

The Man from Somewhere near Geneva

A simple mechanism provides intermittent rotation

by Paul Spooner • Stithians, Cornwall, UK • Photos by the author



Hardly anybody needs to make a figure whose head turns through 360° in a number of stages. If you do, a Geneva mechanism might be your first choice. It's pretty, it's positive, and it's not too hard to make. It was necessary for my piece titled *The Man from Geneva*, but had I just wanted a head that could alternately face in four directions, an even simpler device is available.

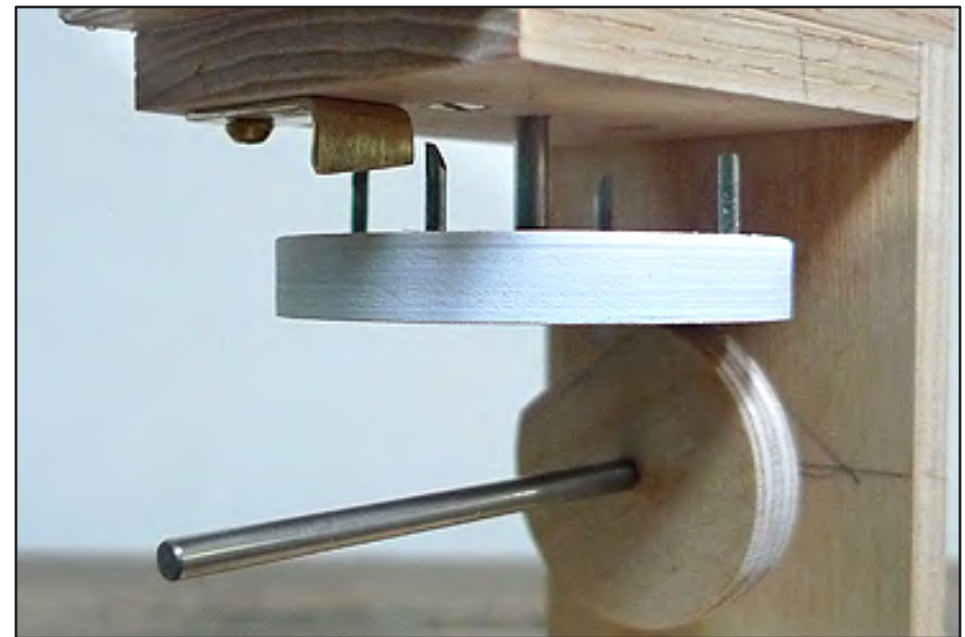
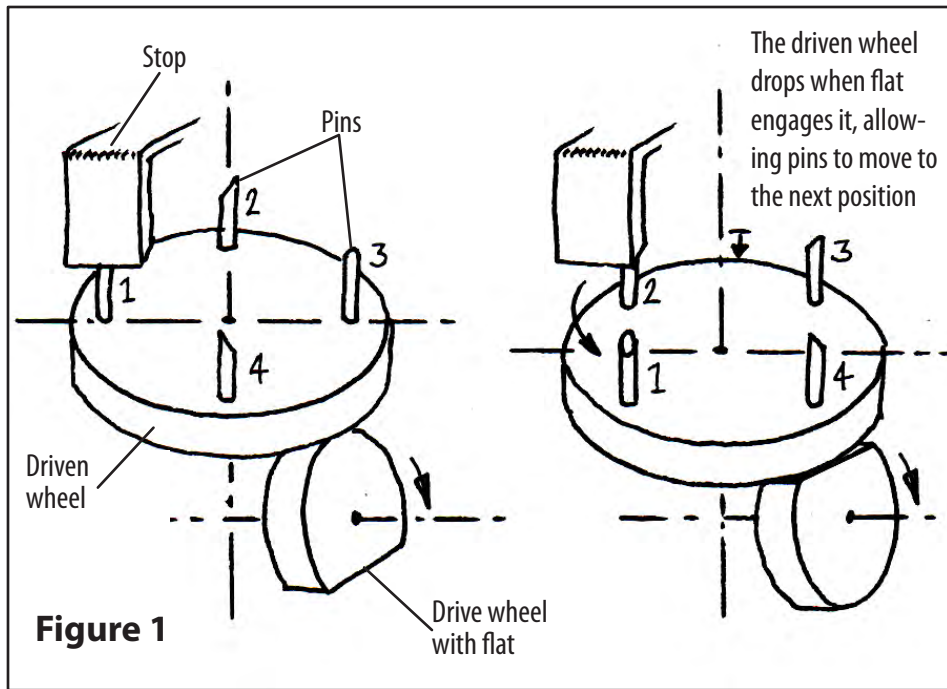
This is a sort of escapement. A disc on the vertical head/neck shaft rests on the perimeter of another disc mounted on a horizontal shaft that is turned by the crank handle. Turning the crank handle causes the vertical shaft to turn and the head to rotate, as long as there is freedom of movement. To divide the movement into four 90° increments, four pins are set in the top of the driven disc, and a stop is set in the frame, to interrupt their path. The upper disc will turn until it is arrested by the stop. Cutting a flat on the driving disc allows the driven disc to duck under the



The Man from Geneva.



The Man from Somewhere near Geneva.




This cutaway of the mechanism shows all of the relevant parts.

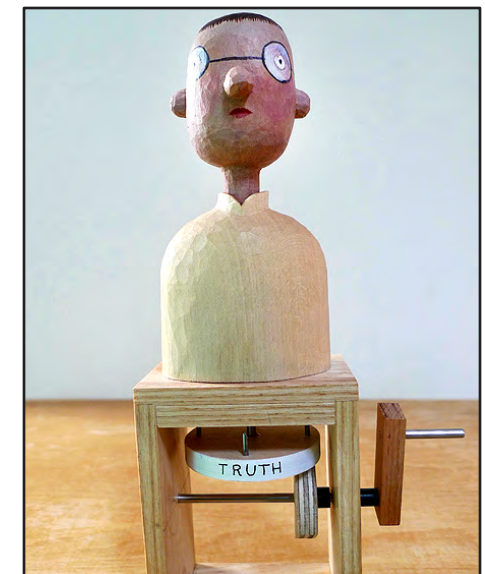
stop, continue to turn until it's arrested by the next pin, then duck again when the flat on the driving disc allows it to.

The drawing in **figure 1** shows the action. On the left, the smaller driving wheel is trying to turn the bigger one but it's held up by the stop. In the second drawing, because the flat part of the driving wheel has allowed the big wheel to drop momentarily, pin 1 has ducked under the stop. As the driving wheel's circumference resumes, the big wheel is lifted again, but not before the friction between the two wheels has car-

ried pin 1 beyond the stop. Now pin 2 is held up until the flat on the driving wheel comes around again.

It's possible that, as the pin rises, it can strike the stop and jam. To reduce that possibility, both pins and stop are filed at an angle, to offer each other a very small area of potential contact.

This is a specialized mechanism, only fit for certain purposes, but I've found it useful sometimes. Of course, you can vary the number of stations by using a different number of pins. The photos here and on the next page show some examples. 



A Point of View. The head can be turned through 90°, so that what was a lie is now the truth, and vice versa.



Good Cop, Bad Cop. Four sets of facial features take their turns.



The Frog Princess. She is happy when she's had a fly.



Two Dogs that Meet on a Regular Basis. One dog rotates a quarter of a turn, while the other rotates a fifth of a turn, for each turn of the handle. They meet nose to nose every 20 turns.