

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte VLAD ZAHARIA
and PEDRO S. BARANDA

Appeal No. 2004-0837
Application 09/778,481

ON BRIEF

Before GARRIS, PAK, and JEFFREY SMITH, Administrative Patent Judges.

PAK, 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 1 through 22, which are all the claims pending in the above-identified application.

Claims 1, 5 and 13 are representative of the subject matter on appeal and read as follows:

1. An elevator system comprising:

a cab;

at least one rope having a plurality of metallic load bearing members associated with the cab;

at least one sheave that guide the rope as the cab moves;
and

an inspection device spaced from the sheave, the inspection device providing information regarding a wear condition of a portion of the rope that is most likely to wear when the portion is away from the sheave.

5. A method of inspecting at least one belt in an elevator system where the belt is associated with a cab and is guided by at least one sheave, comprising the steps of:

(A) determining a portion of the belt that is most likely to wear;

(B) positioning an inspection device relative to the belt and spaced from the sheave; and

(C) gathering information regarding a wear condition of the portion of the belt that is most likely to wear when the portion is spaced away from the sheave.

13. A method of determining a wear condition of at least one belt in an elevator system where the belt is associated with a cab and is guided by at least one sheave, comprising the steps of:

A) considering at least one of:

a number of bends that the belt experiences as the cab travels between locations,

dimensions of a sheave along which the belt travels,

the manner in which the sheave is supported within the elevator system,

an angle of belt wrap around the sheave, and

a worst case loading on a plurality of portions of the belt;

(B) determining a portion of the belt that is most likely to wear based upon the consideration from step (A); and

(C) positioning an inspection device relative to the belt and spaced from the sheave such that the inspection device is capable of gathering wear information regarding the portion of the belt from step (B) when the portion is spaced away from the sheave.

The examiner relies on the following prior art:

Yamagami	4,145,920	Mar. 27, 1979
Hirama et al. (Hirama)	4,427,940	Jan. 24, 1984
Saito	5,025,893	Jun. 25, 1991

The appellants' admission at page 1 of the specification

(hereinafter referred to as "admitted prior art").

The appealed claims stand rejected as follows:

- I) Claims 1 through 19 under 35 U.S.C. § 112, first paragraph, as lacking written descriptive support in the application disclosure as originally filed for the subject matter presently claimed;
- II) Claims 1 through 22 under 35 U.S.C. § 112, first paragraph, as lacking a disclosure enabling one of ordinary skill in the art to make and/or use the claimed subject matter;
- III) Claims 1, 2 and 4 through 22 under 35 U.S.C. § 103 as unpatentable over the combined teachings of Yamagami, Hirama and the admitted prior art; and

IV) Claim 3 under 35 U.S.C. § 103 as unpatentable over the combined teachings of Yamagami, HIRAMA, the admitted prior art and Saito.

We have carefully reviewed the claims, specification and applied prior art references, including all of the arguments and evidence advanced by both the examiner and the appellants in support of their respective positions. This review has led us to conclude that only the examiner's Section 103 rejections are well founded. Accordingly, we reverse the examiner's Section 112 rejections for essentially those reasons set forth in the Brief and the Reply Brief, but affirm the examiner's Section 103 rejections for essentially those findings of fact and conclusions set forth in the Answer. We add the following primarily for emphasis and completeness.

WRITTEN DESCRIPTION:

The examiner has rejected claims 1-19 under 35 U.S.C. § 112, first paragraph, "as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." See the Answer, page 3. According to the examiner (the Answer, pages 3 and 4), the terms "'spaced from the sheave' and 'when the portion is spaced away from sheave'

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[recited in claims 1, 5 and 13] does [sic., do] not appear to be present in the originally filed specification..."

As the court stated in *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983):

The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed **reasonably conveys** to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than **the presence or absence of literal support** in the specification for the claimed language. **The content of the drawings may also be considered in determining compliance with the written description requirement.**
(Emphasis added.)

In the present case, there is no dispute that "[t]he drawings that accompany the written description show... a sensor device 40 spaced away from a sheave." Compare the Brief, page 8, with the Answer in its entirety. This sensor device "is positioned relative to the sheaves to provide information regarding the condition of a portion of the rope that is most likely to wear over time" and is selected from, *inter alia*, those utilizing magnetic flux (requiring a space between a sensor device and an elevator rope on a sheave) and electric resistance measurement techniques. See the specification, pages 2 and 4, together with HIRAMA in its entirety. Thus, we concur with the appellants that "[t]he figures taken with the written description [in the

specification reasonably convey] ... that the inspection device is 'spaced from the sheave.'"

It follows that the examiner's written description rejection cannot stand, for it fails to consider both the drawings and the written description in the application as originally filed. Accordingly, we reverse the examiner's Section 112, first paragraph, rejection of claims 1 through 19 as lacking written descriptive support in the application disclosure as originally filed for the presently claimed subject matter.

ENABLEMENT:

The examiner has rejected claims 1 through 22 under 35 U.S.C. § 112, first paragraph, "as containing subject matter which was not described in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention." According to the examiner (the Answer, page 4):

The instant specification pages 6-10, merely gives examples of placement schemes for the inspection device and clearly states on page 6, lines 7-11 and page 10, lines 3-9, that the particular location for the inspection device is subject to interpretation and that "those skilled in the art will be able to take into account the various factors that indicate ideal placement of an inspection device in a particular situation." It cannot be seen how this would comprise a structural limitation or method step.

The enablement test is whether the disclosure, as filed, together with information known in the art, enables one of

ordinary skill in the art to make and use the claimed invention without undue experimentation. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988); *In re Scarbrough*, 500 F.2d 560, 566, 182 USPQ 298, 302 (CCPA 1974). *In re Vaeck*, 947 F.2d 488, 496 n.23, 20 USPQ2d 1438, 1444-45 n.23 (Fed. Cir. 1991) instructs us that:

The first paragraph of § 112 requires nothing more than objective enablement. *In re Marzocchi*, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971). How such a teaching set forth, either by the use of illustrative examples or by broad terminology, is irrelevant. *Id.*

In the present case, the appellants' specification states in relevant part (pages 5 and 6):

This invention includes strategically placing the inspection device 40 relative to the elevator system components to gather information regarding the portion of the belt that is most likely to experience wear or deterioration over time. A variety of factors should be considered when determining the optimum placement of the inspection device.

These factors include the number and nature of bends that various sections of the belt experience as the elevator travels in the hoistway, the diameter or size of the sheaves over which the belt bends, distances between the sheaves, the angle of the belt wrapped around the sheaves, and the worst case loading on various sections of the belt.

As those skilled in the art will appreciate, these factors are dependent upon several variables, such as elevator roping arrangements, the location of the drive mechanism or machine, the use and placement of deflector sheave, and the floor within the building at which the worst case car loading conditions typically occur. This invention utilizes one or more of these factors for determining the ideal placement of the inspection device.

. . .

The various that are considered preferably are weighted to give appropriate emphasis to the factors that contribute more significantly to belt fatigue. For example, bends over smaller diameter sheaves and shorter distances between sheaves provides a more significant impact than loading. Similarly, reverse bends provide a higher impact than simple bends. Another example is that a reverse bend over a fixed sheave provides more of an impact than a reverse bend over a moving sheave. Given this description, those skilled in the art will be able to determine what factors to account for in a particular situation. Additionally, those skilled in the art who have the benefit of this description will be able to assign appropriate significance or weighting to the various factors for making a proper inspection device placement determination.

Since the appellants' specification contains a written description of the manner of making and using the claimed elevator system and elevator belt inspecting method in terms corresponding in scope with those of the claims on appeal, compliance with the enablement requirement is presumed.

Marzocchi, 439 F.2d at 223-24, 169 USPQ at 369-70.

It is the examiner's burden to present adequate bases for doubting the objective truth of the appellants' statements in the specification, i.e., to provide scientific reasoning and/or evidence as to why one of ordinary skill in the art would not have been able to make and use the full scope of the subject matter claimed based on the written description of the invention in the specification, without undue experimentation. **Id.** On this record, however, the examiner has not carried this burden.

The examiner has not proffered any scientific reasoning and/or evidence to doubt the accuracy of the appellants' statements in the specification. See the Answer in its entirety. Accordingly, we are constrained to reverse the examiner's Section 112, first paragraph, rejection of claims 1 through 22 as lacking an enabling disclosure for the subject matter presently claimed.

OBVIOUSNESS:

Under Section 103, the obviousness of a claimed invention cannot be established by combining the teachings of the prior art references absent some teaching, suggestion or incentive supporting the combination. **See ACS Hospital Systems, Inc. v. Montefiore Hospital**, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). This does not mean that the prior art references must specifically suggest making the combination. **See B.F. Goodrich Co. V. Aircraft Braking Systems Corp.**, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996); **In re Nilssen**, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988). Rather, the test for obviousness is what the combined teachings of the prior art references would have suggested to those of ordinary skill in the art. **In re Young**, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); **In re Keller**, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In determining the existence of such suggestion, it is proper to take into account not only the

specific teachings of the prior art references, but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

With the above precedents in mind we turn to the examiner's Section 103 rejections.¹ We find that both Yamagami and Hirama teach a cage corresponding to the claimed cab, a counterweight corresponding to the claimed metallic load bearing members, an elevator rope connecting the counterweight and the cage, a driver sheave for guiding the rope and a rope wear sensor (detector) corresponding to the claimed inspection device. See the examiner's undisputed findings directed to Yamagami at page 5 of the Answer and Hirama, column 2, lines 42-55 and Figures 1, 2, 4A

¹According to the appellants (Brief, page 5), the claims on appeal are grouped as follows:

- Group 1 - Claims 1-5, 12 and 17;
- Group 2 - Claim 3;
- Group 3 - Claims 5, 6, 10 and 18;
- Group 4 - Claims 7 and 8;
- Group 5 - Claim 9;
- Group 6 - Claim 11;
- Group 7 - Claims 13 and 19;
- Group 8 - Claim 14;
- Group 9 - Claims 15 and 16;
- Group 10 - Claim 20;
- Group 11 - Claim 21; and
- Group 12 - Claim 22;

Therefore, for purposes of this appeal, we select claims 1, 3, 7, 9, 11, 13, 14, 15, 20, 21 and 22 and decide the propriety of the examiner's Section 103 rejections based on these claims alone consistent with 37 CFR § 1.192(c)(7) and (c)(8)(2003).

and 4B. We find that both Yamagami and Hirama teach the sensor (detector) being "spaced" from the driver sheave. See Yamagami's gape referred to at column 2, lines 4-31 and Figures 3 and 5 and the examiner's undisputed findings directed to Hirama at page 5 of the Answer. To the extent that Yamagami is interpreted as not teaching the claimed placement of the sensor, the examiner's finding at page 5 of the Answer also provides ample motivation to employ Hirama's sensor² in the manner taught by Hirama in the elevator system of the type described in Yamagami to improve the detection of rope defects. Specifically, we note the examiner's undisputed findings at page 5 of the Answer as shown below:

Hirama et al teaches a rope wear detector for an elevator which detects the internal wear of a "belt" encasing in a protective coating several wire ropes 2. As illustrated in figure 1, the detector 5 is placed away from sheaves 4A, 4B.

Hirama et al states that the use of detecting coil type detector improves the sensitivity of defect detection in a rope wear detector as well as detection of a cavity or crinkle, in addition to the detection of a break.

Thus, the dispositive question is whether one of ordinary skill in the art would have placed the sensor of the type described in Hirama and/or Yamagami to "provide information regarding a wear condition of a portion or the entire portion of

² The appellants indicate the sensor of the type described in Hirama as one of the sensors employed in the appellants' elevator system. See the specification, page 4.

the rope that is most likely to wear when the portion is away from the sheave." On this record, we answer this question in the affirmative.

The examiner finds, and the appellants do not dispute, that the sensor described in Hirama and/or Yamagami is placed in a location such that it monitors "nearly the entire length of the [elevator] rope" for any defects. Thus, it is reasonable for the examiner to conclude that the sensor described in Hirama and/or Yamagami is placed in a location useful for obtaining information on "the portion of the rope most likely to wear" which is necessarily embraced by "nearly the entire length of the rope" shown in Hirama and/or Yamagami. On this record, the appellants have not demonstrated that the sensor of Hirama and/or Yamagami would not be able to obtain information on the portion of the rope that is most likely to wear. As held by the predecessor to our reviewing court in *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977):

Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior products do not necessarily or inherently possess the characteristics of his claimed product . . . whether the rejection is based on "inherency" under 35 USC 102, on "prima facie obviousness" under 35 USC 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. (Footnotes and citations omitted).

In any event, we find that the purpose of the sensor described in Hirama and/or Yamagami is to detect defects in the elevator rope as indicated *supra* to prevent major elevator accidents which could take many lives. To prevent such catastrophic accidents, one of ordinary skill in the art would have been led to place the sensor described in Hirama and/or Yamagami to obtain "information regarding a wear condition of a portion of the rope that is most likely to wear..." We take official notice that one of ordinary skill in the art would have monitored the portions of the rope, which were subject to the highest stress (e.g., the portion of the rope subject to continuous bending, especially at an extreme bending angle (based on the sizes and the locations of sheaves)) under the worst case loading scenario to prevent catastrophic accidents. See, e.g., Saito, column 2, lines 58-66 and column 3, lines 15-16.

The appellants argue that Yamagami and Hirama do not teach or suggest a detector "supported to move with the [elevator] cab" as recited in claims 3 and 11. The appellants, however, do not dispute the examiner's finding at page 6 of the Answer that:

Saito illustrates the use of roping ratios other than 1:1 and teaches in the Background of the Invention that as such a sheave may be placed on the cab to obtain a desired rope ratio. As such, the detector would be placed on the cab sheave.

It follows that one of ordinary skill in the art interested in improving the long-distance elevator of the type described in Saito would have been led to place the sensor of Hirama or Yamagami on a sheave located on a cab due to the well known rope arrangement for such long-distance elevator. Indeed, the appellants have not disputed the examiner's determination that the placement of a sheave is a function a desired rope ratio for a given elevator system.

The appellants argue that the applied prior art references do not teach or suggest "weighing the various factors and determining which of those factors has a higher significance than other factors as part of determining which portion of the belt is most likely to wear" as recited in claims 9 and 15. As indicated *supra*, however, one of ordinary skill in the art would have necessarily or appropriately weighed and considered factors causing the highest stress to the particular portions of the rope (such as those mentioned above) before implementation of a detector to prevent any catastrophic accidents. Otherwise, the detector would not serve the purpose stated in Hirama or Yamagami.

The appellants argue that it would not have been obvious to employ a kind of belt recited in claims 20, 21 and 22 in the elevator system of the type described in Yamagami. The

appellants, however, do not argue that such belt is not well known. In fact, the appellants concede at page 1 of the specification that "rope and belt are considered synonymous" and they typically include "a plurality of cords which may be coated." Thus, we determine that one of ordinary skill in the art would have been led to employ the known coated belt recited in claims 20, 21 and 22 or any other known belt in the elevator system of the type suggested by Yamagami and/or HIRAMA, with a reasonable expectation of successfully operating the elevator system.

Thus, on this record, we concur with the examiner that the evidence of obviousness, on balance, outweighs the evidence of nonobviousness. Accordingly, we affirm the examiner's decision rejecting all of the appealed claims under 35 U.S.C. § 103.

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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)	
Administrative Patent Judge)	
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CHUNG K. PAK)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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