

The opinion in support of the decision being entered today is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT H. WOLLENBERG
And THOMAS J. BALK

Appeal No. 2007-0495
Application No. 10/699,510¹

ON BRIEF

Before McKELVEY, Senior Administrative Patent Judge, and HANLON and TIERNEY, Administrative Patent Judges.

HANLON, Administrative Patent Judge.

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from a final rejection of claims 1 to 37.

We have jurisdiction under 35 U.S.C. § 6(b).

Appellants' invention is directed to high throughput preparation of lubricating oil compositions for combinatorial libraries.

Claims 1 and 23 are the claims at issue in this appeal.² They read as follows:

1. A method for preparing a plurality of different lubricant oil formulations comprising:

¹ Application 10/699,510 was filed on October 31, 2003. The real party in interest is Chevron Oronite Company LLC.

² Claims 1 and 23 are the only independent claims under appeal.

- a) providing a major amount of at least one base oil of lubricating viscosity and a minor amount of at least one lubricating oil additive for combination to formulate a lubricating oil composition;
- b) providing a plurality of test reservoirs;
- c) combining, under program control, the major amount of the at least one base oil of lubricating viscosity and the minor amount of the at least one lubricating oil additive in varying percentage compositions to provide a plurality of different lubricating oil composition samples; and,
- d) containing each of the different lubricating oil composition samples in the plurality of test reservoirs.

23. A system for preparing a plurality of lubricant oil formulations, under program control, which comprises:

- a) a supply of at least one base oil of lubricating viscosity;
- b) a supply of at least one lubricating oil additive;
- c) a plurality of test reservoirs;
- d) means for combining selected quantities of the at least one base oil of lubricating viscosity with selected quantities of the at least one lubricating oil additive to form a plurality of lubricating oil composition samples; and,
- e) means for dispensing each lubricating oil composition sample in a respective test reservoir.

The following rejections are at issue in this appeal:

- 1) Claims 1 to 4 and 6 to 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kolosov et al.
- 2) Claims 5 and 23 to 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Kolosov et al. and Shtein et al.^{3, 4}
- 3) Claims 1, 13, and 14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 20, 22, and 23 of copending Application 10/699,529.

³ The examiner denominated this rejection a new ground of rejection in the answer. See answer, pp. 7-8.

⁴ Kolosov et al. is U.S. Patent Application Publication US 2004/0123650 published July 1, 2004 (hereinafter “Kolosov”).

Shtein et al. is U.S. Patent Application Publication US 2005/0087131 published April 28, 2005 (hereinafter “Shtein”).

The appellants contend that the claimed subject matter would not have been obvious in view of the teachings in Kolosov alone or in combination with Shtein. Specifically, the appellants argue that (1) the claimed lubricant oil compositions would not have been obvious in view of the teachings in Kolosov and (2) the means for combining selected quantities of at least one base oil and at least one additive recited in claim 23 would not have been obvious in view of the combined teachings of Kolosov and Shtein. The examiner held that the claimed lubricant oil compositions would have been obvious in view of the teachings in Kolosov. The examiner further held that the claimed means for combining selected quantities of at least one base oil and at least one additive would have been obvious in view of the combined teachings of Kolosov and Shtein.

GROUPING OF CLAIMS

The appellants argue claims 1 to 4 and 6 to 22 as one group and claims 5 and 23 to 37 as another group. Therefore, for purposes of this appeal, claims 2 to 4 and 6 to 22 stand or fall with patentability of claim 1 and claims 5 and 24 to 37 stand or fall with the patentability of claim 23. 37 CFR § 41.37(c)(1)(vii) (2006).

ISSUES

Have the appellants shown that the examiner has failed to establish that the claimed lubricant oil compositions would have been obvious in view of the teachings in Kolosov?

Have the appellants shown that the examiner has failed to establish that it would have been obvious to one of ordinary skill in the art to combine a base oil and an additive using a mixing chamber in view of the combined teachings of Kolosov and Shtein?

Have the appellants shown that the examiner has failed to establish that claims 1, 13, and 14 are obvious over claims 20, 22, and 23 of copending Application 10/699,529?

FINDINGS OF FACT

The appellants' invention relates generally to high throughput preparation of a plurality of different lubricating oil compositions for combinatorial libraries and subsequent high throughput screening for lubricant performance (specification, p. 1, lines 5-7).

Combinatorial chemistry generally refers to methods and materials for creating collections of diverse materials or compounds—commonly known as libraries—and to techniques and instruments for evaluating or screening libraries for desirable properties (specification, p. 1, lines 15-17).

The base oil of the appellants' lubricating oil compositions may be any natural or synthetic lubricating base oil (specification, p. 6, lines 15-17).

The base oil may be derived from natural lubricating oils, synthetic lubricating oils or mixtures thereof (specification, p. 7, lines 1-2).

Synthetic lubricating oils include silicon-based oils (specification, p. 9, lines 11-13).

Additives can be any presently known or later-discovered additive used in formulating lubricating oil compositions (specification, p. 10, lines 20-21).

Figure 1 illustrates a system 100 for preparing a plurality of test samples. Vessel 110 contains a supply of base oil B, and vessel 120 contains a supply of additive A (specification, p. 15, lines 18-22).

Tubular line 111 is a conduit for communicating the base oil B to nozzle portion 113, and tubular line 121 is a conduit for communicating additive A to nozzle portion 123 (specification, p. 16, lines 2-3 and 6-8; Figure 1).

Nozzles 113 and 123 are preferably in close proximity so that base oil B and additive A can be simultaneously dispensed in a test reservoir, or in the alternative, base oil B and additive A can be sequentially added to the test reservoir (specification, p. 16, lines 12-14).

Metering pumps 112 and 122 determine the amount of base oil and additive dispensed. The metering pumps can be computer controlled (specification, p. 16, lines 4-5 and 8-9).

The base oil B and additive A are preferably combined in the reservoirs by mixing, for example by agitation, static mixing, individual stirring of the contents of the reservoirs (mechanical or magnetic stirring) or by bubbling the reservoir with a gas, e.g., nitrogen (specification, p. 18, lines 12-15).

Optionally, base oil B and additive A can be combined prior to dispensing into the reservoirs. For example, a single dispensing nozzle having a mixing chamber can be used, wherein base oil B and additive A are metered into the mixing chamber and then dispensed through the nozzle into the reservoir (specification, p. 18, lines 16-19; Figure 2).

As illustrated in Figure 2, conduits 202, 204, and 206 convey a quantity of base oil B, a first additive A-1, and a second additive A-2, respectively, through metering apparatus 201, 203, and 205, respectively (specification, p. 19, lines 2-5).

The metering apparatus 201, 203, and 205 are each automatically controlled by control system 250 which preferably includes a microprocessor (specification, p. 19, lines 8-11).

The appellants define “program control” as meaning that the equipment used to provide the plurality of lubricating oil compositions is automated and controlled by a microprocessor or other computer control device (specification, p. 5, lines 4-7).

Kolosov discloses systems and methods for screening a library of material samples for a rheological property such as viscosity (abstract).

Kolosov discloses that the invention may be used to screen or test flowable materials such as lubricants (p. 4, para. 42).

The invention disclosed in Kolosov has particular utility in connection with the screening of a number of different material forms including oils (p. 4, para. 43).

The Kolosov invention can be used to analyze the resulting properties of a particular flowable sample material or the relative or comparative effects that an additive has upon a particular flowable sample material, e.g., the effective of a detergent, a flow modifier, or the like (p. 4, para. 43).

An additive is defined as any substance incorporated into a base material, usually in low concentrations, to perform a specific function, e.g., antioxidants, stabilizers, preservatives, dispersing agents, viscosity-index improvers, etc. The Condensed Chemical Dictionary, 20 (10th ed. 1981).

According to the invention of Kolosov, a plurality of samples may be employed. For example, four samples may be employed, one control sample and three varied

samples representative of a high, medium and low value of the varied factor (p. 6, para. 56).

In some cases, the plurality of samples may be 15 or more samples, 20 or more samples, 40 or more samples, and even 80 or more samples (p. 6, para. 56).

The plurality of samples can be a library of samples (p. 7, para. 57).

The library of samples can be a combinatorial library of product mixtures. For example, libraries can comprise product mixtures that are varied with respect to additives (p. 7, para. 61).

Figures 4A and 4B illustrate data collected for silicone oils of variable viscosities (p. 11, para. 94).

The samples may be dispensed with any suitable dispensing apparatus, e.g., an automated micropipette or capillary dispenser (p. 6, para. 53).

Each sample is dispensed to an individually addressable region on a substrate (p. 6, para. 53).

A substrate useful in accordance with the invention disclosed in Kolosov is a microtiter plate having a plurality of wells (p. 2, para. 21).

Shtein discloses a method and apparatus for depositing organic material on a substrate using a carrier gas (p. 1, para. 8).

According to one embodiment of the invention disclosed in Shtein, the apparatus includes a first organic source cell 110, a second organic source cell 120, a dilution channel 130, a mixing chamber 140, a nozzle 150, and heating elements 160. When a carrier gas 105 flows through the organic source cells, the organic material is carried by the carrier gas and then mixes in the mixing chamber. The mixture of the organic

material and carrier gas is then expelled through the nozzle toward the substrate (p. 3, para. 29; Figure 1).

PRINCIPLES OF LAW

After a prima facie case of unpatentability has been established, the burden of going forward shifts to the applicant. In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

The test for obviousness is not what the individual references teach but what the combined teachings of the references would have suggested to one having ordinary skill in the art. In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

Arguments in the brief do not take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965).

If the word “means” appears in a claim element in combination with a function, it is presumed to be a means-plus-function element to which 35 U.S.C. § 112, sixth paragraph, applies. Al-Site Corp. v. VSI Int’l Inc., 174 F.3d 1308, 1320, 50 USPQ2d 1161, 1166 (Fed. Cir. 1999).

The first step in construing a “means-plus-function” limitation is to determine the function of the limitation. The second step is to determine the corresponding structure described in the specification and equivalents thereof. Structure is “corresponding structure” only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. Medtronic Inc. v. Advanced Cardiovascular Sys. Inc., 248 F.3d 1303, 1312, 58 USPQ2d 1607, 1614 (Fed. Cir. 2001).

ANALYSIS

A. Claimed lubricant compositions

Kolosov does not disclose that the combinatorial chemistry method and apparatus can be used for testing a plurality of different lubricating oil compositions comprising a major amount of at least one base oil and a minor amount of at least one lubricating oil additive. However, the examiner concludes that (final Office action, p. 6):

[I]t would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the method and apparatus taught by Kolosov et al for such a purpose since Kolosov et al teach that the combinatorial chemistry method and apparatus is applicable to the testing of any commercial flowable product such as lubricants, and also teach that the products tested may include additives such as detergents, etc, therein.

The examiner finds that a lubricant composition containing an additive inherently has a major amount of a base lubricant oil and a minor amount of an additive. See final Office action, p. 9.

The appellants argue that lubricating oil compositions do not have to contain a major amount of a base oil of lubricating viscosity and a minor amount of a lubricating oil additive. To illustrate, the appellants point to (1) a lubricating oil composition containing a major amount of a lubricating oil composition and a minor amount of base oil of lubricating viscosity and (2) greases, jellies, and powders that may not require an additive. Brief, p. 9.

In response, the examiner finds that an additive, by definition, means any substance incorporated into a base material, usually in a low concentration, to perform a specific function, i.e., a stabilizer, preservative, dispersing agent, antioxidant, etc. For support, the examiner points to a definition of “additive” in The Condensed Chemical

Dictionary, 20 (10th ed. 1981). See answer, p. 9. The appellants do not challenge this finding in the reply brief.

Based on the record before us, we find that Kolosov would have suggested a method of testing a plurality of different lubricant compositions comprising a lubricant and an additive. We further find that one of ordinary skill in the art would have expected the lubricant compositions, comprising a lubricant and an additive, to have a major amount of a base oil and a minor amount of an additive. Therefore, it is reasonable to conclude that the claimed lubricant compositions would have been obvious to one of ordinary skill in the art in view of the teachings in Kolosov.

B. Claimed means for combining base oil(s) and additive(s)

Claim 23 recites in relevant part:

A system for preparing a plurality of lubricant oil formulations, under program control, which comprises: . . .

d) means for combining selected quantities of the at least one base oil of lubricating viscosity with selected quantities of the at least one lubricating oil additive to form a plurality of lubricating oil composition samples; and,

e) means for dispensing each lubricating oil composition sample in a respective test reservoir.

The examiner concludes that the “means for combining” invokes 35 U.S.C. § 112, sixth paragraph. Answer, p. 9. The appellants do not challenge the examiner’s conclusion.

Turning to the appellants’ specification, the “means for combining” at least one base oil and at least one lubricating oil additive is described as a mixing chamber wherein the base oil and additive are combined prior to dispensing. See specification, p. 18, lines 16-19; Figure 2.

Kolosov does not disclose that a base oil and an additive are combined in a mixing chamber prior to dispensing as recited in claim 23. However, relying on the combined teachings of Kolosov and Shtein, the examiner concludes that (answer, p. 8):

[I]t would have been obvious to one of ordinary skill in the art at the time of the instant invention to use a dispensing means having a mixing chamber connected to a nozzle, similar to the configuration taught by Shtein et al, in the apparatus and method of Kolosov et al so that a lubricating base oil can be combined with an additive prior to dispensing into one of the test receptacles or wells on the substrate, since Kolosov et al teach that any type of known dispensing apparatus may be used to deposit the samples on the substrate, and the use of the dispenser taught by Shtein et al would allow the fluids and additive materials to be both mixed and dispensed in a single operation, thus allowing the high-throughput method of Kolosov et al to be performed even quicker and more efficiently.

The appellants point out that Shtein is directed to depositing organic materials onto a semiconductor device using a carrier gas. The appellants argue that one of ordinary skill in the art of lubricating oils would not look to the teachings of Shtein. Reply brief, pp. 2-3.

However, the examiner explains (answer, p. 12):

The reference to Shtein et al is not relied upon for its teaching of what it deposits on a substrate, but rather, is relied upon for its teaching of the structure of a dispenser that serves to pre-mix reagents together therein before dispensing them onto a substrate.

According to Kolosov, the disclosed lubricants may be dispensed onto a substrate using any suitable dispensing apparatus. Kolosov also suggests that the disclosed lubricant compositions may comprise a lubricant and an additive. Shtein discloses a deposition apparatus comprising a mixing chamber for mixing materials prior to deposition on a substrate.

Based on the record before us, we find that one of ordinary skill in the art would have recognized that a mixing chamber, such as the mixing chamber disclosed in Shtein, would have been an efficient and effective means for mixing materials, such as a lubricant and an additive, prior to dispensing. Therefore, it would have been obvious to one of ordinary skill in the art to mix the lubricant compositions disclosed in Kolosov in the mixing chamber of Shtein prior to dispensing onto a substrate.

C. Double patenting rejection

The examiner provisionally rejected claims 1, 13, and 14 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 20, 22, and 23 of copending Application 10/699,529. See final Office action, pp. 2-3. In the appeal brief, the appellants do not challenge the double patenting rejection. Rather, the appellants state, “Upon resolution of all outstanding issues remaining in this application, Appellants will submit a Terminal Disclaimer to obviate the provisional rejection.” See appeal brief, p. 13.

CONCLUSIONS OF LAW

The appellants have not shown that the examiner erred in concluding that the claimed lubricant oil compositions would have been obvious in view of the teachings in Kolosov.

The appellants have not shown that the examiner erred in concluding that it would have been obvious to one of ordinary skill in the art to combine a base oil and an additive using a mixing chamber in view of the combined teachings of Kolosov and Shtein.

The appellants have not shown that the examiner erred in holding that the subject matter of claims 1, 13, and 14 would have been obvious over the subject matter of claims 20, 22, and 23 of copending Application 10/699,529.

DECISION

The rejection of claims 1 to 4 and 6 to 22 under 35 U.S.C. § 103(a) as being unpatentable over Kolosov et al. is affirmed. The rejection of claims 5 and 23 to 37 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Kolosov et al. and Shtein et al. is affirmed. The rejection of claims 1, 13, and 14 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 20, 22, and 23 of copending Application 10/699,529 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 35 U.S.C. § 1.136(a).

AFFIRMED

/FRED E. McKELVEY/)
Administrative Patent Judge)
)
) BOARD OF PATENT
/ADRIENE LEPIANE HANLON/)
Administrative Patent Judge) APPEALS AND
)
) INTERFERENCES
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