

The opinion in support of the decision being entered today
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN M. ROBERTSON, THOMAS DEMICHAEL,
and RAYMOND M. WALKER

Appeal 2007-2257
Application 11/118,509
Technology Center 1700

Decided: September 6, 2007

Before EDWARD C. KIMLIN, JEFFREY T. SMITH, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

Statement of the Case

This is an appeal under 35 U.S.C. § 134 from a final rejection of claims 8-24. We have jurisdiction under 35 U.S.C. § 6.¹

¹ In rendering this decision, we have considered the Appellants' arguments presented in the Briefs filed February 8, 2006, June 5, 2006, and January 10, 2007.

Appellants' invention relates to a method of repairing a part of a gas turbine engine. Representative independent claims 8 and 24, as presented in the Brief, appear below:

8. A method of making a rotating part of a gas turbine engine, comprising the steps of:

providing a rotating part made from a wrought material and having a contact area;

providing a piece of high strength wrought material having a contact area;

resistance heating said contact area of said material and said contact area of said part; and

pressing said contact area of said material against said contact area of said part;

wherein said material bonds to said part.

24. A method of repairing a part of a gas turbine engine comprising the steps of:

providing a part made from a wrought material and having a contact area;

providing a fixture having a base and a replacement section formed from a high strength wrought material, said replacement section having a contact area;

heating said contact area of said replacement section and said contact area of said part by applying an electrical current to said replacement section and said part;

applying pressure to said fixture to move said fixture towards said part until said contact area of said replacement section comes into contact with

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said contact area of said part and to allow said electrical current to travel across a joint between said contact areas; and

maintaining application of said electrical current and said pressure until the wrought material forming said replacement section has bonded to the wrought material of said part.

The Examiner relies on the following references in rejecting the appealed subject matter:

Bogard	US 5,205,465	Apr. 27, 1993
Robertson	US 5,272,809	Dec. 28, 1993

The following ground of rejection is the sole rejection on appeal to be reviewed:

Claims 8-24 stand rejected under 35 U.S.C. §103(a) as unpatentable over Bogard in view of Robertson.

We determine that the Examiner has established a prima facie case of obviousness in view of the referenced evidence, which prima facie case has not been adequately rebutted by Appellants' arguments. Therefore, we AFFIRM the § 103 rejection presented in this appeal essentially for the reasons stated in the record, as well as those reasons set forth below.

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). “[A]nalysis [of whether the subject matter of a claim would have been obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative

steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co., v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007) (*quoting In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). *See DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006) (“The motivation need not be found in the references sought to be combined, but may be found in any number of sources, including common knowledge, the prior art as a whole, or the nature of the problem itself.”); *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969) (“Having established that this knowledge was in the art, the examiner could then properly rely, as put forth by the solicitor, on a conclusion of obviousness ‘from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference.’”); *In re Hoeschele*, 406 F.2d 1403, 1406-407, 160 USPQ 809, 811-12 (CCPA 1969) (“[I]t is proper to take into account not only specific teachings of the references but also the inferences which one skilled in the art would reasonably be expected to draw therefrom . . .”). The analysis supporting obviousness, however, should be made explicit and should “identify a reason that would have prompted a person of ordinary skill in the art to combine the elements” in the manner claimed. *KSR*, 127 S. Ct. at 1739, 82 USPQ2d at 1396.

Applying the preceding legal principles to the factual findings in the record of this appeal, we determine that the Examiner has established a *prima facie* case of obviousness as to claims 8-24.

The Examiner found that Bogard relates to the replacement of a turbine disk air seal land ring. A replacement ring, composed of wrought nickel-base alloys or titanium alloys, is bonded to the disk in place of a worn or damaged land ring. The replacement ring and the disk material can be composed of similar chemical composition as the disk material. Bogard teaches both the disk and the replacement ring having contact areas for bonding which are properly aligned, heated, and pressed under conditions sufficient to ensure proper bonding by forge joining (Bogard, Col. 4, ll. 3-53). Bogard does not expressly teach using resistance heating for the forge joining process, and, therefore, also does not teach applying an electrical current to either part. The Examiner cited Robertson for describing the suitability of using the resistance heating bonding technique for wrought alloy materials (Answer 4-5).

Appellants' principal argument is that Robertson teaches away from the claimed invention (Br. 8). Appellants also argue that there is no suggestion or motivation to combine the teachings of Bogard and Robertson (Br. 8-9).

We do not find Appellants' arguments persuasive. The Examiner properly determined that Bogard and Robertson utilize essentially the same temperatures and pressures to join the wrought materials through the forge joining process (Answer 7-8). As such, a person of ordinary skill in the art would have reasonably expected that wrought materials would have been bonded together utilizing a resistance heating bonding technique for the forge joining process. Appellants are reminded that the test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and that only a reasonable expectation of

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success, not absolute certainty, is required. *In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

Regarding the subject matter of claim 24, we adopt the Examiner's responses to Appellants' arguments.

CONCLUSION

For the foregoing reasons and those stated in the present record, we affirm the Examiner's rejections of claims 8-24 under § 103(a).

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

AFFIRMED

clj

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