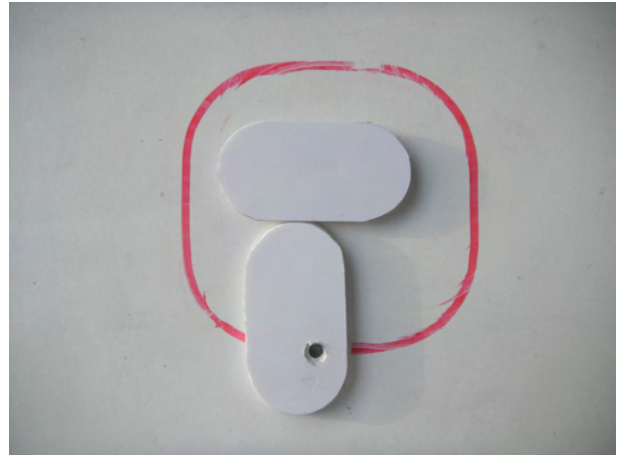
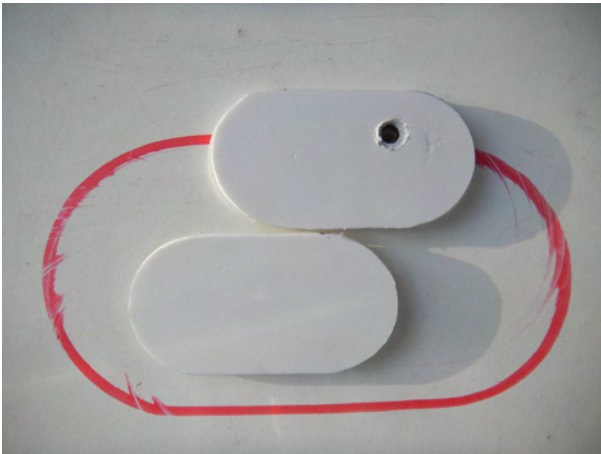
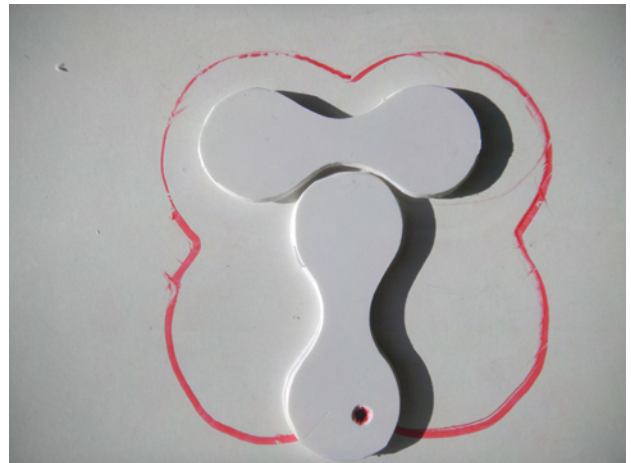
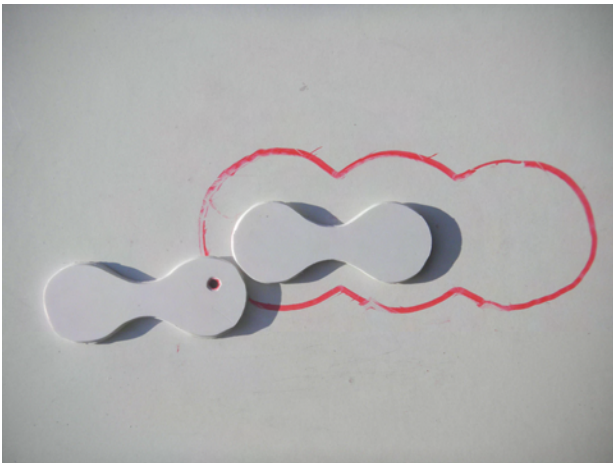


If the shape is convex, the parallel arrangement gives the original scaled by 2. The perpendicular arrangement gives a shape with *at least* 4 symmetry axes. The “at least” is there for the circle but also, for example, for the case where the rhombus diagonals stand in the ratio $1 : \sqrt{2} - 1$, where the octagon is regular. This is what happens to the athletics track:



This is what happens to the barbell. Note that, though non-convex, it gives a figure with 4 symmetry axes in the perpendicular arrangement:



As a thought experiment, try a ‘triple’, ‘quadruple’, ‘quintuple’, ... barbell.