Title: IMPROVED SHEAVE DESIGN

Abstract: In an elevator sheave for a flat belt, the optimum crown height is within a range of approximately 0.033 to about 0.003 times the width of the elevator rope. The optimum radius is in the range of about 16.67 to about 50.00 times the width of the elevator rope. Both the crown height (h) and the crown radius (rc) may be expressed as a function of belt width (wb). The groove width (wg) is in the range of approximately 1.5 to 2.25 times the width of the belt (wb). A circumferential surface roughness of about 1.0 to 3.0 is applied. A hard, thin surface coating can be applied to enhance durability while maintaining traction.
**INTERNATIONAL SEARCH REPORT**

**International Application No.**
PCT/US 00/08108

**A. CLASSIFICATION OF SUBJECT MATTER**

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<th>IPC</th>
<th>Class</th>
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According to International Patent Classification (IPC) or to both national classification and IPC.

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols):

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched:

Electronic data base consulted during the international search (name of data base and, where practical, search terms used):

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>X</td>
<td>EP 0 356 798 A (BANDO CHEMICAL IND)</td>
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<td>7 March 1990 (1990-03-07) abstract column 1, line 40 - column 2, line 9 claims; figures</td>
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<td>X</td>
<td>FR 1 131 923 A (RENÉ CHAVAND)</td>
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<td>1 March 1957 (1957-03-01) page 2, left-hand column, paragraph 5 - right-hand column, paragraph 1; figures</td>
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

**Date of the actual completion of the international search**

21 July 2000

**Date of mailing of the international search report**

13.11.2000

**Name and mailing address of the ISA**

European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk, Tel (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016

Authorized officer

SALVADOR D.F.
INTERNATIONAL SEARCH REPORT

Box I  Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
   because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II  Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☑ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

   1-7

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☒ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet (1)) (July 1998)
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-7
   Dimensioning and shape of the sheave contact surface engaging a flat rope

2. Claims: 8-14
   Composition of the sheave contact surface engaging a rope
<table>
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