

ABSTRACT OF THE DISCLOSURE

LENGTH MEASURING APPARATUS

A length measuring apparatus that uses an ultrasonic magnetostrictive delay line can detect a position with high accuracy by utilizing a reflected wave positively. In a measuring apparatus using an ultrasonic magnetostrictive delay line in which a wave transmitter (4) is disposed at one end of an ultrasonic magnetostrictive delay line (1), and the other end of the ultrasonic magnetostrictive delay line (1) is made an open end, a detecting coil (3) is wound around the outer periphery of the ultrasonic magnetostrictive delay line (1) over the whole area of the measuring range, a magnet piece (2) is disposed so as to become slidable along the ultrasonic magnetostrictive delay line (1) and a position of the magnet piece (2) is measured on the basis of a delay time of a detection pulse (B) produced in the detection coil (3) relative to a drive pulse (A) applied to the wave transmitter (4), a period (T_1) of the drive pulse (A) applied to the wave transmitter (4) is matched with a time in which a reflected wave (C) is generated at the ultrasonic magnetostrictive delay line (1) at its one end in which the wave transmitter (4) is disposed.

Figure 1