

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* VIJAYASHREE BALASUBRAMANIAN, SUSAN M.  
ZAWASKI, and VICTOR HUGO PEREZ-LUNA  
Appellants

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Appeal 2008-5700  
Application 11/027,000  
Technology Center 1600

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Decided: January 7, 2009

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Before JAMES T. MOORE, *Vice Chief Administrative Patent Judge*, and  
RICHARD TORCZON and SALLY GARDNER LANE, *Administrative  
Patent Judges*.

LANE, *Administrative Patent Judge*.

DECISION ON APPEAL

## I. STATEMENT OF THE CASE

The appeal, under 35 U.S.C. § 134, is from a Final Rejection of claims 1-11 and 13-21. Claim 12 was canceled. (App. Br. 2). We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Appellants claim a medical storage device with silver particles bound to the surface.

The Examiner relied on the following patent documents:

Name	Number	Date
Cahalan	5,229,172	Jul. 20, 1993
Guire	5,263,992	Nov. 23, 1993
Yan	WO 03/080231	Oct. 2, 2003

The Examiner also relied on Wagner et al., “*Transfusion-Associated Bacterial Sepsis*,” Clin. Microbiol. Rev., Vol. 7, (1994) at 290-302.

Appellants appeal the rejection of claims 1-5, 7, 13-15, and 17-19 under 35 U.S.C. § 103(a) over Yan and Guire. Appellants also appeal the rejection of claims 1-11 and 13-21 under 35 U.S.C. § 103(a) over Yan, Guire, Cahalan, and Wagner. Appellants did not argue separately for the patentability of any of the rejected claims. We review independent claim 1 as a representative claim. *See Bd. R. 37(c)(1)(vii).*

The record supports the findings of fact recited below, as well as any other findings of fact set forth in this opinion, by at least a preponderance of the evidence.

## II. FINDINGS OF FACT

1. Appellants’ claim 1 recites:

A medical device formed of an antimicrobial biomaterial comprising:  
a polymer substrate; and  
silver particles bound to at least a portion of a surface of the polymer substrate, each of the bound silver particles having a dimension of 1 to 1,000 nanometers;  
wherein the medical device is a medical storage device for containing a bodily fluid.

(App. Br. 14; Claims Appx.).

2. Appellants' specification provides that "[r]eferences herein to 'bound' or 'bind' are to be understood to refer to an indirect or direct combination of two materials or compounds, desirably by chemical action." (Spec. 5, ll. 9-11).

3. Appellants' specification provides that "[r]eferences here to 'bond' or bonded' are not intended to be limited to any one particular type of chemical bonding, such as ionic chemical bonding or covalent chemical bonding." (Spec. 5, ll. 12-14).

4. Appellants' specification provides that "references herein to 'colloidal silver' are to be understood to refer to particles of silver having a dimension of 1-1,000 nanometers." (Spec. 5, ll. 7-8).

5. Appellants' specification provides that [t]he silver particles can desirably be attached to the polymeric substrate surface by dipping or immersing, spraying, or otherwise contacting the treated or oxidized portion of the surface in or with aqueous colloidal silver, such as, for example, aqueous colloidal silver having colloidal silver concentrations in the nanomolar or picomolar range.

(Spec. 10, ll. 10-14).

6. Yan teaches that “[i]t has been known for centuries that silver possesses germicidal properties and has been employed as [a] germicide before modern antibiotics were developed.” (Yan 1).

7. Yan provides “EXAMPLE 10 Preparation of Nanosilver composition as antimicrobial coating agent.” (Yan 22).

8. In Example 10, Yan teaches “mix[ing] nanosilver composition (prepared by any methods stated in Example 1 to Example 6) with spraying device or a glue to coat onto a desired surface. . . .” and that “[t]he preparation can then be applied to coat any surface including fabric hard object and even smooth surface such as man-made yarn for antimicrobial purpose.” (Yan 22-23).

9. Example 1 through Example 6 of Yan teach “Preparation of the Colloidal Nanosilver Solution of the Present Invention.” (See Yan 14, 15, 16, 17, and 19).

10. Yan reports that “[t]he colloidal solution of the present invention containing nanosilver particles which had a size range of 1 nm to 100 nm and was very stable after storage of 110 days at room temperature.” (Yan 20).

11. Guire claims “[a] blood bag having a solid surface carrying molecules or a biocompatible agent selected from the group consisting of . . . antimicrobial agents, and a chemical linking moiety residue covalently binding individual molecules of the biocompatible agent to the solid surface . . . .” (Guire claim 24).

### **III. ISSUES AND ANALYSIS**

#### **A. The rejection of claims 1-5, 7, 13-15, and 17-19 under 35 U.S.C. § 103(a) over Yan and Guire**

The issue raised by this rejection is whether those of skill in the art would have had reason to bond silver particles to a polymer substrate surface of a medical storage device for containing a bodily fluid.

Appellants characterize Yan as teaching that a “silver solution can be sprayed onto a fabric (i.e., evaporative deposition) or mixed with a ‘glue’ and applied to a fabric (Page 22, last sentence).” (App. Br. 6). Appellants characterize Guire as teaching “a chemical linking moiety to covalently bond to the substrate and to covalently bond to the biocompatible agent (Abstract).” (App. Br. 5 (emphasis in original)). Appellants note that Guire does not disclose silver particles. (App. Br. 6). Appellants argue that “[n]either the Guire Patent nor the Yan et al. Patent teach or suggest that colloidal silver can be covalently bonded to a linking moiety. Only Applicant’s disclosure teaches how to properly attach silver particles to a biomaterial.” (App. Br. 9).

However, Appellants’ claims are not limited to a specific type of “bonding” of silver particles to the surface of the polymer substrate. Appellants’ specification provides that the term “bound” means “an indirect or direct combination of two materials or compounds.” (FF 5; *see also* FF 6). “During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow. When the applicant states the meaning that the claim terms are intended to have, the claims are examined with that meaning, in order to achieve a complete exploration of the

applicant's invention and its relation to the prior art." *In re Zletz*, 893 F2d 319, 321 (Fed. Cir. 1989). Thus, Appellants' claim 1 encompasses any combination of silver and polymer substrate surface.

Appellants argue that

[w]hile it is true that the Yan et al. Publication recognizes that colloidal silver has antimicrobial properties, it does not mean colloidal silver is an automatic substitution for the antimicrobial of the Guire Patent, particularly as the teachings of the Yan et al. Publication use glue to attach silver particles. The invention is more than a predictable use of the prior art elements.

(App. Br. 8). According to Appellants

[o]ne of ordinary skill in the art would not have considered these references to be combinable, as colloidal silver does not covalently bond in the manner required by the Guire Patent, and the glue of the Yan et al. Publication would not be desirable for the implantable material of the Guire Patent.

(*Id.*).

We agree that Yan does not teach applying the colloidal nanosilver solution to a medical storage device for containing a bodily fluid. However, from Yan one skilled in the art would have realized that binding colloidal silver to a surface provides it with antimicrobial properties. (FFs 6-8). "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability." *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740 (2007). One skilled in the art would have had reason to bind colloidal silver to any surface where antimicrobial properties were needed, for example, the blood storage bag of Guire.

Appellants did not direct us to specific persuasive evidence of the inability of a colloidal silver to bind to the blood storage bag of Guire, instead we have only the argument of counsel that “colloidal silver does not covalently bond in the manner required by the Guire patent.” (App. Br. 8). Argument of counsel is not a substitute for evidence. *Meitzner v. Mindick*, 549 F.2d 775, 782 (CCPA 1977).

Thus, Appellants have not persuaded us that those of skill in the art would not have had reason to use the silver particles of Yan as the antimicrobial agent bound to a blood bag, as claimed in Guire. Accordingly, the Examiner did not err in rejecting claim 1 under 35 U.S.C. § 103(a) over Yan and Guire.

**B. The rejection of claims 1-11 and 13-21 under 35 U.S.C. § 103(a) over Yan, Guire, Cahalan, and Wagner**

Appellants also appeal the rejection of claims 1-11 and 13-21 under 35 U.S.C. § 103(a) under 35 U.S.C. § 103(a) over Yan, Guire, Cahalan, and Wagner.

As explained above, the Examiner did not err in rejecting claims 1 and 13 under 35 U.S.C. § 103(a) over Yan and Guire. Thus, we agree with the Examiner that the subject matter of claim 1 would have been obvious over Yan and Guire, and, in addition, Cahalan, and Wagner.

While we agree with the Examiner, we note that as to Cahalan the Appellants argue “[t]he final Office action states that the Cahalan et al. Patent teaches silver salts, but silver salts are not the same as Applicants’ silver particles, and silver salts allow for chemical bonding that silver

particles are not capable of accomplishing.” (App. Br. 9-10). We do not find this argument persuasive.

Appellants have not provided any support for a difference in chemical bonding between silver salts and silver particles. As noted above, argument of counsel cannot take the place of evidence lacking in the record. *Meitzner*, 549 F.2d at 782. Furthermore, Appellants define “silver particle” in their specification as “a particle containing two or more silver ions.” (Spec. 5, ll. 5-6). Without further evidence, we are not persuaded that a particle with silver ions would bond differently from a silver salt.

Thus, we find no error in the rejection of claims 1-11 and 13-21 over Yan, Guire, Cahalan, and Wagner.

#### **IV. ORDER**

Upon consideration of the record and for the reasons given, the Examiner’s rejection of claims 1-11 and 13-17 under 35 U.S.C. § 103(a) over Yan and Guire is AFFIRMED; the Examiner’s rejection of claims 1-11 and 13-21 under 35 U.S.C. § 103(a) over Yan, Guire, Cahalan, and Wagner is AFFIRMED; and

FURTHER ORDERED that no time period for taking any subsequent action in connection with the appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

**AFFIRMED**

rvb

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