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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

Ex parte TAKAHIRO OZAKI, KOUICHI NUMAZAWA,
SHINICHI TAKABE, and TAKAAKI SHIBATA

Appeal 2015-005069
Application 12/296,816
Technology Center 1700

Before BEVERLY A. FRANKLIN, MICHAEL P. COLAIANNI, and
BRIAN D. RANGE, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 1, 3, 5, and 6. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

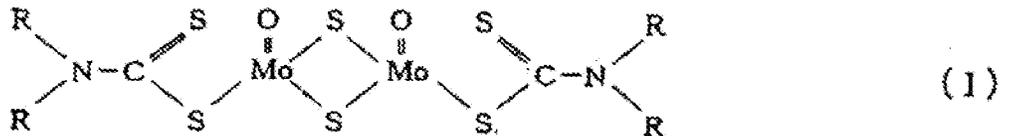
We AFFIRM.

Appellants' invention is directed to a grease composition for constant velocity joints suitable for use at the lubrication points of constant velocity joints in automobiles (Spec. 1).

Claim 1 is illustrative:

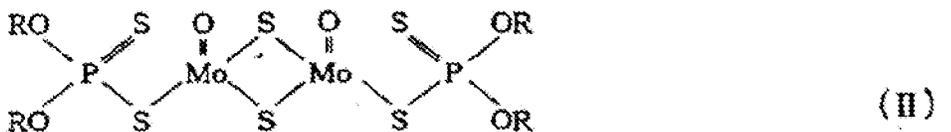
1. A grease composition for use in constant velocity joints, consisting essentially of 92 to 97% by weight of a urea grease constituted from a base oil and a urea compound and the following components:

(A) 1 to 2% by weight of a molybdenum dialkyldithiocarbamate as represented by the undermentioned formula (I)



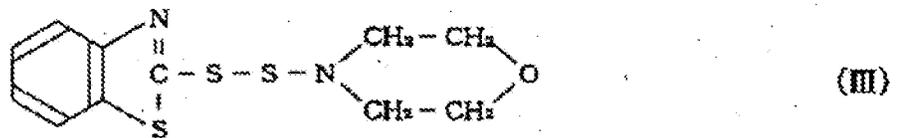
(where R denotes an alkyl group of 1 - 24 carbons); and

(B) 0.5 to 2% by weight of at least one kind of a molybdenum dialkyldithiophosphate or a molybdenum diaryldithiophosphate as represented by the undermentioned formula (II)



(where R is a primary or secondary alkyl group or an aryl group); and

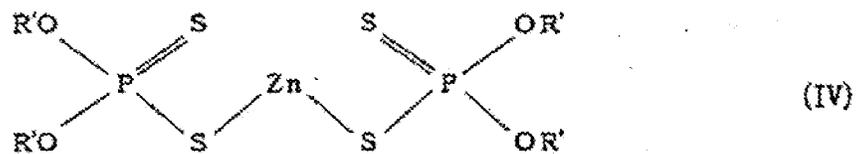
(C) 0.5 to 2% by weight of 2-(4-morpholinylthio)benzothiazole as represented by the undermentioned formula (III)



and

D) 0.5 to 1% by weight of a calcium sulphonate; and

(E) 0.5 to 1% by weight of at least one kind of a zinc dialkyldithiophosphate or a zinc diaryldithiophosphate as represented by the undermentioned formula IV



(where R' is a primary or secondary alkyl group or an aryl group).

Appellants appeal the following rejection:

Claim 1, 3, 5, and 6 are rejected under 35 U.S.C. § 103(a) as unpatentable over Okaniwa et al., (US 6,355,602 B1, issued March 12, 2002) in view of Yamazaki et al., (US 5,922,654, issued July 13, 1999).

Appellants argue claim 1 only (App. Br. 3–7).

FINDINGS OF FACT & ANALYSIS

The Examiner finds that Okaniwa teaches a grease composition containing molybdenum dialkylthiocarbamate (component (A) in claim 1), molybdenum dialkylthiophosphate (component (B)) in claim 1), and calcium sulphonate (component (D) of claim 1) (Final Act. 2). The Examiner finds that Okaniwa does not teach the addition of component (C) of claim 1 (i.e., 2-(4-morpholinylthio)benzothiazole) or the zinc dithiophosphate (i.e., component (E) of claim 1) (Final Act. 2). The Examiner finds that Yamazaki discloses a lubricant composition useful as greases in constant velocity joints like Okaniwa (Final Act. 3). The Examiner finds that Yamazaki teaches that lubricants that contain organomolybdenum compounds, like Okaniwa's composition, and an ashless sulfur compound (Final Act. 3). The Examiner finds that Yamazaki discloses that the ashless sulfur compound may include 2-(4-morpholinylthio)benzothiazole as recited in claim 1. *Id.* The Examiner finds that Yamazaki teaches using zinc dialkylthiophosphate with organomolybdenum compound containing lubricants. *Id.* The Examiner finds that Yamazaki teaches that the total additive concentration in the lubricant is between 0.3% to 12% by weight so that the claimed amounts of the zinc compound is encompassed by the range disclosed in Yamazaki (Final Act. 3). The Examiner finds that the amounts

of the components in the lubricant suggested by Okaniwa and Yamazaki overlap (Final Act. 3-4). The Examiner concludes that it would have been obvious to include the 2-(4-morpholinylthio)benzothiazole and the zinc dialkyldithiophosphate of Yamazaki in the grease of Okaniwa because Yamazaki teaches these are useful additives when combined with organomolybdenum lubricant additives in greases for constant velocity joints (Final Act. 4). The Examiner further finds that Yamazaki teaches that the compositions containing the combined additives have superior load bearing and extreme pressure properties as well as excellent lubricating performance at high temperatures (Ans. 5). The Examiner finds that because Yamazaki teaches that 2-(4-morpholinylthio)benzothiazole and the zinc dialkyldithiophosphate are combinable with organomolybdenum compounds in lubricant compositions, there is a reasonable expectation that such a combination would have been successful (Ans. 5).

Appellants argue that the Examiner has not provided a sufficient reason to combine Yamazaki's 2-(4-morpholinylthio)benzothiazole and the zinc dialkyldithiophosphate additives with the grease of Okaniwa (App. Br. 4). Appellants contend that the Examiner has not shown where there is a teaching that including 2-(4-morpholinylthio)benzothiazole and zinc dialkyldithiophosphate would impart any particular effect on the composition (App. Br. 5). Appellants contend that Yamazaki discloses 2-(4-morpholinylthio)benzothiazole as one of over one hundred ashless sulfur compounds with a disclosed preference for 1,3,4-thiadiazole. *Id.* Appellants contend that Yamazaki's example 12 in Table 4 and Example 3 in Table 6 show that when 2-(4-morpholinylthio)benzothiazole is used there is no improvement in durability such that a person of ordinary skill in the art

would have to choose from one hundred compounds to use as an additive with no teaching as to which would improve durability of the lubricant (App. Br. 6). Appellants contend that the Examiner engaged in impermissible hindsight in picking and choosing the various compounds and putting them together in a lubricant composition to meet the claimed composition. *Id.*

Contrary to Appellants' arguments, the Examiner finds that Yamazaki teaches that adding 2-(4-morpholinylthio)benzothiazole and zinc dialkyldithiophosphate provides a lubricant having superior load bearing and extreme pressure properties as well as excellent lubricating performance at high temperatures (Ans. 5). Indeed, Yamazaki discloses that the combination of an organomolybdenum compound and an organozinc compound to a lubricant composition improves the load bearing properties and extreme pressure properties of the lubricant (col. 7, lines 14-18). Yamazaki further discloses combining organomolybdenum compounds (i.e., molybdenum dithiophosphate and molybdenum dialkylthiocarbamate) which are same type of compounds required by claim 1 and the ashless sulfur compound, which includes 2-(4-morpholinylthio)benzothiazole (col. 7, ll. 40-67; col. 8, ll. 7-8, 28-33). Yamazaki discloses that the amounts of the organomolybdenum and ashless sulfur compound must be within the certain limits (i.e., 0.3 to 12% by weight) otherwise the lubricant durability is reduced (col. 8, ll. 35-46). In other words, Yamazaki teaches that the combination of the organomolybdenum compounds and the ashless sulfur compound (e.g., 2-(4-morpholinylthio)benzothiazole) provide a durable lubricant as long as the amounts are kept within the limits disclosed by Yamazaki.

Although Yamazaki discloses 2-(4-morpholinylthio)benzothiazole among a list of what Appellants characterize as a hundred compounds, Appellants do not dispute the Examiner's finding that each of the additives of the list is reasonably expected to provide a durable lubricant when present in amount within the ranges disclosed by Yamazaki (Ans. 5). In other words, Yamazaki's disclosure of a multitude of effective combinations does not render any one of them less obvious. *Merck & Co. v. Biocraft Laboratories, Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989).

Based upon these disclosures, we are unpersuaded by Appellants' argument that Yamazaki does not teach a particular effect is achieved by using 2-(4-morpholinylthio)benzothiazole and the zinc dialkyldithiophosphate such that the Examiner engaged in impermissible hindsight. Rather, the Examiner provides a reasonable basis for combining Yamazaki's 2-(4-morpholinylthio)benzothiazole and zinc dialkyldithiophosphate lubricant additives with Okaniwa's organomolybdenum containing grease in order to improve the durability and the load bearing and extreme pressure properties of the lubricant. Appellants do not file a Reply Brief contesting the Examiner's findings that Yamazaki discloses the additives 2-(4-morpholinylthio)benzothiazole and zinc dialkyldithiophosphate impart durability, load bearing, and extreme pressure properties to the lubricant (Ans. 5). The Examiner's finding that Yamazaki's teaching to use the 2-(4-morpholinylthio)benzothiazole and the zinc dialkyldithiophosphate additives in organomolybdenum compound containing lubricants provides a reasonable expectation of successfully combining these additives with Okaniwa's organomolybdenum containing lubricant composition.

We find that the Examiner has established a prima facie case of obviousness. We now consider the prima facie case anew in light of Appellants' evidence and argument of unexpected results.

Appellants argue that Comparative Examples 5 and 10 in Tables 3 and 4 of the Specification show that when 2-(4-morpholinylthio)benzothiazole is used the durability performance of the lubricant is improved (App. Br. 6–7). Appellants contend that Comparative Examples 5 and 10 also show that calcium sulphonate (Component D according to Appellants) is critical to achieving good durability in that the depth of wear is about six times lower in Examples 1 to 10 of the Specification (Tables 1 and 2) than in Comparative Examples 5 and 10 that do not have calcium sulphonate (App. Br. 7).

Appellants' evidence fails to establish unexpected results for the claimed composition that includes Components A to E. The showing in Comparative Examples 5 and 10 are not probative of nonobviousness of the subject of claim 1 because these examples do not include calcium sulphonate (component D) as is required by claim 1 (Ans. 6). Moreover, Appellants' Example 1 to 10 are limited to two molybdenum dithiophosphates and one molybdenum dialkyldithiocarbamate (Spec. 10, 14–15). The claims, however, include molybdenum dithiophosphates where the "R" group in the formula may be a primary or secondary alkyl group or an aryl group. The claims further include a molybdenum dialkyldithiocarbamate that includes "R" groups in the formula that can be an alkyl group of 1 to 24 carbons. Appellants limited showing is insufficient establish unexpected results over the breadth of claim 1. In other words, the evidence is not commensurate in scope with the materials required by claim 1.

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On this record, we affirm the Examiner's § 103(a) rejection of claims 1, 3, 5, and 6 over Okaniwa and Yamazaki.

DECISION

The Examiner's decision is affirmed.

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).

ORDER

AFFIRMED