

BESCHWERDEKAMMERN  
DES EUROPÄISCHEN  
PATENTAMTS

BOARDS OF APPEAL OF  
THE EUROPEAN PATENT  
OFFICE

CHAMBRES DE RECOURS  
DE L'OFFICE EUROPEEN  
DES BREVETS

**Internal distribution code:**

- (A) [ ] Publication in OJ  
(B) [ ] To Chairmen and Members  
(C) [X] To Chairmen

**D E C I S I O N**  
of 7 August 1996

**Case Number:** T 0085/95 - 3.5.2

**Application Number:** 90303079.9

**Publication Number:** 0389279

**IPC:** G11B 23/04

**Language of the proceedings:** EN

**Title of invention:**  
A tape cassette having a front lid and a back lid

**Applicant:**  
SONY CORPORATION

**Opponent:**  
-

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 56

**Keyword:**  
"Inventive step - yes, after amendment"

**Decisions cited:**  
-

**Catchword:**  
-



Europäisches  
Patentamt

European  
Patent Office

Office européen  
des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 0085/95 - 3.5.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.2  
of 7 August 1996

**Appellant:** SONY CORPORATION  
7-35 Kitashinagawa 6-chome  
Shinagawa-ku  
Tokyo 141 (JP)

**Representative:** Purvis, Williams Michael Cameron  
D. Young & Co.  
21 New Fetter Lane  
London EC4A 1DA (GB)

**Decision under appeal:** Decision of the Examining Division of the European  
Patent Office posted 13 September 1994 refusing  
European patent application No. 90 303 079.9  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** W. J. L. Wheeler  
**Members:** A. G. Hagenbucher  
C. Holtz

## Summary of Facts and Submissions

I. The appeal contests the decision of the Examining Division to refuse European patent application No. 90 303 079.9. The reason given for the refusal was that the subject-matter of the single claim then on file did not involve an inventive step, having regard to the following prior art:

D1: AT-B-379 462 (D1': GB-A-2 115 782 belongs to the same patent family and is referred to herein for language reasons at the appellant's request).

II. In reply to a communication from the Board, the appellant filed a new single claim and new pages 1, 2, 3, 5 and 6 of the description with the letter dated 3 July 1996, received 5 July 1996.

III. The single claim is now worded as follows:

"An 8 mm tape cassette (1) containing a magnetic tape (15) which extends across a front wall (20) of the cassette (1), comprising:

(a) a cassette housing (10);

(b) an outer-lid (23) rotatably attached to the cassette housing (10);

(c) an inner-lid (32) rotatably attached to the outer-lid (23) and shaped such that when the outer-lid (23) and the inner-lid (32) are both in a closed position, the tape (15) extending across the front wall (2) of the cassette housing (10) is accommodated in a space formed between the outer-lid (23) and the inner-lid (32); and

(d) guide means (36, 37) to control the attitude of the inner-lid (32) during opening or closing movement of the inner-lid (32), such that when the inner-lid (32) is in motion, a clearance (L) between a bottom portion (40) of the inner-lid (32) and an upper edge of the tape (15) is maintained, the guide means comprising a groove (37) formed in the inside of the cassette housing (10) with an upper portion of the groove (37) shaped as an arc;

characterized in that;

(e) the magnetic tape (15) is a vapour-deposited tape wherein a magnetic layer of the tape is formed as a metal layer;

(f) the clearance (L) between the bottom portion (40) of the inner-lid (32) and the upper edge of the tape (15) is maintained greater than 1.5 mm; and

(g) the curvature radius (R) of the upper portion of the groove (37) from a rotation centre of the outer-lid (23) is between 5.0 and 6.0 mm."

IV. The appellant argued essentially that in connection with the use of a metal layer tape (see feature (e) in the claim) in a tape cassette a cupping phenomenon was discovered. If such cupping phenomenon occurred then the clearance between the bottom edge of the inner-lid of the cassette and edges of the tape could be reduced to an extent that contact could be made. Such tape contact could result in damage to the tape and deterioration of the data stored on the tape. Already the discovery by the appellant of the cupping phenomenon and its possible effect was of importance. The features (f) and (g) achieved a solution to the new problem in spite of the severe constraints on designers of 8 mm tape cassettes for the amount of space that could be provided for the

tape in its pass between the inner-lid and the outer-lid and particularly the clearances between the inner-lid and the outer-lid and tape during opening and closing of the lids. Features (f) and (g) were by no means the only features which could have been chosen to avoid the risk of contact between the lower edge of the inner-lid and the tape. The danger due to the cupping phenomenon and the risk of slackness in the tape if the tape was ejected at high speed from a tape recorder could have been reduced in many different ways, e.g. by profiling the tape guide 16 and/or by reel locking means incorporating spring bias to rotate the reels in a direction to raise the tension in the tape stretched between the inner and outer-lids. The combination and specific selection of features (f) and (g) involved an inventive step.

V. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the application in its present form, namely:

**Claim:** filed with the letter of 3 July 1996  
(received 5 July 1996)

**Description:** pages 1, 2, 3, 5 and 6 filed with the  
letter of 3 July 1996 (received 5 July  
1996)  
page 4 filed with letter of 17 November  
1993 (received 20 November 1993)

**Drawings:** sheets 1/4 to 4/4 as originally filed.

### Reasons for the Decision

1. The appeal is admissible.
2. The features recited in the single claim were all disclosed in combination in the application documents as originally filed. In the opinion of the Board, the present form of the application does not infringe Article 123(2) EPC.
3. Document D1/D1' does not describe an 8 mm tape cassette with the features (e), (f) and (g). Thus, the subject-matter of the single claim is novel within the meaning of Article 54 EPC.
4. *Inventive step*
  - 4.1 D1 is the only prior art document considered in the decision under appeal. Apart from the fact that D1/D1' does not mention that the described tape cassette is an 8 mm cassette, it discloses all the features in the preamble of the present claim. It would be understood by persons skilled in the art, however, that the embodiment shown in D1/D1' is that of an 8 mm tape cassette. D1/D1' discloses a tape cassette with an outer-lid and an inner-lid so shaped that when the two lids are in closed positions the tape extending across the front wall of the cassette is housed in a space between the lids. Guide means are provided to control the attitude of the inner-lid during opening and closing movements thereof such that a clearance is maintained between a bottom edge of the inner-lid and an upper edge of the tape at all times. Although D1/D1' (cf. page 2, lines 113 to 118 of D1') assumes the presence of sufficient space between the lower edge of the outer-lid and the lower edge of the inner-lid, it has turned out that in a situation

where the outer-lid and inner-lid are rotated in their closing directions, the clearance between the top of the inner-lid and the upper edge of the magnetic tape is small. Thus, if the magnetic tape is slightly slack, or if the speed at which the tape cassette is ejected from the tape recorder is high, shock brought about by the elevation of the cassette compartment may cause the lower edge of the inner-lid to touch the top edge of the tape. Thereby the tape may be damaged. In particular, if the magnetic layer of the tape is a metal layer very slight damage to the tape may cause a crack in the metal layer, leading to noise during reproduction.

4.2 In the Board's opinion, starting from D1/D1', the problem to be solved by the present invention is to provide an 8 mm tape cassette which allows the use of a vapour-deposited tape with a metal layer without a danger of damaging the tape.

4.3 Solution

This problem is essentially solved by features (f) and (g) of the present claim. The maintenance of the clearance (L) defined in feature (f) is achieved with the help of the curvature radius (R) defined in feature (g). The dimensions indicated in features (f) and (g) take account of the cupping phenomenon discovered by the appellant in connection with a magnetic tape as defined in feature (e) of the claim.

4.4 Although according to D1/D1' (page 2, lines 113 to 118 of D1') the space between the lower edge of the outer-lid and the lower edge of the inner-lid is large enough to avoid damage to the tape, D1/D1' does not suggest that the distance between the bottom portion of the inner-lid and the upper edge of the tape may be problematic. D1/D1' does not hint at specific problems

with metal layer tapes (see feature (e) of the present claim), especially a cupping phenomenon. All the less can a person skilled in art be encouraged by this prior art to find the value of clearance (L) and curvature radius (R) as defined in features (f) and (g) recited in the claim for solving a problem first recognised by the appellant. The Board therefore concludes that the subject-matter of the single claim involves an inventive step within the meaning of Article 56 EPC.

- 4.5 In the opinion of the Board the single claim is allowable. The amended application documents meet the requirements of the EPC.

#### Order

For these reasons it is decided that:


1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to grant a patent according to appellant's request (see paragraph V above).

The Registrar:



M. Kiehl

The Chairman:



W. J. L. Wheeler