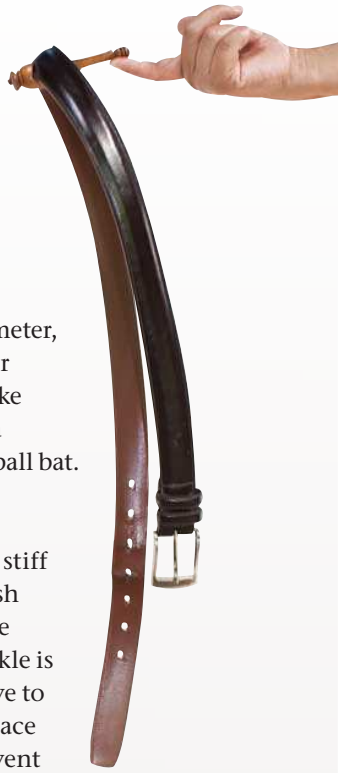
Skyhook

A new slant on an old toy

Roger Zimmermann



Peter Rand's article on kinetics (vol 27 no 1) got me thinking about a toy many of us played with as children. A skyhook toy for balancing objects was one of those magical devices that piqued the imagination: How could it hold a heavy object with no visible means of support? Just the name *skyhook* is the stuff dreams are made of.

How does it work? The principle is simple: A skyhook uses center of gravity and a belt is an integral part of the illusion—it must be made of stiff leather. Once a belt is placed into the slot, it forms itself into a long sweeping arc and its center of gravity is then under the point where the hook meets the finger. Equilibrium forces the hook into a near-horizontal position, but the observer doesn't see this subtle shift of the center of gravity. The mind is tricked into thinking the belt and skyhook should fall.

The original skyhook (or belt hook) was shaped like a pipe or a musical quarter note and was cut out of a thin, flat board. I decided to adapt the idea for woodturning. This three-dimensional design can incorporate beads, coves, grooves, and tapers.

There are two critical dimensions: (1) The angle of the slot for the belt relative to the axis of the hook must be 45 degrees. You can vary this, but when you do, it will force the belt hook to tilt itself above or below horizontal. (2) The distance from the base of the belt slot to the point where the finger will support the apparatus is 3" (76 mm). If this distance is varied, it will also affect the angle at which the skyhook will rest. You can experiment with these as you wish, depending on how you would like to see the hook position at equilibrium.

Constructing the skyhook

- Start with a block of wood about 1" × 1" × 6" (25mm × 25mm × 150mm). Pen blanks are perfect.
- Saw the belt slot while the blank is still square. The slot should be at 45 degrees and penetrate between one-half to two-thirds the way into the height of the blank.
- Chuck the end of the blank that has the saw cut into a scroll chuck, and bring up the tailstock.
- Turn the blank round and shape the skyhook. In the area of the slot, take light cuts to avoid chip-out.
- The end where the skyhook will balance on the finger should be smaller to give the illusion that there is nothing there to keep the belt from falling. But, rules are meant to be broken. The head of the skyhook can be any shape, diameter, or length. Use your imagination—make it look like a fish, a torpedo, or a baseball bat.

Use

Find the center of a stiff leather belt and push it into the slot of the skyhook. If the buckle is heavy, you may have to adjust where you place the skyhook to prevent the weight of the buckle from rotating the skyhook sideways. Balance the skyhook on the end of your finger.

Skyhooks are quick and easy to make. Take one to a party. Make them for craft fairs, gifts, and classes. They can be used as a means of drawing customers into your booth. Carry one wherever you go and create some fun! You never know when you might need one to start up a lively conversation or make a new friend. ■

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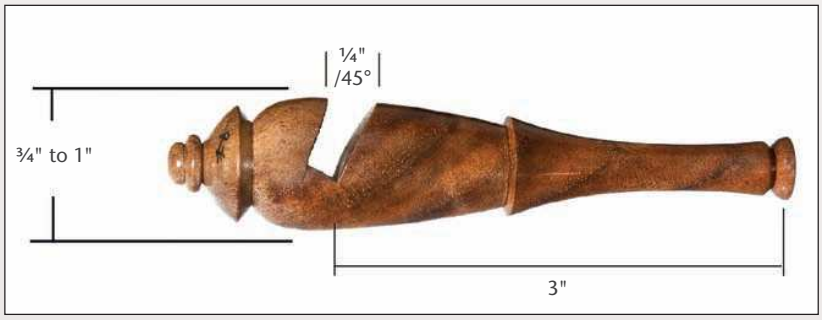

Dimensions for a successful skyhook design.

Use your imagination to personalize your skyhook designs.