

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte WILFROED HATKE,  
FRANK OSAN,  
OTTO HERRMANN-SCHONHERR,  
VINCENT J. SULLIVAN,  
and  
THOMAS WELLER

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Appeal No. 1999-2507  
Application No. 08/967,367

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ON BRIEF

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Before GARRIS, TIMM, and DELMENDO, Administrative Patent Judges.  
DELMENDO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 9 through 14 and 16 through 23 in the above-identified application. Claims 15 and 24 through 28, which are the only other pending claims, have been indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. (Examiner's answer, page 2.)

The subject matter on appeal relates to a polymer alloy.

Further details of this appealed subject matter are recited in illustrative claims 9 and 14, which are reproduced from the application and are appended to this decision.

The examiner relies on the following prior art references as evidence of unpatentability:

Laughner	5,094,806	Mar. 10, 1992
Eichenauer et al. (Eichenauer)	5,274,032	Dec. 28, 1993 (filed Nov. 13, 1989)
Yamamoto	5,304,606	Apr. 19, 1994 (filed Mar. 15, 1993)
Brekner et al. (Brekner)	5,324,801	Jun. 28, 1994 (filed Aug. 9, 1993)

Claims 9 through 14 and 16 through 23 on appeal stand rejected under 35 U.S.C. § 103(a) as unpatentable over Brekner and/or Yamamoto in view of Laughner. (Examiner's answer, pages 4-6.) Also, claims 9 through 14 and 16 through 23 on appeal stand rejected under 35 U.S.C. § 103(a) as unpatentable over Eichenauer. (Id. at pages 6-7.)<sup>1</sup>

We affirm these rejections essentially for those reasons set forth in the answer.<sup>2</sup> Nevertheless, we add the following

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<sup>1</sup> The rejection under 35 U.S.C. § 112, first paragraph, as set out in the final Office action of March 26, 1998 (paper 19) at p. 2 has been withdrawn. (Advisory action of November 2, 1998, paper 23.)

<sup>2</sup> The appellants submit that claims 9-13 and 16-23 constitute one group and claim 14 constitutes another group. (Appeal brief, p. 5.) We therefore select claims 9 and 14 from the two groups of claims, respectively, and decide this appeal as to the examiner's grounds of rejection on the bases of these

comments primarily for emphasis.

Brekner and/or Yamamoto in view of Laughner

As correctly found by the examiner (examiner's answer, page 4), Brekner describes cycloolefin copolymers encompassed by appealed claim 9 (e.g., an ethylene-norbornene copolymer), which are particularly suitable for the production of extruded parts, such as films, tubes, rods and fibers, and for the production of injection-molded articles. (Column 2, line 25 to column 4, line 61; column 9, lines 48-52.) Brekner further teaches that the cycloolefin copolymer can be used together with a wide variety of polymers (e.g., styrene-acrylonitrile copolymers) in the preparation of polymer alloys, which are favorable for certain applications. (Column 10, lines 1-21.)

Yamamoto describes a thermoplastic resin composition, which exhibit excellent characteristics in terms of rigidity, dimension accuracy, impact resistance, and light resistance, comprising a polymer comprising recurring units of a particular polycyclic (meth)acrylate and a soft polymer in a weight proportion of polymer to soft polymer of 99:1 to 40:60. (Column 1, line 42 to column 2, line 18.) As a suitable soft polymer, Yamamoto describes a soft polymer comprising recurring units derived from a cycloolefin (e.g., 40 to 98 mol% ethylene, 2 to

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claims only. See 37 CFR § 1.192(c)(7) (1997).

50 mol% of an  $\alpha$ -olefin having 3 or more carbon atoms, and 2 to 20 mol% of a cycloolefin such as tetracyclo[4.4.0.1<sup>2,5</sup>.1<sup>7,10</sup>]-3-dodecene. (Column 12, line 37 to column 26, line 2.) Yamamoto further teaches that the thermoplastic resin composition may additionally contain other resins such as an acrylonitrile/butadiene/styrene copolymer, acrylonitrile/styrene copolymer, or acrylonitrile/styrene/acrylic acid ester copolymer. (Column 29, lines 32-50.)

The examiner determined that neither Brekner nor Yamamoto describes the particulate core/shell component recited in appealed claims 9 and 14. To account for this difference, the examiner relied on Laughner.

Laughner teaches a composition for blow molding processes comprising about 75 to about 99.999% by weight of a thermoplastic polymeric material, about 0.001 to about 5% by weight of a fluorinated olefin polymer, and optionally up to about 20% by weight of an elastomeric impact modifier. (Column 2, lines 7-30; 48-66.) The examiner determined (examiner's answer, page 5), and the appellants appear to concede (appeal brief, page 7), that Laughner describes a specific elastomeric impact modifier (i.e., an MBS core/shell elastomer) falling within the scope of the appealed claims as the recited particulate core/shell component. (Column 10, line 66 to column

11, line 57.) In this regard, it is important to note that the appellants' reason for adding the recited particulate core/shell component is to obtain a product that exhibits "good impact strength even at low temperatures." (Specification, page 11, lines 21-23.) Laughner additionally teaches that the thermoplastic polymeric material that can benefit from the addition of the elastomeric impact modifier include polyalkenamers obtained from cycloolefins as well as polyolefins.<sup>3</sup>

Based on these teachings in the prior art, the examiner determined that one of ordinary skill in the art would have found it prima facie obvious to add Laughner's MBS core/shell elastomer into the compositions of either Brekner or Yamamoto

with the reasonable expectation of obtaining a product that exhibits improved impact strength. We agree. The motivation to combine the prior art references comes from the express teachings of Laughner that the MBS core/shell elastomer provides improved impact strength in various classes of thermoplastic polymers, which classes encompass those described in Brekner or Yamamoto.

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<sup>3</sup> According to the appellants, cycloolefin copolymers are polyolefins. (Specification, p. 2, ll. 23-28.)

The appellants argue that Brekner does not disclose the use of core/shell polymer particles. (Appeal brief, page 6.) But this is exactly why the examiner relied on Laughner. The question is what the combined teachings of the applied references would have suggested to one of ordinary skill in the art. Nonobviousness cannot be established by attacking references individually when the rejection is based on a combination of references. In re Merck & Co., 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986); In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)).

The appellants point out that Yamamoto describes a modified acrylate or methacrylate copolymer with cycloolefin side groups and that, therefore, Yamamoto's matrix is different from that recited in the appealed claims. (Appeal brief, pages 6-7.) However, the appellants overlook Yamamoto's teaching that the soft polymer may be a polymer derived from cycloolefins, as we discussed above.

The appellants contend that "Laughner is directed to a different class of polymers than [sic] the primary references." (Appeal brief, page 7.) As pointed out by the examiner (examiner's answer, page 8), the appellants' argument is not fully explained and is not supported by any facts. Regardless, the examiner correctly determined that Brekner and Yamamoto

describe cycloolefin copolymers within the scope of the appealed claims and that the prior art provides the requisite reasonable expectation of success for adding Laughner's elastomeric impact modifier into the composition of either Brekner or Yamamoto in order to improve impact strength. (Id.)

While acknowledging that Laughner's elastomeric impact modifiers "might fall within the definition of the applicants' claimed component (b)," the appellants argue that Laughner's elastomeric impact modifiers are only an optional component and that "as examples of thermoplastics and elastomers a lot of polyolefins are mentioned." These arguments are not persuasive. (Appeal brief, page 7.) That Laughner's elastomeric impact modifiers are disclosed as an optional component does not alter the analysis. As pointed out by the examiner (examiner's answer, page 9), one of ordinary skill in the art would have expected that Laughner's elastomeric impact modifiers, including the MBS core/shell elastomer, would improve the impact strength of the products described in either Brekner or Yamamoto.

The appellants urge that Laughner's patented claims do not recite cycloolefin copolymers as the thermoplastic material. (Appeal brief, page 8.) We also reject this argument because the disclosure of a prior art patent is not limited to its claims. A prior art disclosure must be evaluated for all that it discloses.

For these reasons and those set forth in the examiner's answer, we uphold the examiner's rejection on this ground.

Eichenauer

Eichenauer describes a thermoplastic molding composition comprising: (A) from 5 to 95% by weight of a graft product of a mixture of from 50 to 100 parts by weight of styrene, o-methylstyrene, vinyl toluene, p-methylstyrene, methyl methacrylate, or mixtures thereof and from 5 to 40 parts by weight of acrylonitrile on a particulate silicone rubber having a specific average particle diameter and rubber content; and (B) from 5 to 95% by weight of a graft product of a mixture of from 50 to 100 parts by weight of styrene, á-methylstyrene, vinyl toluene, p-methylstyrene, methyl methacrylate, or mixtures thereof and from 0 to 50 parts by weight of acrylonitrile on a particulate EPDM rubber having a specific average particle diameter and rubber content. (Column 1, lines 30-56.)

Eichenauer further teaches that suitable silicone rubbers include core/shell materials such as particulate silicone rubbers which are covered by a shell of crosslinked acrylate rubber or particulate silicone rubber containing a core of crosslinked acrylate rubber or styrene/acrylonitrile copolymer. (Column 2, lines 23-33.) Also, Eichenauer teaches that the EPDM include polymers of ethylene and propylene containing small quantities of

a non-conjugated diene, e.g. dicyclopentadiene, ethylidene norbornene, 1,4-hexadiene, 1,4-cycloheptadiene, or 1,5-cyclooctadiene. (Column 3, lines 10-14.)

Thus, the examiner determined that Eichenauer's components (B) and (A) correspond to the appellants' recited cycloolefin copolymer component and particulate core/shell component, respectively. (Examiner's answer, page 6.) According to the examiner, Eichenauer's composition differs from the invention recited in the appealed claims only in that the amount of the non-conjugated diene monomer in the EPDM is not specifically disclosed. (Id.) This difference notwithstanding, the examiner determined that Eichenauer would have led one of ordinary skill in the art to make compositions encompassed by the appealed claims. (Id. at pages 6-7.) We agree.

The appellants argue that the recited particulate core/shell component solves the problem of poor impact strength characteristic of cycloolefin copolymers. This argument is not persuasive, because Eichenauer's composition contains a particulate core/shell polymer component as in the invention recited in the appealed claims. To the extent that a cycloolefin copolymer has poor impact strength, the particulate core/shell polymer described in Eichenauer solves the same problem. Cf. In re Dillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir.

1990)(en banc). Here, the appellants have not pointed to any objective evidence (e.g., comparative experimental data) establishing otherwise.

The appellants urge that "in the case of graft product A, the particulate rubber must be a silicone rather than a polymerized unsaturated compound." On this point, we agree with the examiner's analysis. (Examiner's answer, page 10.)

For these reasons and those set forth in the answer, we uphold this ground of rejection as well.

Summary

In summary, we affirm the examiner's rejections under 35 U.S.C. § 103 of appealed claims 9 through 14 and 16 through 23 as unpatentable over: (1) Brekner and/or Yamamoto in view of Laughner; and (2) Eichenauer.

The decision of the examiner to reject appealed claims 9 through 14 and 16 through 23 is affirmed.

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

AFFIRMED

BRADLEY R. GARRIS )

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Administrative Patent Judge )  
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PATENT  
CATHERINE TIMM )  
Administrative Patent Judge ) APPEALS AND  
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) INTERFERENCES  
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ROMULO H. DELMENDO )  
Administrative Patent Judge )

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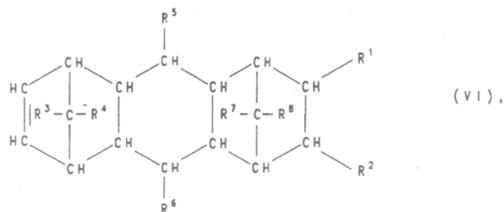
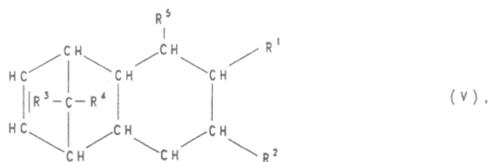
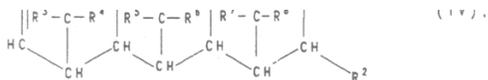
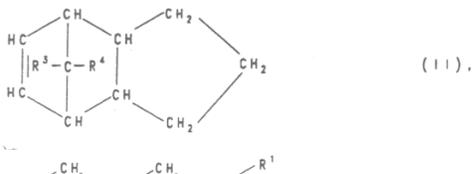
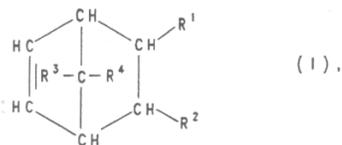
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APPENDIX

9. A polymer alloy comprising (a) one or more cycloolefin copolymer "(COC)" components(s), and, dispersed in said cycloolefin copolymer component, (b) one or more particulate core/shell components;

said cycloolefin copolymer component consisting essentially of at least one cycloolefin copolymer comprising structural units obtained by copolymerization of two or more of the following olefins in the indicated amounts:

0.1-99% by weight, based on the weight of the cycloolefin copolymer, of at least one of the following polycyclic olefins of the formulas I, II, III, IV, V or VI,



in  
 which  
 $R^1, R^2,$   
 $R^3, R^4,$   
 $R^5, R^6,$   
 $R^7$  and

$R^8$  are identical or different and are a hydrogen atom or a  $C_1-C_{20}$  hydrocarbon radical, or two or more of the radicals  $R^1$  through  $R^8$  form a ring, if sterically positioned to be able to form a ring, and the radicals  $R^1$  to  $R^8$  in the formulae I to VI are identical or different from one another,

0 to 95% by weight, based on the total weight of the cycloolefin copolymer, of at least one monocyclic olefin of the formula VII

in which n is a number from 2 to 10, and  
0 to 99% by weight, based on the total weight of cycloolefin  
polymer, of one or more acyclic olefins of the formula VIII

in which R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup> and R<sup>12</sup> are identical or different and are a  
hydrogen atom or a C<sub>1</sub>-C<sub>20</sub> hydrocarbon radical; and  
said particulate core/shell component consisting essentially  
of:

one or more rubber phase(s) and one or more hard phase(s),  
the hard phase having a glass transition temperature above 50°C  
and the rubber phase having a lower glass transition temperature  
than said hard phase, said rubber and hard phases consisting  
essentially

of  
polymerized  
unsaturated  
compounds  
having  
carbon-  
carbon bonds in the polymer backbone.



14. A polymer alloy comprising: (a) a cycloolefin copolymer  
component comprising a copolymer of the reactants comprising  
norbornene or tetracyclododecene and an acyclic olefin, and  
dispersed in said cycloolefin copolymer component, (b) a  
particulate core/shell component comprising at least one rubbery  
phase having a glass transition temperature below 0°C and a hard  
phase having a glass transition temperature above 50°C; the  
rubbery phase consisting essentially of, or, if more than one  
rubbery phase is present in said alloy, each said rubbery phase  
consisting essentially of one or more polymerized unsaturated

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compounds.