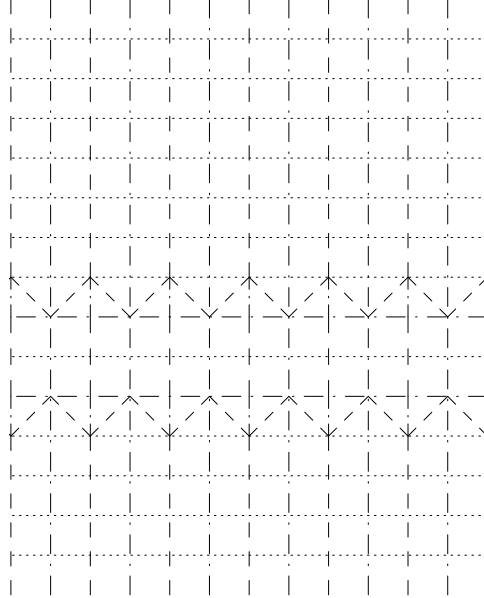


# Gearwheel

Maarten van Gelder

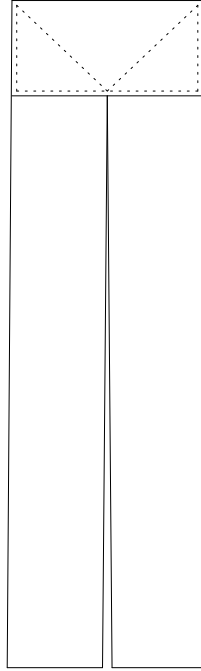
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One gearwheel is constructed from several segments. One sheet of paper per segment. The segments are put together by slitting the last tooth of each segment in the first tooth of the next segment. By this overlap you loose teeth, but it will fix the gearwheel. Divide the paper horizontally and vertically in 8, 16, 32 or 24. The number of teeth per segment is one less than half this division: so dividing in 16 gives 7 teeth (from each segment one tooth is hidden in the next segment).

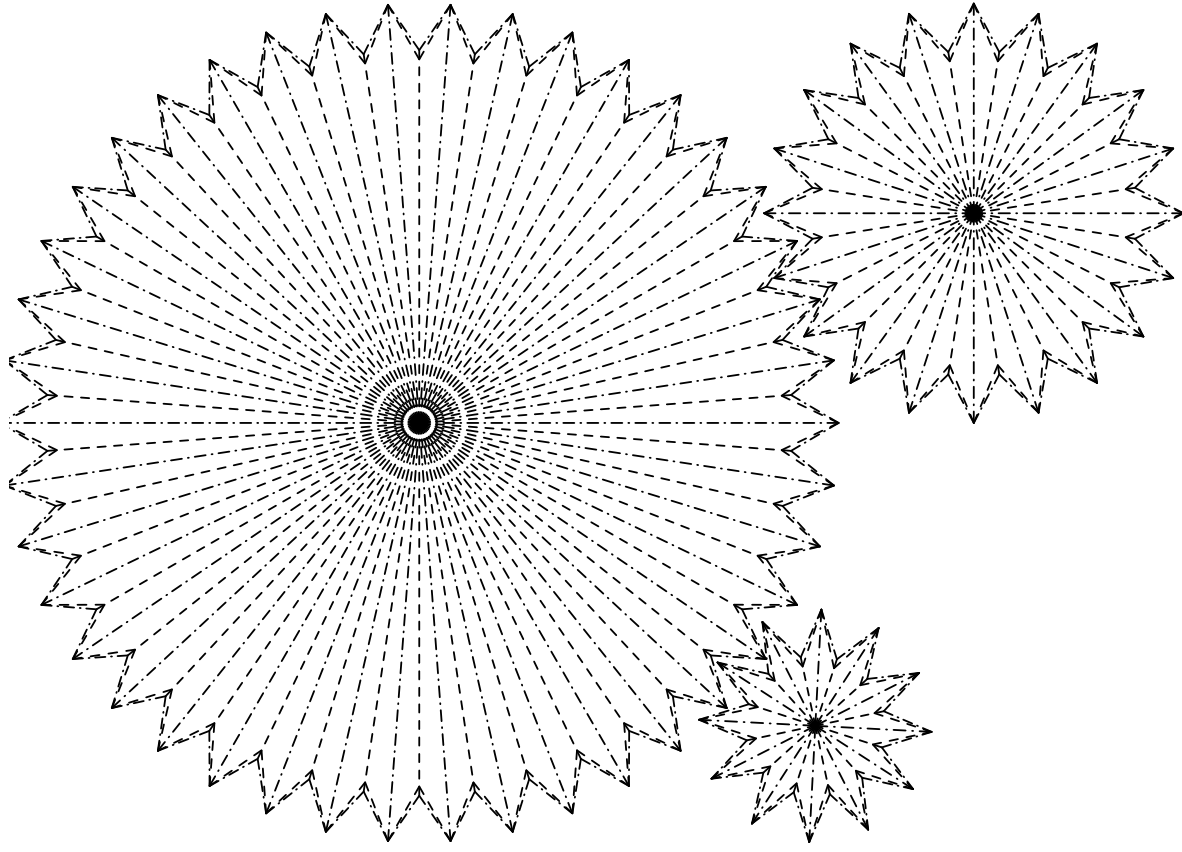


^ Crease line through the center of the paper

- 1 Colored size up. Precut: divide the paper horizontally and vertically in 8, 16, 32 or 24. Then make valley and mountain folds as indicated. For the dotted lines you may make mountain or valley folds as you please.



- 2 Side view of a folded segment. The dotted lines show where the (hidden) folds are. The teeth are at the right; the left side becomes the center of the gearwheel; the (in the drawing) upper and lower side are the sides of the gearwheel. Two segments are coupled by slitting the upper tooth of one segment in the lower tooth of the next segment. All folds of these two teeth should coincide. Closing the gearwheel (the last overlap) is the most difficult action!



- 3 In the diagram the mountain and valley folds are indicated. To get a nice running set of gearwheels varying in size you need to experiment with number of segments. The large wheel in this set has 6 segments, that are divided in  $16 \times 16$ . So the total amount of teeth is  $6 \times (16/2 - 1) = 42$ . The real set I made has a motor driving the small wheel, so the total set is moving continuously.