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**The Director of the United States
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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

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Michelle K. Lee

Director of the United States Patent and Trademark Office



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Chen et al.

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(54) **ELLIPTICAL EXERCISER**

(56) **References Cited**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 144 days.

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(57) **ABSTRACT**

An elliptical exerciser includes a body having two foot support links and two rotation members. The rotation members are rotated about their respective rotation pivots to drive the foot support links to move along a supporting travel and a crossing travel to complete a closed pedal trajectory. The timing adjustment wheel is pivotally connected to the body. A distance is defined between the pivot of the timing adjustment wheel and either of the rotation pivots of the rotation members. Two connecting links are pivotally connected to the timing adjustment wheel. The lengths of the two connecting links are longer than the distance. When one of the foot support links moves within the supporting travel and rotates one of the rotation members, the timing adjustment wheel drives the other foot support link to move within the crossing travel and produces speed and phase differences to be more ergonomic.

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See application file for complete search history.

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If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number and timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the United States Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.

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If this application was filed prior to June 8, 1995, the term of this patent begins on the date on which this patent issues and ends on the later of seventeen years from the date of the grant of this patent or the twenty-year term set forth above for patents resulting from applications filed on or after June 8, 1995, subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b) and any extension as provided by 35 U.S.C. 156 or any disclaimer under 35 U.S.C. 253.

4 Claims, 7 Drawing Sheets

