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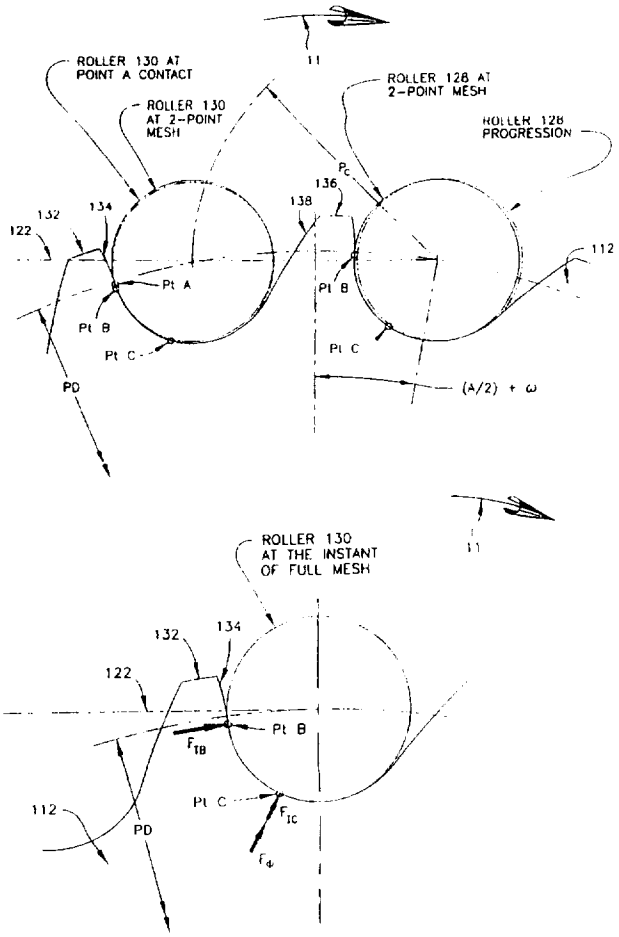
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(54) **Title:** RANDOM ENGAGEMENT ROLLER CHAIN SPROCKET HAVING IMPROVED NOISE CHARACTERISTICS

(57) Abstract

A unidirectional roller chain sprocket (112) for use primarily in automotive engine drive chain applications which incorporates an asymmetrical tooth for improved noise reduction. The sprocket (112) includes a first plurality of sprocket teeth (132) each having a first engaging flank (134) with a first contact point at which a roller (128) contacts the first engaging flank (134), and a second plurality of sprocket teeth (136) each having a second engaging flank with a second contact point at which a roller (128) contacts the second engaging flank. The first engaging flanks (134) include a flank flat (144) which facilitates spacing the first contact point on the first engaging flank (134) relative to the second contact point on the second engaging flank to effect a time delay between an initial roller to first sprocket tooth contact and an initial roller to second sprocket tooth contact. The flank flat (144) is tangent to an engaging flank radius Rf and a first root radius. The asymmetrical tooth profile may also incorporate one or more inclined root surfaces which provide tooth space clearance for maintaining the chain rollers in hard contact with the root surface in the sprocket wrap, or added pitch mismatch wherein the sprocket chordal pitch is less than the chain link pitch to facilitate a "staged" roller-tooth contact as a roller (128) moves into full mesh from an initial tangential impact at the flank flat (144).



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/13076

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :F16H 7/06
US CL : 474/156, 900

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)

U.S. : 474/152, 153, 155, 156, 900

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

NONE

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

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,016,772 A (CLEMENS ET AL) 12 APRIL 1977 (12/04/77) see entire document	1-25
A	US 4,116,081 A (LUTTRELL ET AL) 26 SEPTEMBER 1978 (26/09/78) see entire document	1-25
A	US 5,397,278 A (SUZUKI ET AL) 14 MARCH 1995 (14/04/95) see entire document	1-25

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