

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KIYOJI KIKUCHI and TOSHIO FUJIMOTO

Appeal No. 96-1837
Application No. 08/083,372¹

ON BRIEF

Before KRASS, FLEMING and CARMICHAEL, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1, 2, 4, 5, 7, 11 and 13, all of the claims remaining in the application.

¹ Application for patent filed June 29, 1993.

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The invention is directed to a disk drive apparatus and method which prevents vibrations in the disks produced by changes in environmental temperature. More particularly, a buffer member is placed between two adjacent members wherein the buffer member has a thermal expansion coefficient which is substantially an intermediate value between thermal expansion coefficients of the two adjacent members. Further, the difference between the thermal expansion coefficients of the two adjacent members is larger than about 10×10^{-6} (1/°C).

Representative independent claim 1 is reproduced as follows:

1. A disk drive apparatus comprising:

a rotating member having an engagement portion;

a disk-like recording medium;

a clamp for urging the recording medium against the engagement portion of the rotating member with a predetermined fixing force to fix the recording medium to the rotating member; and

a metal buffer member provided in at least one of a position between the recording medium and the engagement portion and a position between the recording medium and the clamp, the buffer member having a thermal expansion coefficient which is substantially an intermediate value between thermal expansion coefficients of the two members located on two sides of the buffer member, wherein the difference between the thermal expansion coefficients of the two members located on the two sides of the buffer member is larger than about 10×10^{-6} (1/°C).

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The examiner relies on the following references:

Matsudaira et al. (Matsudaira) 4,945,432 Jul. 31, 1990

Rajac, IBM Technical Disclosure Bulletin, Vol. 25, No. 3A (August 1982) pp. 1097-98.

Japanese kokai patent (Kabashi)² 61-210573 Sep. 18, 1986

Japanese kokai patent (Ishikawa)² 2-105377 Apr. 17, 1990

Claims 1, 2, 4, 5, 7, 11 and 13 stand rejected under 35 U.S.C. 103 as unpatentable over Matsudaira in view of Rajac or, alternatively, offered in a new ground of rejection by the examiner in the principal answer, over Ishikawa in view of Kobashi. A prior rejection based on the first paragraph of 35 U.S.C. 112 has been withdrawn and is not before us on appeal.

Reference is made to the briefs and answers for the respective positions of appellants and the examiner.

OPINION

Turning first to the rejection of the claims under 35 U.S.C. 103 over Matsudaira in view of Rajac, we will not sustain this rejection as the examiner has not established a prima facie case of obviousness.

² Our understanding of these references is based on English translations thereof which have been prepared by the United States Patent and Trademark Office. Copies of the translations are attached hereto.

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Viewing the examiner's rejection and rationale therefor in the most favorable light, it is the examiner's position that Matsudaira discloses the claimed subject matter but for the buffer having a thermal expansion coefficient substantially intermediate the thermal expansion coefficients of the two adjacent members and for the fixing force recited in claims 4 and 7. In order to compensate for these deficiencies, the examiner cites Rajac for a teaching of a buffer having a similar thermal expansion coefficient as the adjacent members and contends that the claimed force range would have been obvious since this amounts to only "routine experimentation and optimization" [principal answer-page 5].

First, with regard to the claimed force range, the range recited requires a particular relationship between the fixing force, the mass of the recording medium, the acceleration acting on the medium and a minimum friction coefficient. The examiner cannot explain such a specific limitation away by merely labeling the requirement "routine experimentation and optimization."

In any event, we never reach the limitations of the dependent claims because, in our view, the examiner's reasoning with regard to the rejection of the independent claims is flawed. While Rajac teaches the use of a buffer having a similar thermal

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expansion coefficient as the adjacent members, the claims call for the buffer member to have a thermal expansion coefficient which is "substantially an intermediate value between thermal expansion coefficients of the two members located on two sides of the buffer member." Neither applied reference teaches or suggests the claimed "intermediate value" since the examiner admits that Matsudaira lacks this teaching and it is clear that a thermal expansion coefficient that is "similar," as taught by Rajac, is not a thermal expansion coefficient which is "intermediate," as required.

We now turn to the rejection of the claims under 35 U.S.C. 103 over Ishikawa in view of Kobashi.

While we are of the view that the examiner makes a stronger case for obviousness with these references, upon careful consideration of the applied references and the arguments of both appellants and the examiner, we find ourselves in agreement with the appellant.

Kobashi clearly teaches the idea of using a buffer which has a thermal expansion coefficient which is intermediate the thermal expansion coefficients of two members located on the two sides of the buffer and, thus, it appears tempting to want to apply this teaching to Ishikawa which teaches a spacer between a hub and a

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disk, adjacent elements similar to the adjacent elements of the instant claims, substituting a spacer which has an "intermediate" thermal expansion coefficient, as claimed. At first blush, the examiner appears to state a reasonable position.

However, on closer consideration, it is our view that the artisan would not have applied Kobashi's teaching to the spacer of Ishikawa. Ishikawa's spacer is made of a rubber material and conforms to the adjacent members as their displacement changes due to temperature changes. Therefore, the question presents itself as to why the skilled artisan, faced with this teaching, would look to Kobashi. It appears that Ishikawa's device works very well without any reason for seeking an improvement whereby the rubber spacer is changed to a metal spacer, or buffer, with a thermal expansion coefficient value intermediate the coefficient values of the adjacent members in Ishikawa. Moreover, Kobashi is concerned with eliminating deformation at the arms of a disk driver. Without appellants' disclosure before him/her, it is doubtful that the artisan would have had any reason to apply the teaching of an "intermediate" thermal expansion coefficient value of a buffer to the elements of the disk drive that appellants do. There is a general teaching at page 2 of the translation of Kobashi about eliminating deformations arising from differences

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in thermal expansion coefficients when fastening components, in general. However, we do not view this general teaching as clearly suggesting the instant claimed subject matter. We are unconvinced that the skilled artisan having the Ishikawa and Kobashi teachings before him/her, and without the benefit of hindsight gleaned from appellants' disclosure, would have employed a buffer member having a thermal expansion coefficient which is substantially an intermediate value between the thermal expansion coefficients of the two adjacent members (i.e., recording medium/engagement portion; recording medium/clamp; spacer/recording medium) required by the instant claims wherein the difference between the thermal expansion coefficients of the two adjacent members is larger than the value recited in the instant claims.

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The examiner's decision rejecting claims 1, 2, 4, 5, 7, 11
and 13 under 35 U.S.C. 103 is reversed.

REVERSED

ERROL A. KRASS)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
MICHAEL R. FLEMING)	
Administrative Patent Judge)	APPEALS AND
)	
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JAMES T. CARMICHAEL)	
Administrative Patent Judge)	

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