The sensor may be a non-contact sensor configured to generate the pulse when the target is located within a detection distance from the sensor.

[0012] According to yet another embodiment of the invention, a method of compensating for position error in a motor drive configured to control a synchronous motor is disclosed. The method includes the steps of mounting an encoder having a friction wheel to the synchronous motor such that the friction wheel engages a rotating surface of the synchronous motor, mounting a sensor ~~to the synchronous motor~~ proximate to the rotating surface of the synchronous motor, and affixing a target to the rotating surface of the synchronous motor such that the target passes the sensor once per revolution of the synchronous motor. A signal is generated with the encoder corresponding to an angular position of the friction wheel and is transmitted to a processor in the motor drive. A pulse is generated with the sensor each time the target passes the sensor and is transmitted to the processor in the motor drive. An angular position of the synchronous motor is determined in the processor as a function of the signal from the encoder and is compensated each time a pulse is received from the sensor.

[0013] These and other objects, advantages, and features of the invention will become apparent to those skilled in the art from the detailed description and the accompanying drawings. It should be understood, however, that the detailed description and accompanying drawings, while indicating preferred embodiments of the present invention, are given by way of illustration and not of limitation. Many changes and modifications may be made within the scope of the present invention without departing from the spirit thereof, and the invention includes all such modifications.

BRIEF DESCRIPTION OF THE DRAWING(S)

[0014] Various exemplary embodiments of the subject matter disclosed herein are illustrated in the accompanying drawings in which like reference numerals represent like parts throughout, and in which:

[0015] FIG. 1 is an exemplary elevator shaft incorporating a motor and motor drive utilizing a position detection system according to one embodiment of the invention;

[0016] FIG. 2 is a partial isometric view of the position detection system of Fig. 1;