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Rømer's cog wheel.

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Summary: The Danish scientist Rømer, known for his determination of the velocity of light, was a correspondent of Newton, Leibniz and Huygens. He made an invention of cogwheels, allowing both wheels to rotate at constant angular velocities as they engaged with each others teeth. It was based on epi- and hypocycles, i.e. curves traced by a fixed point on a circle rolling inside or outside a given circle. Unfortunately the details were lost, but a reconstruction has later been found in the collected works Huygens. Taking this as a point of departure, the article explains the mathematics behind the construction, based on beautiful geometric properties of the curves involved.

Classification: A30