

CLAIMS

We claim:

1. A system of instruments for installing a fusion implant (5) into a sacroiliac joint (3), the system of instruments comprising:
 - a working channel (10) having an insertion end (11) and a working end (12) connected by a working channel (13), the working channel (13) further comprising an alignment means (17);
 - a joint locator (20) having a penetration tip (23) at an insertion end (21), a handle at a proximal end (22), and a first keying means (27) for mating engagement with the alignment means (17);
 - an abrading device (30) having an abrading head (32) at a distal end and a slide hammer assembly (40) at a proximal end, the abrading device (30) further comprising a second keying means (37) for mating engagement with the alignment means (17); and
 - an implant inserter (60) having an insertion end (62) with a pair of tines (63) for releasably receiving a joint fusion implant (5), the implant inserter (60) further comprising a third keying means (65) for mating engagement with the alignment means (17).
2. The system of instruments in claim 1, wherein the slide hammer assembly (40) of the abrading device (30) comprises a base (51) connected to a shaft (44), and a releasing

means that releasably connects a hammer sleeve (31) to the base (51), the released hammer sleeve (31) configured for sliding engagement along the shaft (44).

3. The system of instruments in claim 1, wherein the working channel (10) further comprises a channel collar (18) and the abrading device (30) further comprises an abrading stop (38), the channel collar (18) abutting the abrading stop (38) to prevent over penetration of the abrading head (32).

4. The system of instruments in claim 2, wherein the working channel (10) further comprises a channel collar (18) and the abrading device (30) further comprises an abrading stop (38), the channel collar (18) abutting the abrading stop (38) to prevent over penetration of the abrading head (32).

5. The system of instruments in claim 1, wherein the abrading head (32) further comprises an open tip (34) having a cutting edge (36).

6. The system of instruments in claim 2, wherein the abrading head (32) further comprises an open tip (34) having a cutting edge (36).

7. The system of instruments in claim 3, wherein the abrading head (32) further comprises an open tip (34) having a cutting edge (36).

8. The system of instruments in claim 1, wherein the insertion end (11) of the

working channel (10) further comprises a first iliac contour (15) and a first sacral contour (16), and the penetration tip (23) of the joint locator (20) further comprises a second iliac contour (24) and a second sacral contour (25), the first and second (15, 24) iliac contours and the first and second (16, 25) sacral contours disposed in mating alignment when the joint locator (20) is fully inserted into the working channel (10).

9. The system of instruments in claim 2, wherein the insertion end (11) of the working channel (10) further comprises a first iliac contour (15) and a first sacral contour (16), and the penetration tip (23) of the joint locator (20) further comprises a second iliac contour (24) and a second sacral contour (25), the first and second (15, 24) iliac contours and the first and second (16, 25) sacral contours disposed in mating alignment when the joint locator (20) is fully inserted into the working channel (10).

10. The system of instruments in claim 4, wherein the insertion end (11) of the working channel (10) further comprises a first iliac contour (15) and a first sacral contour (16), and the penetration tip (23) of the joint locator (20) further comprises a second iliac contour (24) and a second sacral contour (25), the first and second (15, 24) iliac contours and the first and second (16, 25) sacral contours disposed in mating alignment when the joint locator (20) is fully inserted into the working channel (10).

11. The system of instruments in claim 7, wherein the insertion end (11) of the working channel (10) further comprises a first iliac contour (15) and a first sacral contour (16), and the penetration tip (23) of the joint locator (20) further comprises a second iliac

contour (24) and a second sacral contour (25), the first and second (15, 24) iliac contours and the first and second (16, 25) sacral contours disposed in mating alignment when the joint locator (20) is fully inserted into the working channel (10).

12. A system of instruments for installing a fusion implant (5) into a sacroiliac joint (3), the system of instruments comprising:

- a working channel (10) having an insertion end (11) and a working end (12) connected by a channel (13), the working channel (10) further comprising an alignment means (17);

- a joint locator (20) having a penetration tip (23), a handle (22), and a first keying means (27) for mating engagement with the alignment means (17);

- an abrading device (30) having an abrading head (32) at a distal end and a slide hammer assembly (40) at a proximal end, the abrading device (30) further comprising a second keying means (37) for mating engagement with the alignment means (17), and the slide hammer assembly (40) comprising:

- a collar (41) on the abrading device (30), the collar (41) having internal threads (42) and external threads (43);

- a slide hammer shaft (44) having a threaded end (45) for mating with the internal threads (42) of the collar (41) on the abrading device (30), and having a slide stop end (46);

- a hammer sleeve (31) having a hollow, cylindrical bore comprising an internal diaphragm (47) and a threaded connector (48) configured for mating with the external threads (43) of the

collar (41), the diaphragm (47) having a diaphragm opening (49) sized to permit sliding passage of the slide hammer shaft (44) and block passage of the slide stop end (46); and

an implant inserter (60) having an insertion end (62) with a pair of tines (63) for releasably receiving a joint fusion implant (5), the implant inserter (60) further comprising a third keying means (65) for mating engagement with the alignment means (17).

13. The system of instruments in claim 12, wherein the working channel (10) further comprises a channel collar (18) and the abrading device (30) further comprises an abrading stop (38), the channel collar (18) abutting the abrading stop (38) to prevent over penetration of the abrading head (32).

14. The system of instruments in claim 12, wherein the abrading head (32) further comprises an open tip (34) having a cutting edge (36).

15. The system of instruments in claim 13, wherein the abrading head (32) further comprises an open tip (34) having a cutting edge (36).

16. The system of instruments in claim 12, wherein the insertion end (11) of the working channel (10) further comprises a first iliac contour (15) and a first sacral contour (16), and the penetration tip (23) of the joint locator (20) further comprises a second iliac

contour (24) and a second sacral contour (25), the first and second (15, 24) iliac contours and the first and second (16, 25) sacral contours disposed in mating alignment when the joint locator (20) is fully inserted into the working channel (10).

17. The system of instruments in claim 13, wherein the insertion end (11) of the working channel (10) further comprises a first iliac contour (15) and a first sacral contour (16), and the penetration tip (23) of the joint locator (20) further comprises a second iliac contour (24) and a second sacral contour (25), the first and second (15, 24) iliac contours and the first and second (16, 25) sacral contours disposed in mating alignment when the joint locator (20) is fully inserted into the working channel (10).

18. The system of instruments in claim 14, wherein the insertion end (11) of the working channel (10) further comprises a first iliac contour (15) and a first sacral contour (16), and the penetration tip (23) of the joint locator (20) further comprises a second iliac contour (24) and a second sacral contour (25), the first and second (15, 24) iliac contours and the first and second (16, 25) sacral contours disposed in mating alignment when the joint locator (20) is fully inserted into the working channel (10).

19. The system of instruments in claim 15, wherein the insertion end (11) of the working channel (10) further comprises a first iliac contour (15) and a first sacral contour (16), and the penetration tip (23) of the joint locator (20) further comprises a second iliac contour (24) and a second sacral contour (25), the first and second (15, 24) iliac contours and the first and second (16, 25) sacral contours disposed in mating alignment when the

joint locator (20) is fully inserted into the working channel (10).

20. The system of instruments in claim 19, wherein the joint locator (20) has an elongate body between the penetration tip (23) and the handle (22), and a K-wire channel (26) extending through the elongate body from the handle (22) to the penetration tip (23) of the joint locator (20).