

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte JOHN H. TANGREN

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Appeal No. 2000-1890  
Application 08/828,297

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ON BRIEF

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Before JERRY SMITH, GROSS and BLANKENSHIP, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-19 and 21-24, which constitute all the claims remaining in the application. First and second amendments after final rejection were filed on September 15, 1999 and October 27, 1999. Both amendments were entered by the examiner.

The disclosed invention pertains to a disk drive suspension which is adjusted for enhanced resonance performance.

More particularly, the drive suspension has a load beam with one or more mass balancing structures placed thereon in a first configuration. The mass balancing structures are adjusted to a second configuration responsive to a measurement representative of a resonance characteristic of the suspension.

Representative claims 1 and 16 are reproduced as follows:

1. A disk drive suspension adjusted for enhanced resonance performance including a load beam having a distal end, an actuator arm mounting region on a proximal end, a rigid region, a spring region between the rigid region and actuator arm mounting region, and a head mounting region on a distal end of the load beam for receiving a transducer head, the load beam having one or more mass balancing structures in a first configuration between the actuator arm mounting region and the head mounting region, the disk drive suspension comprising:

the one or more mass balancing structures being adjusted to a second configuration in response to a measurement representative of a resonance characteristic of the suspension to controllably adjust the mass distribution of the load beam and the resonance characteristic to a desired value.

16. A method for adjusting one or more resonance characteristics of disk drive suspensions of the type including a load beam having proximal and distal ends, an actuator arm mounting region on the proximal end and a transducer mounting region on a distal end, the method including:

forming a disk drive suspension with one or more mass balancing structures positioned in a first configuration at adjust locations on the load beam, the adjust locations being where a resonance characteristic to be adjusted is sensitive to changes in mass;

measuring the resonance characteristic of the suspension;  
and

Appeal No. 2000-1890  
Application 08/828,297

adjusting one or more of the mass balancing structures to a second configuration to adjust the mass distribution of the load beams as a function of the measured resonance characteristic.

The examiner relies on the following references:

Hinlein	5,003,420	Mar. 26, 1991
Budde	SIR H1573	Aug. 06, 1996

Claim 10 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 1-8, 10 and 12-15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the disclosure of Hinlein. Claims 9, 11, 16-19 and 21-24 stand rejected under 35 U.S.C. § 103. As evidence of obviousness the examiner offers Hinlein taken alone with respect to claims 16, 19 and 21-24, and Hinlein in view of Budde with respect to claims 9, 11, 17 and 18.

Rather than repeat the arguments of appellant or the examiner, we make reference to the brief and the answer for the respective details thereof.

#### OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of anticipation and obviousness relied upon by the examiner as support for the prior art rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision,

Appeal No. 2000-1890  
Application 08/828,297

the appellant's arguments set forth in the brief along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that claim 10 satisfies the requirements of 35 U.S.C. § 112. We are also of the view that the evidence relied upon supports the rejection of claims 1-12. We reach the opposite conclusion with respect to claims 13-19 and 21-24. Accordingly, we affirm-in-part.

With respect to the rejection of claim 10 under the second paragraph of 35 U.S.C. § 112, the examiner states that "[t]he phrase 'wherein one or more added mass sections' lacks proper antecedent basis, since claim 1 does not recite any 'added mass sections'" [answer, page 4]. Appellant argues that claim 10 clearly recites that the one or more added mass sections are in addition to the structures recited in claim 1 [brief, page 4]. The examiner simply repeats the assertion of indefiniteness [answer, page 6].

Although we are of the view that claim 10 could be drafted in better form, we agree with appellant that there is no lack of antecedent basis in claim 10 because the claimed "one or more added mass sections" should be interpreted as being present

Appeal No. 2000-1890  
Application 08/828,297

on the drive suspension of claim 1 in addition to the mass balancing structures previously recited in claim 1. Therefore, no antecedent basis is required for the added mass sections of claim 10. Accordingly, we do not sustain this rejection of claim 10.

We now consider the rejection of claims 1-8, 10 and 12-15 under 35 U.S.C. § 102(b) as being anticipated by the disclosure of Hinlein. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The examiner indicates how he reads the claimed invention on the disclosure of Hinlein [answer, page 4]. With respect to claims 1-8, 10 and 12 which stand or fall together [brief, page 4], appellant argues that the tabs of Hinlein cannot be used for both mass balancing and retaining electrical leads. Appellant also argues that even if the bent tabs of Hinlein constituted a

Appeal No. 2000-1890  
Application 08/828,297

first configuration, these tabs could not be moved from their bent configuration because that would release the electrical leads. Finally, appellant argues that Hinlein cannot anticipate these claims because Hinlein is silent as to measuring the resonance characteristics of the load beam [brief, pages 5-6]. With respect to separately argued claims 13-15, appellant additionally argues that there is no disclosure in Hinlein to locate the tabs in relation to the second torsion node location [id., page 6].

The examiner responds that the tabs of Hinlein can be considered to be mass balancing structures as recited in claim 1. The examiner also responds that the first and second configurations can be read on an intermediate form of the product and the final form of the product respectively. The examiner finds that the foldable tabs of Hinlein meet the claimed first and second configurations. The examiner notes that the claimed recitation "in response to a measurement representative of a resonance characteristic of the suspension to controllably adjust the mass distribution of the load beam and the resonance characteristic to a desired value" is not pertinent to the rejection because the claimed invention is directed to the product and not to a method performed on the product [answer,

pages 6-7]. With respect to claims 13-15, the examiner responds that the broadly recited locations are met by Hinlein [id., pages 7-8].

With respect to claims 1-8, 10 and 12, we agree with the position argued by the examiner. Since the various tabs in Hinlein clearly have some mass, and since the tabs are designed to be movable, we agree with the examiner that these tabs constitute "mass balancing structures" as that term is broadly defined. We also note that appellant's own disclosure describes that such tabs can be used as mass balancing structures. Thus, any movement of the tabs in Hinlein will have the effect of changing the mass balance of the suspension. We also agree with the examiner that the fact that Hinlein has no mention of mass balancing or resonance measurements is not relevant to the product recited in claim 1. Claim 1 is directed to a drive suspension having configurable mass balancing structures. More precisely, claim 1 attempts to define a product which has two different states at two different times. Claim 1 also attempts to define this product by the manner in which the product is changed from its first state to its second state. We do not think that the particular product of claim 1 can properly be claimed by the manner in which the product attains one of its

Appeal No. 2000-1890  
Application 08/828,297

states. We agree with the examiner that such a product claim can be read on the second state of the product and the manner in which the second state was attained has no patentable relevance to the product itself. Therefore, the claimed reasons why the mass balancing structures are reconfigured are not relevant to the configurable product recited in claim 1. The final product recited in claim 1 does not require that any measurements actually be made to define the product. Claim 1 only requires that a disk drive suspension have one or more mass balancing structures (tabs) which have been moved from a first configuration (unbent) to a second configuration (bent). This product as broadly recited in claim 1 is fully met by Hinlein. Therefore, we sustain the examiner's rejection of claims 1-8, 10 and 12.

We reach the opposite result with respect to claims 13-15. Claims 13-15 recite a specific location of the mass balancing structures with respect to the second torsion node location of the structure. Appellant and the examiner agree that Hinlein has no mention of a second torsion node location. The examiner relies on the fact that the suspension in Hinlein inherently has the first and second torsion nodes and the claims do not recite where the second torsion node is located. The

Appeal No. 2000-1890  
Application 08/828,297

location of the second torsion node, however, can be determined for a given suspension. Claims 13-15 require that the mass balancing structures (tabs) be placed at a specific point on the suspension related to the determined location of the second torsion node. This is a structural requirement which the examiner dismisses based on pure speculation. There is no evidence within Hinlein that the tabs can be structurally located as recited in claims 13-15. A rejection based on anticipation cannot be established based upon conjecture and speculation. Therefore, we do not sustain the rejection of claims 13-15.

We now consider the rejections of the claims under 35 U.S.C. § 103. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole

Appeal No. 2000-1890  
Application 08/828,297

or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived by appellant [see 37 CFR § 1.192(a)].

Appeal No. 2000-1890  
Application 08/828,297

With respect to the rejection of claims 16, 19 and 21-24 based on Hinlein taken alone, the examiner acknowledges that Hinlein is silent as to the step of measuring the resonance characteristic of the load beam and subsequently adjusting one or more of the mass balancing structures. The examiner finds, however, that it would have been obvious to the artisan to have adjusted the characteristics of the load beam after measuring them initially in order to obtain the desired effects [answer, pages 4-5].

Appellant argues that Hinlein does not establish a prima facie case of obviousness because there is no teaching or suggestion in Hinlein that the tabs are adjusted to modify the resonance characteristics of the suspension. Appellant also argues that the examiner has admitted that Hinlein does not teach the steps of the claimed invention but asserts obviousness anyway [brief, pages 7-9]. The examiner responds that the step of measuring resonance characteristics would have been obvious to a skilled artisan [answer, page 8].

We agree with appellant that the examiner has failed to establish a prima facie case of the obviousness of independent claim 16 based on Hinlein taken alone. Claim 16 recites specific steps of measuring the resonance characteristic of the suspension

Appeal No. 2000-1890  
Application 08/828,297

and adjusting a mass balancing structure based on this measurement. Since Hinlein has no teaching whatsoever related to measuring the resonance characteristic of the suspension, we fail to see how Hinlein can be said to teach the claimed measuring and adjusting steps. The examiner simply dismisses the claim limitations as being obvious to the artisan without any evidence on this record to support that position. The examiner's mere opinion cannot substitute for evidence which is lacking in the record. Therefore, we do not sustain the examiner's rejection of claims 16, 19 and 21-24 based on Hinlein taken alone.

We now consider the rejection of claims 9, 11, 17 and 18 based on the teachings of Hinlein and Budde. Budde is cited to meet the perforated punch-out structures of claim 9, the adhesive of claim 11, and the steps of adding and removing mass as recited in claims 17 and 18. Appellant argues that Budde does not contain any teaching or suggestion of adjusting the mass balancing structures to a second configuration in response to a measurement representative of the resonance characteristic of the suspension [brief, page 10]. The examiner responds that it would have been obvious to the artisan to make appropriate changes in

Appeal No. 2000-1890  
Application 08/828,297

mass to the suspension of Hinlein based on Budde and in view of the common knowledge of the artisan [answer, pages 9-10].

With respect to claims 17 and 18, since these claims depend from improperly rejected claim 16, and since Budde does not overcome the fundamental deficiencies of Hinlein noted above, we do not sustain this rejection of claims 17 and 18. With respect to claims 9 and 11, these claims depend from claims whose rejection was sustained above. As noted above, the measurement step is not relevant to the product recited in claim 1. The question is whether it would have been obvious to the artisan to apply the teachings of reduced mass areas using perforated punch-outs as taught by Budde with the suspension of Hinlein. We agree with the examiner that the broad recitation of punch-out areas in a suspension would have been obvious to the artisan based on the additional teachings of Budde. Therefore, we sustain this rejection of claims 9 and 11.

In summary, we have not sustained the rejection of claim 10 under the second paragraph of 35 U.S.C. § 112. The rejection of claims 1-8, 10 and 12-15 under 35 U.S.C. § 102 is sustained with respect to claims 1-8, 10 and 12, but is not sustained with

Appeal No. 2000-1890  
Application 08/828,297

respect to claims 13-15. The rejection of claims 9, 11, 16-19 and 21-24 under 35 U.S.C. § 103 is sustained with respect to claims 9 and 11, but is not sustained with respect to claims 16-19 and 21-24. Therefore, the decision of the examiner rejecting claims 1-19 and 21-24 is affirmed-in-part.

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

AFFIRMED-IN-PART

JERRY SMITH	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
ANITA PELLMAN GROSS	)	
Administrative Patent Judge	)	APPEALS AND
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	)	INTERFERENCES
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Appeal No. 2000-1890  
Application 08/828,297

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