

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MICHAEL S. WILLIAMS,  
ROBERT JACKSON, and  
ROBERT ANDRUS

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Appeal 2007-3841  
Application 10/241,262  
Technology Center 1700

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Decided: January 24, 2008

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Before BRADLEY R. GARRIS, CHARLES F. WARREN, and  
THOMAS A. WALTZ, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Primary Examiner's final rejection of claims 1, 3-7, 12-14, 19-20, 22, 23, and 27-29, which are the only claims pending in this application. We have jurisdiction pursuant to 35 U.S.C. § 6(b).

According to Appellants, the invention is directed to an oil or water repellent composition containing homopolymers of ester monomers where the alcohol moiety is a perfluorinated alkyl bonded to a C1 to C3 alkyl group, and the acid moiety is alkenyl or an aryl group having an unsaturated substituent, with the homopolymer contained in a hydrofluorocarbon solvent (Br. 2). Independent claim 1 is illustrative of the invention and a copy of this claim is reproduced below:

1. A composition for increasing oil repellency, water repellency, or both, of fabric or fibers, comprising:

(a) an effective amount of a repellent polymer selected from the group consisting of one or more homopolymers-of monomers having formula I:



wherein  $R_f$  is a straight chain or branched perfluoroalkyl group, P is a polymerizable moiety having the formula:



wherein X is a direct bond or  $-NH-$ ,  $R_1$  is a straight chain or branched alkenyl group, or aryl group substituted with an unsaturated carbon chain, wherein when X is a direct bond,  $R_1$  has at least one unsaturated bond, and n is an integer from 1 to 3; and

(b) a solvent comprising a hydrofluorocarbon.

The Examiner has relied on the following prior art references as evidence of unpatentability:

Homma	4,751,114	Jun. 14, 1988
Wu	5,523,346	Jun. 4, 1996
Brown	6,156,389	Dec. 5, 2000

### ISSUE ON APPEAL

Claims 1, 4-7, 12, 20, 22, 27, and 28 stand rejected under 35 U.S.C. § 102(b) as anticipated by Brown (Ans. 3).

Claim 19 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Brown in view of Wu (Ans. 4). Claims 13, 14, 23, and 29 stand rejected under 35 U.S.C. § 103(a) as obvious over Brown in view of Homma (Ans. 5). Claim 3 stands rejected under 35 U.S.C. § 103(a) as obvious over Brown (*id.*).

Appellants contend that the Examiner has failed to identify any portion of Brown that teaches a single embodiment of the homopolymer as recited in claim 1 on appeal (Br. 4). Appellants contend that none of the passages cited by the Examiner show a homopolymer but refer to a copolymer of a low T<sub>g</sub> comonomer combined with another trifluoromethyl-terminated monomer (Br. 6, 8-9). Appellants further contend that the perfluoroalkyl methacrylate pointed to by the Examiner is not a monomer falling within the scope of the formula recited in claims 1 and 20, as the claimed monomers are not perfluorinated (Br. 7).

Appellants further present contentions regarding the rejections of claims 3 and 19, as well as the application of Homma (Br. 10, 13, and 14). Accordingly, we consider these claims separately below. Appellants also contend that unexpected results have been shown by the Grigat Declaration (Br. 15-16).

The Examiner contends that, absent a clear teaching of a comonomer, the reaction product of the fluoroalkyl methacrylate monomer disclosed in col. 14 of Brown would be construed as a homopolymer, thus anticipating

the subject matter of claim 1 on appeal (Ans. 7). The Examiner also contends that the disclosure in Brown of a method, forming a polymer only from one monomer, implies that a homopolymer is formed (Ans. 8). The Examiner further contends that the name of the polymer, as well as the preferred uniform chain length, also suggests that only a homopolymer is described by the Brown disclosure (*id.*).

Accordingly, the issue presented from the record in this appeal is as follows: Have Appellants established that the Examiner erred in citing the fluoroalkyl methacrylate monomer and implication of the resulting homopolymer as falling within the scope of claim 1 on appeal?

We determine that the Examiner has established a prima facie case of anticipation in view of Brown, which prima facie case has not been adequately rebutted by Appellants' arguments. We also determine that the Examiner has established a prima facie case of obviousness in view of the reference evidence, which prima facie case has not been adequately rebutted by Appellants' evidence and arguments. Accordingly, we AFFIRM all grounds of rejection presented on the record in this appeal essentially for the reasons stated in the Answer, as well as those reasons set forth below.

## OPINION

### A. The Rejection under § 102(b)

We determine the following Factual Findings (FF) from the record in this appeal:

- (1) Brown discloses a hydrophobic coating for articles, where one embodiment of the coating composition includes a polymerized product of branched fluoroalkyl monomers containing terminal trifluoromethyl groups, exemplified by

the chemical formula  $C_7F_{15}CH_2OCOC(CH_2)=CH_2$ , with a teaching that a polymer coating consisting essentially of a polymerization product of perfluoroctyl methacrylate is preferred (Ans. 4; Brown, col. 1, ll. 14-20; col. 14, ll. 38-64; col. 17, ll. 29-32);

- (2) Brown discloses that such polymers made from monomers with terminal trifluoromethyl groups are used in fluorinated solvents such as Vertrel® XF, a hydrofluorocarbon solvent (Ans. 4; Brown, col. 16, ll. 35-50; col. 17, ll. 44-65); and
- (3) Brown teaches a method of making the polymer from only a fluoroalkyl ethylenically unsaturated monomer, describes the product as a “polyfluoroalkyl polymer,” and teaches the preference for uniform carbon chain lengths rather than a mixture of different monomers (Ans. 8; Brown, col. 16, ll. 50-67).

Under 35 U.S.C. § 102, every limitation of a claim must identically appear in a single prior art reference for it to anticipate the claim. *See In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

Applying this legal principle to the Factual Findings noted above, we determine that the Examiner has established a *prima facie* case of anticipation in view of Brown. As shown by FF (1) listed above, we determine that Brown discloses a monomer corresponding to formula (I) recited in claim 1 on appeal, where  $R_f$  corresponds to perfluoroheptyl, n equals one, X is a direct bond, and  $R_1$  corresponds to branched alkenyl (methacryl). As shown by FF (2) listed above, we determine that Brown describes hydrofluorocarbon solvents to be used with the polymer products.

As shown by FF (3) listed above, we determine that Brown implicitly discloses that a homopolymer is the preferred product, using only the perfluorooctyl methacrylate monomer. Since the polymer product as disclosed by Brown is hydrophobic (*see* FF (1) listed above), we determine that the amount of polymer product present in the composition of Brown falls within “an effective amount” to impart some degree of repellency, however small. Therefore, we determine that every limitation recited in claim 1 on appeal is described within the meaning of § 102(b) by the disclosure of Brown.

Contrary to Appellants’ contentions discussed above, we determine that the Examiner has explicitly referred to specific citations from Brown showing a monomer within the scope of the claimed monomer (Ans. 4). Furthermore, we determine that the Examiner has met the initial burden of establishing that the claimed monomer is formed into a homopolymer, although other embodiments taught by Brown might require a comonomer.

For the reasons stated above and in the Answer, we affirm the rejection of claim 1 under § 102(b) as anticipated by Brown. Since Appellants present no specific arguments to any claim other than claim 1 in this group of claims (Br. 4-10), we determine that claims 4-7, 12, 20, 22, 27, and 28 fall with claim 1.

With regard to the Grigat Declaration under 37 C.F.R. § 1.132 (Br. 15), we note that evidence of unexpected results is not relevant to a rejection under 35 U.S.C. § 102. *See In re Malagari*, 499 F.2d 1297, 1302 (CCPA 1974). Accordingly, we assume that Appellants submit this evidence with respect to the rejections based on § 103(a) below.

## B. The Rejections under § 103(a)

We determine the following additional Factual Findings from the record in this appeal:

- (4) Brown exemplifies a perfluoroctyl methacrylate monomer, corresponding to the claimed monomer where n=1, but further teaches that the carbon chain length may be from 3 to 20 carbons (Ans. 6; Brown, col. 16, ll. 15-22);
- (5) Wu teaches an aqueous seeded microemulsion polymerization procedure for fluorocarbon monomers, with several advantages over traditional emulsion polymerization (Ans. 4; Wu, Abstract; col. 1, l. 36-col. 2, l. 2); and
- (6) Homma discloses coating compositions comprising fluoropolymers with any organic solvent as long as the solvent can dissolve the fluoropolymer; these solvents include halogenated hydrocarbons such as 1,2-dichloroethylene and chlorobenzene (Ans. 5; Homma, col. 6, l. 58-col. 7, l. 7).

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 such as unexpected results. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966). “[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740 (2007).

With regard to the rejection of claim 3 on appeal, as shown by FF (4) listed above, we determine that Brown alone suggests different carbon chain lengths for the fluoroalkyl methacrylate monomer, including values where n=2. With regard to the rejection of claim 19 on appeal, we determine, as shown by FF (5) listed above, that one of ordinary skill in this art would have been aware of microemulsion polymerization procedures applied to fluoropolymers for the advantages taught by Wu, and thus the use of these procedures to improve the similar process and product of Brown would have been obvious. *See KSR, supra.* With regard to the rejection of claims 13, 14, 23, and 29, we determine, as shown by FF (6) listed above, that the choice of solvent for fluoropolymers would have been well within the ordinary skill in this art.

With regard to claims 3 and 19, Appellants merely contend that there is no motivation to eliminate the trifluoromethyl-terminated monomer from the copolymer of Brown (Br. 10, 14). As discussed above, the Examiner has not relied on any comonomers disclosed by Brown (*see* FF (1) listed above). With regard to claim 19, Appellants contend that the mere fact that microemulsion polymerization is known is no motivation to use it to form the product of Brown (Br. 11). This contention is without merit since the prior art (Wu) evinces that microemulsion was known to be particularly advantageous with fluoropolymers similar to those of Brown, and thus it would have been within the ordinary skill in this art to use this procedure to improve the similar product of Brown. *See KSR, supra.* With regard to claims 13, 14, 23, and 29, Appellants contend that there is no suggestion in either reference that the solvent system of Homma would be suitable for the specific type of polymer used in Brown (Br. 13). We also find this

contention without merit since we determine, as evidenced by Homma (FF (6) listed above), that one of ordinary skill in this art would have been capable of determining what solvent system selected from “solvents commonly used in the field of coating materials” (Homma, col. 6, ll. 63-64) could be used for best results with the specific fluoropolymer disclosed by Brown.

With regard to the Grigat Declaration, we determine that this evidence is not relevant to any of the aforementioned rejections based on § 103(a), and Appellants have not met their burden of establishing why the evidence in this Declaration shows unexpected results relevant to the claimed subject matter rejected under § 103(a) (Br. 15-16). Accordingly, this evidence does not overcome the *prima facie* obviousness established by the reference evidence.

For the foregoing reasons and those stated in the Answer, we affirm all grounds of rejection under § 103(a) presented in this appeal.

#### C. Summary

The rejection of claims 1, 4-7, 12, 20, 22, 27, and 28 under § 102(b) over Brown is affirmed.

The rejections under § 103(a) of claim 19 over Brown in view of Wu; claims 13, 14, 23, and 29 over Brown in view of Homma; and claim 3 over Brown are all affirmed.

The decision of the Examiner is affirmed.

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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

tf/ls

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