

EXHIBIT 1022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Orthocision, Inc.,
Petitioner

v.

Painteq, Inc.
Patent Owner

Case IPR2023-00625
U.S. Patent 11,020,129
Issue Date: June 1, 2021
Title: DRILL-LESS METHOD OF FUSING A SACROILIAC JOINT

SECOND DECLARATION BY TROY D. DREWRY

Petitioner Exhibit 1022

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I, Troy D. Drewry, hereby declare and state as follows:

I. INTRODUCTION AND SCOPE OF WORK

1. My name is Troy D. Drewry. I have been retained by petitioner Orthocision, Inc. as an independent expert in the relevant art. I herein provide further analysis of U.S. Patent No. 11,020,129 (the “‘129 patent”) and its claims, including interpretation of the claim language, certain prior art relevant to the ‘129 patent, and the question of whether the claims of the ‘129 patent are obvious in view of the relevant prior art. This declaration is submitted in connection with Orthocision’s corresponding reply to Patent Owner’s opposition to the Petition for *Inter Partes* Review of the “‘129 patent” (the “Petition”).

2. I have been asked to provide my opinions and views on the ‘129 patent based on the materials I have reviewed in preparing this declaration and my scientific and technical knowledge regarding the same subject matter. I have been asked to consider the meaning of certain terms in the challenged claims 1, 2, 9, and 10 and their meaning to one of ordinary skill in the art. I have also considered whether certain prior art references disclose or suggest the features, and the combinations of features, recited in the claims of the ‘129 patent. My opinions are set forth below.

3. My opinions are guided by my appreciation of how a person of

ordinary skill in the art would have understood the claims of the '129 patent at the time of the alleged invention. The earliest filing date potentially attributable to the '129 patent is October 4, 2019, and I have analyzed the claims of the '129 Patent based on prior art and information that was published and/or publicly known prior to that date.

4. I have based my opinion below on my experiences and expertise in the design of surgical devices and implants generally and my experience in developing sacroiliac fusion instruments and methods specifically. It is my opinion based on these experiences and expertise that certain references, as discussed in detail below disclose or suggest all the features recited in the claims of the '129 patent, that they were not new or novel as of the priority date of the '129 patent claims, that any differences from these prior references are trivial, and that these claims combine well known features in a manner that would have been obvious to one of ordinary skill in the art at the time of the alleged invention to provide predictable results.

5. For the reasons set forth below, it is my opinion that at least claims 1, 2, and 9-10 of the '129 patent would have been obvious to one of ordinary skill in the art in view of prior art spinal fusion, sacroiliac fusion, and spinal orthopedic procedures, instruments, and devices, well known

attributes and uses of such procedures, instruments, and devices and design features as disclosed in the prior art, and known design motivations in the related art that existed at the time of the alleged invention.

II. QUALIFICATIONS

6. I have extensive experience in the design, development, and manufacture of orthopedic implants and instruments, predominately for spinal applications, spanning a career of over twenty-five years in the field. My relevant expertise includes the design of bone fixation systems including plates and screws and the relevant biomechanical principles and constraints associated with implantation into a living patient. My expertise further includes spinal instrument design, including spinal implants and systems, spinal screw systems, plates, vertebral body spacers, spreader systems, among others. My most recent Curriculum Vitae included as Exhibit 1018.

7. I also have extensive consulting experience in the design and development of medical devices. My consulting experience has involved project management, engineering design and development, design control and design history file (DHF) management, intellectual property landscape and analysis, and forensic engineering and expert witness services, all directed to medical devices.

8. I have served on many professional committees and organizations. For example, I have served as a member of the Engineering Advisory Board for the University of Mississippi, the Engineering Biotech Advisory Board for Christian Brothers University, the Industrial Advisory Board for the University of Memphis' Department of Mechanical Engineering, the American Society of Mechanical Engineers, the American Society of Testing and Materials, and the Industrial Advisory Board for the University of Southwestern Louisiana's Department of Mechanical Engineering, and a former member of the Society of Biomedical Engineers, the Orthopedic Research Society, and the Society of Biomaterials. I have also received the Engineer in Training (EIT) designation from the National Council of Examiners for Engineering and Surveying (NCEES).

9. I earned my Bachelor of Science in Mechanical Engineering (CAD/CAM Option) from the University of Southwestern Louisiana in 1992, my Masters of Biomedical Engineering from the University of Memphis in 1994, and my Masters of Engineering Management from Christian Brothers University in 2000.

10. I am a named inventor on over sixty patents on technology including bone screw assemblies, spinal deformity reduction, fusionless scoliosis treatment, connector assemblies, implant devices, shape memory

alloy staples, vertebral body spacers, tensioning instruments, adjustable spine tethers, vertebral rod assemblies, vertebral stabilization assemblies, and expandable anterior lumbar interbody fusion devices. In addition to designing and inventing new technologies, I have, throughout my career, mentored, trained, and supervised young engineers and appreciate how a less experienced engineer would perceive the prior art and approach the technical problems disclosed in the prior art.

11. I am being compensated for my time spent on the present matter at my standard consulting rate of \$450 per hour for most work and \$650 per hour while I am giving testimony, for example, in a deposition. My compensation is not in any way contingent on my performance, the result of this proceeding, or any of the issues involved therein. I am also being compensated for actual expenses incurred as a result of activities performed as an expert.

III. LEGAL PRINCIPLES

12. I understand that, in *inter partes* review, patent claims are given their ordinary and customary meaning to a person of ordinary skill in the art at the time of the invention, by considering the claims, specification, and prosecution history, as well as evidence extrinsic to the patent, when

construing patent claims. I further understand that under this legal standard, the claim language is read in light of the specification, as it would be interpreted by the person of ordinary skill in the art (defined below). I also understand that the words in a claim are generally given their ordinary and accustomed meaning, unless the inventor has provided a specific definition in the specification or the file history of the patent.

13. I have been informed that anticipation of a claim requires that every element of a claim is disclosed expressly or inherently in a single prior art reference, arranged as in the claim.

14. I have been informed that in order to assess whether a claim is obvious in light of the prior art, I must analyze the claims from the perspective of a hypothetical “person of ordinary skill in the art” when the invention was unknown and just before it was made. I have also been informed that when considering the obviousness of a patent claim, one may consider whether there existed at the relevant time a teaching, suggestion, or motivation provided in the prior art that would have led one of ordinary skill in the art to modify the prior art or to combine prior art teachings to arrive at the claimed invention. I understand that other rationales that may support a conclusion of obviousness include, but are not limited to: combining prior art elements according to known methods to yield predictable results; the

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simple substitution of one known element for another to obtain predictable results; the use of a known technique to improve similar devices or products in the same way; the application of a known technique to improve a known device or product ready for improvement to yield predictable results; choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and variations of known work or designs based on design incentives or other market forces where the variations are predictable to one skilled in the art. I have been informed that hindsight is impermissible and that the obviousness or non-obviousness of a claim must be determined on the basis of the facts gleaned from the prior art and the knowledge of a person of ordinary skill at the relevant time. I have been informed that I must, in view of all of the factual information, determine whether the claimed invention “as a whole” would have been obvious at the relevant time to the hypothetical person of ordinary skill in the art. I have been informed that in an *inter partes* review, a prior art reference must be construed in its entirety, including portions that would teach away from the claimed invention.

IV. STUDY

15. My opinions set forth in this declaration are based on my education, training, and experience as described above as well as the information pertaining to the '129 patent, Exhibits 1001-1016, 1019-1021, 1023-1024, and 2001-2005, and Papers 3, 7, 10, and 16 submitted in the present *Inter Partes* Review.

16. In preparing this declaration, I have read and understood Ex. 1001, the '129 patent", including its specification, figures, claims, and file history.

17. I have also reviewed several prior art patents, patent applications, and other printed publications. I have read, understood, and rely upon the documents in the Exhibit List in forming my opinions, which is attached as Appendix A.

18. Further, I am familiar with certain sacroiliac fusion methods and devices that I have helped to design or have encountered as part of my professional career.

V. LEVEL OF ORDINARY SKILL IN THE ART

19. I understand that a person of ordinary skill in the art is presumed to be aware of all pertinent art and is a person of ordinary creativity. As

such, the level of ordinary skill in the art is evidenced by the prior art. I understand that the Board has defined a person of ordinary skill with respect to the subject matter of the '129 patent as someone with at least a Bachelor's of Science in Mechanical, Biomechanical or Biomedical engineering, or a related field of science, as well as at least three years of experience in the field of orthopedic implants or would be a practicing spinal orthopedic surgeon with at least 3 years of experience and at least some experience in the design and/or use of spinal orthopedic implants, such as with sacroiliac joint fusion procedures and the surgical tools required to perform such procedures. Such a POSITA would have at least had knowledge of spinal joint fusion implants, surgical instruments for spinal fusion surgeries, and the application of fusion implants in spinal fusion procedures and/or sacroiliac fusion procedures.

VI. CLAIM CONSTRUCTION

A. CLAIM TERMS IN DISPUTE

20. I have reviewed the Patent Owner's Preliminary Response to the Petition ("Preliminary Response") and Patent Owner's Response to the Petition ("PO Response"), as well as Dr. Bovinet's First Declaration (Ex. 2001) and Second Declaration (Ex. 2005) in support of the Preliminary

Response and PO Response, respectively. I find that the positions taken in the Preliminary Response, PO Response, and Dr. Bovinet's First and Second Declarations attempt to import limitations from the Specification of the '129 Patent into the claims without good reason for doing so.

1. “Open Tip”

21. In the Decision Granting Institution of *Inter Partes* Review (the “Decision”, Paper 10), the Board adopted the following construction of the claim term “open tip”: the tip of the abrading head is open to an interior void of the abrading head. (Paper 10, 19). The board imports the requirement of an “interior void” into the claims that is not a recited limitation. The claim can be understood without the importation of an “interior void” as a structure of the abrading device into the claims. The claims recite a method of forming an implant void in a sacroiliac joint in which “the open tip cuts bone tissue away from the sacrum or the ilium and the abrading surfaces decorticate the cortical bone inside the sacroiliac joint, thereby forming a decorticated implant void” (see the last step of Claim 1 of the '129 Patent). The abrading device recited in Claim 1 does not require an “interior void” in order to accomplish this task, and should not be so limited. The abrading head of Claim 1 has abrading surfaces “capable of abrading a cortical bone of the sacroiliac joint” and an open tip with a “cutting edge

configured to cut bone tissue in the sacroiliac joint”. There is no recitation of an “interior void” in the abrading head or a need to include such an interior void in the claim construction of the term “open tip”.

22. The Specification of the ‘129 Patent discloses that “[i]n one *embodiment*, shown in FIGS. 14 and 15, the abrading head 32 is a generally rectangular member comprising abrading surfaces 33 on a first pair of opposing sides of the head 32, an open tip 34 for insertion into the SI Joint 3, and a second pair of opposing sides 35 between the abrading surfaces 33, the second pair of opposing lateral sides 35 having one or more lateral openings.” (Ex. 1001, 6:18-25; emphasis added). Thus, the ‘129 Patent clearly contemplates multiple embodiments of the abrading head, and should not be limited to a single embodiment or embodiments that require an “interior void”.

23. Additionally, the function of the abrading head recited in Claim 1 can be accomplished without an interior void. To illustrate, an abrading head may alternatively have a wedge structure behind the “cutting edge disposed at a leading edge of the open tip” that diverts bone tissue from the cutting edge as the abrading device is advanced into the sacroiliac joint, allowing the abrading head to advance without obstruction from bone tissue removed from the sacrum or ilium. Because the ‘129 Patent contemplates other

embodiments of the abrading device and the function of the abrading device as recited in the claims can be accomplished without an “interior void”, the construction of the term “open tip” does not require an interior void.

24. In the Reply to PO Response, Petitioner offers an updated construction of the term open tip: an open cutting edge that allows the passage of bone tissue during the advancement of the abrading head. Petitioner’s proposed claim construction provides a definition that captures the function of the abrading device as recited in the claims without importing unnecessary limitations from the Specification of the ‘129 Patent.

25. The construction of the term “open tip” offered by Patent Owner in the PO Response attempts to further import limitations into the term “open tip” that are not in the claim language, unnecessary to the interpretation of the claims, and go well beyond a POSITA’s interpretation of the claims. The Patent Owner states that the “interior void” in the Board’s construction should mean that the void is “on the interior of the abrading head – i.e., behind the exterior abrading head surfaces (or between the interior surfaces of the first pair of the opposing sides)”. (Paper 16, 4-5). This definition appears to be a second attempt to have “open tip” construed to include an enclosed void in the abrading head, which the Board rejected in the Decision. (Paper 10, 18).

26. For support for this position, the Patent Owner points to the ‘129 Patent disclosure of “abrading surfaces 33 and lateral sides 35 form a box-like abrading head 32 having a void therein” at col. 6, ll. 31-33. (Paper 16, 5). This excerpt of the ‘129 describes structures that are not present in the claims (i.e., the lateral sides 35 and an interior void). Patent Owner also points to FIG. 14 to make the argument that “[t]hese necessary aspects – i.e., the “opening” and “interior void” -are clearly depicted in Figure 14 of the ‘129 Patent”. (Paper 16, pp. 5-6). What is clear is that Patent Owner is attempting to have the abrading head recited in claims be interpreted as closely to the embodiment shown in Figure 14 as possible. However, as explained above, a POSITA would not interpret the claims to include an interior void, let alone an enclosed interior void or an interior void that is an interior space behind the exterior abrading surfaces, as suggested by Patent Owner.

27. Patent Owner points to my deposition testimony as support for its proposed interpretation of an open tip. I mentioned that there are tools that have an “opening or void” behind their cutting edges to allow tissue removal. (Ex. 1017, 29:22-25). Patent Owner attempts to use this statement to support its position that the abrading head recited in the claims of the ‘129 Patent must have an interior void that is an “interior space behind the

exterior abrading surfaces”. (Paper 16, p. 5). However, the conclusion that a POSITA would interpret the “open tip” recited in the claims of the ‘129 Patent consistent with Patent Owner’s proposed construction does not follow from the simple fact that tools having an opening or void exist. There are functional chisel designs that do not have an enclosed void. As explained above, there is no “interior void” recited in the claims, and a POSITA would recognize that the function of the abrading head recited in the Claim 1 can be accomplished without an “interior void”.

2. “Releasing Means”

28. In the Decision, the Board adopted the following construction of the claim term “releasing means”: a mating threaded connection, a quick disconnect attachment, a depressible tab, a latch, a clasp, a clip, or a clamp, releasably connecting a hammer sleeve to a base, and equivalent structures. (Paper 10, 24). The definition does not need to be limited to include a “base” as shown in the Figures of the ‘129 Patent with respect to either the location or form of base 51. As acknowledged in the Decision, the claims of the ‘129 Patent do not recite a “base”. (Paper 10, p. 23). The Board stated that “releasing means” is a means-plus-function limitation that is interpreted by (1) identifying the claimed function, and (2) determining what structure,

if any, disclosed in the Specification of the '129 Patent corresponds to the claimed function. (*Id.* at p. 20).

29. The function of the of the “releasing means” is “transitioning the slide hammer assembly between the locked position and the released position”, as recited in Claim 1. (Paper 10, p. 20). The releasing means structures listed in the Specification are “a mating threaded connection, a quick disconnect attachment, a depressible tab, a latch, a clasp, a clip, [or] a clamp.” (Ex. 1001, col. 7, ll. 9-12). These various forms of connecting devices are operable to attach to various structures in slap hammer assembly. For example, a latch or clip may connect to a “base” positioned at either the proximal or distal end of a slide hammer shaft. To illustrate, a clip or a latch may provide a fixed connection between the hammer sleeve and the shaft itself. In his deposition testimony, Dr. Bovinet acknowledged that a hammer sleeve can be locked and unlocked from the slide hammer shaft itself. (Ex. 1021, 32: 18-21). The shaft may have a recess through all or a portion of its diameter through which the latch or clip passes, thereby mechanically arresting the position of the hammer sleeve. Another possible arrangement is that the slide hammer shaft has one or more longitudinal plates that nest in corresponding keyways in the hammer sleeve, and a latch or clip passes through a hole or recess in one of the plates to arrest the position of the

hammer sleeve. In these cases, the releasing means (a latch or clip) does not connect to a structure limited to base 51 depicted in the figures of the '129 Patent. Thus, defining a "base" to be as depicted in the drawings is not necessary to the function of the "releasing means" recited in the claims. Such a "base" is not recited, and a POSITA would not interpret the "releasing means" to require a connection to such a limited structure as base 51 to accomplish the function of transitioning the slide hammer assembly between the locked position and the released position, as recited in Claim 1.

30. Furthermore, the term "base" is broad enough to encompass various structures and shapes including the structures discussed above, and should not be limited to a circumferential structure positioned at the point between the slide hammer shaft and an abrading tool assembly. No such limitation is present in the claims and no such limitation is required to accomplish the recited function of the "releasing means". As stated by the Board, the identified corresponding structure must be limited to only that which is necessary to perform the recited function. (Paper 10, p. 23). The Board also stated that the broadest description of a "base" is something connected to a shaft to a releasing means releasably connects. *Ibid.* A POSITA would understand the "releasing means" to attach to a "base", which may be any structure that would allow a mating threaded connection,

a quick disconnect attachment, a depressible tab, a latch, a clasp, a clip, or a clamp to releasably hold the hammer sleeve in a static position in the slide hammer assembly.

31. Patent Owner's proposed construction ("an interface between a distal end of a hammer sleeve and a base for releasably connecting the distal end of the hammer sleeve to the base, and equivalent structures") goes well beyond the required the structure of the releasing means disclosed in the Specification and the corresponding structure which is necessary to perform the recited function. Again, the Patent Owner is attempting to import the specific embodiment shown in the Figures of the '129 Patent into the construction of the claims, which is far more narrow than the interpretation a POSITA would apply to the "releasing means" recited in the claims.

32. Additionally, I do not agree with Dr. Bovinet's statements in his deposition that alternative arrangements of a base and releasing means connection would be less stable. (Ex. 1021, 72:23-75:8). As proposed during the Deposition by Attorney William Nelson, a slide hammer assembly having a similar construction to the embodiment shown in Figures 16-17 of the '129 Patent, but with a thread connection between the stop end 46 and a proximal interior end of the hammer sleeve 31 and a smooth collar in place of threading 43 on base 51 would be provide a stable and functional

alternative to the embodiment shown in the Figures of the '129 Patent. The physical geometric tolerance between a smooth collar in place of threading 43 and the interior diameter of the hammer sleeve can be very tight and controlled, with a concentric gap of in a range of 0.025 mm to 0.050 mm. This would provide a very close, tight fit that would eliminate torque or movement between the hammer sleeve 31 and the base 51 sufficient to cause any damage or chipping when the device is used as a slap hammer with the hammer sleeve 31 locked in position by the releasing means.

33. Dr. Bovinet expressed a concern of the device chipping and contaminating the surgical field. (Ex. 1021, 72:23-75:8). This assertion does not hold up to scrutiny. There are several points of contact in the embodiment shown in the Figures of the '129 Patent between the abrading tool 30 and the working channel 10 that have a dynamic sliding interaction that are directly exposed to the surgical field when the slide hammer assembly is used as a slap hammer. For example, (a) the keying means 37 is positioned in a sliding arrangement with the alignment means 17 of the working channel 10 and (b) the sleeve on which the keying means 37 is positioned is in a sliding arrangement with the interior surface of the working channel 10 as a mallet or other driving tool applies force to the proximal end of the slap hammer assembly to advance the abrading device

into the sacroiliac joint. If the frictional interactions of these structures are acceptable for use in a sacroiliac fusion procedure, the interactions of the distal interior diameter of the hammer sleeve 31 with a smooth collar at base 51 should be acceptable as well.

34. Thus, the releasing means recited in the claims may be interpreted as provided by the Board, with the qualification that a “base” is any structure in a slide hammer assembly to which a releasing means (a mating threaded connection, a quick disconnect attachment, a depressible tab, a latch, a clasp, a clip, or a clamp) may be releasably connected.

VII. PRIOR ART

A. SHARMA

1. *Releasing Means*

35. Dr. Bovinet’s Second Declaration states that the locking mechanism 42 of Sharma (Ex. 1009) serves a similar function to the “releasing means” recited in the claims of the ‘129 Patent. (Ex. 2005, ¶ 39). As defined by Claim 1, the function of the releasing means is the same as the locking mechanism 42: “transitioning the slide hammer between locked and released position”. *Ibid.* Dr. Bovinet’s distinctions between the function of the “releasing means” recited in the claims of the ’129 Patent and the

locking mechanism 42 of Sharma are based in the presumption that the “releasing means” should be interpreted as proposed by Patent Owner, with the releasing means being restricted to a connection between a distal end of the hammer sleeve and a base positioned between the abrading device and the slide hammer assembly. *Ibid.* This interpretation imports limitations from the Specification and Drawings of the ‘129 Patent that are not present in the claims, as discussed above.

36. Dr. Bovinet’s statements are largely based on the side-by-side comparison of Figure 17 of the ‘129 Patent and Figure 1 of Sharma. (Ex. 2005, ¶ 41). In this comparison, Dr. Bovinet points out that the device of Sharma has essentially the same features as the abrading device of the ‘129 Patent: both have a surgical tool, slide hammer shaft, base, and hammer sleeve. *Ibid.* However, Dr. Bovinet defines structure 31 of Sharma as the “base” of the device disclosed by Sharma. *Ibid.* This interpretation is apparently based on multiple incorrect assumptions: (1) that the “releasing means” in the claims is the same as the releasing means/base combination in embodiment of the abrading device shown in Figures 16-17 of the ‘129 Patent, (2) that the releasing means is construed to have a base that is positioned at the distal end of slide hammer shaft, and (3) that a base is defined by location, not function.

37. As explained herein, a POSITA would not interpret the “releasing means” to require a construction that includes a base on a specific position on the slide hammer assembly, and the Board’s construction of “releasing means” is consistent with this interpretation. Thus, a base to which the releasing means engages can be functionally positioned at the distal end of the slide of a slide hammer shaft, the proximal end of the slide hammer shaft, or other positions. It is not limited to the position of base 51 shown in the Figures of the ‘129 Patent.

38. The Board has stated that in the case of a means-plus-function limitation, the identified corresponding structure must be limited to only that which is necessary to perform the recited function. (Paper 10, p. 23). Again, the focus is on the function of the “releasing means”, not the location of the “base”. The releasing means can be accomplished with a base located at different locations in the slide hammer assembly, and thus the interpretation of “releasing means” by Dr. Bovinet is unreasonably narrow with regard to the location and structure of a “base” to which the releasing means connects.

2. Dr. Bovinet’s Comments on Sharma

39. In his deposition, Dr. Bovinet stated that Sharma appeared to be flimsy and made of plastic, and may be intended for soft tissue. (Ex. 1021,

80:11-81:8). There is no suggestion in Sharma that the disclosed universal impactor and slap hammer combination (“Device 10”) is made of a plastic material. Furthermore, plastic impactors and slide hammers are not known to be used in surgery. A POSITA would presume the design disclosed in Sharma is of metal construction, such as stainless steel or titanium, which are the most common materials used in surgical instruments like impactors, slide hammers, and slap hammers. During his deposition testimony, Dr. Bovinet was apparently judging the material based on the appearance of the disclosed Device 10 as shown in FIG. 1, as he was reviewing a copy of FIG. 1 on page 17 in his Second Declaration when he made the statements regarding the material of the Device 10 disclosed in Sharma. (Ex. 1021, 78:2-81:8). I am familiar with three-dimensional Computer Assisted Drawing (CAD) models, and it is my belief that the appearance of the Device 10 in Figure 1 of Sharma (e.g., smooth surfaces with different shades) results from the drawing being an exported image of CAD model from CAD drafting software. Exported CAD model images typically have this kind of appearance. Thus, the appearance of the Device 10 of Sharma in Figure 1 of Sharma would not suggest to a POSITA that the Device 10 is made of plastic or otherwise suggest that it cannot be used in combination

with a surgical tool head in an orthopedic surgery to cut and decorticate bone.

40. Based on my review of Dr. Bovinet's deposition, Dr. Bovinet apparently believes that the proximal slap hammer configuration of Device 10 of Sharma would be unstable compared the midshaft, threaded connection as shown in the drawings of the '129 patent. (Ex. 1021, 80:11-81:8). Sharma relies upon a quick connect mechanism to lock the slide hammer sleeve 11 at the proximal end of the instrument shaft in contrast to the distal threaded mechanism of the '129 Patent. (Ex. 1009, 9:7-12). Sharma discloses a locking mechanism at the proximal end of central shaft 41 that locks the hammer sleeve 11 and impaction end 41 to the slap hammer shaft. (Ex. 1009, 4:1-32, 20:6-25). This locking mechanism allows the tip of the central shaft to click into place and thereby turn the device into an impactor and a spring-loaded button 42 can be pressed to release the connection between the shaft and handle 11 to turn the device into a slide hammer. (Ex. 1009, 20:6-17). The structure that is released when button 42 is pressed is a proximal bullet shaped tip 22 that is adapted to mate to the integrated hollow cavity in hollow handle 11 to the proximal impaction end 41. (*Id.* at 6:7-10). The bullet shaped tip 22 is effectively a ball detent and this kind of locking mechanism is a quick release.

41. A POSITA would consider the quick connect mechanism 42 to be as stable as a threaded mechanism. The quick connect mechanism 42 also offers advantages over the threaded connection shown in the drawings of the '129 Patent of allowing for quicker and more reliable connections during the surgical procedure, eliminating the risk of cross-threading and the time-consuming task of aligning the threading connection to avoid cross-threading the connection.

42. The slide hammer sleeve 11 of Sharma would be stable when engaged quick connect 42 is engaged to hold the slide hammer sleeve 11 in position as the Device 10 is being used with a slap hammer to drive the surgical tool into a joint. Sharma states in its Abstract that “[t]he impacting/extracting device is effective in applying an axial force to the medical instrument to efficiently and effectively prepare a bone structure, insert or remove implant trial, insert or remove implant, or to remove a medical instrument from the bone structure”. (Ex. 1009, 1:Abstract). There is no disclosure in Sharma that suggests that the Device 10 is not sufficiently robust or stable for use as an impactor or slap hammer in driving a cutting or decorticating tool (e.g., a chisel, broach, rasp, or other cutting or decorticating tool) into a joint to cut or decorticate bone tissue. There is also no disclosure in Sharma that suggests that the quick connect mechanism is

not sufficiently robust or stable to hold the slide hammer sleeve 11 of Sharma in position as the Device 10 is used as an impactor and impactation head 43 is struck by a mallet.

43. Patent Owner attempts to undermine my credibility by arguing that I identified two different bases in the figures of Sharma. (Paper 16, 27). As previously explained, there is no “base” in the claims and I took counsel’s meaning of the word base in a general sense. Additionally, Patent Owner makes the argument that I misidentified proximal end 41 as the base, when the hammer sleeve/proximal end 41 actually connects to the proximal end of the shaft. (Paper 16, 27). However, Patent Owner’s counsel was only showing me Figure 1 of Sharma during this line of questions, which does not show the proximal end of the shaft. (Ex. 2004, 59:11-78:21). I identified the proximal end 41 as the closest analogous structure in Figure 1. I also requested to read the specification of Sharma to refresh my memory multiple times, but Patent Owner’s counsel did not provide me with an opportunity to review Sharma, and instead pressed me for definitions of specific structures in Figure 1 of Sharma. (Ex. 2004, 77:1-21). Despite being pressed on questions without the opportunity to refresh, I correctly stated that the button on the proximal end 41 of the slide hammer assembly is

pushed to release a ball detent and allow the sleeve to travel up and down shaft 41. (Ex. 2004, 78:10-18).

B. COMBINATION OF COMPTON, DONNER, OTTE, AND SHARMA

44. As explained in my First Declaration, I have worked in the field of spinal orthopedic medical devices for decades. (Ex.1017, ¶¶6-7; Ex. 1018). There are many similarities of the function and structure of the sacro-iliac joint and intervertebral joints, and professionals in the field of spinal orthopedics have been adapting instruments traditionally utilized in spinal and intervertebral disc surgeries. (Ex.1017, ¶¶29-30). The interbody fusion procedures are particularly adaptable to sacroiliac fusions as both procedures involve weight-bearing spinal bones with large, substantially planar articular surfaces. (Ex.1017, ¶36). This truth makes adapting tools used in intervertebral disc fusions to SI joint fusions an obvious choice to a POSITA. (Ex.1017, ¶30). Drill-less spinal surgeries and their corresponding benefits over drill-based methods (e.g., reducing soft tissue retraction, creating a complementary space for an implant) were well known to a POSITA as of the filing date of the '129 Patent. (Ex.1017, ¶¶32-34). It would be obvious to apply the lessons of these spinal surgeries to SI Joint fusion procedures. (Ex.1017, ¶34).

45. Combinations of instruments and steps from the prior art cited in the Petition are nothing more than routine commonplace adaptations of well-known methods and instruments (e.g., cannulas, slide hammers, chisels, and rasps), guided by known anatomical attributes or constraints that achieve the same or similar functions in SI fusion procedures, and therefore yield safe and predictable results when used together. (Ex.1017, ¶¶36-37). Surgical instruments such as cannulas, slide hammers, chisels, and rasps can be adapted between surgeries of various implant types and shapes, and are regularly adapted to adjust surgical approaches or to novel surgical methods addressing the same or similar medical conditions. Each of the steps and instruments combined in the grounds of unpatentability (Grounds 1-5) were well-known and the claims of the ‘129 Patent cover simple combinations of these known steps and instruments that would be obvious to a POSITA.

46. Patent Owner’ arguments ignore the foregoing explanation of why the combinations of cited prior art references in Grounds 1-5 would be obvious to a POSITA. (Paper 16, 30-38). Patent Owner instead selectively picks at the distinctions between pairs of prior art references, such as pointing out how instruments of Donner that are not discussed in grounds of unpatentability are different from the instruments of Compton. (Paper 16,

31-32). This approach is not a fair reading of the Petition or my First Declaration.

1. Compton and Donner

47. With respect to the combination of Compton (Ex. 1004) and Donner (Ex. 1006), Patent Owner minimizes the statements of motivation in the PO Response (Paper 16, 30-31), failing to acknowledge that my First Declaration states that Compton and Donner both disclose “posterior approaches for SI Joint fusion with an implant inserted into the articular space between the sacrum and ilium with similar instrumentation”. (Ex.1017; ¶111). Despite Patent Owner’s arguments, there is significant overlap in the methodology of Compton and Donner, as both utilize a posterior cannula approach, both utilize a rasping tool to decorticate the bone prior to insertion of a fusion implant, and both utilize a fusion implant that is inserted between the articular surfaces of the sacrum and ilium.¹

48. Patent Owner takes issue with the statement that “[b]oth Compton and Donner discuss using rasps and chisels for preparing the SI Joint for a fusion implant”. While Patent Owner’s statement that Compton does not expressly disclose the use of a chisel is correct, this statement was

¹ There are other SI fusion techniques that utilize implants and surgical screws that pass through the sacrum and ilium across the SI Joint.

due to drafting oversight, and there remains significant overlap between the disclosures of Donner and Compton. Compton uses multiple tools (a drill and broach) to accomplish the formation of a void in the SI joint for a fusion implant. (Ex. 1004, 4:14-44). The rationale for combining the joint preparation tool of Donner with the method of Compton still holds because “the joint preparation tool of Donner prepares the SI Joint and articular surfaces of the SI Joint with a single tool, instead of multiple separate tools” and both methods are posterior sacroiliac approaches that use well known types of surgical tools to accomplish the same purpose of sacroiliac fusion. (Ex. 1017, ¶111).

49. Patent Owner’s statement that Donner doesn’t disclose a chisel is plainly false. (Paper 16, 32). As acknowledged by the Board, Donner discloses a box chisel. (Paper 10, 40). Furthermore, the tooling head 52 shown in Figures 23A-23D acts as a chisel, with cutting elements 192 having a leading cutting edge 216 that cuts bone tissue. (Ex. 1006, ¶188).

50. Patent Owner also tries to undermine the combination of Compton and Donner by pointing to the various instruments in Donner that are not present in Compton. (Paper 16, 31-32). This is not how a POSITA would interpret the disclosures of Compton and Donner. Rather than looking at distinctions, a POSITA aware of the disclosure of Compton and Donner

would be motivated to use the joint preparation tool of Donner with its improvements in efficiencies and apply the joint preparation tool of Donner to the method of Compton. My first declaration explains that the joint preparation tool of Donner includes “a slap hammer portion, and thus provides a single tool that in includes a cutting tool and slap hammer functionalities operable to efficiently prepare the SI Joint for the insertion of a fusion implant”. (Ex.1017; ¶111).

2. Otte

51. My first declaration also states that the increases in efficiency by combining the joint preparation tool of Donner with the posterior approach of would be predictable, particularly when combined with the teachings of Otte (Ex. 1007). (Ex.1017; ¶111). Otte discloses methods and instruments for preparing the intervertebral disc space for implants in a spinal fusion surgery and methods of preparing the spinal disc space. (Ex 1007, ¶¶[0056]-[0059]). As previously explained, spinal fusion surgeries are closely related to SI Joint fusion surgeries as they both deal with fusion of vertebral bones, both are performed by orthopedic spinal surgeons, and they use similar tool sets in similar manners. (Ex.1017; ¶¶30-39,112). Patent Owner’s statement that the explanation of the motivation to combine Otte with Compton and Donner is “generic” and “conclusory” conveniently

ignores my discussion provided in ¶¶29-39 of my First Declaration (see also Paper 1,).

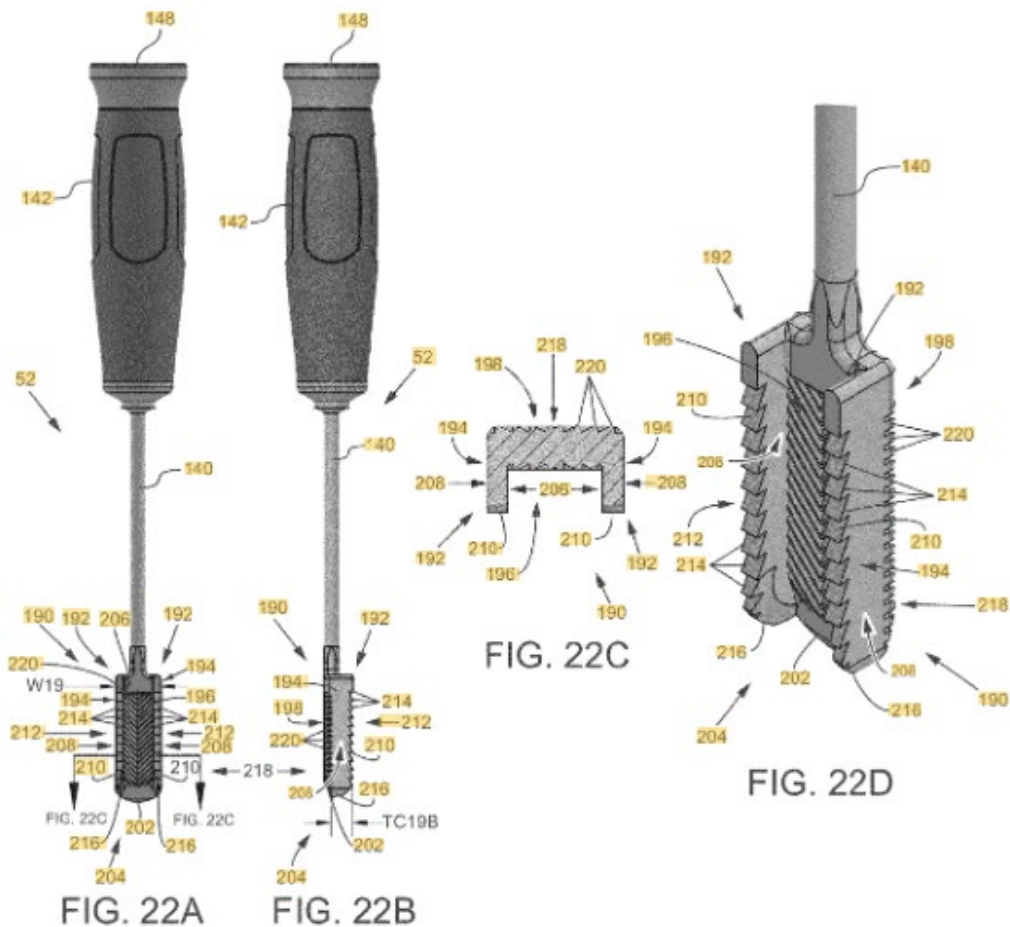
3. Sharma

52. With regard to Sharma, a POSITA would recognize that Sharma discloses a device that is essentially the same in function as the joint preparation tool of Donner with the additional feature of a locking mechanism for arresting the slide hammer to allow it to function as an impactor. The petition points out that it would be obvious to incorporate the additional functionality provided by the teachings of Sharma to the combination of Compton and Sharma. (Paper 1, 53). The benefit of the additional functionality is sufficient motivation for a POSITA, and it would be self-evident to a POSITA that the combination of a locking mechanism with the joint preparation tool of Donner would be a functional combination.

C. DONNER’S “OPEN TIP” AND “VOID”

53. In his Second Declaration, Dr. Bovinet stated that the abrading head shown in FIGS. 22A-22D of Donner does not include an “open tip” or a “void”. (Ex. 2005, 46). With regard to a “void”, Dr. Bovinet is apparently basing his position on the assumption that a void must be enclosed. To illustrate, Dr. Bovinet acknowledged in his deposition that the tooling head 52 of Donner includes two parallel cutting elements 192 that are arranged on

opposing sides of surface 196 and that there is a “gap” between them (Figures 22A-22D are reproduced below for convenience). (Ex. 1021, 88:22-90:11).



However, Dr. Bovinet later stated that there is no open space or void between the parallel cutting elements 192. (Ex. 1021, 89:11-90:23). Dr. Bovinet later states that he considers an “open space” or a “void” to be “[m]ore of a closure around something that has an opening in it... [a] space that is bordered by objects and most of all of its sides or all sides without

anything within”. (Ex. 1021, 91:11-24). This is a strained definition of a void or empty space. There is no meaningful distinction in the relevant art between “void”, “open space”, and “gap”. These are not terms of art with respect to the structure of orthopedic surgical instruments.

54. As shown in the cross-sectional view of Figure 22C of Donner, there is a space or void between the parallel cutting elements 192 and rasping surface 196, which can be clearly seen where reference number 206 is positioned. This void is bordered on three sides by the cutting elements 192 and the rasping surface 196 to create a void with a rectangular cross-section.

55. Furthermore, the definition of an open tip does not require enclosure on all sides. The Board defined an “open tip” as being open to an interior void of the abrading head. (Paper 10, 19). This definition does not require an enclosure of a void on all sides, as suggested by Dr. Bovinet. There is certainly a void between the opposing cutting elements 192 of Donner and an opening that leads to that void. Thus, the tooling head 52 shown in Figures 22A-22D has an “open tip”.

56. To summarize:

1. The tooling head 52 of Donner includes two opposing sides (cutting elements 192), each with leading cutting edges 216, which Dr. Bovinet confirmed. (Ex. 1021, 94:4-95:17).
2. The cutting elements 192 cut bone tissue in the sacroiliac joint, which Dr. Bovinet confirmed. (Ex. 1021, 98:4-6).
3. The cutting elements 192 also include abrading structures (teeth) 214 that decorticate bone tissue, which Dr. Bovinet confirmed. (Ex. 1021, 96:11-16;98:4-9).
4. The cutting elements 192 have a gap between them, which Dr. Bovinet confirmed. (Ex. 1021, 96:11-16;98:4-9).
5. There is an opening between leading edges 216 of cutting elements 192 leading to the gap between the cutting elements 192.

Thus, Donner discloses a tooling head having opposing sides with a gap between them, each opposing side having a leading cutting edge and abrading surfaces (teeth), each opposing side leading cutting edges that cut bone tissue, and an open tip that leads to the gap.

57. As a result, the tooling head 52 of Donner, thus performs all of the functions of an abrading head as described in the plain language of Claim 1 of the '129 Patent:

an abrading head at a distal end of the abrading device, the abrading head having:

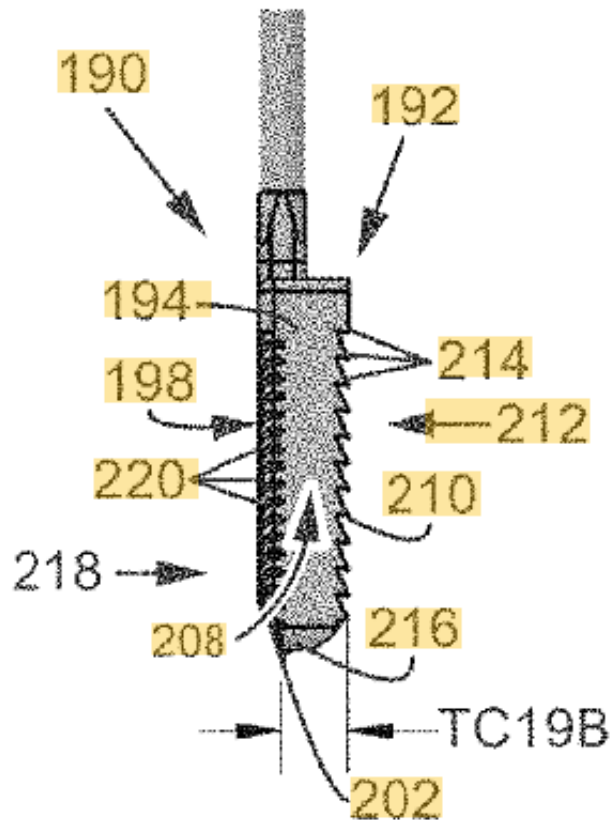
abrading surfaces on each of a first pair of opposing sides, the abrading surfaces comprising one or more teeth, barbs, blades, ridges, slots, broaches, or other members capable of abrading a cortical bone of the sacroiliac joint; and

an open tip comprising a cutting edge disposed at a leading edge of the open tip, the cutting edge configured to cut bone tissue in the sacroiliac joint;

advancing the abrading device into the sacroiliac joint such that the open tip cuts bone tissue away from the sacrum or the ilium and the abrading surfaces decorticate the cortical bone inside the sacroiliac joint, thereby forming a decorticated implant void...

58. Patent Owner and Dr. Bovinet also raise the issue that the leading edges 216 of cutting elements 192 are not a leading cutting edge or “tip” of the tooling head 52 shown in FIGS. 22A-22D of Donner. (Paper 16, 42; Ex. 1021, 93:24-94:3;98:4-9). Patent Owner’s position is apparently that only tip 202 can be considered the tip or leading cutting edge. However, this position is inconsistent with the disclosure of Donner. It is not clear what Dr. Bovinet is relying on for his statement that leading edges 216 are not the

leading edge of the tooling head 52. Figure 22A of Donner may appear to show tip 202 as extending beyond cutting edges 216. However, the other views provided in Figures 22B and 22D show that cutting edges 216 are co-extensive with tip 202, as shown in the enlarged views provided below:



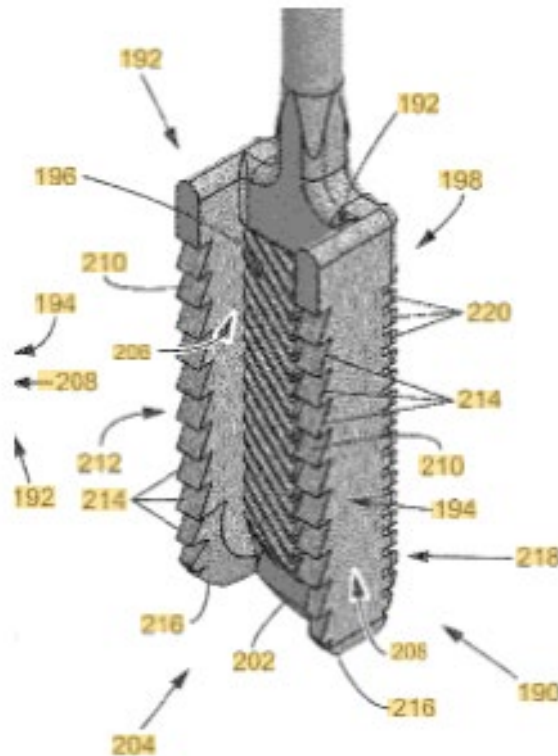


FIG. 22D

Furthermore, Donner describes a version of tooling head 52 in which tip 202 extends beyond the distal most part of cutting element 216 as an alternative embodiment: “[a]lternatively, tip 202 may extend a distance distally beyond the distal most portion of the chamfered tip of cutting element 216”. (Ex. 1006, ¶188). Thus, Donner clearly contemplates a tooling head 52 in which the cutting edges 216 are leading edges.

59. Patent Owner argues that I mischaracterized the function of the tooling head (abrading head) 52 shown in Figures 22A-22D, in that I stated that the abrading surface 196 does not make contact with the bone. (Paper 16, 58). The Patent Owner is incorrect in both its characterization of my

testimony and in characterization of the method of Donner. I clearly stated on the record that surface 196 abrades soft tissue and bone in preparation for an implant (Ex. 2004, 114:9-13), which is entirely consistent with the quote from Donner that Patent Owner uses to support its argument: a “planar rasping head 190 of this embodiment may be useful for simultaneously rasping the intra-articulating surfaces of the sacroiliac joint to remove cartilage or abrade the boney surfaces...”. (Paper 16, 59). Patent Owner is apparently attempting to characterize my testimony as stating that there are scenarios in which the rasping surface 196 would not touch the bone at all. (Paper 16, 58). As stated above, I clearly stated that rasping surface 196 abrades bone.

60. When I stated that there may be a void between the rasping surface 196 and the bone tissue, I was referring to the initial passes of the instrument in the sacroiliac joint. (Ex. 2004, 107:14-24). My deposition testimony was describing that a void exists between the abrading surface 196 and the articular surface of the bone being cut (e.g., the ilium) because cutting the cortical bone with the cutting elements 192 requires multiple passes to for the teeth 214 (referred as 218 in my deposition) of cutting elements 192 to essentially saw to their full depth in the ilium such that surface 196 is in contact with the articular surface within the articular space

of the sacroiliac joint. I am familiar with sacroiliac joint instruments like the tooling head 52 described in Donner. Typically, as the tooling head 52 is advanced and retracted, some of the bone tissue cut by the cutting elements 192 will fall into the “gap” or “void” between the cutting elements 192 and the abrading surface 196. This is not to say that leading cutting edge 216 of cutting elements 192 do not cut the cortical bone tissue. The cutting edges 216 may create a leading cut that is deepened into the cortical tissue as the tooling head is advanced and the teeth 214 cut and decorticate the bone tissue. Once a sufficient number of passes are made, the abrading surface 196 comes into contact with the articular surface of the bone and abrades the surface of the bone to remove cartilage and decorticate the surface of the bone.

61. Patent Owner asserts that I may fundamentally misunderstand the method of Donner. To the contrary, Dr. Bovinet’s testimony demonstrates that he may be mistaken about the method of Donner. Dr. Bovinet asserts that the tooling head 52 would not be repeatedly advanced into the sacroiliac, saying that it would be advanced once or repeated a single time. (Ex. 1022, 98:25-99:9). This statement is inconsistent with the description provided by Donner, and conflicts with my experience with similar devices. (Ex. 1006, ¶189).

D. MARTZ

62. In his Second Declaration, Dr. Bovinet took the position that Martz (Ex. 1008) does not disclose cutting edges disposed at a leading edge of an open tip that cut bone tissue. (Ex. 2005, ¶47). First, this position assumes that a POSITA can only imagine applying the chisel of Marts shown in Figures 76a-76c in the exact form shown in the drawings. A POSITA as defined by the Board would understand that the goal of a SI fusion procedure is to get the ilium and sacrum to fuse or heal together and that this is achieved by removing the cartilage and cortical bone and decorticating the bone along surfaces of the sacroiliac joint to expose bleeding bone and to provide a biological and cellular environment where the bones will heal and fuse together. A POSITA as defined by the Board would have sufficient knowledge and skill to adapt the box chisel of Marts to a sacroiliac procedure like that of Schifano (Ex. 1003), Compton (Ex. 1004), or Black (Ex. 1005) such that leading edge would be sufficiently sharp and appropriately spaced to cut the sacrum and ilium while the abrading surfaces 372 and 374 decorticate the bone tissue.

63. Dr. Bovinet also took the position that the rasping surface of Marts does not remove any bone tissue from the intervertebral bodies. (Ex. 1021, 118:10-21). This is inconsistent with the description provided by

Martz and is incorrect. Martz states that “[t]he rasp surface 372 preferably thus is on the top and bottom opposite surfaces of both of the guide members 368 and 368’ and may be used to scrape disc material and bone from adjacent vertebrae”. (Ex. 1008, ¶306, emphasis added). Rasps generally are used to decorticate bone surfaces and that the rasping surfaces of Martz would decorticate the intervertebral bodies. The ‘129 Patent itself states that a rasp is used to decorticate bone: “promoting bone fusion often involves decorticating the cortical bone inside the SI Joint... decortication is accomplished with a broach, a rasp, or a similar abrading device”. (Ex. 1001, 1:55-58). In summary, it would be obvious for a POSITA to use the rasp spinal instruments of Martz to similarly remove bone in a SI fusion surgical procedure.

64. Patent Owner attempts to leverage my statements during my deposition regarding the use of tools similar to that of Martz in intervertebral fusion procedures to make the argument that a POSITA would not be motivated to adapt the distal cutting edges and rasping surfaces of the chisel disclosed in Martz in Figures 76a-76c to cut and decorticate bone. (Paper 16, 45-48). However, this position assumes that a POSITA cannot adapt the tool of Martz for use as bone cutting and decorticating for forming an implant void for an implant of a particular size, like the box implant of Schifano (Ex.

1002). It is a routine step for a POSITA to adjust the size and features of a known surgical tool, like a chisel, to correspond to the particular implant to be used and the particular joint that is targeted. Martz itself discloses that rasp surfaces 372 and 374 may be positioned at different locations on the cutting head. (Ex. 1008, ¶306). This would suggest to a POSITA that the rasp surface can be positioned on a bone cutting surface of a box chisel.

1. Function of a Rasp

65. Dr. Bovinet took the position that the rasping surface of Martz does not remove any bone tissue from the bony tissue of the intervertebral bodies. (Ex. 1021, 118:10-21). This is inconsistent with Martz, the ‘129 Patent, and the knowledge of one of ordinary skill in the art (see ¶63 above). A POSITA understands that rasps are generally used to decorticate bone surfaces and the instruments used to remove bone and prepare the bone surfaces for insertion of a fusion implant are similar in both vertebral and sacroiliac surgical fusion procedures.

VIII. STATEMENTS REGARDING HUMAN ANATOMY

A. FIBROCARILAGE IN INTERVERTEBRAL DISCS AND SACRO-ILIAC JOINTS

66. Patent owner attempts to damage my credibility by stating that I misrepresented human anatomy. Patent owner points to a statement in which I mentioned “bone surfaces” of intervertebral discs. (Ex. 2004, 136:1-23). Intervertebral discs are the connective tissue structures between adjacent vertebral bodies. They include multiple types of tissue, which is demonstrated by Ex. 2003 offered by Patent Owner, showing an interior nucleus pulposus, which is gel-like tissue, an annulus fibrosus, which is a fibrocartilage tissue, and vertebral endplates, which are hyaline cartilage. (Ex. 1023). Because it is a cross-sectional view through the middle of an intervertebral disc, Ex. 2003 does not show the bony interface between the intervertebral disc and the body of the vertebra. (*Ibid*). There is bony material interfacing with the fibrocartilage of the vertebral disc at this interface, which connects directly with the bony material of the intervertebral body. I attempted to explain my answer during my deposition testimony, but was repeatedly cut off by Patent Owner’s counsel. (Ex. 2004, 136:1-23). I was referring to this bony interface in my statement.

67. Furthermore, the articular surfaces of the sacroiliac joint are analogous to the bony interface of intervertebral discs and intervertebral bodies: both include interfaces of fibrocartilage and bone and hyaline

cartilage and bone. (Ex. 1023; Ex. 1024). Thus, Patent Owners arguments on this point are erroneous and not based in fact.

IX. RIGHT TO SUPPLEMENT

68. The opinions herein are based upon my research and study to date. I reserve the right to supplement this declaration should additional information or evidence come to light relevant to my opinions provided herein, including any opinions, information, evidence, or other materials submitted by the Patent Owner. I reserve the right to amend my opinions and my declaration upon discovery of any additional information and I reserve the right to make such changes as may be deemed necessary.

X. CONCLUSION

69. For the foregoing reasons and the reasons stated in my first declaration, claims 1-2 and 9-10 of the '129 Patent are invalid.

Second Declaration of Troy D. Drewry
Petition for Inter Partes Review of U.S. Patent No. 11,020,129

I hereby declare under penalty of perjury that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true. I understand that willfully false statements and the like are punishable by fine, imprisonment, or both under 18 U.S.C. §1001.

Executed on March 29, 2024 in Memphis, TN.

By: Troy D. Drewry
Troy D. Drewry

APPENDIX A

EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 11,020,129 (“’129 Patent”)
1002	File history of the ‘129 Patent
1003	U.S. Patent No. US11,083,511 (Schifano et al.)
1004	U.S. Patent No. 10,219,841 (Compton et al.)
1005	U.S. Patent Publication No. 2016/0310197 (Black et al.)
1006	U.S. Patent Publication No. 2018/0036017 (Donner et al.)
1007	U.S. Patent Publication No. 2005/0080422 (Otte et al.)
1008	U.S. Patent Publication No. 2005/0090829 (Martz et al.)
1009	WIPO Patent Publication No. WO2014091454 (Sharma et al.)
1010	Sembrano J.N., Polly D.W. <i>How often is low back pain not coming from the back?</i> Spine (Philadelphia, PA 1976). 2009; 34(1): E27–E32.
1011	Cohen, Steven P. <i>Sacroiliac Joint Pain: A Comprehensive Review of Anatomy, Diagnosis, and Treatment</i> . Anesth Analg 2005;101:1440–53.
1012	Falowski, Steven, Sayed, Dawood, Pope, Jason, Patterson, Denis, Fishman, Michael, Gupta, Mayank, Mehta, Pankaj. <i>A Review and Algorithm in the Diagnosis and Treatment of Sacroiliac Joint Pain</i> . Journal of Pain Research 2020:13 3337–3348.
1013	Hamidi-Ravari, Behdad, Tafazoli, Sharwin, Chen, Hamilton, Perret, Danielle. <i>Diagnosis and Current Treatments for Sacroiliac Joint Dysfunction: A Review</i> . Curr Phys Med Rehabil Rep (2014) 2:48–54
1014	Ebraheim N.A., Lu J., Biyani A., Yeasting R.A. Anatomic considerations for posterior approach to the sacroiliac joint. Spine (Philadelphia, Pa 1976). 1996 Dec 1; 21(23): 2709-12.
1015	Haid Jr., R.W., McLaughlin, M.R., and Fessler, R.G. (2003).

Second Declaration of Troy D. Drewry
Petition for Inter Partes Review of U.S. Patent No. 11,020,129

	Lumbar Interbody Fusion Techniques – Cages, Dowels, and Grafts. (Quality Medical Publishing, Inc.).
1016	U.S. Patent No. 6,174,311 (Branch et al.)
1017	Declaration of Troy D. Drewry in Support of Petition for Inter Partes Review of U.S. Patent No. 11,020,129
1018	Expert CV – Troy D. Drewry
1019	File history of U.S. Provisional Application No. 62/910,913
1020	VOID _ definition in the Cambridge English Dictionary
1021	Deposition Transcript of Dr. Christopher Bovinet
1023	Physiopedia – Discussion of Intervertebral Disc
1024	Physiopedia – Discussion of Sacroiliac Joint
2001	Declaration of Christopher J. Bovinet, D.O. in Support of Patent Owner's Preliminary Response
2002	C.V. of Christopher J. Bovinet, D.O.
2003	Intervertebral disk: Medline Plus Medical Encyclopedia
2004	Deposition Transcript of Mr. Troy Drewry
2005	Second Declaration of Christopher J. Bovinet, D.O.
Paper No.	Description
3	Petition : as filed
7	Patent Owner's Preliminary Response
10	Institution Decision: Grant
16	Patent Owner's Response to Petition