

1 The opinion in sup port of the decision being entered today was *not* written
2 for publication and is *not* binding precedent of the Board
3

4 UNITED STATES PATENT AND TRADEMARK OFFICE
5

6
7 BEFORE THE BOARD OF PATENT APPEALS
8 AND INTERFERENCES
9

10
11 *Ex parte* DONALD W. MALACKOWSKI,
12 JOSE LUIS MOCTEZUMA DE LA BARRERA,
13 DAVID E. HERSHBERGER, MARKUS BOHRINGER, PETER FORST,
14 ULRICH BUEHNER, MARTIN STANGENBERG,
15 JERRY A. CULP, and KLAUS WELTE
16

17
18 Appeal 2006-1914
19 Application 09/764,609
20 Technology Center 3700
21

22
23 Decided: June 21, 2007
24
25

26 *Before:* STUART S. LEVY, ROBERT E. NAPPI, and
27 ANTON W. FETTING, *Administrative Patent Judges.*

28
29 LEVY, *Administrative Patent Judge.*
30

31
32 DECISION ON APPEAL
33

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 (2002) from a final rejection of claims 1-34 and 80-106.¹ Subsequent to the final rejection, the Appellants cancelled² claims 2, 24, 30, 101, 103, and 104. Thus, claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and 106 remain, and are under rejection. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

Appellants invented a system for displaying and guiding a series of instruments to a surgical site located relative to a body of a patient. (Specification 1.)

Claim 1 is representative of the invention and reads as follows:

1. A smart instrument for use in a surgery system, comprising:

a housing;

a plurality of light emitting diodes coupled to the housing and being adapted to fire independently;

a memory circuit for storing information related to the smart instrument; and

a wireless transceiver adapted to communicate with the surgery system, wherein bi-directional communication of the smart instrument with the surgery system is solely through a wireless communication system and wherein the smart instrument transmits the information stored on the memory circuit in response to a received signal from the surgery system when the smart instrument is placed within a field of detection.

¹ Application filed January 17, 2001. The real party in interest is Howmedica Liebing, Inc. D/B/A Stryker Liebing.

² The Examiner entered the April 28, 2005 amendment canceling these claims on May 11, 2005.

1
2 The prior art relied upon by the Examiner in rejecting the claims on
3 appeal is:

4 Chader	5,617,857	Apr. 08, 1997
5 Acker	6,453,190	Sep. 17, 2002
6		(eff. Filed Dec. 10, 1998)

7
8 The Examiner has rejected claims 1, 3-23, 25-29, 31-34, 80-100, 102,
9 105, and 106 under 35 U.S.C. § 103(a) (2004) as being unpatentable over
10 Chader.

11 The Examiner has rejected claims 1, 3-23, 25-29, 31-34, 80-100, 102,
12 105, and 106 under 35 U.S.C. § 103(a) (2004) as being unpatentable over
13 Chader in view of Acker.

14 We observe at the outset that Appellants only present arguments with
15 respect to independent claims 1, 23, and 29. Accordingly, we select these
16 claims as representative of the group; see 37 C.F.R. § 41.37(c)(1)(vii). With
17 regard to the rejection of the claims as being unpatentable over Chader,
18 Appellants contend that in rejecting claim 1, the Examiner has not properly
19 considered the invention of claim 1 as a whole, and has not considered the
20 disclosure of Chader as a whole, because Chader only contemplates a smart
21 instrument that is hard-wired to the computer system. It is argued that if it
22 were an easy expedient, Chader would have described both wired and
23 wireless systems. (Br. 4.)

24 Appellants further contend that Chader never disclosed or suggested
25 the concept of recognizing the device and beginning the act of querying the
26 device as required by claim 1, when the device is placed within the field of
27 view of the system. (*Id.*)

1 Appellants additionally contend that they submitted evidence in the
2 form of two Declarations to the Examiner showing the unobvious nature of
3 the invention as claimed, and that the Examiner dismissed this evidence as
4 statements which amount to an affirmation that the claimed subject matter
5 functions as it was intended to function. (Br. 4-5.)

6 With regard to claim 23, Appellants further contend that the only
7 release button described in Chader is to enable the device to be coupled to
8 the hard-wired system, and that without the hard wiring, there would be no
9 need for a release button. (Br. 5.)

10 The Examiner contends that the general concept of and common
11 understanding of wireless transmission is old and well known in the signal
12 transmission art and is well within the level of ordinary skill. The Examiner
13 opines that one of ordinary skill in the art is limited to either hard wired or
14 wireless transmission of signals the selection of either known option would
15 have been obvious to the skilled artisan, and that one would have been
16 motivated by the inherent desirable features of using wireless transmissions
17 over wired transmissions. (Answer 3-4.)

18 The Examiner adds that upon modifying Chader to be wireless, the
19 communications would be solely wireless because it doesn't make much
20 sense to wirelessly transmit some signals while transmitting others over a
21 hard wire. (Answer 5.)

22 In the Reply Brief, Appellants contend that:

23 In this instance, the term "activation button" is explicitly used
24 and described in the specification as being a button connected
25 to the smart instrument that may be used to cause the computer
26 system to selectively obtain information from the smart

1 instrument only when the activation button is activated. (See,
2 e.g. ¶0104.) (Reply Br 4)

3
4 As argued by applicant throughout the prosecution of this
5 application, the wireless communication between the smart
6 instrument and the computer system was not obvious at the
7 time of the invention due at least in part to the fact that it was
8 not thought a wireless communication system would be
9 adequate to transfer the large volume of data. (Reply Br. 4-5)

10
11 The Lack Of Any Suggestion of a Wireless Data
12 Communication Link Between the Smart Instrument and the
13 Computer System in Chader et al. is Evidence that Such
14 Wireless Data Communication Was Not Considered an
15 Obvious Alternative to the Hard Wired Data
16 Communication System Disclosed Therein. (Emphasis
17 original) (Reply Br. 5)

18
19 [T]he Rule 132 declaration of Dr. Jay Klarsfeld states that the
20 wireless, hardwired issue is so important that a number of
21 companies have abandoned hardwired active optical systems in
22 favor of passive wireless systems, and have not developed
23 wireless active tracking devices as claimed in the present
24 application. (Reply Br. 7)

25
26 [T]hese Rule 132 Affidavits provide direct evidence that the
27 device claimed in this application meets a long felt and
28 previously unmet need in the industry. (Reply Br. 7)

29
30 With regard to the rejection of the claims over Chader in view of
31 Acker, Appellants contend that:

32 The examiner has not shown any motivation that would lead
33 one of ordinary skill in the art to modify the teaching of Chader
34 with the teaching of Acker. (Br. 7.)

1 [S]ystems of the type disclosed in Acker do not transmit data
2 relative to the configuration of these magnetic devices to the
3 receiving unit. These units merely transmit magnetic fields that
4 are detected and interpreted by the receiving unit to determine
5 the location of the sending unit. (Br. 6.)
6

7 At the time of the Chader invention and at the time the present
8 invention was made, it would have been recognized that the
9 amount of data that needed to be transferred between the
10 instrument and the systems necessitated a hard wired systems
11 for the type of systems as claimed. (*Id.*)
12

13 Acker does not disclose an interchangeable feature nor does
14 Chader. (*Id.*)
15

16 The Examiner contends (Answer 7) that

17 Acker et al. explicitly teaches that although the connection
18 between the device mounted on the instrument (which is
19 analogous to Chader's housing 32 in Figure 2 or 50 in Figure 3)
20 and the position detecting system (which is analogous to
21 Chader's position detecting system 14,16) is hard-wired with a
22 plug, such hard-wired connection can be replaced by a wireless
23 connection (col. 11, line 61-col. 12, line 4). Acker et al. offers
24 this motivation: to avoid "the physical encumbrance of loose
25 wires trailing from the instrument" (col. 12, lines 3-4).
26

27 We affirm.

28 ISSUE

29 With regard to the rejection under 35 U.S.C. § 103(a) as being
30 unpatentable over Chader, the issue is whether the teachings and suggestions
31 of Chader would have suggested the language of the claims. The issue turns
32 on whether the Examiner's line of reasoning, by itself, is sufficient to make
33 up for the deficiencies of Chader. With regard to the rejection of the claims

1 under 35 U.S.C. § 103(a) as being unpatentable over Chader in view of
2 Acker, the issue is whether Acker would have suggested to an artisan the
3 replacement of the tethered connection of Chader with a wireless
4 connection, and whether the buttons of the prior art would have suggested
5 the activation and release buttons as claimed. The issue turns on whether the
6 evidence and arguments provided by Appellants is sufficient to overcome
7 the strength of the prima facie case of obviousness articulated by the
8 Examiner.

9 FINDINGS OF FACT

10 We find that the following enumerated findings are supported by at
11 least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d
12 1422, 1427, 7 USPQ2d 1152, 1156 (Fed. Cir. 1988) (explaining the general
13 evidentiary standard for proceedings before the Office).

- 14
- 15 1. Appellants invented a system for displaying and guiding a series of
16 instruments to a surgical site located relative to a body of a patient.
17 (Specification 1.)
18
 - 19 2. Known frameless stereotactic systems utilize optical, RF, magnetic,
20 audio, or other signal systems to communicate between the surgical
21 instruments and the computer system. Typically, the surgical
22 instruments are either tethered to the computer system or are wireless.
23 Wireless instruments carry a system-compatible emitter or sensor for
24 communication through LEDs or RF systems to the computer system.
25 Tethered instruments can add complexity to the system by limiting the
26 range of motion of the instrument and adding additional wires and
27 cables to route and negotiate during the surgery. Range of motion of
28 the instrument is very important during the surgery itself.
29 (Specification 2.)
30

- 1 3. It is an object of the invention to provide an image-guided surgery
2 system which enables easy, fast and accurate initialization,
3 calibration, and control of a series of image guided surgery
4 instruments. This object is achieved by providing wireless
5 instruments with several improvements.(Specification 4.)
6
- 7 4. The improved communication path allows the improved instruments
8 to be calibrated much easier and faster than conventional instruments.
9 By storing the calibration information in the instruments themselves
10 the image-guided system of the invention is capable of re-calibrating
11 damaged or imperfect instruments without going through a complex
12 field calibration process. (Specification 5.)
13
- 14 5. The ability to store an instruments calibration and emitter positions
15 within each individual instrument also eases a manufacturing process
16 that traditionally required the instruments to be manufactured to a
17 tight tolerance. (*Id.*)
18
- 19 6. Another object of the invention is an improved control interface
20 between the user operating the instruments and the computer system.
21 (Specification 6.)
22
- 23 7. The invention accomplishes this object by providing operating
24 controls integrated into the instruments. (*Id.*)
25
26
- 27 8. An additional object of the invention is to provide an improved
28 image-guided surgery computer cart assembly for housing the
29 computer system. (*Id.*)
30

31 From our review of Chader, we find:

- 32
- 33 9. [A]n imaging system for correlating the position of medical
34 instruments with scanned images of the body [is disclosed] .
35 (Chader, col. 1, ll. 8-10.)
36

- 1 10. One particular advantage of such a system is that it may be
2 configured to track a wide variety of medical instruments simply by
3 reinitializing the imaging system each time a new instrument is
4 attached so that the system will be properly configured according to
5 the attached instrument. Such initialization information can include,
6 for example, the number of energy-emitting elements on the
7 instrument, the location of the energy-emitting elements relative to a
8 work portion of the medical instrument, and the like. Usually, such
9 information is manually entered into the computer, such as by use of a
10 keyboard or the like. However, manually initializing the imaging
11 system in such a manner suffers from a number of serious drawbacks.
12 (Chader, col. 1, l. 56 – col. 2, l. 1.)
13
- 14 11. [I]t would be desirable to provide improvements in the initialization
15 of the imaging system so that initialization information can correctly
16 and efficiently be input into the system. Such improvements should
17 also provide improved safety by ensuring that the imaging system is
18 properly initialized upon connection of each type of medical
19 instrument. (Chader, col. 2, ll. 14-20.)
20
- 21 12. The imaging system further includes a means for detecting the
22 energy and a processor for determining the location of the medical
23 instrument based on the detected energy. Such an imaging system is
24 improved by providing a means on or in the medical instrument for
25 storing initialization information, such as the location of the energy-
26 emitting means relative to the instrument body. (Chader, col. 2, ll. 49-
27 55.)
28
- 29 13. Optionally, the storing means may include information relating to the
30 particular configuration of the attachment so that different types of
31 attachments may be employed without having to manually enter
32 initialization information regarding the configuration of the
33 attachment. (Chader, col. 3, ll. 21-26.)
34
- 35 14. With such a configuration, the storing means will include
36 information relating to the location of the energy-emitting elements
37 relative to the selected type of instrument body so that the processor

- 1 may be initialized for the selected type of instrument body. (Chader,
2 col. 3, ll. 30-34.)
3
- 4 15. In yet another aspect, the medical instrument will preferably include
5 means for detecting when the attachment has been connected to the
6 instrument body and then subsequently removed. (Chader, col. 3, ll.
7 51-54.)
8
- 9 16. In still a further alternative aspect, the particular type of instrument
10 body is detected upon connection of the attachment to the instrument
11 body. (Chader, col. 4, ll. 41-43.)
12
- 13 17. [T]he location of the medical instrument **12** may be tracked relative
14 to the patient P in real time and correlated with the previously
15 produced images of the patient's body which are displayed on a
16 screen **28** of the host computer **18**. To track the medical instrument
17 **12** in this manner, the medical instrument **12** is advanced into the
18 patient P while the energy-emitting elements **20** are energized and
19 detected by the sensor assembly **16**. The elements **26** on the reference
20 frame **24** are also energized and detected so that the location of the
21 medical instrument **12** relative to the patient P may be tracked by the
22 processor **14**, even when the patient P is moved. (Chader, col. 5, ll.
23 51-62.)
24
- 25 18. An image can be produced on the screen **28** showing a position
26 marker of the instrument **12** relative to the previously produced
27 images of the body. (Chader, col. 5, l. 66 – col. 6, l., 2.)
28
- 29 19. [T]he processor **14** will be able to recognize the characteristics of the
30 medical instrument **12** upon connection of the instrument to the
31 processor **14** without requiring the manual entry of the instrument's
32 type or other configuration information into the processor **14**.
33 (Chader, col. 6, ll. 56-60.)
34
- 35 20. [T]he medical instrument **12** may optionally be provided with one or
36 more buttons **46** that is placed in communication with a read switch
37 controller **48** when the instrument **12** is connected to the processor **14**.
38 When the button **46** is depressed, the read switch controller **48** signals

1 the system controller **40** to perform a specific function. In this way,
2 the button **46** and the controller **48** may be employed to perform a
3 variety of functions, such as controlling the acquisition of data by the
4 imaging system or driving applications software in the host computer
5 **18**. For example, the button **48** may be depressed to obtain a specific
6 coordinate at the point where the button **48** is depressed.

7 Alternatively, the medical instrument **12** may be placed over a
8 particular portion of the patient P and the button **48** depressed to
9 produce an image of the selected portion of the screen **28**. (Chader,
10 col. 7, ll. 8-21.)
11

12 21. As previously described, the memory module **36** may be integrally
13 formed with the instrument body **32** or may be included in a separate
14 attachment that may be removably connected to the instrument body
15 **32**. (Chader, col. 7, ll. 22-25.)
16

17 22. In a further exemplary alternative, the imaging system **10** will be
18 constructed to detect the particular type of instrument body **32** that is
19 connected to the attachment **50**. (Chader, col. 8, ll. 16-18.)
20

21 23. Based on the amount of current sensed by the current sensor **62**, the
22 system controller **40** is able to determine the particular type of
23 attached instrument body **32**. The processor **14** may then be
24 configured according to the attached medical instrument. (Chader, col.
25 8, ll. 50-54.)
26

27 From our review of Acker, we find that

28 24. The [] invention relates to medical probes having field transducers
29 used for detecting the disposition of the probe, and to the medical
30 procedures utilizing such probes. (Acker, col. 1, ll. 35-37.)
31

32 25. [T]he diverse medical procedures require numerous different tools
33 for use within the body. It would be desirable if any such tool could be
34 guided and located in the same manner as the probes discussed above,
35 without the need to adapt or redesign the tool to accommodate the field
36 transducer or position sensor. (Acker, col. 2, ll. 57-63.)
37

1 26. Other devices for detecting disposition of probes equipped with
2 position sensors by transmission of non-ionizing fields are known in the
3 art. . . . the disposition of the movable field transducer can be calculated
4 from the characteristics of the transmitted. (Acker, col. 6, ll. 26-37.)
5

6 27. [T]he system determines the position of object **60** in the frame of
7 reference of reference field transducers or antennas **52** using device **28**
8 and the first or movable transducer **30**. (Acker, col. 7, ll. 6-9.)
9

10 28. Following the calibration cycle, the system continues to monitor the
11 position and orientation of the first field transducer **30** and hence device
12 **28**. (Acker, col. 8, ll. 32-34.)
13

14 29. The particular physical designs of mating elements are merely
15 exemplary. In the embodiments discussed above, the connection
16 between the device incorporating first field transducer (the device
17 mounted on the instrument) and the rest of the position detecting system
18 is made through hard-wired connection with a plug. Such a hard-wired
19 connection can be replaced by a radio, infrared or other wireless
20 telemetry link, in which case the device desirability includes an
21 independent power supply such as a battery. Telemetry avoids the
22 physical encumbrance of loose wires trailing from the instrument.
23 (Acker, col. 12, ll. 61-67.)
24

25 From our review of the Kassam Declaration, we make the following
26 findings of fact:
27

28 30. I [Dr. Kassam] understand that the current application has been
29 rejected because the invention as claimed is considered obvious in view
30 of a patent that discloses a wired or tethered instrument communicating
31 with a surgical navigation system. (Kassam, p. 1, ¶ 5.)
32

33 31. I [Dr. Kassam] believe that the use of wireless communication
34 between an active smart instrument and a surgical navigation system has
35 been recognized as a significant advance. (Kassam, pp. 1-2, ¶ 6.)
36

1 From our review of the Nogler Declaration we make the following
2 findings of fact:

3 32. I [Dr. Nogler] understand that the current application has been
4 rejected because the invention as claimed is considered obvious in view
5 of a patent that discloses a wired or tethered instrument communicating
6 with a surgical navigation system. (Nogler, p. 2, ¶ 5.)
7

8 33. I [Dr. Nogler] believe that the use of wireless communication
9 between an active smart instrument and a surgical navigation system has
10 been recognized as a significant advance. (Nogler, p. 2, ¶ 6.)
11

12 34. The use of a wireless hand piece that can be tracked by the surgical
13 navigation system is much less cumbersome and provides a significantly
14 greater range of motion to me in performing these surgical techniques
15 allowing me to perform these tasks properly, in less time and with lower
16 fatigue A wired handpiece has a wire that drags, can catch on other
17 instruments and wires, and will actually pull against the direction I need
18 to move the hand piece. (Nogler, p. 2, ¶ 6 / c.)
19

20 From our review of the Klarsfeld Declaration we make the following
21 findings of fact:

22 35. I [Dr. Klarsfeld] understand that the current application has been
23 rejected because the invention as claimed is considered obvious in view
24 of a patent that discloses a wired or tethered instrument communicating
25 with a surgical navigation system. (Klarsfeld, p. 2, ¶ 5.)
26

27 36. I [Dr. Klarsfeld] believe that the use of wireless communication
28 between an active smart instrument and a surgical navigation system has
29 been recognized as a significant advance. (Klarsfeld, p. 2, ¶ 6.)
30

31 37. The use of a wireless hand piece that can be tracked by the surgical
32 navigation system is much less cumbersome and provides a significantly
33 greater range of motion to me in performing these surgical techniques
34 allowing me to perform these tasks properly, in less time, and with lower
35 fatigue. A wired hand piece has a wire that drags, can catch on

1 other instruments and wires, and will actually pull against the direction I
2 need to move the hand piece. In addition, for optical systems, it is
3 important to be able to face the tracking device towards the camera at all
4 times. The inclusion of wires makes it more difficult to properly angle
5 the tracking device so the device is visible to the cameras. (Klarsfeld, p.
6 2, ¶ 6 / c.)

7
8 38. . . . the wireless, hardwired issue is so important that a number of
9 companies that make tracking implements and devices have abandoned
10 hard-wired active optical systems in favor of passive wireless optical
11 systems and have not developed wireless active optical tracking devices
12 as claimed in the present application. (Klarsfeld, p. 2, ¶ 6. / e.)
13

14 PRINCIPLES OF LAW

15 On appeal, Appellants are responsible for showing that the Examiner
16 erroneously rejected the claims by not establishing a legally sufficient basis
17 for combining the teachings of the prior art. Appellants may show this by
18 demonstrating that the Examiner failed to provide sufficient evidence to
19 show that one having ordinary skill in the art would have done what
20 Appellant did. *United States v. Adams*, 383 U.S. 39 (1966); *In re Kahn*, 441
21 F.3d 977, 987-988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006); *DyStar*
22 *Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick, Co.*, 464 F.3d
23 1356, 1360-1361, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006). The mere fact
24 that all the claimed elements or steps appear in the prior art is not per se
25 sufficient to establish that it would have been obvious to combine those
26 elements. *United States v. Adams, id*; *Smith Industries Medical Systems,*
27 *Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1356, 51 USPQ2d 1415, 1420 (Fed.
28 Cir. 1999). The Supreme Court, in *KSR Int'l v. Teleflex Inc.*, 127 S.Ct.
29 1727, WL1237837, 82 USPQ2d 1385, (2007) stated that “[t]hroughout this

1 Court's engagement with the question of obviousness, our cases have set
2 forth an expansive and flexible approach” *KSR* at 11. The Court
3 emphasized that “the principles laid down in *Graham* reaffirmed the
4 ‘**functional approach**’ of *Hotchkiss*, 11 How. 248.” *KSR* at 11 (citing
5 *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966) (emphasis added)).

6
7

ANALYSIS

8 We begin with the rejection of the claims under 35 U.S.C. § 103(a) as
9 being unpatentable over Chader in view of well known prior art. We turn
10 first to claims 1 and 29. The Examiner proposes to modify the tethered
11 instrument of Chader with a wireless instrument based upon the general
12 concept that wireless transmission is old and well known in the prior art.
13 The Examiner opines that since an artisan is limited to wired or wireless
14 transmission of signals, the selection of either one would have been obvious
15 to an artisan as an artisan would have been motivated by the inherent
16 desirable features of using wireless transmission over wired transmission.
17 (Answer 4). Although the Examiner's position has been clearly articulated,
18 the Examiner does not provide evidence that would have suggested the use
19 of a wireless system for a smart instrument used in a surgery system.
20 Although, we find from fact 2 that “[t]ypically, the surgical instruments are
21 either tethered to the computer system or are wireless,” the Examiner has
22 not relied upon the admitted prior art in conjunction with Chader as the basis
23 for the rejection. We are cognizant of the court's statement in *KSR*,
24 “[w]hen there is a design need or market pressure to solve a problem and
25 there are a finite number of identified, predictable solutions, a person of
26 ordinary skill has good reason to pursue the known options within his or her

1 technical grasp. If this leads to the anticipated success, it is likely the
2 product not of innovation but of ordinary skill and common sense. In that
3 instance, the fact that a combination was obvious to try might show that it
4 was obvious under 35 U.S.C. § 103." *KSR*, 127 S.Ct. at 1742.

5 While based upon all of the evidence of record we agree with the
6 Examiner that an artisan would have had good reason to pursue known
7 options within the artisan's grasp. From the Examiner's reliance on Chader,
8 without further evidence, showing that it was known or obvious to have or
9 use wireless surgical instruments surgical instruments, we do not consider
10 the Examiner to have established that there was an identified, predicted
11 solution, or that there was a design need or market pressure to make the
12 surgical instrument of Chader have a wireless connection. In sum, the
13 Examiner has failed to establish, based on Chader alone, that it would have
14 been obvious to an artisan to replace the tethered connection in Chader with
15 a wireless connection, such that bi-directional communication is solely
16 through a wireless connection and that the smart instrument transmits
17 information when the smart instrument is placed within a field of detection.
18 It follows that we cannot sustain the rejection of claims 1 and 29. We
19 similarly cannot sustain the rejection of claim 23 because the claim also
20 requires a wireless connection between the surgical instrument and the
21 system. The rejection of claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and
22 106 under 35 U.S.C. § 103(a) as being unpatentable over Chader is not
23 sustained.

24

1 We turn next to the rejection of the claims under 35 U.S.C. § 103(a)
2 as being unpatentable over Chader in view of Acker. We begin with claims
3 1 and 29. At the outset, we find from fact 2 that typically, surgical
4 instruments are either tethered to the computer system or are wireless. We
5 find from fact 3 that an object of the invention of providing an image-guided
6 surgery system "is achieved by providing wireless instruments with several
7 improvements." We find from fact 4 that by storing the calibration
8 information in the instruments themselves the image-guided system of the
9 invention is capable of re-calibrating damaged or imperfect instruments
10 without going through a complex field calibration process." We find from
11 facts 6 and 7 that an object of the invention is an improved control interface
12 between the user operating the instruments and the computer system. The
13 invention accomplishes this object by providing operating controls
14 integrated into the instruments. We find from fact 8 that an additional object
15 of the invention is to provide an improved image-guided surgery computer
16 cart assembly for housing the computer system. As correctly noted by
17 Appellants (Br. 4) and the Examiner (Answer 3) the Chader disclosure only
18 contemplates or discloses a smart instrument that is hard wired to the
19 computer system. However, we find from fact 24 that Acker relates to
20 medical probes having field transducers for detecting the disposition of the
21 probe. From fact 27 we find that the system of Acker determines the
22 position of an object in a frame of reference of the field transducers or
23 antennas. Thus, Acker is directed to determining the position or location of
24

1 a surgical instrument. From Figs. 1 and 2 of Acker we find that sensor or
2 field transducer 30, mounted on surgical forceps 46 is connected to terminal
3 block or plug 35. In addition, we find from fact 29 that although the
4 embodiment described by Acker includes a hard wired connection between
5 the transducer mounted on the instrument and the rest of the position
6 detecting system, that Acker describes replacing the hard wired connection
7 with a radio, infrared, or other wireless telemetry link. Moreover, from fact
8 29 we additionally find that Acker recognizes that telemetry avoids the
9 physical encumbrance of loose wires trailing from the instrument. From the
10 description in Acker that the surgical instrument can either be tethered to the
11 rest of the system or connected in a wireless fashion, we hold that an artisan
12 would have been motivated to replace the tethered connection of Chader
13 with a wireless connection as expressly suggested by Acker. The motivation
14 would have been for the specifically described recognition that a wireless
15 connection would avoid the physical encumbrance of loose wires trailing
16 from the instrument.

17 We are not persuaded by Appellants' contention (Br. 4) that if a
18 wireless system were an easy expedient, Chader would have disclosed both
19 wired and wireless systems. The fact that Chader does not describe a
20 wireless system does not mean that a wireless system would not have been
21 obvious to Chader. In addition, Appellants' contention does not address
22 what the combined teachings and suggestions of Chader and Acker would
23 have suggested to an artisan. Nor do we agree with Appellants' contention

1 that the Declarations³ provide evidence that shows the difficulties created by
2 the prior Chader type devices in a surgical setting and the unobvious benefits
3 of the devices as claimed in claim 1. Although page 2 of each of the
4 Klarsfeld, Nogler, and Kassam Declarations describe problems associated
5 with tethered surgical instruments, Acker specifically recognizes (fact 29)
6 that a wireless system avoids the physical encumbrance of loose wires
7 trailing from the instrument. From this description in Acker, we find that the
8 prior art recognizes problems with having tethered surgical instruments, and
9 suggests replacing a tethered connection with a wireless connection. As to
10 Appellants' assertion regarding the unobvious benefits of the device set forth
11 in claim 1, we note from fact 3 that the object of providing an image-guided
12 surgical system is achieved by providing wireless instruments with several
13 improvements. We find from facts 4-8 that these improvements relate to
14 storing calibration information in the instruments, providing operating
15 controls integrated into the instruments, and providing an improved surgery
16 cart assembly. However, from our review of claim 1, we fail to find these
17 features in the claim. As broadly drafted, the claim is met by the combined
18 teachings and suggestions of Chader and Acker because, as correctly
19 advanced by the Examiner in the Answer, upon making the system of
20 Chader wireless, the bidirectional communications already present in the
21 tethered system of Chader will continue to be wireless bi-directional
22

³ Although Appellants refer to two Declarations being submitted, we note that the record reflects three declarations being filed, e.g., the Kassam, Klarsfeld, and Nogler Declarations.

1 communications. In addition, the wireless system will only operate when
2 the wireless instrument is within a field of detection because this is how
3 wireless systems operate. For example, if a television has a wireless remote
4 control, it will only operate within a set range, as will a cordless phone that
5 will operate from within a prescribed radius of the base unit.

6 Nor are we persuaded by Appellants' contention (Br. 6) that Acker
7 only transmits the location of the sending unit and does not transmit data
8 relative to the configuration of the magnetic devices of Acker to the sending
9 unit. Appellants add that "[t]his is sending position or location information
10 in a wireless manner and not the sending of data and instructions as in the
11 present invention." From fact 20, we agree with the Examiner that Chader
12 describes the controller 48 performing a variety of functions, such as
13 controlling the acquisition of data. For example, button 46 may be
14 depressed to obtain a specific coordinate at the point where the button is
15 depressed. As an alternative, the instrument may be placed over a portion of
16 a patient and the button is depressed to produce an image. From this
17 description in Acker of providing a coordinate or an image, we find that
18 Acker describes more than sending data indicating a location or position.
19 Note that the providing of an image of a portion of a patient and displaying
20 the image on the screen is the sending of data.

21 Nor are we persuaded by Appellants' contention (Br. 4) that obvious to
22 try is not the appropriate test of obviousness. Appellants are correct that
23 there needs to be a reasonable expectation of success to support the
24 combination of references. However, as stated in by the court in *KSR*, 127
25 S.Ct. at 1742, "[w]hen there is a design need or market pressure to solve a

1 problem and there are a finite number of identified, predictable solutions, a
2 person of ordinary skill has good reason to pursue the known options within
3 his or her technical grasp. If this leads to the anticipated success, it is likely
4 the product not of innovation but of ordinary skill and common sense. In
5 that instance, the fact that a combination was obvious to try might show that
6 it was obvious under 35 U.S.C. § 103." We agree with the Examiner that an
7 artisan would have had good reason to pursue known options within the
8 artisan's grasp. However, although we found, *supra*, that the disclosure of
9 Chader alone was insufficient to establish a design need or market pressure
10 to solve a problem, or that there are identified predictable solutions, we find
11 that in view of the description of Acker of having either a wired or wireless
12 connection, that the art recognizes a predictable solution of having wireless
13 communication for the surgical system. In addition, from the description of
14 Acker that a wireless system avoids the physical encumbrance of loose wire
15 trailing from the system, we find that there was a design need or market
16 pressure to overcome the problem of tethered wires by making the
17 connection wireless.

18 Nor are we persuaded by Appellants' contention (Br. 6) that it would
19 have been recognized that at the time of the invention of Chader and
20 Appellants, that the amount of data needed to be transferred necessitated a
21 hard wired system. We find nothing in the language of claims 1 and 29 that
22 would require the transfer of more data than the wireless system of Acker
23 would have suggested to an artisan. Nor do we find the claims to recite any
24 particular amount of data to be transferred.

1 Nor are we persuaded by Appellants' contention (Br. 5) that in Acker,
2 the system is a variant of a well known magnetic system, and that Acker's
3 system does not transmit data. We find from fact 29 that the wireless system
4 may be "radio, infrared, or other wireless telemetry." Thus, we find that
5 Acker describes a range of different types of wireless systems that may be
6 used for the wireless connection. We find no evidence to support a position
7 that the range of wireless systems of Acker would not be able to transmit the
8 data required by Chader's system.

9 In addition, we note from facts 30, 32, and 35 that each of the
10 Declarations assert that the application has been rejected in view of a patent
11 that discloses a wired or tethered instrument communicating with a surgical
12 navigation system. We do not consider this statement, found in each of the
13 Declarations, to accurately describe the rejections, because the first rejection
14 was based on Chader in view of knowledge in the art of wired and wireless
15 systems, and because the second rejection is based on Chader in view of
16 Acker, where Acker describes surgical navigation system having either a
17 wired or wireless connection between the instrument and the remainder of
18 the system.

19 Nor are we persuaded by Appellants' contention (Reply Br. 3) that

20 The Lack Of Any Suggestion of a Wireless Data
21 Communication Link Between the Smart Instrument and the
22 Computer System in Chader et al. is Evidence that Such
23 Wireless Data Communication Was Not Considered an
24 Obvious Alternative to the Hard Wired Data
25 Communication System Disclosed Therein.
26 (Emphasis original.)
27

1 Appellants argue to the effect that because Chader does not suggest a
2 wireless data communications system, that the system is therefore non-
3 obvious. Appellants' argument blurs the distinction between 102 and 103.
4 the fact that Chader does not provide a teaching or suggestion of a wireless
5 system is not dispositive of the issue of the non-obviousness of a wireless
6 system. The issue is what the prior art, taken as a whole, would have
7 suggested to an artisan. See *Tokyo Shiabura Elec. Co., Ltd. v. Zenith Radio*
8 *Corp.*, 548 F.2d 88, 89, fn2, 193 USPQ 73, 75, fn2. (U.S. Ct. Appls. 3rd
9 Cir. 1977),

10 Nor are we persuaded by Appellants' contention (Reply Br. 6) that Dr.
11 Kassam's Declaration points to the recognition of a long felt need for a
12 wireless surgical navigation system. Appellants (*id.*) point to the assertion
13 in the Kassam Declaration that in neurosurgery, there are a large number of
14 instruments and devices that require power cords, suction tubes and the like.
15 A wired piece has a wire that drags, can catch on other instruments and
16 wires, and can actually pull against the direction the surgeon needs to move
17 the hand piece. As we noted, *supra*, Acker recognizes the problem of loose
18 wires trailing from the instrument, and solves the problem by replacing the
19 wired system with a wireless system. From the disclosure of Acker, we find
20 that the applied prior art both recognized the problem associated with
21 tethered cords for surgical instruments and also suggested the solution to the
22 problem, e.g., a wireless connection. Appellants additionally point to the
23 assertion in the Klarsfeld Declaration that the wireless, handwired issue is so
24 important that a number of companies have abandoned hardwired, active
25 optical systems in favor of passive wireless systems, and have not developed

1 wireless active tracking devices, as claimed. From our review of claims 1
2 and 29, we do not find any language regarding an "active" wireless system,
3 or any other language that would distinguish the claimed wireless
4 transceiver from the applied prior art. Rather, we agree with the Examiner
5 (Answer 9) that "Appellants' invention as claimed does not involve any
6 particular kind of wireless communication, no specific structure that enables
7 wireless transmission and reception of signals and no specific structure that
8 would be required to modify the handwired prior art systems to use wireless
9 transmission." We further agree with the Examiner (Answer 10) that there is
10 not teaching or evidence in Chader that hard wires are necessary or critical
11 for proper operation of the invention."

12 From all of the above, we find that the strength of the prima facie case
13 advanced by the Examiner is not outweighed by the evidence and arguments
14 presented by Appellants. The rejection of claims 1 and 29, and dependent
15 claims 2-22, 31-34, 80-83, 91-100, 102, 105, and 106 is sustained.

16 We turn next to claims 23-28 and 84-90. Only claim 23 has been
17 argued by Appellants. Accordingly, we select claim 23 as representative of
18 the group. Claim 23 recites, *inter alia*, an activation button, a release button
19 operatively coupled to the adapter surface, and that the smart instrument is
20 adapted to be interchangeably coupled with a patient tracking system and at
21 least one generic instrument. From our review of the language of the claim,
22 we find that the activation button and release button are not connected to any
23 structure, other than the broad language that the release button is
24 operationally coupled to the adapter interface. Nor do we find any recited
25 function relating to the operation of these buttons. We find from the

1 description in Chader a disclosure of having one or more buttons 46 (fact 21)
2 that cause the system to perform specific functions, such as to acquire data.
3 In addition, Chader describes (fact 15) that the instrument includes means
4 for detecting when the attachment means is connected to the instrument
5 body, and subsequently removed. However, this detection is done by a
6 current sensor 62 (Fig. 4), and, from our review of Chader, is not disclosed
7 as being done as a result of depressing button or buttons 46. However, since
8 claim 23 does not recite what is being activated by the activation button, we
9 find that this limitation is met by Chader as pushing button 46 results in the
10 activation of sending data or images (fact 21). In addition, Fig. 3, appears to
11 show a button, unlabeled, for the release of engagement tabs 52 from the
12 instrument body 32. Even if we are incorrect, and Chader does not disclose
13 a button for releasing the instrument, it would have been obvious to an
14 artisan to have provided a button for release of instrument body 32 from
15 housing 50, for the purpose of ease of release of an instrument for
16 replacement with another instrument.

17 With regard to the claimed interchangeability feature, we note that
18 according to Appellants' Specification, the adapter interface is interface 210
19 found in Figs. 2 and 3. We find from facts 14 and 16 that Chader describes
20 having interchangeable instruments. From all of the above, we are not
21 persuaded of any error on the part of the Examiner in rejecting claim 23, and
22 the claims dependent thereon. The rejection of claims 23 and claims 25-28
23 and 84-90, dependent therefrom, is sustained.

24

1 CONCLUSION OF LAW

2 On the record before us, we hold that the teachings and suggestions of
3 Chader would not have suggested the claimed subject matter, but that the
4 teachings and suggestions of Chader in view of Acker would have suggested
5 the language of claims 1, 3-23, 25-29, 31-34, 80-100, 102, 105, and 106.

6
7 DECISION AND ORDER

8 The Examiner's rejection of claims 1, 3-23, 25-29, 31-34, 80-100, 102,
9 105, and 106 is affirmed.

10 No time period for taking any subsequent action in connection with
11 this appeal may be extended under 37 CFR § 1.136(a) (1)(iv).

12

13 AFFIRMED

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18 vsh

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