

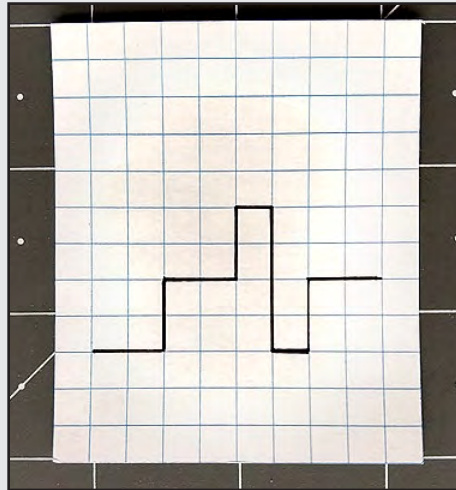
# Build the walking person

by Federico Tobon

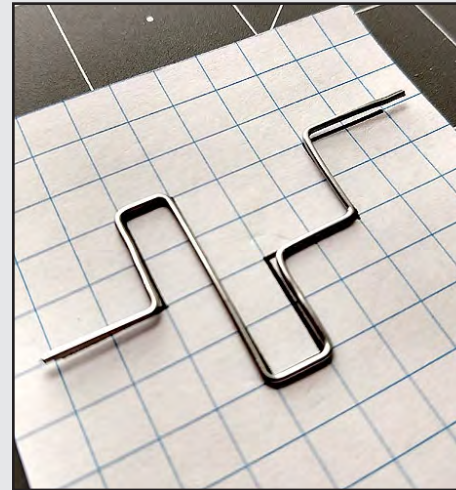
To share some tips and tricks I learned along the way, I'll show you how to build the walking person (**photo 10**). You will need a small block of wood (mine is 0.75" x 0.75" [1.9cm x 1.9cm]), a craft stick, paper, CA cement, and some wire.

I like to plan the shape of the crank on graph paper before I start bending the wire (**photo 15**), to make sure the bends are as close to being aligned and perpendicular as possible. After this, I take a more intuitive approach to measuring, using existing parts to measure the parts I'll make next.

The next step is to bend the wire to the shape you've drawn, using needle-nose pliers. Try to get a reasonable approximation—it doesn't have to be perfect (**photo 16**). After that, determine the length of the side pieces and the location of the bearing hole by measuring with the bent wire. Make sure there is some clearance between the crank and the base (**photo 17**). Mark the hole location and the bottom of the base on the craft stick (**photo 18**). Cut the craft stick at the line (**photo 19**), then



15. The crankshaft shape is first drawn on graph paper.



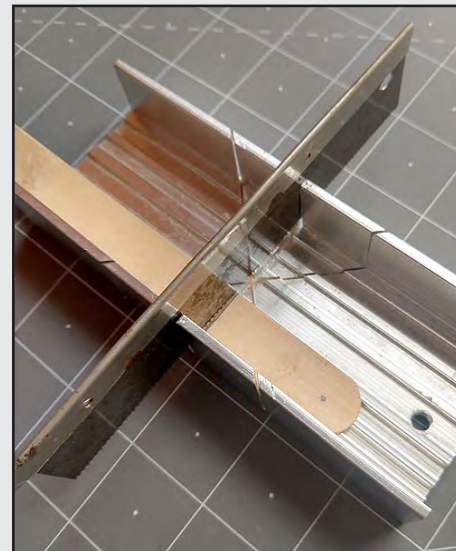
16. Paper-clip wire is bent as accurately as possible to match the drawn shape.



17. The bent wire is used as a guide to determine the length of the side piece.



18. The side piece is marked for cutting.



19. A small miter box is used, to cut two identical side pieces.



20. The two cut pieces.

use this cut piece to measure and cut a second, identical piece (**photo 20**).

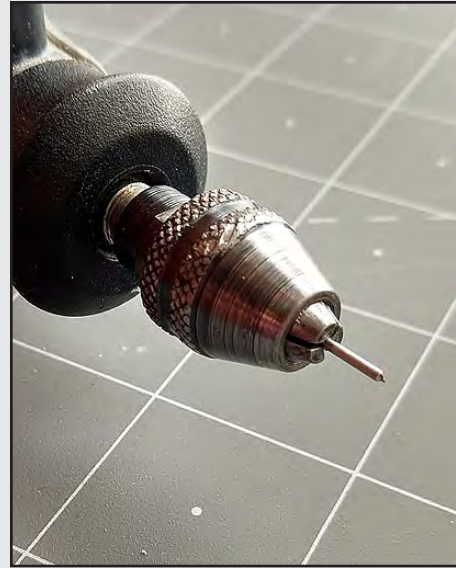
Holding both side pieces together, drill the hole for the crank (**photo 21**). This will guarantee alignment. The trick for drilling holes that accurately match the wire size is to use a short piece of the same wire as the drill bit, which is generally sufficient to penetrate soft woods. Keep the bit as short as possible, to avoid the chance of it bending with the spinning force (**photo 22**).

At this point you can draw the figure onto the paper. Use the crank as a guide for the leg spacing and make the legs long because you'll need material for the feet and the crank attachment (**photo 23**). Cut the figure and bend its legs at the hips, knees, and ankles (**photo 24**). Then fold the tip of each foot around the wire. When you are happy with the bends, use a small amount of white glue to attach the feet to the wire. Be careful not to glue the paper to the wire, as the wire needs to rotate freely (**photos 25 and 26**).

While this dries, you can drill a hole on the backside of the base, into which you'll insert the piece of wire that will hold the person in



21. Crank holes are drilled in both pieces together, for accuracy.



22. A short drill bit was made from a piece of paper-clip wire.



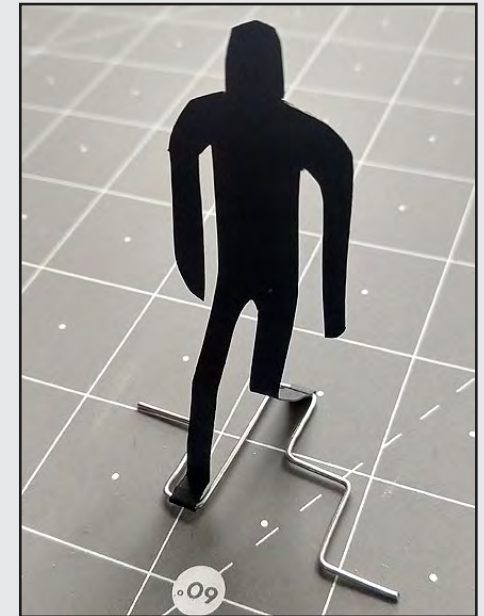
23. Drawing the figure on paper. Leg spacing is made to match the crankshaft.



24. Bends are made at the hips, knees, and ankles.



25. Feet are carefully glued around the crankshaft.




26. Once glued in place, the figure begins to come to life.

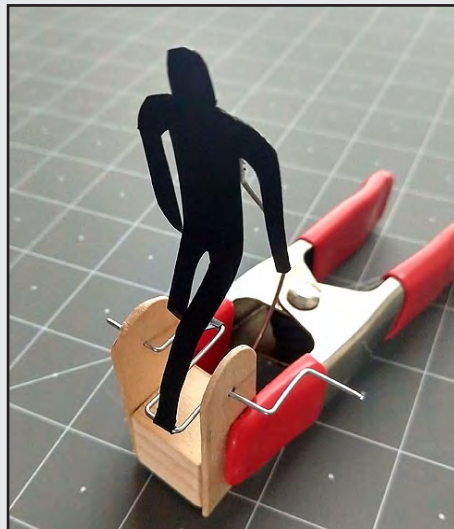


27. The block is drilled for a rod that will be inserted into the hole to support the figure while it's walking.

place (**photo 27**). This wire needs to act as a spring, so it should have a slight bend. Use a little bit of CA cement to fix the wire to the base.

At this point you could do a dry run by assembling the whole thing. Hold the sides to the base with a clamp, and the paper person to the supporting wire with a piece of tape (**photo 28**). If you are satisfied with everything, glue the sides to the base with some CA cement and clamp it again while it dries. You are finished (**photo 29**)! 

You can watch videos of all of the author's automata at <http://bit.ly/tinyautomata>



28. A clamp temporarily holds the piece together for a dry run. Note the wire in back holding the figure up.



29. The finished walking person.

## GALLERY

### *Poor Albert's Haunted Wardrobe*

by Chris Michael • Oxford, UK • Photos by the author



Poor Albert thinks he hears a noise in his wardrobe. To his horror, the doors open to reveal a terrible specter! Frozen in fear, Albert watches as the doors close. His legs finally give way and he faints.

See a video of *Poor Albert* at: <https://youtu.be/qFE0GPGKbt8>

