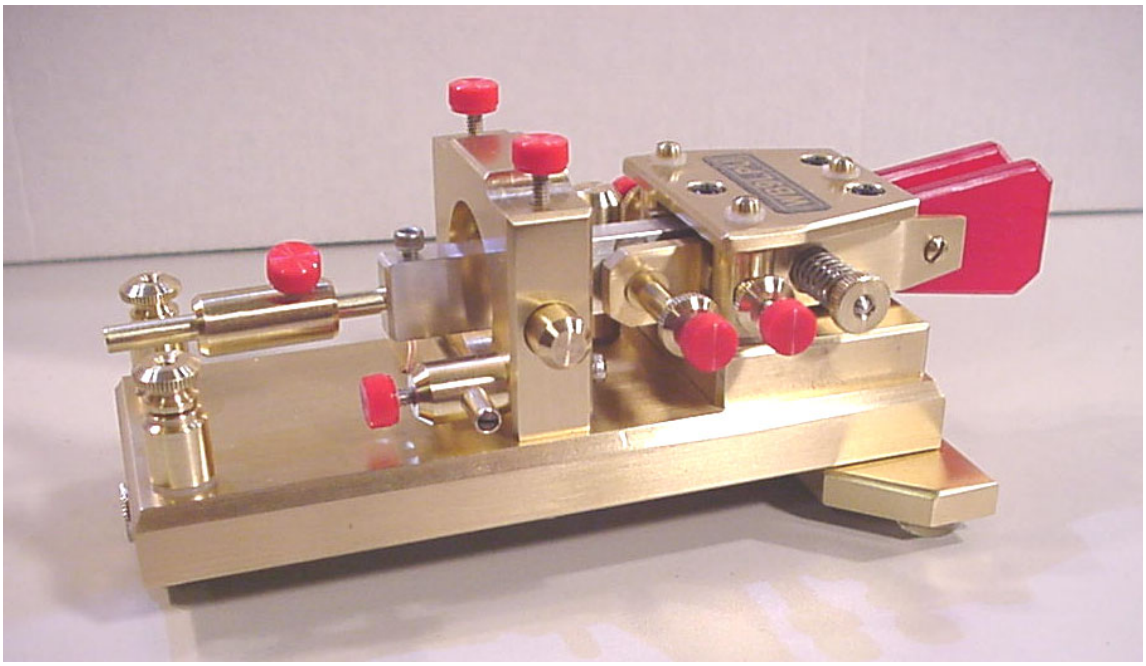
The Parkwood PaddleBug

A work in progress

By Richard Meiss, WB9LPU



This Parkwood PaddleBug is part of the ongoing design of keys, paddles, and bugs at WB9LPU. This device is another step in the investigation into the design and construction of magnetically-controlled bugs and it uses a unique approach to generate a stable and accurate dot stream.

Features –

- Combines the functionality of an *iambic paddle* and a *dual-lever semi-automatic bug*
- Brass and aluminum construction, lacquered finish
- Brass base, with acrylic plastic fingerpieces
- Small footprint – base dimensions 2.25 x 5.25 inches
- Massive construction - will not wander during operation
- Easy switchover between paddle and bug operation

As a paddle –

- Fully iambic, with individually adjustable contact spacing and tension
- Ball-bearing pivots
- Crisp action – stainless steel and brass contacts
- Has the major design features of the Parkwood Paddles

As a bug –

- Unique magnetically-operated pendulum with ball-bearing pivot
- Magnetic reed switch for “dit” contacts
- Rare-earth magnets used throughout
- Dual weights for speed adjustment
- Works well at speeds as low as 8 wpm
- Adjustable paddle tension, crisp action
- Quiet action, no mechanical damper needed
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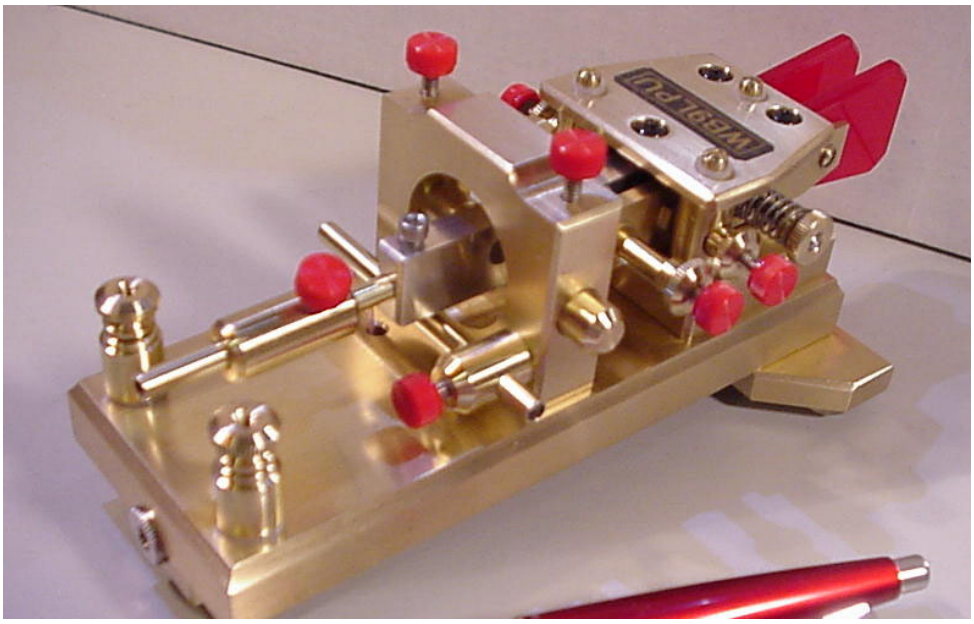
In previous Parkwood Bug designs, the pendulum oscillated between a fixed magnet and a moveable one attached to the “dit” paddle. Pressing the “dit” paddle swung the moveable magnet into position and it repelled the pendulum magnet, which then continued to oscillate as long as the magnets were in position. A magnetic reed switch closed each time another magnet passed over it. The energy input in this system was the pressing of the “dit” paddle; at rest, there was no stored energy.

In this new design, when the “dit” paddle is at rest, it pushes the pendulum away from the equilibrium point between two fixed magnets. The “dit” paddle spring must be strong enough to maintain this displacement. When the paddle is pressed, it releases the pendulum, which begins to oscillate between the two fixed magnets. The energy is put into the system when the “dit” paddle is released, and it is stored in the “dit” paddle spring.

There are several advantages to the new system. It allows a very symmetrical design, which is simpler to construct. Because the pendulum is restrained when it is brought to rest, there is little tendency for it to bounce after movement, and there is no need for a damping mechanism.

Finally, the design of the “dit” paddle arm is such that it can bear an electrical contact identical to that of the “dah” paddle. The reed-switch pickup for the pendulum is wired in series with the "dit" paddle, making it even more resistant to false keying. With proper connections, made through a phone jack on one end of the base, the instrument can serve as an iambic paddle as well as a bug.



The PaddleBug is a nice size for a small operating position (read “cluttered desktop” in my case). In this view, the two magnets that make the pendulum oscillate are seen protruding from the upright assembly with the two locking screws on top. The brass tube containing the reed switch runs below the pendulum,and moving it back and forth allows setting of the duty cycle (dot-to-space ratio) of the "dit" stream.

Slightly to the right of center are the two screws that adjust the rest position of the pendulum, and to their right are the adjustments for paddle travel and paddle tension. Some other models use magnetic tension instead of coil springs for the paddle tension.

The PaddleBug is still a work in progress, but the basic design is now reliable and very effective. Despite the fact that it has come along 100 years too late, its development has been a lot of fun, and many variations on the basic theme have been constructed.

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