

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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

16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANTHONY V. GROSSI
and PAUL E. STOTT

Appeal No. 1997-1992
Application No. 08/115,388¹

ON BRIEF

Before KIMLIN, WARREN, and KRATZ, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 10 and 15 through 20. Claims 1-9, 11, 13, 14 and 21, which are all of the remaining claims pending in this application, stand withdrawn from further consideration by the examiner as drawn to a non-elected invention.

¹ Application for patent filed September 2, 1993. According to appellants, this application is a continuation of Application 07/729,515, filed July 12, 1991, now abandoned.

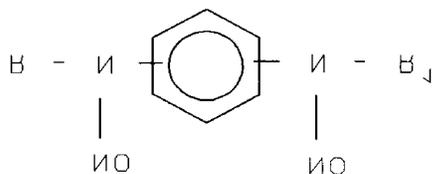
BACKGROUND

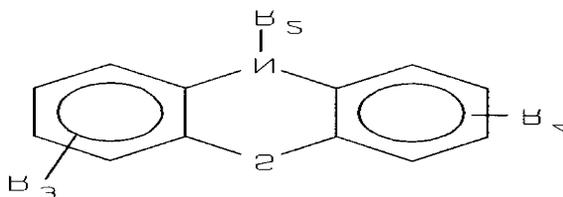
Appellants' claimed invention relates to a method of inhibiting polymerization during the distillation of acrylic or methacrylic acid or ester by including an effective amount of a polymerization inhibitor composition. The claimed subject matter requires that the inhibitor composition consists essentially of at least one N,N'-dinitroso phenylenediamine compound of a specified formula and at least one phenothiazine compound of a specified formula. Several optionally selectable components may also be present. An understanding of the invention can be derived from a reading of exemplary claim 10, which is reproduced below.

10. A method for inhibiting the polymerization of an acrylic or methacrylic acid or ester during distillation of the acrylic or methacrylic acid or ester, which comprises conducting the distillation in the presence of an effective amount of a polymerization inhibitor composition consisting essentially of:

(a) at least one N,N'-dinitroso phenylenediamine

compound
having the
structure:





wherein
R is
C₁-C₁₂
alkyl
or C₆-
C₁₀
aryl;
R¹ is

C₁-C₁₂ alkyl, C₆-C₁₀ aryl, C₇-C₁₁ aralkyl, or C₇-C₁₆ alkaryl; and

(b) at least one phenothiazine having the structure:

wherein R² is hydrogen or C₁-C₁₂ alkyl; and R³ and R⁴ are each independently selected from the group consisting of hydrogen, C₆-C₁₀ aryl, C₇-C₁₁ aralkyl, C₇-C₁₆ alkaryl and C₁-C₁₂ alkyl;

(c) optionally a hydroquinone or hydroquinone monomethyl ether; and

(d) optionally a phenylenediamine compound having the following structure

wherein R⁶ is C₁-C₁₂ alkyl, C₆-C₁₀ aryl or C₇-C₁₆ alkaryl; and R⁷, R⁸ and R⁹ are independently selected from the group consisting of hydrogen, C₁-C₁₂ alkyl, C₃-C₁₂ cycloalkyl, C₇-C₁₁ aralkyl and C₇-C₁₆ alkaryl.

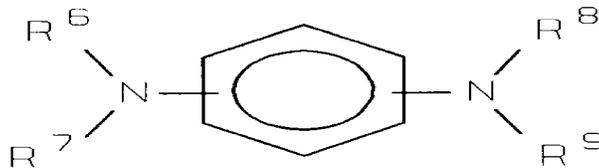
The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Tung

2,938,922

May

31, 1960



Watanabe, Japan Pat. Disclosure Bulletin 49-124001², Nov. 27, 1974.

Otsuki et al. (Otsuki), Canadian Pat. No. 975708, Oct. 07, 1975

Claims 10 and 15-20 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Otsuki, Watanabe, and Tung.

OPINION

We have carefully considered all of the arguments advanced by appellants and the examiner and agree with appellants that the aforementioned rejection is not well founded. Accordingly, we reverse the stated rejection.

At the outset, we note that the examiner has the initial burden of presenting a *prima facie* case of obviousness based on the disclosure of the applied prior art. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The claimed distillation method requires the presence of a polymerization inhibitor composition that includes, as one

²All subsequent references in this opinion to Watanabe are a reference to the English language translation of the Japanese Disclosure Bulletin of record.

component, at least one N,N'-dinitroso phenylenediamine compound from among those specified in claim 10. The claimed N,N'-dinitroso phenylenediamine compound must conform to the formula specified in claim 10 and may include a C₁-C₁₂ alkyl substituent on one of the amine groups and a C₆-C₁₀ aryl substituent on the other amine group.

Our review of appellants' specification reveals that appellants use the term "alkyl" as normally employed to refer to open chain carbon substituents (radicals) of the specified length that would have one less hydrogen atom than the aliphatic hydrocarbon from which they may be derived. In this regard, we note that appellants separately list cycloalkyl groups and alkyl groups where both cyclic and acyclic groups are intended to be included. See, e.g., page 6, line 20 of the specification. Accordingly, in giving the claimed "alkyl" its broadest reasonable interpretation, we determine that a skilled artisan would interpret the claimed formula for component (a) of the inhibitor composition of claim 10 as not including N or N'

cycloalkyl substituted N,N'-dinitrosophenylenediamines. See *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

Turning our attention to the examiner's rejection, we note that Otsuki and Watanabe are each generally concerned with inhibiting polymerization of acrylic acids or their derivatives during purification thereof, Otsuki specifically being directed to such inhibition during distillation of acrylic or methacrylic acid. Otsuki discloses that phenothiazine, appellants' required composition component (b), has polymerization inhibition activity in the liquid phase and that hydroquinone or hydroquinone monomethyl ether, appellants' optional component (c), have polymerization inhibition activity in a distillation column when each are used alone. Otsuki further teaches that using hydroquinone monomethyl ether together with benzoquinone provides longer polymerization suppression than either used alone (Table IV). Otsuki does not teach the use of the claimed N,N'-dinitrosophenylenediamine compounds alone or in combination with other compounds for polymerization suppression as claimed herein. While Watanabe discloses N,N'-

dinitrosophenylenediamine compounds such as N,N-dinitroso-N-cyclohexyl-N'-phenyl-p-phenylenediamine (page 4) which may be used to inhibit polymerization of acrylic acid derivatives, an alkyl substituted N,N'-dinitrosophenylenediamine compound within the scope of the formula of component (a) of claim 10 is not described by Watanabe. We find that the examiner has not adequately explained, on this record, why a skilled artisan would have been led to use an N,N'-dialkyl-N,N'-dinitrosophenylenediamine compound as part of a composition within the scope of the claimed distillation process for polymerization suppression. We cannot subscribe to the examiner's position that Tung in combination with Otsuki and Watanabe would have suggested the claimed distillation method. In this regard, Tung discloses that various compounds including some N,N'-dinitrosophenylenediamine compounds within the scope of the appealed claim formula for component (a) are useful in rubber compounding such as "... for controlling the vulcanization of sulfur vulcanizable rubbers..." (column 4, lines 22-24). In our view, Tung would not have suggested to one of ordinary skill in this art that N-alkyl-N-nitroso compounds can be used as polymerization inhibitors.

Thus, outside of appellants' own specification, we cannot find, on this record, a reasonable suggestion to use an N,N'-dialkyl-N,N'-dinitrosophenylenediamine compounds in combination with phenothiazine, as called for in claim 10, for suppressing polymerization in the distillation of acrylic or methacrylic acid or ester as claimed herein. Accordingly, we agree with appellants that the applied prior art would not have rendered the specifically claimed process herein prima facie obvious without the impermissible use of hindsight reasoning. See W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); In re Rothermel, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960).

Therefore, for the above reasons, we find that the examiner has not set forth a factual basis which is sufficient to support a conclusion of obviousness of appellants' claimed invention.

CONCLUSION

To summarize, the decision of the examiner to reject claims 10 and 15-20 under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Otsuki, Watanabe, and Tung is reversed.

REVERSED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
CHARLES F. WARREN)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
PETER F. KRATZ)	
Administrative Patent Judge)	

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APPEAL NO. - JUDGE KRATZ
APPLICATION NO. 08/115,388

APJ KRATZ

APJ WARREN

APJ KIMLIN

DECISION: **REVERSED**

Prepared By: TINA

DRAFT TYPED: 07 May 01

FINAL TYPED: