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(12) **United States Patent**
Yeh

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(54) **FORWARD/REVERSE TRANSMISSION FOR SCALE MODEL VEHICLE**

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(57) **ABSTRACT**

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A forward/reverse transmission, shiftable under servo-control, includes a movable clutch bell and a free-wheeling, one-way centrifugal lock-out clutch that permits a gear change from forward to reverse or reverse to forward only while the engine is operating at or below idle speed. The centrifugal lock-out clutch includes a spring-loaded pawl which is yieldably biased by a compression spring and held in a non-interfering, shiftable position when the engine is being operated at or below idle speed. As the engine rpm increases above idle, the centripetal acceleration force overcomes the bias force of the compression spring and the pawl is extended radially outwardly for engagement with a torque transfer pin. In the radially extended position, the pawl is disposed for interference contact against the clutch bell housing, thus preventing clutch engagement/disengagement. In an alternative embodiment, the centrifugal lock-out clutch includes a pair of spring-loaded friction shoes which are biased in the retracted (non-interfering) position by torsion springs.

(51) **Int. Cl.**⁷ **F16H 3/14**

(52) **U.S. Cl.** **74/377**

(58) **Field of Search** 74/375, 396, 377, 74/333; 192/105 C, 46; 441/443

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6 Claims, 7 Drawing Sheets

