

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(2) is not binding precedent of the Board.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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT T. BOHM

Appeal No. 1999-0519
Application 08/728,224¹

ON BRIEF

Before ABRAMS, FRANKFORT and NASE, Administrative Patent
Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed October 10, 1996.

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This is a decision on appeal from the examiner's final rejection of claims 1 through 4 and 7 through 10.

Claims 5, 6,

11 and 12, the only other claims remaining in the application, stand withdrawn from further consideration under 37 CFR

§ 1.142(b).

Appellant's invention relates to a method for controlling lateral vibration in a rotating shaft and to a shaft assembly which implements that method. A copy of independent claims 1 and 7 can be found in the Appendix to appellant's brief.

The sole prior art reference relied upon by the examiner in rejecting the appealed claims is:

Hamada et al. (Hamada)	5,593,144	Jan. 14, 1997
1995)		(filed May 1,

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Claims 4 and 10 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention.

Claims 1, 4, 7 and 10 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Hamada.

Claim 2, 3, 8 and 9 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hamada.

Rather than attempt to reiterate the examiner's full commentary with regard to the above-noted rejections and the conflicting viewpoints advanced by the examiner and appellant regarding the rejections, we make reference to the examiner's answer (Paper No. 13, mailed August 26, 1998) for the reasoning in support of the rejections, and to appellant's brief (Paper No. 11, filed June 10, 1998) for the arguments there-against.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellant's specification and claims, to the applied prior art reference, and to the respective positions articulated by appellant and the examiner. As a consequence of our review, we have made the determinations which follow.

Looking first at the examiner's rejection of claims 4 and 10 under 35 U.S.C. § 112, second paragraph, we note that the examiner has taken the position that the recitation in each of these claims that the mass added to the shaft at the second order critical frequency node comprises "a bearing assembly" is indefinite because "merely naming mass as a bearing assembly fails to further define the claimed structure" (answer, page 3). The examiner goes on to indicate that if appellant wishes to claim the bearing structure then the specific element or elements that constitute the bearing structure should be positively set forth. We do not agree. Like appellant, we

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view the recitation in claims 4 and 10 on appeal as merely setting forth the broad proposition that the mass added to the shaft may be in the form of a bearing assembly, rather than a solid mass. While this recitation is certainly broad, we see no reason why it should be considered to be indefinite. Appellant discloses embodiments of the invention wherein the mass added to the shaft is provided in the form of a bearing assembly (see Figs. 11 and 12). The exact form of the bearing assembly set forth in claims 4 and 10 would appear to be irrelevant. Since we find that appellant's claims are merely broad, and not indefinite, it follows that the examiner's rejection of claims 4 and 10 under 35 U.S.C. § 112, second paragraph, will not be sustained.

Regarding the examiner's rejection of claims 1, 4, 7 and 10 under 35 U.S.C. § 102(e) as being anticipated by Hamada,

we share appellant's view as expressed in the brief (pages 5

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and 6) that the dynamic, spring-mass type vibration damper of Hamada and the method of its operation are entirely different than the shaft assembly and method for damping lateral vibrations in a shaft defined in appellant's claims 1, 4, 7 and 10 on appeal. As to method claim 1, even if the shaft of Hamada were to have each of the basic characteristics set forth in the preamble of the claim, there is no disclosure, teaching or suggestion in Hamada of defining an "adjusted first order critical frequency" (emphasis added) for the rotating shaft, wherein the adjusted first order critical frequency is "equal

to or less than" the lower operating frequency of the shaft;²
and

then disposing a mass having a predetermined weight (W) in combination with the rotating shaft "at said second order critical frequency node, whereby said mass maintains said adjusted first order critical frequency at a frequency equal to or less than said lower operating frequency, thereby controlling lateral vibration of said rotating shaft as said

² We understand from appellant's specification that in a typical shaft system, the second order critical frequency would normally occur at a rotational frequency higher than the upper operating frequency of the rotating shaft, so that the operation of the shaft system is not affected thereby. However, it is common in many shaft systems for the first order critical frequency to occur within the operating frequency range, thereby introducing the potential for shaft instability and undesirable vibratory characteristics. As noted on page 4 of the specification, an object of appellant's invention is to provide a method and apparatus for controlling lateral vibration in a shaft system by shifting the first order critical frequency of a rotating shaft out of an operational frequency range of the shaft system, without changing the second order critical frequency. Thus, with regard to appellant's method claim 1, we understand that the "first order critical frequency" set forth in the preamble is one which occurs within the operational frequency range of the rotating shaft, while the "adjusted first order critical frequency" is equal to or, more preferably, less than the lower operating frequency of the rotating shaft.

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rotating shaft rotates within said operating frequency range,"
as specified in appellant's claim 1 on appeal.

Regarding independent claim 7, although the shaft in Hamada has a mass (28) associated therewith at a central portion of the shaft, there is no disclosure or teaching in Hamada of a mass being disposed in combination with the shaft "at said second order critical frequency node" as in appellant's claim 7 and no disclosure at all that said mass should have a predetermined weight (W) equal to or greater than a critical weight, with said critical weight corresponding to a state wherein said first order critical frequency substantially equals the lower operating frequency of the shaft, whereby said disposition of said mass about said shaft maintains said first order critical frequency at a frequency equal to or less than said lower operating frequency, thereby controlling lateral vibration of said rotating shaft as said rotating shaft rotates within said operating frequency range, as in claim 7 on appeal.

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For the above reasons, we will not sustain the examiner's rejection of claims 1, 4, 7 and 10 under 35 U.S.C. § 102(e) based on Hamada.

As a further commentary, we also note that we share appellant's view (brief, pages 6 and 7) that it would not have been obvious to one of ordinary skill in the art, based on the teachings of Hamada, to merely optimize the weight of the mass (28) in Hamada to achieve the results sought by appellant, or to derive a weight adjustment constant k which equals 31.14 Newtons. There is simply no guidance whatsoever in Hamada for such selections to be made or derived therefrom. Thus, the examiner's rejection of claims 2, 3, 8 and 9 under 35 U.S.C. § 103 based on Hamada will likewise not be sustained.

In view of the foregoing, the examiner's decision rejecting claims 1, 4, 7 and 10 under 35 U.S.C. § 102(e) and

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claims 2, 3, 8 and 9 of the present application under 35
U.S.C. § 103 based on Hamada is reversed. In addition, the
examiner's decision rejecting claims 4 and 10 under 35 U.S.C.
§ 112, second paragraph, is also reversed.

REVERSED

	NEAL E. ABRAMS)	
	Administrative Patent Judge)	
)	
)	
)	BOARD OF
PATENT)	
	CHARLES E. FRANKFORT)	APPEALS AND
	Administrative Patent Judge)	INTERFER-
ENCES)	
)	
)	
	JEFFREY V. NASE)	
	Administrative Patent Judge)	

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