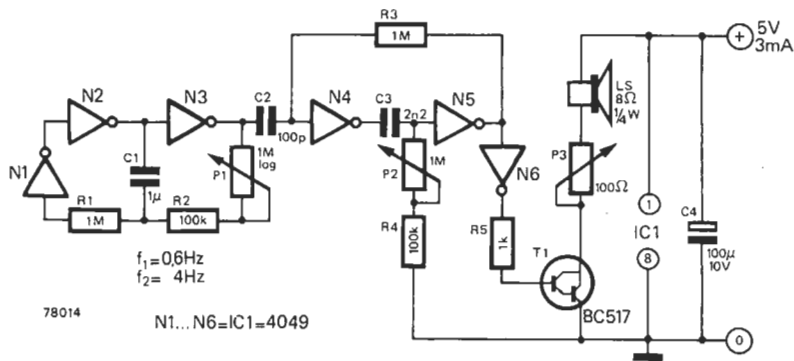
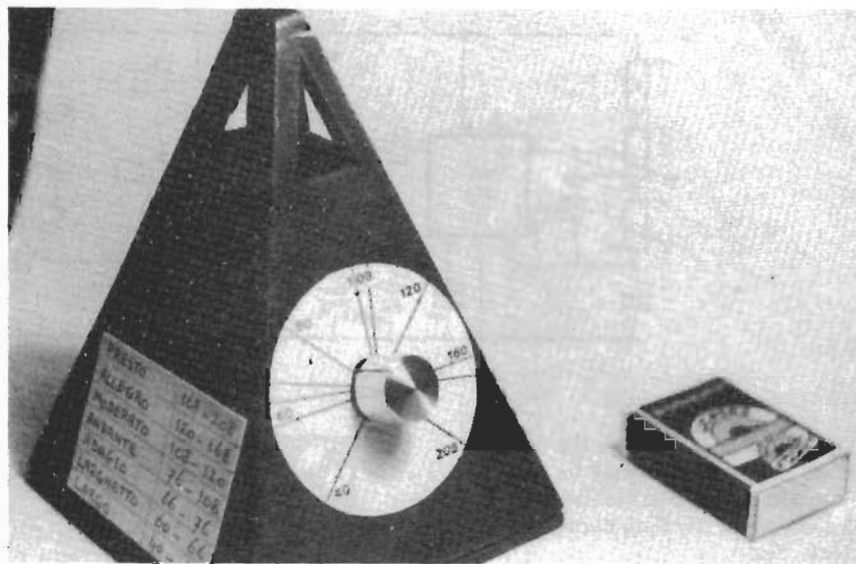


15 metronome

B. v.d. Klugt

Those of our readers who have experienced the pleasures of piano lessons during their childhood, will doubtless be all too familiar with the sound of a metronome. This is a clockwork instrument with an inverted pendulum, which can be set to beat a specific number of times per minute, the loud ticking thereby indicating the correct speed at which the passage of music should be played. Although mechanical metronomes are still used almost universally, it is, of course, also possible to achieve the desired effect electronically.

The circuit for an electronic metronome described here is distinguished, not by any revolutionary new features, but by its extreme simplicity and excellent stability. N1 to N3 form an astable multivibrator. By means of P1, the frequency of its output signal can be varied between 0.6 and 4 Hz, whilst the pulse width can be adjusted by means of P2. The latter control modifies the sound of the beat between a short 'dry' tick and a longer, fuller tone. The volume control is provided by P3, which varies the peak current through the loudspeaker between 0.5 A and 50 mA. At low resistance values of P3, the resultant large current places fairly heavy demands upon the transistor, and hence a Darlington pair was chosen. Thanks to the low duty cycle, the average current drawn by the circuit is extremely small, so that an



ordinary 4.5 V battery will suffice for the power supply. The accompanying photo shows

how the characteristic shape of the metronome can still be conserved in the electronic model.