



US006841962B2

(12) **United States Patent**
O'Connor et al.

(10) **Patent No.:** **US 6,841,962 B2**
(45) **Date of Patent:** **Jan. 11, 2005**

(54) **RECIPROCATING LINEAR ACTUATOR**

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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 136 days.

(21) Appl. No.: **10/227,069**

(22) Filed: **Aug. 23, 2002**

(65) **Prior Publication Data**

US 2003/0042862 A1 Mar. 6, 2003

Related U.S. Application Data

(60) Provisional application No. 60/316,199, filed on Aug. 31, 2001.

(51) **Int. Cl.⁷** **G05G 5/05**

(52) **U.S. Cl.** **318/565; 318/602; 318/626**

(58) **Field of Search** **318/565, 602, 318/626, 41, 45, 119, 135, 686, 687; 388/909**

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ABSTRACT

A digitally indexed reciprocating linear actuator includes a frame and a servomotor mounted to the frame. A crank is gear-coupled with integer gear ratio to the servomotor for unidirectional rotation. An actuator slide with a non-home index point is slideably-mounted to the frame for linear motion. A connecting rod couples the crank to the actuator slide. The actuator also includes means, including a sensor, for detecting the index point at two angular positions of the crank. A wrapping machine for wrapping a plurality of articles has repeated cycles of article-handling operations and a plurality of carriages, each carriage capable of moving at least one article for wrapping. The wrapping machine includes at least one digitally indexed reciprocating linear actuator having a crank, and an actuator slide with a non-home index point. The wrapping machine records first and second servomotor angular positions on detecting the index point at first and second angular positions of the crank. The wrapping machine identifies home position as an angular position midway between the first and second positions.

18 Claims, 7 Drawing Sheets

