

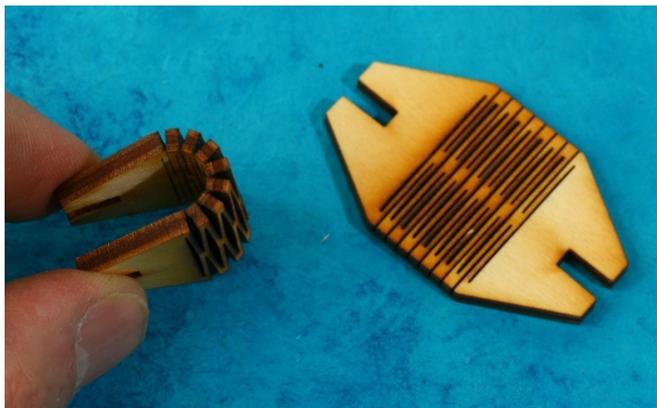
# Hinge-a-Tron

[George Hart](#)

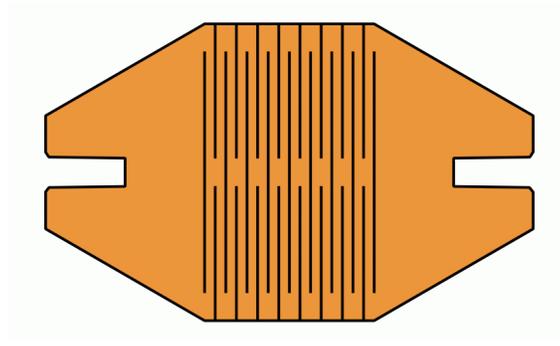
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This is a "Hinge-a-Tron," my exchange item for the [G4G-12 conference](#). It's a variation on the classic rotating ring of tetrahedra (which goes back at least to W. W. Rouse Ball's 1939 book *Mathematical Recreations and Essays*). Although it is made from solid plywood, the parts flex and it is fun to rotate it around and around into itself. This version is made of six laser-cut plywood pieces and is a modification of an earlier version designed by Henry Segerman and me, shown in [the video](#). The living hinge can easily bend back on itself as shown below, but **be careful not to stretch or twist the pieces**, as they will snap.



It works because the long thin strips of plywood that remain between the laser-cut lines can twist a few degrees each without snapping and there are enough of them to total to 180 degrees of bend.



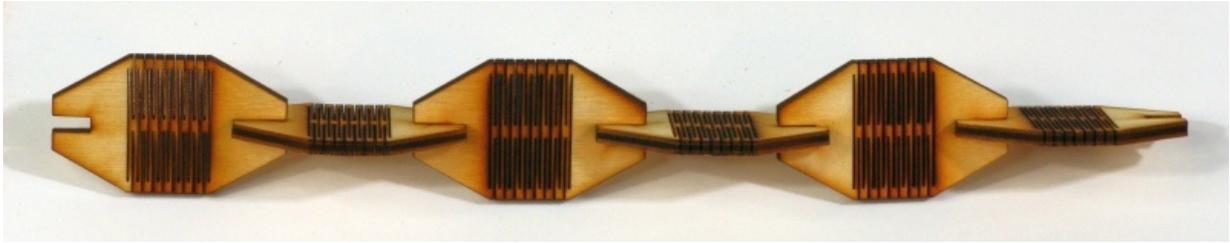
For the G4G-12 conference, I packaged up little kits of six parts in a plastic bag to give each participant. You can make your own parts if you have access to a laser-cutter. Just cut [this template](#) from 1/8 thickness (3 mm) plywood.



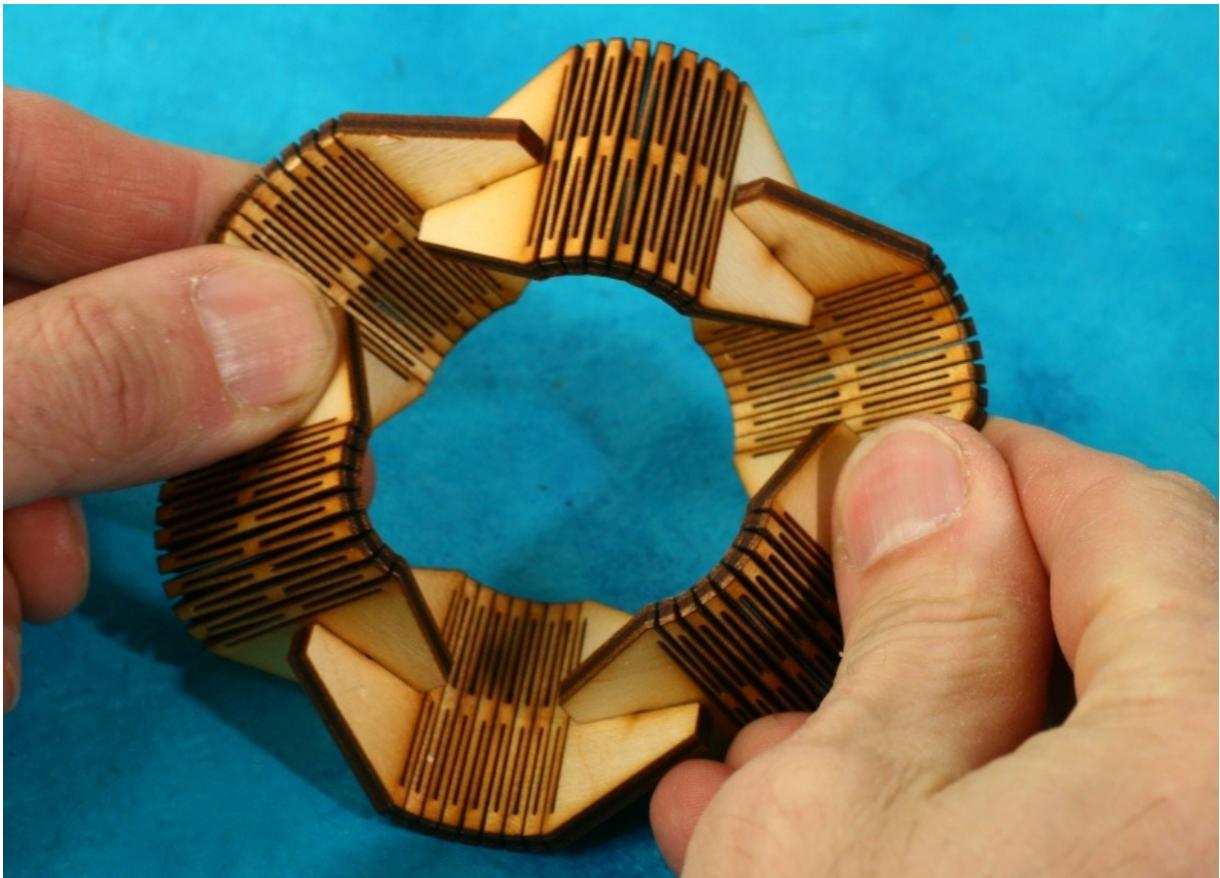
I made 400 kits, which is more work than you might think:



When assembling the parts, **be careful never to stretch or twist them**. They can easily tear. (If you received a G4G-12 kit and broke a piece, let me know; I can mail you a replacement.) First make a straight chain, wedging the slots together:



Then close the chain into a cycle. They should hold together without glue, but if a joint comes undone, you can add a dot of wood glue. You will discover how fun it is to rotate it around and around.



If you don't have a kit or access to a laser-cutter, all I can suggest is to watch [the video](https://www.youtube.com/watch?v=GEJgrbiGETo):  
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