

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

Paper No. 10

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALAN COLLINS and ANTOON PEETERS

Appeal No. 1998-3106
Application 08/679,603

ON BRIEF

Before OWENS, WALTZ and LIEBERMAN, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1-20. Claims 21 and 22, which are all of the other claims in the application, stand withdrawn from consideration by the examiner as being directed toward a nonelected invention.

THE INVENTION

The appellants' claimed invention is directed toward a curable coating composition. Claim 1 is illustrative:

1. A curable coating composition comprising
 - (A) a composition curable by a hydrosilylation reaction;
 - (B) an inhibitor of said hydrosilylation reaction;
 - (C) a silicone resin and,
 - (D) an adhesion promoting additive comprising:
 - (a) an organosilicon compound having epoxy and alkoxy functionalities;
 - (b) an organotitanium compound;
 - (c) an alkenyl functional silanol terminated polyorganosiloxane and,
 - (d) a metal chelate compound.

THE REFERENCES

Schulz 1978	4,087,585	May 2,
Antonien 1988	4,754,013	Jun. 28,
Gray et al. (Gray) 1993	5,248,715	Sep. 28,
Bilgrien et al. (Bilgrien) 1993	5,254,656	Oct. 19,

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THE REJECTIONS

The claims stand rejected under 35 U.S.C. § 103 as follows: claims 1, 3-8, 12 and 13 over Schulz in view of Antonen and

Bilgrien, and claims 1-13 over Schulz in view of Antonen, Bilgrien and Gray.¹

OPINION

We affirm the aforementioned rejections.

The appellants state that claims 1-13 stand or fall together (brief, page 2). We therefore limit our discussion to one claim, i.e., claim 1, which is the sole independent claim. See *In re Ochiai*, 71 F.3d 1565, 1566 n.2, 37 USPQ2d 1127, 1129 n.2 (Fed. Cir. 1995); 37 CFR § 1.192(c)(7)(1997).

*Rejection of claims 1-13 over Schulz
in view of Antonen, Bilgrien and Gray*

Schulz discloses a curable coating composition comprising (letter designations of components correspond to those in the

¹ Rejections of claims 14-20 are withdrawn in the examiner's answer (page 2).

appellants' claim 1): (A) a vinyl-containing polyorganosiloxane having an average of about two silicon-bonded vinyl radicals per molecule (col. 2, lines 7-9; this component corresponds to the appellants' component (A) which is curable by a hydrosilylation reaction (specification, page 4)); (B) an optional inhibitor for the hydrosilylation reaction (col. 3, lines 27-39); (C) an organosilicon compound having an average of at least 3 silicon-bonded hydrogen atoms per organosilicon compound molecule and which may be a homopolymer, copolymer or mixture thereof (col. 2, lines 15-18; col. 5, lines 12-47); and (D) an adhesion additive (col. 3, lines 1-5) composed of: (D)(a) a silane having at least one epoxy functionality and at least one alkoxy functionality (col. 2, lines 39-41; col. 6, lines 44-49), and (D)(c) a polysiloxane having hydroxyl siloxane units as end groups and preferably having methylvinylsiloxane units and dimethylsiloxane units as the other siloxane units (col. 2, lines 27-39; col. 6, lines 33-38). Schulz also discloses a platinum catalyst (col. 2, lines 26-27). Schulz does not disclose the appellants' organotitanium compound (D)(b) or metal chelate compound (D)(d).

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Bilgrien discloses a curable organosiloxane composition which comprises (letter designations of components correspond to those in the appellants' claim 1 and those given above to the components in Schulz): (A) an organopolysiloxane containing an average of at least two terminally unsaturated hydrocarbon radicals per molecule; and (C) an amount of an organohydrogen polysiloxane sufficient to cure the organopolysiloxane to an elastomer in the presence of a hydrosilation catalyst (col. 2, lines 12-19). The composition also contains an amount of a microencapsulated platinum-containing hydrosilation catalyst sufficient to promote curing of the composition, and (D)(b) an amount of an organotitanium compound sufficient to increase the cure rate of the composition (col. 2, lines 20-28). Bilgrien teaches that the combination of the microencapsulated platinum-containing catalyst and organotitanium compound has the further benefit of increasing the heat stability of elastomers prepared from the composition (col. 1, line 65 - col. 2, line 3). Because Bilgrien's microencapsulated platinum-containing catalyst and organotitanium compound are used in combination with a vinyl-containing polyorganosiloxane and an

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organohydrogenpolysiloxane as used by Schulz, Bilgrien would have fairly suggested, to one of ordinary skill in the art, microencapsulating Schulz's platinum catalyst and using it in combination with Bilgrien's organotitanium compound to provide the benefits of doing so disclosed by Bilgrien, i.e., increasing the cure rate of the composition and increasing the heat stability of elastomers prepared from the composition (col. 1, line 65 - col. 2, line 3).

Gray discloses a curable composition containing, similarly to the compositions of the appellants and Schulz, (A) an alkenyl-containing polydiorganosiloxane curable by a hydrosilation reaction, and (C) an organohydrogensiloxane having at least 3

silicon-bonded hydrogen atoms per molecule (abstract; col. 3, lines 19-22). Like Schulz's composition, Gray's composition includes a platinum group-containing catalyst (col. 3, lines 22-23). Gray teaches that by using an aluminum chelate in combination with an epoxytrialkoxysilane, the adhesion of the cured rubber to substrates is enhanced (col. 3, lines 23-31; col. 7, lines 33-35). Gray further teaches that if adherence

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to plastic is desired, it is advantageous to include a tetraalkyltitanate, an alkylpolysilicate, and an acrylate or methacrylate in the composition (col. 8, lines 19-22). Gray's composition is similar to that of Schulz in that it comprises an alkenyl-containing polyorganosiloxane curable by a hydrosilation reaction, an organohydrogensiloxane having at least 3 silicon-bonded hydrogen atoms per molecule, and an organosilicon compound having epoxy and alkoxy functionalities. Hence, Gray would have fairly suggested, to one of ordinary skill in the art, including in Schulz's composition an aluminum chelate in order to provide the enhanced adhesion disclosed by Gray (col. 7, lines 34-36). Gray additionally would have fairly suggested, to one of ordinary skill in the art, including in Schulz's composition Bilgrien's organotitanium compound, in combination with an alkylpolysilicate and an acrylate or methacrylate (col. 8, lines 19-23), to enhance adhesion to plastics which is a type of substrate used by Schulz (col. 8, lines 54-57).

For the above reasons, we conclude that the claimed invention would have been *prima facie* obvious to one of ordinary skill in the art over the applied prior art.

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The appellants argue that one of ordinary skill in the art would not have been motivated to combine the references (brief, pages 3-4). The motivation would have been to obtain the benefits disclosed in the secondary references of an organotitanium compound and a metal chelate as discussed above.

The appellants argue that adhesion results can vary depending on the combination of ingredients in the composition and upon the substrate, and that predictability from one system to the next cannot be made (brief, pages 5 and 7). For a *prima facie* case of obviousness to be established, however, all that is required is a reasonable expectation of success, not absolute certainty. See *In re O'Farrell*, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). The similarity of the compositions of Schulz, Bilgrien and Gray discussed above would have provided one of ordinary skill in the art with a reasonable expectation of success in adding Bilgrien's organotitanium compound and Gray's metal chelate to Schulz's composition to obtain the benefits of these components disclosed by Bilgrien and Gray.

Accordingly, we conclude that the appellants' claimed invention would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103 over Schulz in view of Antonen, Bilgrien and Gray.²

*Rejection of claims 1, 3-8, 12 and 13 over Schulz
in view of Antonen and Bilgrien*

Antonen discloses a curable polyorganosiloxane composition which includes a liquid polydiorganosiloxane containing two vinyl radicals per molecule, an organohydrogensiloxane containing at least three silicon bonded hydrogen atoms per molecule in an amount sufficient to cure the vinyl containing materials in the composition, and a platinum-containing catalyst in an amount sufficient to promote curing of the vinyl containing materials (col. 3, lines 12-21). These components are similar to components used by Schulz (col. 2, lines 6-27). Antonen also includes in the composition a moisture curable organosiloxane material comprised of at least one hydroxyl terminated polydiorganosiloxane and at least one silane containing at

² A discussion of Antonen is not necessary to our decision as to this rejection.

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least three alkoxy groups per molecule, and an amount sufficient to promote curing of the moisture curable organosiloxane material of a catalyst selected from titanium orthoesters and chelated titanium compounds (col. 3, lines 31-45; col. 7, lines 54-60; col. 8, lines 42-58). Antonen teaches that blending the titanium catalyzed moisture curable organosiloxane with a platinum-catalyzed polyorganosiloxane composition has the benefit of producing an elastomer which has the good adhesion of the moisture cured elastomer to inorganic substrates such as metals, glass and ceramics, and also has the rapid curing rate and good dielectric properties of the platinum catalyzed composition (abstract; col. 1, lines 8-11; col. 2, lines 51-58; col. 7, lines 54-60). Thus, although Schulz points out the moisture sensitivity of his organosilicon compound having epoxy and alkoxy functionalities and his alkenyl functional silanol terminated polyorganosiloxane (col. 2, line 55 - col. 3, line 1), it reasonably appears that the combined teachings of the references would have fairly suggested, to one of ordinary skill in the art, including Antonen's moisture curable organosiloxane material and titanium orthoester or chelated

titanium compound in Schulz's composition to obtain the benefit taught by Antonen (col. 2, lines 51-58) of the combination of good adhesion to metal and glass substrates, which can be used by Schulz (col. 8, lines 54-57), and a rapid cure rate and good dielectric properties of a platinum catalyzed composition, which is used by Schulz (col. 2, lines 6-27). The appellants do not provide any evidence or technical argument to the contrary.

The appellants rely upon the above-discussed arguments that one of ordinary skill in the art would not have been motivated to combine the references and that there would have been no predictability from one system to the next (brief, pages 3-5). These arguments are not persuasive because, as discussed above, one of ordinary skill in the art would have been motivated to combine the references to obtain in Schulz's composition the benefits taught by Antonen and Bilgrien of components disclosed therein and, in view of the similarity of the systems, would have had a reasonable expectation of success in doing so. Hence, the claimed invention would have been *prima facie* obvious to one of ordinary skill in the art over the applied references. See *In re Vaeck*, 947 F.2d 488,

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493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); *O'Farrell*, 853 F.2d at 902, 7 USPQ2d at 1680. For this reason and because the appellants have not relied upon evidence which is effective for overcoming the *prima facie* case of obviousness, we affirm the rejection under 35 U.S.C. § 103 over Schulz in view of Antonen and Bilgrien.

DECISION

The rejections under 35 U.S.C. § 103(a) of claims 1, 3-8, 12 and 13 over Schulz in view of Antonen and Bilgrien, and claims 1-13 over Schulz in view of Antonen, Bilgrien and Gray, are affirmed.

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

AFFIRMED

TERRY J. OWENS)
Administrative Patent Judge)
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THOMAS A. WALTZ)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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