

[54] CONTROL SYSTEM FOR VIBRATING A MEMBER AT ITS RESONANT FREQUENCY

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[58] Field of Search 318/114, 126, 127, 128, 318/129, 130

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[57] ABSTRACT

A control system is disclosed for use with a device, such as a vibratory bowl feeder, having a bowl or other member mounted for vibratory motion and including an electromagnetic driver for vibratorily driving the part. The control system includes a detector for detecting the vibratory frequency of the part, which tends to vibrate at its resonant frequency, and causes energizing pulses of power to be supplied to the driver supplied at a frequency equal to the detected frequency. Thus, the driving frequency is made equal to the resonant frequency and follows changes in such frequency to obtain maximum performance. The power to the drivers is also switched so that during alternate pulses the current flows through the driver coil in opposite directions to inhibit buildup of residual magnetism in the coil core. The control system uses a phase-locked loop circuit and other parts comprised of components most of which are available as standard integrated circuits. A means for selectively varying the amplitude of member vibration is also included in the control system.

14 Claims, 1 Drawing Figure

