

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TYRONE D. MITCHELL,
STUART R. KERR III,
and MARK W. DAVIS

Appeal No. 95-4033
Application 07/669,125¹

ON BRIEF

Before JOHN D. SMITH, WEIFFENBACH and OWENS, *Administrative Patent Judges*.

WEIFFENBACH, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to

¹ Application for patent filed March 14, 1991.

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allow claims 1-37 which are all of the claims in the application. We reverse.

The Claimed Subject Matter

The subject matter on appeal is directed to a multilayered laminate. Claim 1 is representative of the claimed subject matter and is appended to this opinion.

Prior Art References

The following prior art references are relied upon by the examiner in support of the rejection of the claims for obviousness:

Smith, Jr. et al. (Smith)	4,273,698	Jun. 16, 1981
Mitchell	4,764,560	Aug. 16, 1988

The Rejection

Claims 1-37 stand rejected under 35 U.S.C. § 103 as being unpatentable over Smith in view of Mitchell.²

Opinion

We have carefully considered the entire record in light of the respective positions advanced by appellants and by the examiner. In doing so, we will not sustain the rejection of the claims for obviousness.

²The rejection as set forth in the final rejection included two additional references: Dziark et al. (Patent No. 4,395,507) and Smith, Jr. et al. (Patent No. 4,308,372). According to the examiner, the rejections based on Dziark or Smith (Patent No. 4,308,372) in view of Mitchell have been withdrawn (answer: p. 6) leaving only the rejection as stated in this decision for our consideration.

It is well settled that the examiner has the initial burden of establishing a *prima facie* case of obviousness. *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); *In re Rinehart*, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). This burden can be satisfied when the examiner provides objective evidence that some teaching or suggestion in the applied prior art, or knowledge generally available, would have led one of ordinary skill in the art to combine the teachings of the references and to produce the claimed subject matter. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

The claims are directed to a multilayered laminate comprising a first and third layers of plastic, metal or glass; a second layer between the first and third layers comprising a curable silicone adhesive composition which will bond in the absence of a primer to the first and third layers. The claimed silicone composition comprises a vinyl-containing polydiorganosiloxane, a hydrogen containing polysiloxane, a catalytic amount of a hydrosilation catalyst, and an effective amount of an adhesion promoter.

Smith is directed to a self-bonding silicone adhesive composition comprising a silanol-terminated diorganopolysiloxane, an adhesion promoter such as that claimed by appellants, and a hydrogen-containing polysiloxane (col. 2, lines 29-44; col. 5, line 61 to col. 6, line 68; col. 8, line 43 to col. 9, line 10; col. 11, lines 8-20). The examiner concedes that Smith does not disclose a vinyl-containing diorganosiloxane polymer composition and relies on Mitchell to show that such a polymer composition is known in the art. Mitchell discloses preparing a film comprising an interpenetrating polymer network comprising

polytetrafluoroethylene and a curable polysiloxane composition comprising a vinyl-containing polydiorganosiloxane, an organohydrogen-polysiloxane crosslinking agent, a hydrosilation catalyst (a precious metal containing catalyst), and an adhesion promoter such as the maleate or fumarate functional silanes disclosed by Smith (col. 4, line 5 to col. 5, line 1). The examiner concludes that “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to replace a self-curable silicon [sic, silicone] composition of Smith ¶698 by self-bonding compositions of Mitchell ¶407, since it was known in the art that a composition containing vinyl-containing polydiorganosiloxanes[,] hydrogen-containing polysiloxanes, and a catalytic amount of a hydrosilation catalyst are self-bonding compositions and have improved adhesive properties” (answer: p. 5).

On this record, the examiner has not provided cogent reasons as to why it would have been obvious to one of ordinary skill in the art to arrive at the claimed laminate from the combined teachings of Smith and Mitchell. The examiner has not provided any analysis and rationale to explain how a person having ordinary skill in the art would have been motivated by the combined teachings of the prior art to substitute Mitchell’s vinyl-containing diorganosiloxane polymer composition for Smith’s silanol-terminated diorganopolysiloxane polymer composition. Mitchell does not disclose that his vinyl-containing diorganosiloxane polymer composition is a self-bonding adhesive, let alone that the composition can be used without polytetrafluoroethylene as an adhesive to bond layers of plastic, metal and/or glass without the use of a primer. The examiner relies on the “improved adhesive properties” of the Mitchell composition

as a basis for obviousness. However, the examiner has not pointed to any data in the references which compares the adhesive properties of the vinyl-containing polydiorganosiloxane composition of Mitchell to the silanol-terminated diorganopolysiloxane of Smith to show that Mitchell's composition has "improved" adhesive properties over Smith's composition.

Even if a suggestion to substitute the compositions did flow from the prior art, neither Smith nor Mitchell teach or suggest the basic three layered laminate defined by appellants' claims. The examiner concedes that Smith "does not specifically mention that multilayered laminates comprising a self-bonding silicon [sic, silicone] compositions [sic, composition] may be formed" (answer: p. 4). Mitchell is directed to an film comprising an interpenetrating polymer network of polytetrafluoroethylene and a polydiorganosiloxane having vinyl unsaturation on monofunctional siloxane units (col. 3, lines 55-67; col. 4, lines 5-57). The examiner does not point to any portion of the Mitchell disclosure which would disclose or suggest a multilayered laminate as set forth in appellants' claims. The examiner has simply failed to explain how one having ordinary skill in the art would have been led to the claimed multilayered laminate comprising a curable silicone adhesive between layers of plastic, metal and/or glass.

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For the reasons given above, we find that the examiner has not established a *prima facie* case of obviousness over the combined teachings of Smith and Mitchell. Accordingly, the decision of the examiner is reversed.

REVERSED

JOHN D. SMITH)
Administrative Patent Judge)
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) BOARD OF PATENT
CAMERON WEIFFENBACH) APPEALS AND
Administrative Patent Judge) INTERFERENCES
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TERRY J. OWENS)
Administrative Patent Judge)

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1. A multilayered laminate comprising at least three layers and having improved peel strength, comprising:

(1) a first layer, comprising a material selected from:

(a) plastic materials selected from polyphenylene/styrene blends, polyacrylamides, polystyrenes, conditioned polycarbonates, polyesters, polyimides, polybutylene terephthalates, and polyetherimides;

(b) metal materials selected from alclad aluminum, anodized aluminum, galvanized steel, cold-rolled steel, cast aluminum, and cast magnesium, and copper; and

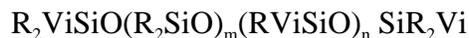
(c) glass materials;

(2) a second layer comprising an addition curable silicone adhesive composition directly bonded to the first layer in the absence of a primer, the composition comprising by weight:

(A) 100 parts of a vinyl-containing polydiorganosiloxane composition comprising:

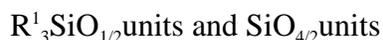
(a) from about 50 to about 100 parts by weight of an essentially cyclic-free vinyl-terminated polydiorganosiloxane having the general formula

(I)



wherein Vi represents a vinyl radical, R is selected from the class consisting of alkyl radicals of 1 to 8 carbon atoms, phenyl radicals, fluoroalkyl radicals of 3 to 10 carbon atoms and mixtures thereof, wherein "m+n" is a number sufficient to provide a viscosity of 100 to about 100,000 centipoise at 25°C, the vinyl content of the polydiorgano-siloxane being from about 0.02 to about 2.0 weight %, and

(b) from about 0 to about 50 parts by weight of a solid, benzene-soluble vinyl-containing resin copolymer comprising



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wherein each R¹ is a vinyl radical or a monovalent hydrocarbon radical free of aliphatic unsaturation and containing no more than six carbon atoms, the ratio of R¹₃SiO_{1/2} units to SiO_{4/2} units from about 0.5:1 to about 1.5:1, the resin having a vinyl content of from about 1.5 to about 3.5% by weight;

(B) a hydrogen-containing polysiloxane having an average unit formula

(II)



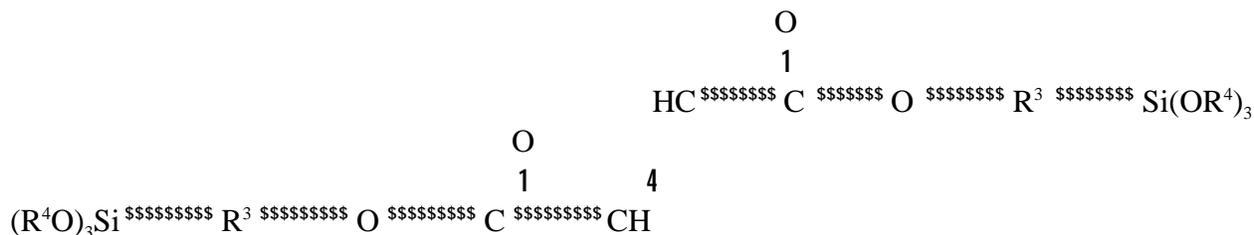
wherein R² is a monovalent hydrocarbon radical or halogenated monovalent hydrocarbon radical having from 1 to about 10 carbon atoms and free of aliphatic unsaturation, “a” is a value of from about 0 to about 3, “b” is a value of from about 0 to about 3, and the sum of “a” + “b” is from 0 to 3, there being at least two silicon-bonded hydrogen atoms per molecule; the polysiloxane being present in an amount sufficient to provide a molar ratio of silicon-bonded hydrogen atoms in (B) to olefinically unsaturated radicals in (A) of from about 0.75:1 to about 25:1;

(C) a catalytic amount of a hydrosilation catalyst;

(D) an effective amount of an adhesion promoter selected from the group consisting of

(i) bis[3-(trimethoxysilyl)alkyl]fumarates having the general formula:

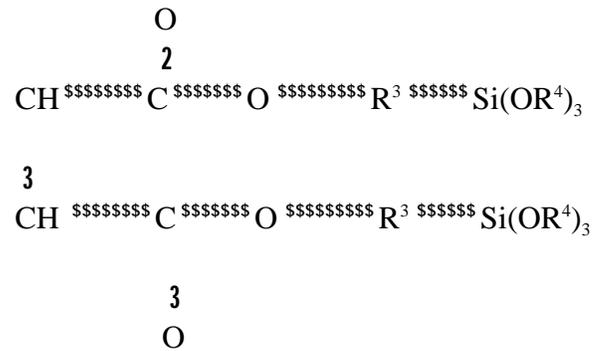
(III)



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(ii) bis[3-(trimethoxysilyl)alkyl]maleates having the general formula:

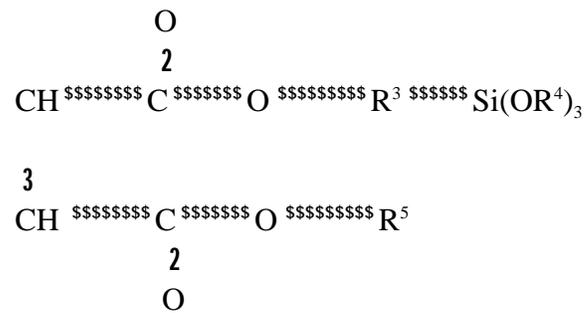
(IV)



(iii) mixtures of (i) and (ii);

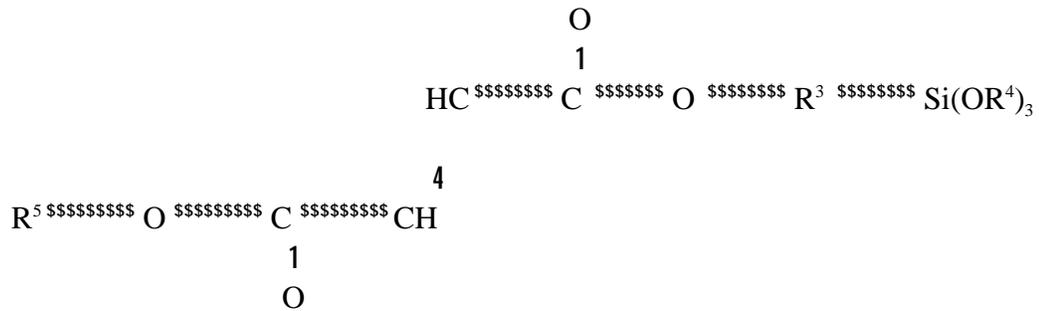
(iv) allyl-[3-(trimethoxysilyl)alkyl]maleates having the general formula

(V)



(v) allyl-[3-(trimethoxysilyl)alkyl]fumarates having the general formula

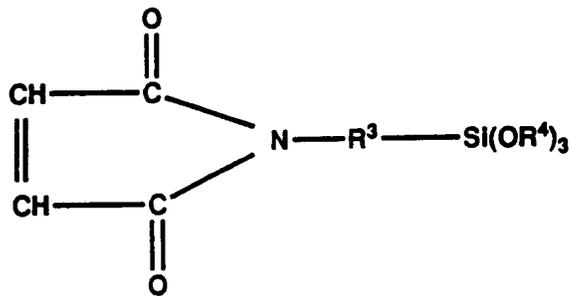
(VI)



and

(vi) N-[3-(trimethoxysilyl)alkyl]maleimides having the general formula

(VII)



wherein R³, R⁴, and R⁵ are each alkyl radicals of 1 to about 8 carbon atoms; and

(E) from about 0 to about 200 parts of an extending filler; and

- (F) from about 0 to about 50 parts of a reinforcing filler; and
- (3) a third layer, to which is directly bonded in the absence of a primer the addition curable silicone adhesive composition of (2), the third layer comprising a material selected from:
- (a) plastic materials selected from polyphenylene/styrene blends, polyacrylamides, polystyrenes, conditioned polycarbonates, polyesters, polyimides, polybutylene terephthalates, and polyetherimides;
 - (b) metal materials selected from alclad aluminum, anodized aluminum, galvanized steel, cold-rolled steel, cast aluminum, and cast magnesium, and copper; and
 - (c) glass materials.