(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
28 June 2001 (28.06.2001)

PCT

(10) International Publication Number
WO 01/46603 A1

(51) International Patent Classification[7]: F16H 7/12

(21) International Application Number: PCT/US00/33939

(22) International Filing Date:
13 December 2000 (13.12.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/469,052 21 December 1999 (21.12.1999) US

(71) Applicant: THE GATES CORPORATION [US/US]; 900 South Broadway, Denver, CO 80209 (US).

(72) Inventor: SERKH, Alexander; 316 Falling Brook Drive, Troy, MI 48098-4696 (US).

(74) Agent: THURNAU, Jeffrey; The Gates Corporation, Mail Stop: 31-4-1-A3, 900 S. Broadway, Denver, CO 80209 (US).

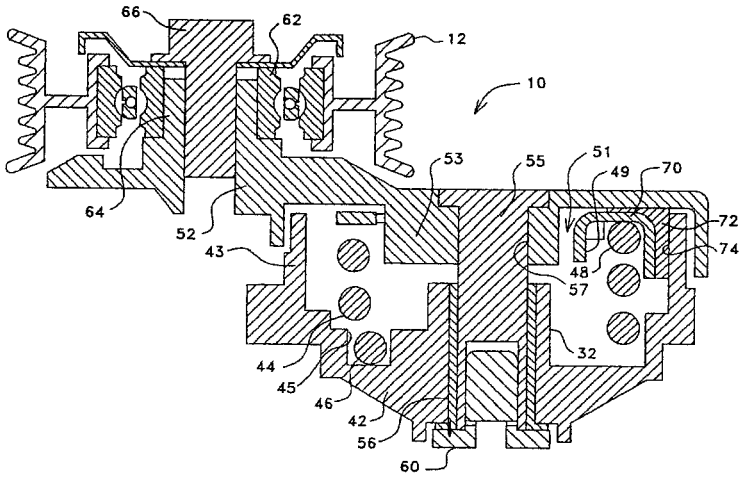
(81) Designated States *(national)*: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

Published:
— *With international search report.*
— *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TENSIONER WITH DAMPING MECHANISM



(57) Abstract: The invention comprises a tensioner (10) that is particularly useful in micro-V front end accessory belt drive systems used in automotive applications where minimum tensioner bulk combined with maximum balancing and minimum pivot bushing (56) wear in order to achieve maximum pulley (12) alignment over the expected life of the tensioner (10). The belt tensioner (10) of the invention is of the type with a base (42). A pivot-arm (52) is attached to a cylindrical member (53) that supports the pivot-arm (52) and rotates about a pivot (32) secured to the base (42). At least one sleeve-type bushing (56) is positioned on the pivot (32) and includes a bearing surface that supports the cylindrical member (53). A pulley (12) is attached to the pivot-arm (52) for engaging the belt and receives a belt load that generates a belt force component that is transmitted to the cylindrical member (53) (hub load). A torsion spring (48) having one end connected to the base (42) and another end interconnected to a damping means (51) generates a damping force component acting in the opposite direction as the belt force component. The damping means (51) is mounted substantially between the pivot-arm (52) and the bushing (56) along a plane parallel with the pivot (32).

WO 01/46603 A1