

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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte ZINE-EDDINE BOUTAGHOU

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Appeal No. 2001-2189  
Application No. 09/060,636

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ON BRIEF

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Before McQUADE, NASE and BAHR, Administrative Patent Judges.  
Per Curiam.

DECISION ON APPEAL

Zine-Eddine Boutaghou appeals from the final rejection of claims 1-18, all of the pending claims in the application.<sup>1</sup>

THE INVENTION

The invention relates to a data storage slider designed to takeoff from and fly above a read/write disc during operation due to lift produced by rotation of the disc. To decrease stiction during takeoff, the slider includes feet which reduce the area of

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<sup>1</sup> Claims 1, 6 and 14 have been amended subsequent to final rejection.

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surface contact between the slider and the disc. The feet have a variable hardness along their lengths to afford a desired balance between wear resistance for the feet and damage control for the disc. Representative claims 1 and 10 read as follows:

1. A data storage system comprising:

a storage medium having a data surface;

a transducer element; and

a slider carrying the transducer element and supported relative to the storage medium, the slider including a bearing surface facing the data surface for positioning the transducing element proximate the data surface during operation, the slider including at least one foot extending from the bearing surface in a direction toward the data surface and the at least one foot having a hardness which varies in the direction toward the data surface.

10. A slider adapted to support transducer elements relative to a data surface of a disc drive, comprising:

a bearing having a bearing surface for operating the slider for proximity recording, said slider including at least one foot extending from the bearing surface, the at least one foot being formed of a variable hardness along the extent of the at least one foot.

#### THE PRIOR ART

The references relied on by the examiner to support the final rejection are:

Fontana, Jr. et al. (Fontana)	5,734,519	Mar. 31, 1998
Kasamatsu et al. (Kasamatsu)	5,841,608	Nov. 24, 1998

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#### THE REJECTIONS

Claims 1-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kasamatsu in view of Fontana.

Attention is directed to appellant's main and reply briefs (Paper Nos. 11 and 13) and to the examiner's answer (Paper No. 12) for the respective positions of the appellant and the examiner with regard to the merits of the rejection.

#### DISCUSSION

Kasamatsu, the examiner's primary reference, discloses a variety of slider embodiments for use in data storage systems. Although each slider embodiment includes projections which correspond to the feet recited in the appealed claims, the examiner has determined (see page 4 in the answer) that these projections do not respond to the limitations in the claims pertaining to the variable hardness of the feet.<sup>2</sup>

Fontana relates to "magnetic recording disk files (or 'drives'), and in particular to such files of the contact recording type where the recording transducer (or 'head') is in contact with the magnetic recording disk during read and write

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<sup>2</sup> Upon return of the application to the technology center, the examiner should reassess this determination in light of the projection embodiment shown and discussed by Kasamatsu in Figures 10(A)-(C) and column 15, lines 10-44.

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operations" (column 1, lines 6-10). According to Fontana, it is "extremely difficult to assemble the disk file so that the head pole piece is perfectly aligned and in complete contact with the disk" (column 1, lines 47-49). To address this difficulty, Fontana teaches:

a contact recording disk file with a head-suspension assembly having a head carrier with a dual-layer wear pad. The outer wear layer of the pad is relatively soft compared to a harder inner wear layer. The outer wear layer wears away at a relatively rapid rate during initial wear-in of the head carrier. In this manner the head pole piece, which extends into the wear pad, is rapidly put into contact with the disk, thereby compensating for initial misalignment of the wear pad with the surface of the disk. In the preferred embodiment, both the outer and inner wear layers are formed of essentially amorphous carbon, with the inner layer being doped with various amounts of hydrogen to control wear resistance. In another embodiment the two layers are formed as an essentially single continuous layer, with the hydrogen concentration increasing or decreasing across the thickness of the layer [column 1, line 64 to column 2, line 12].

In proposing to combine Kasamatsu and Fontana to reject the appealed claims, the examiner concludes that:

it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the . . . feet of Kasamatsu et al ('608) with a hardness gradient as taught by Fontana, Jr. et al ('519). The rationale is as follows: one of ordinary skill in the art would have been motivated to make the . . . feet of the slider have a hardness gradient that goes from hard to soft as the feet extend towards the disk surface as doing this would protect the disk from damage through contact with the feet because the soft part of the feet would be able to wear away and

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"conform" to the particular topography of the disk. In addition, the hard part of the feet would ensure a long operating life of the slider [answer, pages 4-5].

The examiner's position here is not well founded. As indicated above, Fontana's dual-layer wear pad compensates for initial misalignment between a head pole piece and the surface of a disk. This problem is specific to "contact" data storage systems and has no reasonable relevance to "non-contact" or "flying" systems of the type disclosed by Kasamatsu. The only suggestion for combining Kasamatsu and Fontana in the manner proposed by the examiner stems from hindsight knowledge impermissibly derived from the appellant's disclosure.

Hence, the combined teachings of Kasamatsu and Fontana, as applied above, do not justify the examiner's conclusion of obviousness. Accordingly, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of claims 1-18 as being unpatentable over Kasamatsu in view of Fontana.

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REVERSED

JOHN P. McQUADE	)	
Administrative Patent Judge	)	
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	)	
	)	BOARD OF PATENT
JEFFREY V. NASE	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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	)	
	)	
JENNIFER D. BAHR	)	
Administrative Patent Judge	)	

JPM/gjh

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INTERNATIONAL CENTRE - SUITE 1600  
900 SECOND AVENUE SOUTH  
MINNEAPOLIS, MINNESOTA 55402-3319