

VARIABLE SPEED MOTORS AND CONTROL THEREOF~~APPARATUS AND METHOD FOR DETECTION AND CONTROL
OF CIRCULATING CURRENTS IN A VARIABLE SPEED MOTOR~~ABSTRACT

A current regulation circuit for a variable speed motor. The motor includes a stationary assembly, having windings adapted for energization in at least one preselected sequence and a rotatable assembly in magnetic coupling relation to the stationary assembly. A power supply link connects the windings to a power supply and includes power switching devices for selectively energizing the windings in the preselected sequence by selectively connecting the power supply link to the windings to produce an electromagnetic field for rotating the rotatable assembly. The power switching devices each have a conducting state and a nonconducting state. The current regulation circuit includes a timing circuit, a current sensing circuit and a control circuit. The timing circuit defines preset periods during which each of the power switching devices may be nonconducting. The current sensing circuit senses current in the power supply link. The control circuit controls the power switching devices so that each of the power switching devices is nonconducting when the sensed current exceeds a peak current reference level during the preset periods. In this manner, the current regulation circuit controls current which circulates during periods when only one power switching device is conducting.

FIG. 1