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(72) Inventor: **Randa, Stuart Karl**
Wilmington, Delaware 19803 (US)

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(74) Representative: **Matthews, Derek Peter**
Frank B. Dehn & Co.,
European Patent Attorneys,
179 Queen Victoria Street
London EC4V 4EL (GB)

(71) Applicant: **E.I. DU PONT DE NEMOURS & CO.**
(INC.)
Wilmington Delaware 19898 (US)

(54) **Friction-reducing elements for sports racquet strings**

(57) A fluoropolymer element for insertion between the strings of a tennis racquet or similar sports device to facilitate the relative movement of the strings under the force of impact of a ball or other object.

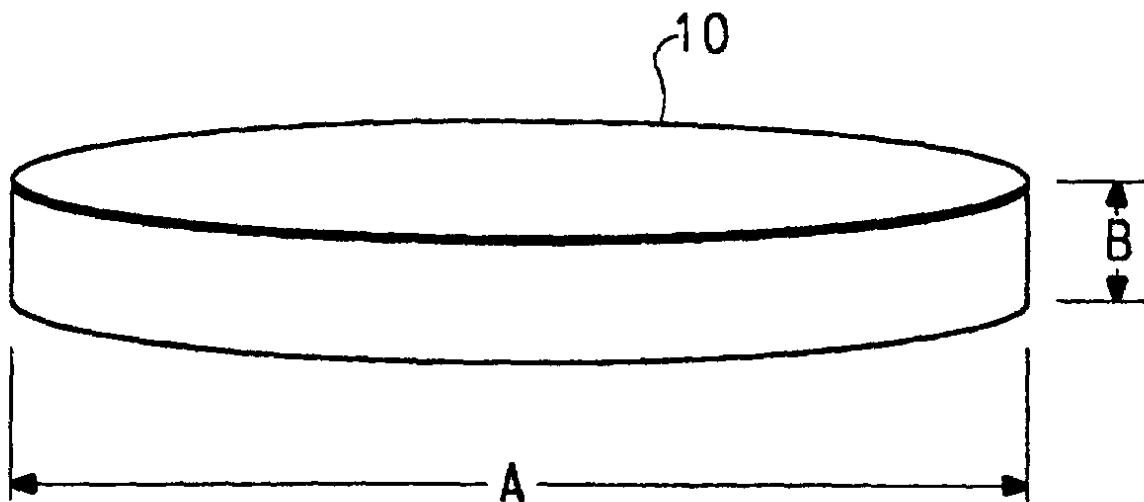


FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 00 30 6923

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|--|--|---|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
| A | DE 72 44 104 U (DISCHINGER) 11 August 1977 (1977-08-11) * page 7, paragraph 2 * * page 12, paragraph 2 - page 13, paragraph 3; claim 5; figures 4-9 * --- | 1-6, 14, 16 | A63B51/10 B32B27/06 B32B27/12 |
| A | FR 721 797 A (TAUFENECKER) 8 March 1932 (1932-03-08) * the whole document * --- | 1,3,5,6, 16 | |
| A | BE 1 005 108 A (LALOO ET AL.) 20 April 1993 (1993-04-20) * page 4, line 24 - page 5, line 20; claim 5; figure 1 * --- | 1-4,6 | |
| A | DE 29 22 631 A (FISCHER) 4 December 1980 (1980-12-04) * the whole document * --- | 1,3,5-7, 15,16 | |
| A | FR 640 448 A (MARCORELLES) 12 July 1928 (1928-07-12) * the whole document * --- | 1,3,5-7, 16 | TECHNICAL FIELDS SEARCHED (Int.Cl.7) |
| A | AU 53261 79 A (ALDRICH) 4 June 1981 (1981-06-04) * page 5, line 18 - page 7, line 20 * * page 12, line 15 - line 17; claim 2; figures 1-4 * --- | 1,3,5,6, 14,16 | A63B B32B |
| A | DE 87 15 155 U (BROWNWOOD INTERNATIONAL) 14 January 1988 (1988-01-14) * the whole document * --- | 1-4 | |
| A | FR 2 687 324 A (SIGUIER) 20 August 1993 (1993-08-20) * page 4, line 22 - page 7, line 29; figures 1-3 * --- | 1,2,16 | |
| | | -/-- | |
| The present search report has been drawn up for all claims | | | |
| Place of search | | Date of completion of the search | Examiner |
| THE HAGUE | | 7 October 2003 | Williams, M |
| CATEGORY OF CITED DOCUMENTS | | | |
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Application Number
EP 00 30 6923

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|--|--|---|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
| A | GB 24856 A A.D. 1913 (GRATIEUX) 2 April 1914 (1914-04-02) * page 2, line 10 - line 32; figures 1-3 * ---- | 1,3,5,6, 16 | |
| D,A | US 4 368 886 A (GRAF) 18 January 1983 (1983-01-18) * the whole document * ----- | 1,16 | |
| | | | TECHNICAL FIELDS SEARCHED (Int.Cl.7) |
| | | | |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 7 October 2003 | Examiner Williams, M |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |

EPO FORM 1503 03.82 (P04C01)

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ON EUROPEAN PATENT APPLICATION NO.**

EP 00 30 6923

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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07-10-2003

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|---|--|
| DE 7244104 | U | | NONE | |
| FR 721797 | A | 08-03-1932 | NONE | |
| BE 1005108 | A | 20-04-1993 | BE 1005108 A3 | 20-04-1993 |
| DE 2922631 | A | 04-12-1980 | DE 2922631 A1 DE 2954073 C2 | 04-12-1980 03-04-1986 |
| FR 640448 | A | 12-07-1928 | NONE | |
| AU 5326179 | A | 04-06-1981 | NONE | |
| DE 8715155 | U | 14-01-1988 | DE 8715155 U1 | 14-01-1988 |
| FR 2687324 | A | 20-08-1993 | FR 2687324 A1 | 20-08-1993 |
| GB 191324856 | A | | NONE | |
| US 4368886 | A | 18-01-1983 | AT 367305 B AT 374680 A AU 539216 B2 AU 7283881 A DE 3127552 A1 FR 2493158 A1 GB 2080124 A ,B | 25-06-1982 15-11-1981 13-09-1984 21-01-1982 03-06-1982 07-05-1982 03-02-1982 |

EPO FORM P 0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82