

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MASANOBU SUGIYAMA

Appeal No. 1995-2838
Application 07/966,707¹

HEARD: September 13, 2001

Before JERRY SMITH, BARRETT, and FLEMING, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed October 26, 1992, entitled "Magnetic Tape Cassette Slider Lock Mechanism With Tapered Surfaces And Coil Spring Bias," which claims the foreign filing priority benefit under 35 U.S.C. § 119 of Japanese Applications 3-097379 and 3-097380, filed October 30, 1991.

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This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1, 3, and 4.

We affirm-in-part.

BACKGROUND

The disclosed invention is summarized by Appellant in the Concise Summary of the Invention (Brief, pp. 2-3).

Claim 1 is reproduced below.

1. A tape cassette comprising:

(a) a cassette housing composed of an upper cassette part and a lower cassette part and which accommodates therein a pair of tape hubs around which a magnetic tape is wound;

(b) a slider slidably attached to said cassette housing so as to open and close a lower surface opening portion of said cassette housing;

(c) a slider lock portion having an engagement protrusion and being provided on said lower cassette part to lock said slider at a predetermined position;

(d) an engagement aperture bored through said slider for engagement with said slider lock portion having an inclined portion tapered toward an outside of said slider formed on one end face of said engagement aperture and opposing said engagement protrusion of said slider lock portion provided on said lower cassette part, in which said engagement protrusion is formed with a complementary tapered surface for engaging the inclined portion of said engagement aperture; and

resilient means arranged between said upper cassette part and said engagement protrusion for spring-biasing said slider lock portion in a direction in which said

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engagement protrusion of said slider lock portion is engaged with said engagement aperture in said slider.

The Examiner relies on the following prior art:

Sumida et al. (Sumida)	4,660,784	April 28, 1987
Satoh et al. (Satoh)	4,853,816	August 1, 1989
Katagiri et al. (Katagiri)	5,144,511	September 1, 1992 (filed August 19,

1991)

Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sumida and Katagiri.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sumida, Katagiri, and Satoh.

We refer to the final rejection (Paper No. 7) and the examiner's answer (Paper No. 19) (pages referred to as "EA__") for a statement of the Examiner's position, and to the appeal brief (Paper No. 18) (pages referred to as "Br__") and the reply brief (Paper No. 20) (pages referred to as "RBr__") for Appellant's arguments thereagainst.

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OPINION

Claims 1 and 3

Sumida, Figs. 5-8 and 29 and the corresponding descriptions, teaches the subject matter of claim 1 except for the underlined limitations below:

(d) an engagement aperture bored through said slider for engagement with said slider lock portion having an inclined portion tapered toward an outside of said slider formed on one end face of said engagement aperture and opposing said engagement protrusion of said slider lock portion provided on said lower cassette part, in which said engagement protrusion is formed with a complementary tapered surface for engaging the inclined portion of said engagement aperture

The issue is whether these limitations would have been obvious over the teachings of Katagiri.

In the final rejection, the Examiner found that "Katagiri et al show in figure 6 and 7 a protrusion 6a having a complementary tapered surface 6b engaging an inclined tapered surface 8c of slider 4" (FR3) and concluded that it would have been obvious to add these features to Sumida. Appellant argues that the inclined surface in Fig. 6 is tapered to the inside

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slider were slid in a rearward direction, as in the present invention (Br8).

We agree with Appellant. Because the Examiner relies on both Figs. 6 and 7, we interpret the rejection as relying on the wall surface 8c' in Fig. 6 and the correspondingly inclined lower portion of wall surface 8c" shown in contact with surface 6b in Fig. 7 as the claimed "inclined portion tapered toward an outside of the slider," because these are the common inclined surfaces in both figures. It is not fair to interpret the final rejection, as stated, as referring to the portion of the wall surface 8c" inclined outward at the upper edge in Fig. 7 (col. 5, lines 9-12) because it does not find any correspondence in Fig. 6. Because the wall surface 8c' in Fig. 6 and the lower portion of the wall surface 8c" in Fig. 7 are tapered away from the outside of the slider, it does not meet the claim limitation of an "inclined portion tapered toward an outside of said slider." The rationale in the final rejection is not persuasive.

In the examiner's answer, the Examiner finds that "Katagiri et al shows in figure 7 protrusion 6a including a complementary tapered surface engaging the inclined surface

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tapered toward an outside of slider 4" (EA4). The statement of the rejection is not specific about which surface in Fig. 7 is referred to. By itself, we would interpret the statement as referring to the lower portion of the wall surface 8c" to be consistent with the final rejection. However, later in the examiner's answer the Examiner states (EA7):

Figure 7, does show what Appellant purports Katagiri discloses: inclined surface 8c" tapered toward the inside of slider 4 and engaging complementary tapered surface 6b; however, Katagiri additionally shows surface 8c" inclined and tapered toward an outside of slider 4 and engaging complementary tapered surface 6a, as set forth in appealed claim 1. Moreover, since Appellant recites "A tape cassette comprising:" in line 1 of claims 1 and 4, the applied references are not precluded from disclosing inclined surface tapered inwardly as well as outwardly.

Thus, in the examiner's answer, the Examiner for the first time asserts that he relies on the upper portion of the wall surface 8c" which is capable of engaging the rear tip face of protrusion 6a, as opposed to the lower portion of the wall surface 8c" which actually engages the rear end face of protrusion 6a. Appellant had an opportunity to respond in the reply brief.

Appellant responds that the tapered portion with the surface 8c" is not tapered toward an outside (RBr1-2). As to

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the Examiner's statement that the claims do not preclude inclined surfaces tapered inwardly as well as outwardly, Appellant argues that claims 1 and 4 are not in means-plus-function format and, thus, 35 U.S.C. § 112, sixth paragraph, does not apply (RBr2).

These arguments do not answer or show error in the Examiner's rejection and reasoning as stated at EA7.

At the oral hearing we asked what claim language precludes the Examiner's application of Katagiri in the manner discussed, but did not get a persuasive answer. We have carefully studied claim 1 and conclude that it does not patentably define over the combination of Sumida and Katagiri.

The upper portion of the wall surface 8c" in Fig. 7 of Katagiri which is inclined outward (col. 5, lines 9-12) is "an inclined portion tapered toward an outside of said slider formed on one end face of said engagement aperture," as claimed. Note that this limitation only requires the inclined portion to be on "one end face of said engagement aperture," which is consistent with Katagiri and with Appellant's Fig. 4A which shows an aperture with a vertical surface and an inclined surface.

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The upper portion of the wall surface 8c" opposes and engages the locking projection 6a during a portion of its motion (col. 5, lines 12-16) and, so, satisfies the limitation of "an inclined portion . . . opposing said engagement protrusion of said slider lock portion provided on said lower cassette part."

The surface of the locking projection 6a (engagement protrusion) has approximately the same taper as the upper portion of the wall surface 8c" and, therefore, "is formed with a complementary tapered surface for engaging the inclined portion of said engagement aperture." The limitation "complementary tapered surface" does not require that the inclined angles of the inclined portion of the engagement aperture and the tapered surface of the engagement protrusion be substantially the same; however, Fig. 7 of Katagiri does show the taper angles to be substantially identical. We note that the limitation "for engaging" does not require that the engagement protrusion is presently engaged with the inclined portion of the engagement aperture, but only requires that it is capable of engaging at some undetermined time. In this regard, we observe that the inclined surfaces of the

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engagement aperture and the engagement protrusion in Appellant's invention do not appear to be engaged with one another in the locked position shown in Fig. 4A. In Fig. 4A, the aperture has a small vertical edge below the inclined surface 8c1 which abuts a vertical face of the engagement protrusion 3d so the engagement protrusion must be lifted slightly by a lock releasing mechanism on the tape deck before the inclined surfaces on the aperture and protrusion can come in contact; if this were not so, the slider would easily slide backwards and would not be locked securely. Thus, the fact that the locking projection 6a in Katagiri must be lifted before its tapered portion comes into contact with the inclined upper portion of the wall surface 8c" is not precluded by claim 1 and is, in fact, consistent with Appellant's own disclosure. It is noted that a previous limitation in claim 1 that the tapered surface of the engagement protrusion engages the inclined surface of the engagement aperture in a locked condition has been removed (Paper No. 11).

For the reasons discussed above, we conclude that the combination of references provides sufficient evidence to

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establish a prima facie case of obviousness. The rejection of claims 1 and 3 is sustained.

We have sustained the rejection of claims 1 and 3 because Katagiri teaches a structure which happens to satisfy the broad claim language. However, we note that Emori, U.S. Patent 4,673,145, of record, expressly discloses, in Figs. 11A-11C and the corresponding descriptions, an engagement aperture (hole 52) with an outwardly tapered edge (52a) that engages a complementary tapered surface of an engagement protrusion (locking head 55). Emori also discloses that the projection 9 on the tape deck has a tapered rear end 9b. Thus, Emori expressly teaches tapered surfaces to facilitate smooth disengagement of the engagement protrusion and is clearly a better reference than Katagiri. Emori was applied in an anticipation rejection in the first Office action (Paper No. 6), in response to which Appellant amended claim 1. None of Appellant's arguments in response (Paper No. 7) persuade us that Emori does not show the engagement protrusion formed with a complementary tapered surface for engaging the inclined portion of the engagement aperture.

Claim 4

Sumida, Figs. 5-8 and 29 and the corresponding descriptions, teaches the subject matter of claim 4 except for the limitations of subparagraphs (d)-(f). As to limitation (d), we conclude that this limitation would have been obvious given the teachings of Katagiri for the reasons discussed in the analysis of claim 1. We also note the relevance of Emori.

As to limitation (f), the Examiner finds that Satoh, Fig. 2, teaches a spring with a "tight winding portion" and one end bent inward, and that Satoh, column 2, lines 11-29, discloses a "pin supporting portion" created by the bent-in portion that exerts force on the outer diameter of pin 108 (EA5). The Examiner concludes that it would have been obvious to replace the spring and casing arrangement of Sumida (presumably referring to the arrangement of Fig. 29) with the spring and protruding pin arrangement of Satoh because they are comparable arrangements or art recognized equivalents functioning similarly (EA6).

Appellant argues that the language "at least one end portion of said slider lock spring is bent toward an inside of a coil portion of said spring to form a pin supporting portion which is wound around said protruded pin" in claim 4 requires

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that the pin supporting portion is wound around the protruded pin (Br11-12). It is argued that the torsion spring in Satoh is distinguishable from the coil spring in claim 4 for several reasons: (1) Satoh describes a torsion spring, while claim 4 recites a coil spring for biasing the slider lock portion in a downward direction; (2) the spring in Satoh biases the slider towards a closed position and does not bias the slider lock member in a downward position, as claimed; (3) the bent-in portion of the torsion spring in Satoh engages a groove 112 formed in the boss 108 and is not wound around the pin as claimed.

We disagree with the Examiner's reasons. The torsion spring in Satoh biases the slider and is not "interposed between the slider lock portion and said upper cassette part, said slider lock portion being spring-biased by said slider lock spring," as claimed. Therefore, even assuming the proposed modification were made, the combination does not provide the claimed structure or function. In addition, the bent-in portion of the spring 106 in Satoh is inserted into the groove 112 and is not "wound around said protruded pin," as recited. For these two reasons, we conclude that the

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Examiner has failed to establish a prima facie case of obviousness with respect to claim 4. The rejection of claim 4 is reversed.

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CONCLUSION

The rejection of claims 1 and 3 is sustained.

The rejection of claim 4 is reversed.

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
LEE E. BARRETT)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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