

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TOSHIHIRO IIZUKA,
YUKIHITO ITO and
SHOJI TOYODA

Appeal No. 1997-3157
Application 08/286,224

HEARD: September 11, 2001

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

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 6. In an Amendment After Final¹ (paper number 17),

¹ According to the examiner (answer, page 3), the amendment had the effect of overcoming the indefiniteness rejection of claims 1 and 6.

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claims 1 and 2 were amended.

The disclosed invention relates to a magnetic head device that maintains a core piece of a head at a constant floating height over all of the area of a rotating disk when performing a read/write operation.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A magnetic head device with constant head floating height including a head arm attached to a drive shaft of a hard disc drive device, a suspension means extending from said head arm, and a head slider fixed on the tip end of said suspension means having an air bearing surface extending along said head arm in the longitudinal direction thereof, wherein the distance from the fulcrum for rotating/driving said head arm to the center of a magnetic disc D (mm), the distance from the fulcrum of said head arm to the center of said head slider L (mm), and the radial width of the recording area of said magnetic disc W (mm), the distance from the rotating/driving fulcrum of said head arm to the center of the slider is so set to satisfy the relation:

$$0 \# (D - L) \text{ mm} \# (0.6 W - 4.4) \text{ mm}$$

wherein, the radial width W of said magnetic disc is between 12.5mm and 22.5mm, a core piece is positioned so as to be maintained at a constant floating height over all area of the rotating disc when performing a reading/writing operation.

The references relied on by the examiner are:

Asano	4,819,100	Apr. 4,
1989		
Hatch et al. (Hatch)	5,027,241	June 25,
1991		

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Sugahara et al. (Sugahara)	5,285,338	Feb. 8,
		1994
	(effective filing date Oct. 3, 1990)	
Sakai ²	4-125871	Apr. 27, 1992
(Japanese Patent Application)		

Claims 1 through 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sakai in view of Asano.

Claims 1 through 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hatch.

Claims 1 through 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sugahara.

Reference is made to the briefs (paper numbers 22, 25 and 27) and the answers (paper numbers 23 and 26) for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse the 35 U.S.C. § 103 rejections of claims 1 through 6.

All of the claims on appeal require that a distance D from a fulcrum for rotating/driving a head arm to the center of a magnetic disc, that a distance L from the fulcrum of the

² A copy of the translation of this reference is attached.

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head arm to the center of a head slider, and that a radial width W of the recording area of the magnetic disc must satisfy a mathematical relationship in a claimed equation in order to maintain the core piece of the head at a constant floating height over the rotating disc. With respect to the teachings of Sakai and Asano, the examiner is of the opinion (answer, pages 4 and 5) that Sakai discloses the "lower limit" of the claimed equation, and that Asano discloses the "upper limit" of the claimed equation. The examiner is of the opinion (answer, page 5) that it would have been obvious to one of ordinary skill in the art to apply the "upper limit" teachings of Asano to the teachings of Sakai to "provide a higher density recording disk drive." The examiner acknowledges (answer, pages 7 and 8) that Hatch and Sugahara do not disclose the claimed equation. According to the examiner (answer, pages 7 through 10), Hatch and Sugahara "could" or "would" satisfy the claimed equation "depending on the values of 'D', 'L' and 'W'" in order to "provide a higher density recording disk drive."

Appellants argue (brief, paper number 22, pages 11 and 12) that:

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While the Japanese '871 and Asano references coincidentally individually teach (D-L) values which may meet one of the upper or lower limits of the stated parametric range, such teachings are purely coincidental and there is no pattern of teachings which in any way results in the derivation of both the upper and lower limit or the connection between the subject parameters and the constant floating height thereby effected. Instead, each of these references is clearly outside at least one of these limits. Since there is no suggestion in the references for the upper and lower limits of the claimed range in the Asano and Japanese '871 references, and since there is no motivation for combining the Japanese '871 and Asano references found in the teachings of these references themselves, it is respectfully submitted, that the outstanding rejection is based purely on hindsight.

Regarding the applied Hatch et al '241 and Sugahara et al '338 references, the outstanding grounds for rejection based on these references acknowledge that neither of these references teaches the relationship stated in Appellants' claim 1. To remedy these deficiencies in the Hatch et al '241 and Sugahara et al '338 references, the outstanding grounds for rejection summarily concludes that it would [be] obvious to pick values of "D", "L" and "W" of the disc drive to satisfy the condition set forth in claim 1 in order to "provide a higher density recording disc drive" and in order "to maintain the constant sensitivity of the magnetic head in order to provide a higher density recording disc drive."^[8] Yet, the Official Action fails to identify a single teaching in the references suggesting that the parameters "D", "L" and "W" are relevant to the provision of "a higher density recording disc drive" or "to maintain the constant sensitivity of the magnetic head" and the only source of such teachings is Appellants' disclosure. It is therefore respectfully submitted that clearly

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the outstanding grounds for rejection are based on hindsight. . . .

In conclusion, the applied references of record are not seen as providing teachings which singly or in combination negate patentability of the claimed magnetic head device recited in claims 1-6.

We agree with appellants' arguments. The examiner's contentions to the contrary notwithstanding, the applied references neither teach nor would have suggested the claimed mathematical relationship. Thus, the 35 U.S.C. § 103 rejections of claims 1 through 6 are reversed because the examiner has failed to present a prima facie case of obviousness.

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DECISION

The decision of the examiner rejecting claims 1 through 6
under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
JERRY SMITH)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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)	
ANITA PELLMAN GROSS)	
Administrative Patent Judge)	

KWH:svt

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