



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/734,929	04/13/2007	Reinhard KARL	P31944	1984
7055	7590	03/15/2013	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			LEE, GILBERT Y	
			ART UNIT	PAPER NUMBER
			3674	
			NOTIFICATION DATE	DELIVERY MODE
			03/15/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
greenblum.bernsteinplc@gmail.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte REINHARD KARL, GERALD RETSCHNIK and FRANZ TRIEB

Appeal 2011-006131
Application 11/734,929
Technology Center 3600

Before JOHN C. KERINS, BRADFORD E. KILE and WILLIAM A. CAPP,
Administrative Patent Judges.

CAPP, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the final rejection of claims 8-24. An oral hearing was held on March 11, 2013. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

THE INVENTION

Appellants' invention relates to a seal in high-pressure liquid pumps such as plunger pumps. Spec. 1, para. [0002]. Claim 8, reproduced below, is illustrative of the subject matter on appeal.

8. A seal assembly for high-pressure devices comprising:
a high-pressure container having an opening;
a moveable part arranged to extend through the opening;
a sleeve surrounding the moveable part;
a pressing ring arranged to contact the sleeve;
a support ring structured and arranged to bear against an interior surface of the opening and against the pressing ring;
and

at least one coating applied to at least one contact surface between the support ring and the interior surface of the opening, the at least one coating being applied according to at least one of a PVD (Physical Vapor Deposition) method, a CVD (Chemical Vapor Deposition) method, and a PACVD (Plasma-Assisted Chemical Vapor Deposition) method.

EVIDENCE RELIED UPON AND THE REJECTIONS

The Examiner relies upon the following as evidence in support of the rejections:

Bruni	US 5,064,206	Nov.12, 1991
Retschnik	EP 0505352 B1	Sep. 23, 1992

The following rejections are before us for review:

1. Claims 8-14 and 16-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Retschnik and Chinou.
2. Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Retschnik, Chinou and Bruni.

OPINION

Obviousness Rejection of Claims 8-14 and 16-24 Over Retschnik and Chinou

Appellants argue claims 8-14 and 16-24 as a group. App. Br. 8-14. We select claim 8 as representative of the group. Claims 9-14 and 16-24 stand or fall with claim 8. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2012).

The Examiner finds, and Appellants do not dispute, that Retschnik discloses all of the limitations of claim 8 except that it fails to disclose a vapor deposition coating as claimed. Ans. 3-4. The Examiner relies on Chinou as disclosing a vapor deposition coating applied to a pump seal. Ans. 4. The Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a vapor deposition coating as taught by Chinou to the seal assembly of Retschnik. *Id.* According to the Examiner, a person of ordinary skill in the art would have been motivated to make the combination in order to provide excellent wear resistance, scuffing resistance, cohesion resistance and peeling resistance. *Id.*

Appellants traverse the Examiner's rejection by first arguing that Retschnik fails to disclose the coating of claim 8. App. Br. 9-10. This

argument is unpersuasive as the Examiner relied on Chinou, not Retschnik, as satisfying the coating limitation. Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

Next, Appellants argue that Chinou's coating is disclosed in the context of a piston pump where there is abrasion between a piston ring and a cylinder wall. App. Br. 11. Appellants contrast the sliding movement and abrasion of a piston pump seal with a "positionally fixed" seal assembly of a plunger pump. *Id.* In response, the Examiner points out that it is well known that a seal will degrade and fail over time, whether or not the seal is installed in a static or dynamic configuration. Ans. 8. The Examiner further responds to Appellants' "positionally fixed" argument by pointing out that even a static mount support ring will move due to the existence of pressure loads. *Id.*

We do not find Appellants' argument persuasive. Appellants' argument that the various components of a plunger pump are "positionally fixed" in such a way that they do not move, at all, relative to each other is belied by admissions in the background section of their own specification.

Signs of wear by material abrasion from both parts are found on the contact surface between sealing ring or support ring and the interior surface of the bore or of the cylinder after different operating times of a pump installation, as the case may be. A wear of this type can cause a failure of the sealing system . . . Spec. 2, para. [0005] (emphasis added). The plain and ordinary meaning of "abrasion" is: "The process of wearing down or rubbing away by means of friction." THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH

LANGUAGE, 4th ed. We agree with the Examiner that some movement will occur between components even in plunger pump seal assemblies. Ans. 8. Appellants' invention applies a coating to reduce friction between components that abrade each other. We agree with the Examiner that it would have been obvious to a person of ordinary skill in the art to look to Chinou's coating to reduce abrasion and wear.

Finally, Appellants argue that the Examiner has not identified any articulated reasoning for combining Retschnik and Chinou. App. Br. 12. In particular, Appellants argue that the Examiner has not identified any disclosure in Retschnik or Chinou of wear and abrasion between the support ring and the cylinder wall. *Id.* Accordingly, Appellants argue that the Examiner failed to provide a basis for his conclusion of obviousness under 35 U.S.C. § 103(a). *Id.*

Contrary to Appellants' arguments, the Examiner is not required to seek out precise teachings directed to the specific subject matter of the challenged claim in order to perform an obviousness analysis. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). In bridging the gap between prior art references and a conclusion of obviousness, the fact finder may rely on the prior art references themselves, the knowledge of those of ordinary skill in the art, the nature of the problem to be solved, market forces, design incentives, the interrelated teachings of multiple patents, any need or problem known in the field of endeavor at the time of invention and addressed by the patent, or the background knowledge, creativity, and common sense of the person of ordinary skill. *Id.* at 418-22.

The fact that Chinou's coating reduces frictional wear in a piston pump seal does not negate the obviousness of its potential use to reduce

abrasion in a plunger pump seal assembly. “It is common sense that familiar items may have obvious uses beyond their primary purposes, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *KSR*, at 402. Regardless of Chinou's primary purpose, it provides an obvious example of using a vapor deposition coating to reduce frictional wear in a pump seal assembly.

Appellants have failed to convince us of error in the Examiner's findings and conclusions.¹ Accordingly, we sustain the Examiner's rejection of claim 8-14 and 16-24.

*Obviousness Rejection of
Claim 15 Over Retschnik, Chinou and Bruni*

Claim 15 depends from claim 8 and adds the limitation: “wherein the at least one coating is applied to the support ring and the interior surface, and comprises chromium nitride.” App. Br., Clms. App'x. The Examiner finds, and Appellants do not dispute, that Bruni discloses coating the seal, the wall being sealed, or both. Ans. 7, citing Bruni, col. 2, ll. 8-9.

In traversing the Examiner's rejection, Appellants rely on the same arguments that we have previously found unpersuasive with respect to claim 8 above. App. Br. 15. In particular, Appellants argue that Bruni is directed to sliding resistance of a piston ring. *Id.* Appellants offer no new arguments

¹ In their Reply, Appellants raise, for the first time, new arguments directed toward the Examiner's alleged failure to establish commonality in the materials and operating environments of the support ring of Retschnik and the piston ring of Chinou. Reply 2. Appellants offer no justification for not having raised these arguments in their opening brief. Consequently, we will not consider such untimely arguments. *Ex parte Borden*, 93 USPQ2d 1473, 1474 (BPAI 2010) (informative)(“Any bases for asserting error, whether factual or legal, that are not raised in the principal brief are waived.”)

Appeal 2011-006131
Application 11/734,929

for the patentability of claim 15 other than to assert that Bruni fails to cure the alleged deficiencies that Appellants have previously asserted with respect to claim 8.

Appellants' argument against the combinability of Bruni with the other references is essentially the same argument that Appellants raised against the combinability of Chinou to Retschnik with respect to claim 8 and it fails for essentially the same reason as their earlier argument. Thus, Appellants fail to persuade us that Bruni would not have obviously been combined with Retschnik and Chinou to achieve the invention of claim 15. We sustain the Examiner's rejection of claim 15 for the reasons recited above with respect to claim 8.

DECISION

The decision of the Examiner to reject claims 8-24 is affirmed.

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

kis