

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte LAWRENCE D. RISSLER, DANIEL A. HENDRICKS  
and TZVI AVNERY

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Appeal No. 2005-1777  
Application No. 10/186,170<sup>1</sup>

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ON BRIEF

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Before THOMAS, DIXON and SAADAT, Administrative Patent Judges.  
SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 1-15 and 17-25. Claim 16 has been canceled.

We affirm.

BACKGROUND

Appellants' invention is directed to a fluid treatment system for reducing or eliminating bacterial contamination from industrial fluids, such as coolants and lubricants, used with machine tools. According to Appellants, changing and replacing

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<sup>1</sup> Application for patent filed June 28, 2002.

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the fluid or using various chemicals for treating such fluid pose risk to the environment or the individuals handling the fluid (specification, page 2). Appellants' invention uses a broad electron beam emitter adjacent a fluid path which creates an atmospheric plasma region and kills the bacteria in the fluid as the fluid passes through the plasma region (specification, page 3).

Representative independent claim 1 is reproduced as follows:

1. A system for reducing bacteria levels in a fluid used with a tool, said system comprising:

a distribution system for circulating said fluid to and from a reservoir associated with said tool;

an electron beam emitter having a fluid inlet for receiving said fluid from said reservoir associated with said tool; said electron beam emitter operating to expose said fluid to an electron beam to reduce a level of said bacteria in said fluid and to output said fluid back to said reservoir.

The Examiner relies on the following prior art references in rejecting the claims:

Schonberg et al. (Schonberg)	5,378,898	Jan. 3, 1995
LeBlanc et al. (LeBlanc)	6,083,387	Jul. 4, 2000
Wakalopoulos et al. (Wakalopoulos)	6,140,657	Oct. 31, 2000

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Claims 1-15 and 17-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over LeBlanc, Schonberg and Wakalopoulos.<sup>2</sup>

Rather than reiterate the opposing arguments, reference is made to the briefs and answer for the respective positions of Appellants and the Examiner. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the briefs have not been considered (37 CFR § 41.37(c)(1)(vii)).

#### OPINION

Appellants argue that LeBlanc creates a turbulence in the flow of fluids that are exposed to ultraviolet (UV) radiation (brief, page 9). Appellants further assert that neither of the references discloses "a closed loop system" for reducing bacteria levels in a machining fluid, as required by the claims in the form of a pump which pumps the fluid and gradually removes the contaminants (brief, page 10). Appellants further question the Examiner's reason for combining the references to use other types

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<sup>2</sup> Although the claims appear to be rejected based on the same ground of rejection, the Examiner has stated the 35 U.S.C. § 103(a) rejection of the claims as follow:

claims 1, 2, 10, 15 and 21-25 over LeBlanc, Schonberg and Wakalopoulos,  
and  
claims 3-9, 11-14 and 17-20 over Schonberg, Wakalopoulos and LeBlanc.

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of treatment process in place of the UV radiation of LeBlanc or to gradually reduce contaminants by fluid recirculation (brief, pages 13-15). With respect to the other references, Appellants argue that the examiner has relied on limited portions of the references whereas Schonberg as a whole discloses using an electron beam to convert toxic or nontoxic compounds in a gaseous material or groundwater while Wakalopulos uses electron plasma cloud for sterilizing medical equipment (brief, page 16).

The Examiner responds by pointing to portions of LeBlanc (col. 9, lines 41-50) which describe other types of radiation treatments for reducing contaminants in fluids such as ionizing radiation as disclosed in Schonberg and Wakalopulos (answer, pages 8 & 9). The Examiner further reasons that since control of the pump and filtering modules is disclosed in LeBlanc (col. 15, lines 41-44), the fluid is pumped and returned to the machine reservoir (answer, page 10). Similarly, the Examiner asserts that the use of a pump in LeBlanc indicates circulation of the fluid while the argued limitation of "a closed loop recirculation system" is actually absent in the claims (answer, page 11).

As a general proposition, in rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d

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1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) and In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). A prima facie case of obviousness is established when the teachings of the prior art itself would appear to have suggested the claimed subject matter to one of ordinary skill in the art. See In re Bell, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993); In re Fritch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992); Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985). In considering the question of the obviousness of the claimed invention in view of the prior art relied upon, the Examiner is expected to make the factual determination set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. See also In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998). However, the motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to

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be solved. See In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

After reviewing LeBlanc, we find that the reference relates to removing bacteria from and disinfecting fluids, such as industrial fluids, coolants and machine fluids, by exposing the fluid to ultraviolet (UV) radiation (col. 2, lines 57-65). LeBlanc, as indicated by the Examiner, discloses pumping the fluid from a fluid sump through the piping system (col. 6, lines 26-35) which is circulated from the reservoir and exposed to UV radiation. Although LeBlanc creates turbulence in the fluid flow, the disinfecting process is still performed by UV radiation. The turbulent flow merely facilitates the exposure by bringing the fluid from the interior of the tube to its surface (col. 3, lines 47-50) as the opaque industrial fluids are highly occlusive to UV light (col. 1, lines 58-65).

We also agree with the Examiner that a "closed loop system" is not required by the claims while, to the extent claimed, the pump system of LeBlanc provides for a continuous circulation of the fluid. However, it should also be noted that LeBlanc does, in fact, touch on the point that the disclosed disinfection method may be used in both "closed and open systems" (col. 8, lines 12-16).

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Turning now to the teachings of Schonberg, we find that an electron beam is used for treatment of different types of materials such as liquids (col. 2, lines 54-61). Schonberg further discloses that electron beam systems may be used to remove toxic compounds such as organic contaminants from soil and ground water (col. 8, lines 25-27). Similarly, Wakalopulos relates to sterilization in the field of medicine and pharmaceutical production where protection from harmful microorganisms is needed (col. 1, lines 11-13) by using electron beam to create a plasma cloud (col. 2, lines 66-67). Thus, the skilled artisan would have used electron beam to create a plasma cloud for removing organic contaminants or bacteria from other fluids such as machine coolants and lubricants.

We also remain unconvinced by Appellants that the skilled artisan would not have been motivated to combine LeBlanc, Schonberg and Wakalopulos. We recognize that the motivation to combine prior art references may be found in the nature of the problem to be solved. Ruiz v. A.B. Chance Co., 357 F.3d 1270, 1276, 69 USPQ2d 1686,1690 (Fed. Cir. 2004). Also, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. See WMS Gaming, Inc. v. International Game Tech., 184 F.3d 1339, 1355, 51

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USPQ2d 1385, 1397 (Fed. Cir. 1999). Here, as pointed out by the Examiner, LeBlanc uses UV radiation as well as ionizing radiation for removing bacteria and organic contaminants from industrial fluids which taken together with Schonberg's use of electron beam for disinfecting liquids, provides for the claimed subject matter recited in claim 1. Additionally, Wakalopulos provides for other types of ionizing radiation, such as atmospheric plasma, for sterilization (col. 2, lines 23-27) which provides for further types of radiation that are available to the skilled artisan for removing organic contaminants from fluids. Thus, we find that the Examiner has provided sufficient evidentiary support for combining the reference by relying on LeBlanc's disclosure of other contaminant-reducing methods and directing us to other conventional radiation methods such as ionizing radiation (col. 9, lines 41-50). Accordingly, we sustain the rejection of claim 1 as well as claims 2-4, which are grouped by Appellants (brief, page 7) as standing or falling together with claim 1, under 35 U.S.C. § 103 over LeBlanc, Schonberg and Wakalopulos.

With respect to claim 5, Appellants argue that the recited closed loop system that gradually reduces the bacteria levels as the fluid is controlled and recirculated at a desired degree is absent in the references (brief, page 13). In response, the

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Examiner argues that dropping the bacteria level by repeatedly treating the fluid is indeed taught by LeBlanc (col. 16, line 57 through the entire col. 17). We agree and observe that this portion of LeBlanc also describes that by each cycle of sending the fluid through the treatment, the level of bacteria further drops which indicates gradual removal of contaminants with repeatedly cycling the treatment. Based on a comparison of the two arguments and reviewing the references, we remain unconvinced by Appellants' arguments that the limitations of claim 5 as well as the other independent claims are absent in the combination of LeBlanc, Schonberg and Wakalopulos. Therefore, we sustain the 35 U.S.C. § 103 rejection of claim 5-15 and 17-25.

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CONCLUSION

In view of the foregoing, the decision of the Examiner rejecting claims 1-15 and 17-25 under 35 U.S.C. § 103 is affirmed.

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

AFFIRMED

JAMES D. THOMAS	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
JOSEPH L. DIXON	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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MAHSHID D. SAADAT	)	
Administrative Patent Judge	)	

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