rows 11, 13 and 18). The scope concepts of rows 11 and 13 have been assigned a "high relevance," however, the scope concept of row 18 has been assigned a "medium relevance." Accordingly, claim 6 inherits the lower "medium relevance" designation.

Beyond claim 6 of US Patent No. 5,171,278, all other independent claims include at least one limitation associated with a scope concept assigned a "low relevance" of "1". Accordingly, each of these claims are not applicable to the target product or method and can be excluded from further analysis.

Cells D7 (i.e., column D, row 7), E7, F7, etc., in the claim chart indicate an assigned relevance (current interest (red), future interest (yellow), or no interest (green)) of each independent claim of the three patents in this case study. As can be seen from FIG. 7, all independent claims, with the exception of claim 6 of U.S. Patent No. 5,171,270 (designed “future interest”), have been designated “no interest.” The interactive feature of the spreadsheet can be modified, such that if particular scope concepts come into play, or fall away, as the plans for the current design or future design change, then by merely re-evaluating the scope concepts in column A, the cells D7, E7, F7, etc., are automatically updated in the electronic claim chart.

In answer to the case study question, the design of U.S. Patent No. 5,702,455 (i.e., the target product) is distinguishable from the patent claims of ‘193, ‘278, and ‘312 based on current “potential relevance” values assigned to each scope concept.⁶

7. Further Analyze Patent Claims Output from Claim Chart

If the interactive claim chart flags one or more independent claims with a **RED** background (thereby signaling a potential blocking patent claim to your target product or method), there can still be several options to complete the FTO process for your target product or method. Some of the more common strategies for completing FTO include one or more of the following:

- **Non-infringement/Invalidity** - SLW can review the patent, prosecution history, and prior art to potentially establish a non-infringement or invalidity opinion with regards to any patents of interest.
- **Design around** - SLW can potentially help you to determine whether it is possible to design around and avoid infringement of the patent of interest.
- **Purchase/License** - SLW can help in potentially purchasing or licensing the patent of interest.

8. Summarize FTO Findings in a Summary Memorandum

We can provide an optional summary memorandum, in conjunction with an electronic, reusable copy of the interactive claim chart, to further help you understand and document your FTO position.

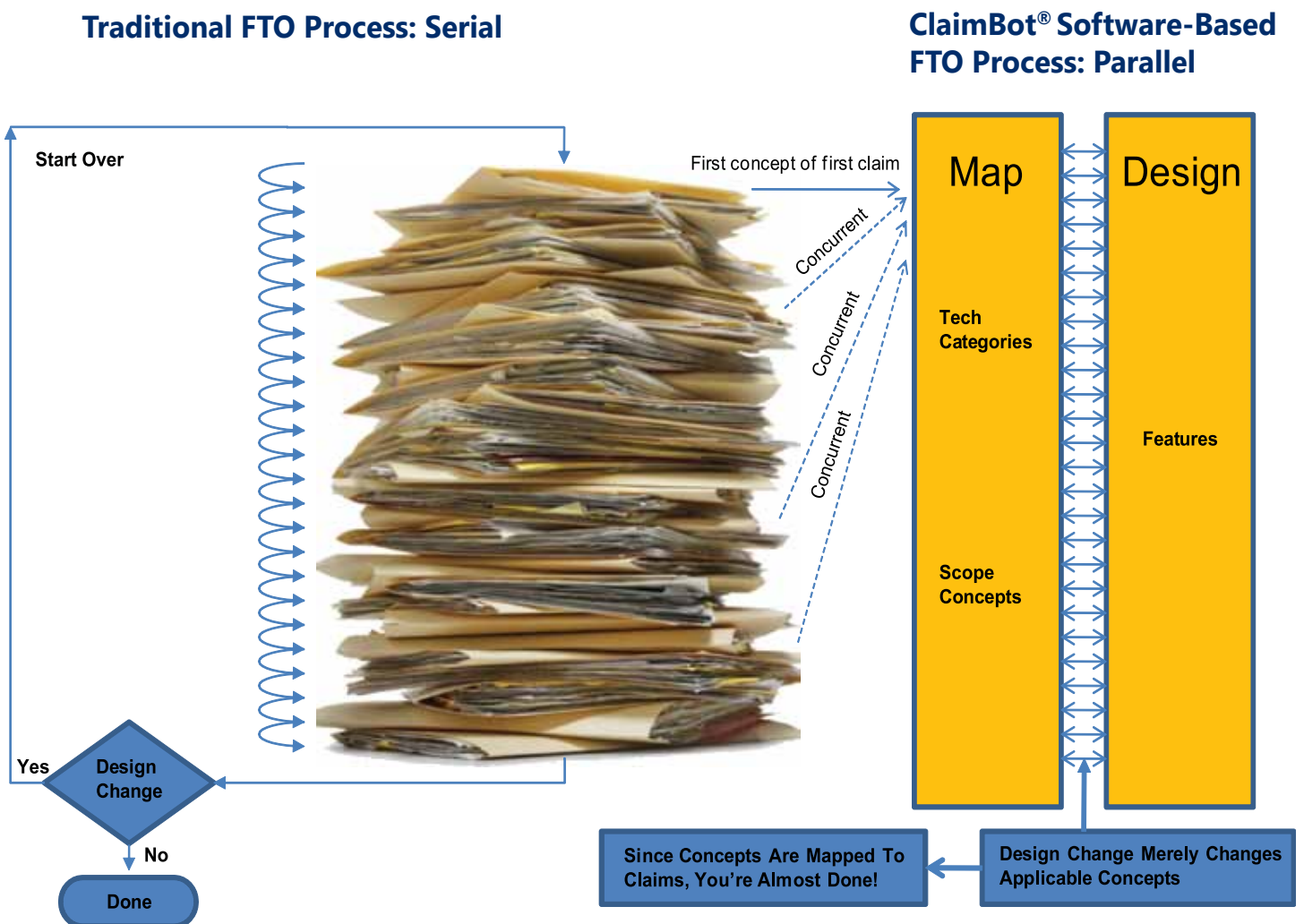
⁶ No independent claims with a **RED** background are present.

9. Update Claim Chart or Rescreen Scope Concepts for Upgraded or Modified Versions of the Target Product or Method

ClaimBot® software-produced claim charts are easily updatable. For example, if other potentially relevant patents issue or later become known, they can be easily added to the previous claim chart and addressed.

ClaimBot® software-produced claim charts can be used again and again at minimal additional cost. For example, if a target product or method design changes, the scope concepts can be quickly re-evaluated in light of the design changes. This capability also provides your engineers, scientists, and management with the ability to determine various possible design options or FTO scenarios, in real-time, earlier in the design process than previously possible using traditional FTO methods, and with minimal incremental cost.

FIG. 8: Incremental Cost of FTO Repetition - Traditional FTO versus SLW ClaimBot® Software-Based FTO



Conclusion

Systematically evaluating your FTO position before launching a new target product, before your design freeze, or even as early as concept review, can help minimize the risk of infringing valid patent rights of others, and can also improve your company's chances of finding business partners and attracting investors to support your business development plans.

With help from SLW and ClaimBot® software, you can evaluate your FTO position on various target product or method designs using our economical, methodical and easy-to-use process to limit your chances of facing potentially risky and expensive patent litigation.

SLW and ClaimBot® software have already been called on by numerous companies and universities of all sizes, as well as prominent Venture Capital (VC) firms, to perform cost effective FTO investigations. The feedback we have received supports our belief that ClaimBot® software and SLW's FTO process can fulfill your unmet needs.

- **A prominent VC firm has stated**, “You guys did a great job on the [FTO] diligence and truly separated yourself from the rest of the crowd.”
- **A CEO of a medical device startup remarked**, “[Our engineers] were impressed by the thoroughness and precision of your process. This, in turn, has helped me gain some more of their trust, which I appreciate.”
- **A major university has said**, “I really appreciate your [firm's] comprehensive effort to assure we include everything possible in the [ClaimBot® software-produced claim] map.”
- **A top US patent assignee commented**, “With the constant development of new technology, patent space gets tighter and tighter; therefore, the more help you can get from a tool like ClaimBot® software, the better.”
- **A former leader of a world-renowned company has stated**, “THANKS for your excellent work on [the new] program!!! I cannot imagine going through all those claims and sorting out what matters and what doesn't [without the use of ClaimBot® software].”

Similar concepts as those discussed in this informational booklet can also be leveraged for:

- **Due diligence**
- **Offensive assertion investigations**
- **Coverage review** - such as for resource allocation or false marking review
- **Invalidity** - prior art can be “indexed” to a claim chart to aid with invalidity investigations
- **Unclaimed subject matter** - specifications can be mapped against the claims to reveal interesting, unclaimed subject matter
- **Categorization** - patents in the FTO landscape can be grouped into one or more technology categories that can be integrated into ClaimBot® software-produced claim charts

About SLW

SLW is a patent law firm headquartered in Minneapolis, MN, with secondary offices in Silicon Valley, CA and Austin, TX. SLW practices in a variety of areas, including client counseling, patent prosecution, freedom-to-operate, pre-litigation advice, opinions, and licensing. Services comprise of portfolio planning and management, patenting high technology, developing and drafting (non-)infringement and (in-)validity opinions, performing due diligence investigations and drafting related opinions, counseling regarding adversarial situations, handling appeals, interferences and foreign oppositions.

The skills of the firm's attorneys span the full gamut of technologies; genetic engineering to pharmaceutical chemistry; integrated circuit fabrication to high-speed RF electronics; database management to parallel processing; implantable medical devices to robotics; optics and beyond. About 30 of the firm's attorneys work in the electrical arts, about 20 work in the computer software arts, and about 15 work in the mechanical arts. Approximately 15 attorneys work in the biotechnology arts, and about 10 attorneys work in the chemical arts and material sciences. Some attorneys work in more than one technology sector.

SLW enjoys an outstanding national reputation for providing high quality, high value legal services. SLW is consistently ranked in the top five patent quality firms in the U.S. by IP Law & Business, yet offers reasonable hourly rates or the option of fixed fees.

Further information about SLW can be found on our website, www.slwip.com, or by calling 612.373.6900.

About ClaimBot[®] Software

ClaimBot[®] software is a web-based tool that provides patent claim coverage information at a level of completeness and price never seen before in the Intellectual Property industry. Developed by SLW, this software tool rapidly retrieves, uploads, sorts, and helps analyze patent claims. In 2008, the SLW firm spun off a separate company called Lucid Patent, to administer, market and manage ClaimBot[®] software.

Additional information about ClaimBot[®] Software, including recent press releases, can be found at:

www.slwip.com/services/articles_white_papers/World-Intellectual-Property-Review-2008.pdf

www.bizjournals.com/twincities/stories/2008/10/06/focus1.html

www.lucidpatent.com

Questions concerning ClaimBot[®] software or SLW's use of ClaimBot[®] software can be directed to Steve Lundberg (SLW's Managing Partner), reachable by phone at 612.373.6902 or by e-mail at slundberg@slwip.com.



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