Mechanisms for intermittent motion

Petr Zelený – Production machines I

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INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Mechanisms for intermittent motion

- **Ratchet**
- **Geneva drive** or **Maltese cross**
- **Star-mechanism**
- **Magnetostrictive device**
- **Turning on and off of the drive**
- **Clutches and Brakes**

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

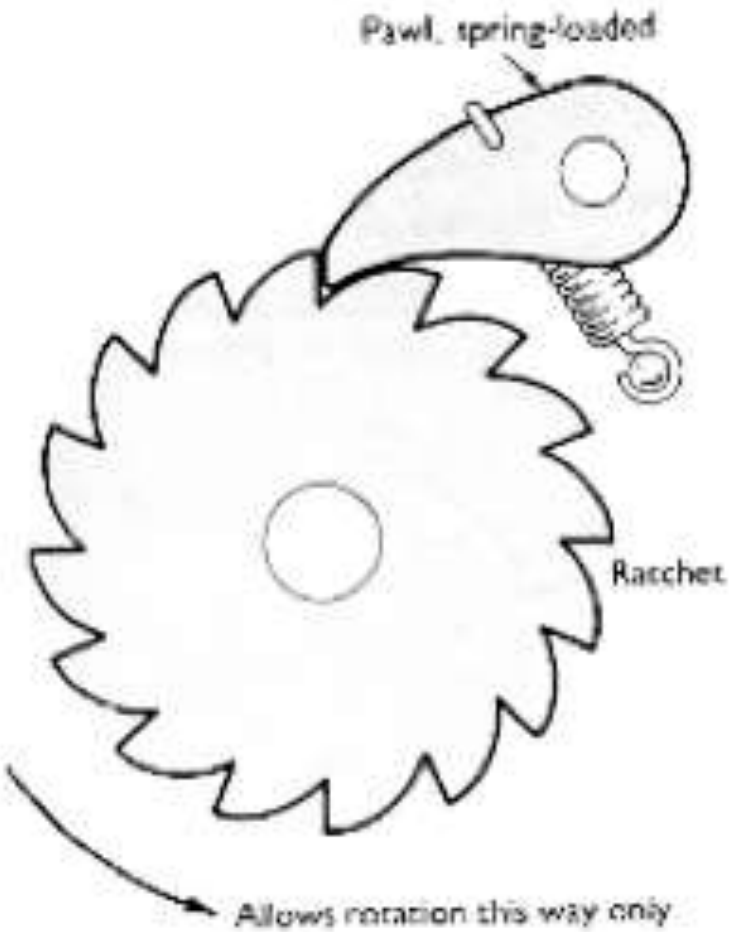
Mechanisms for intermittent motion

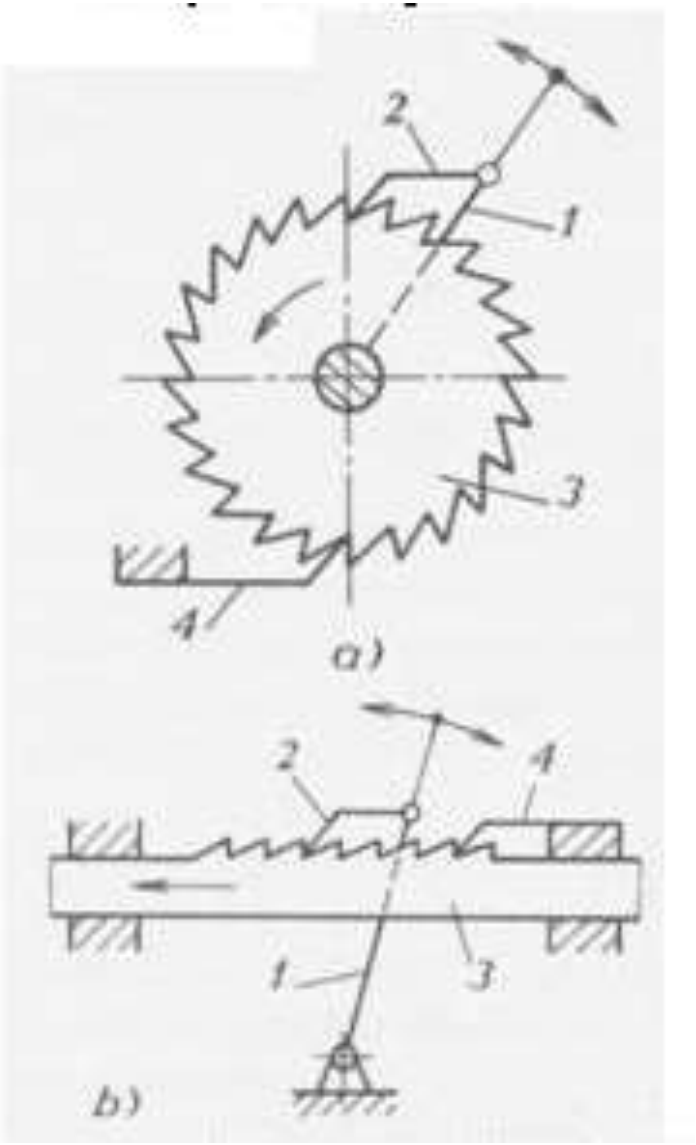
These are the motions:

- **straightforward,**
- **rotating,**
- **periodic,**
- **non periodical.**

Mechanisms for intermittent motion

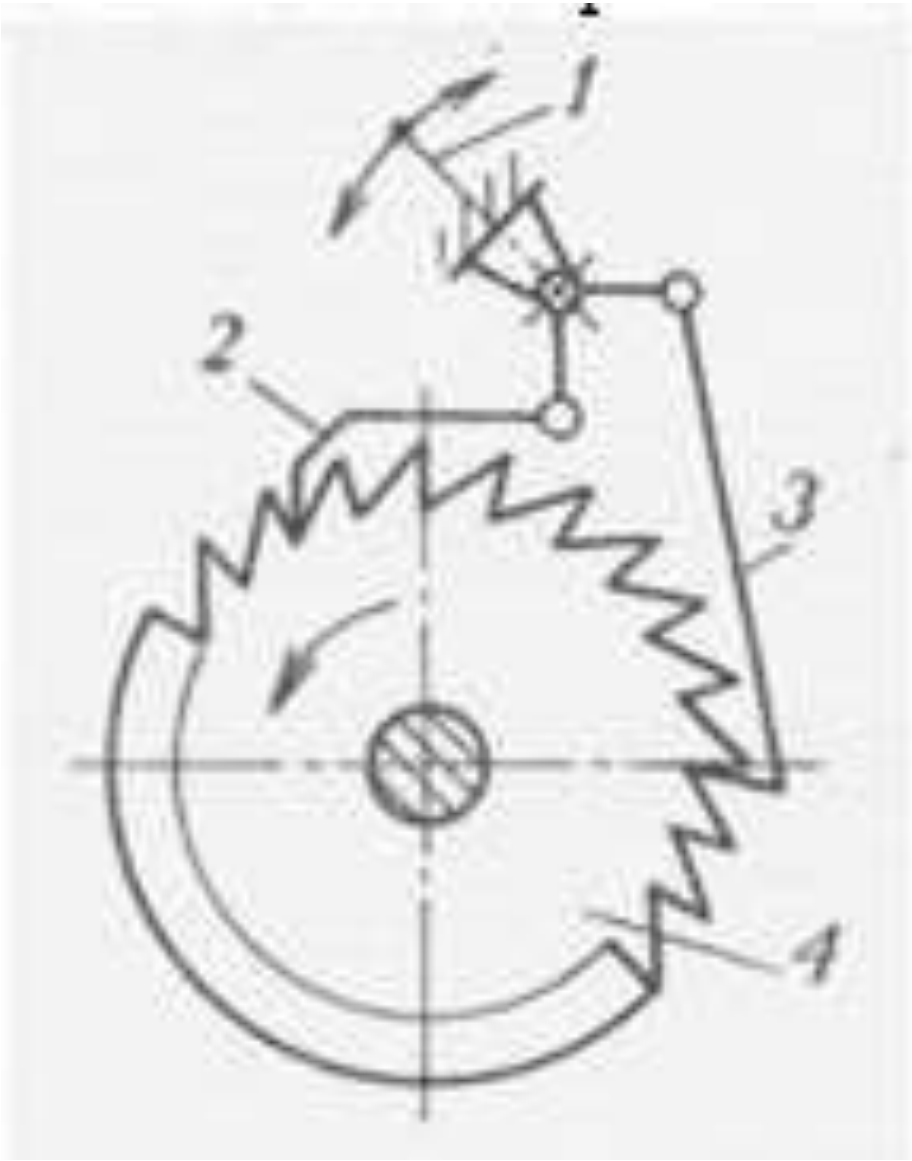
Ratchet





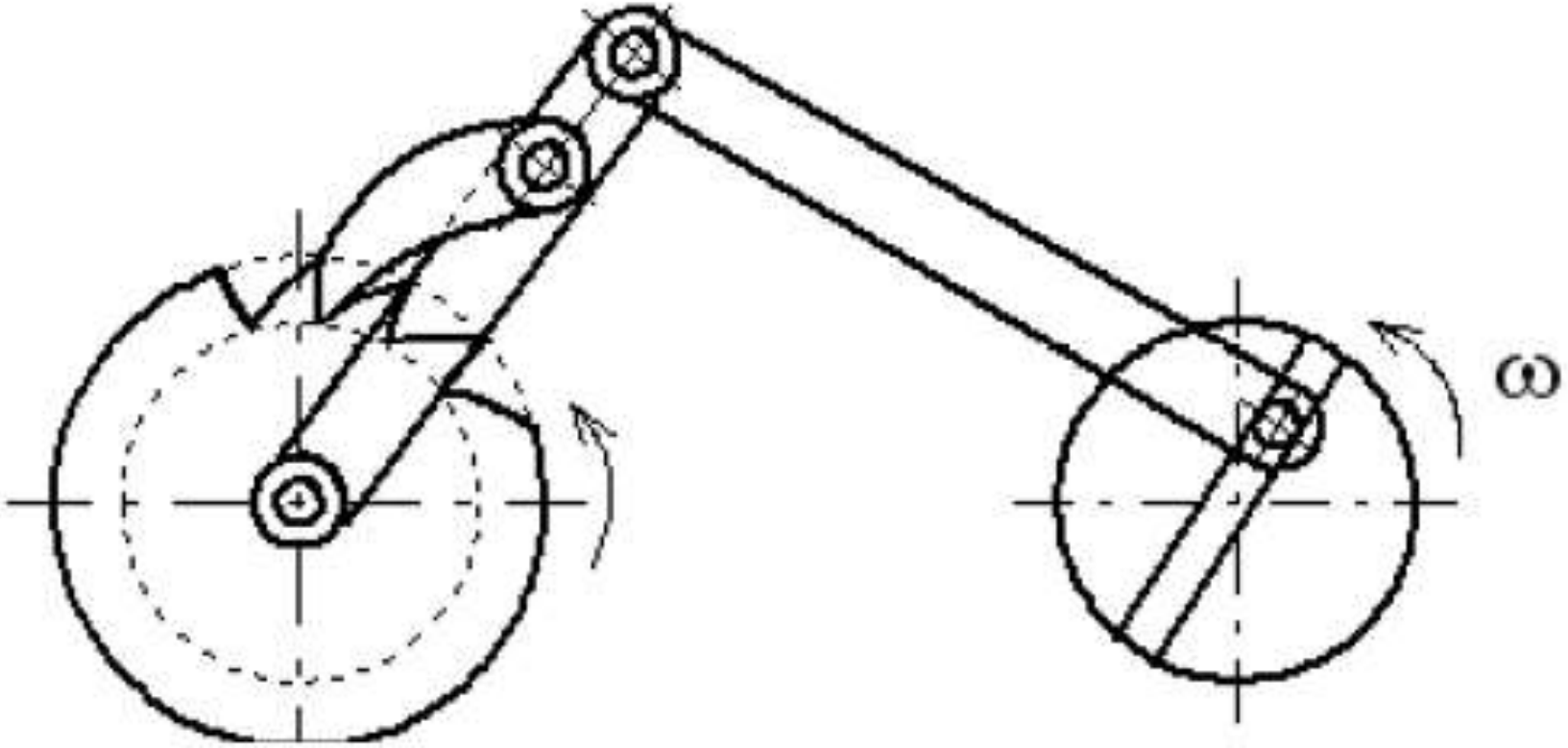
Mechanisms for intermittent motion

Ratchet with two latches



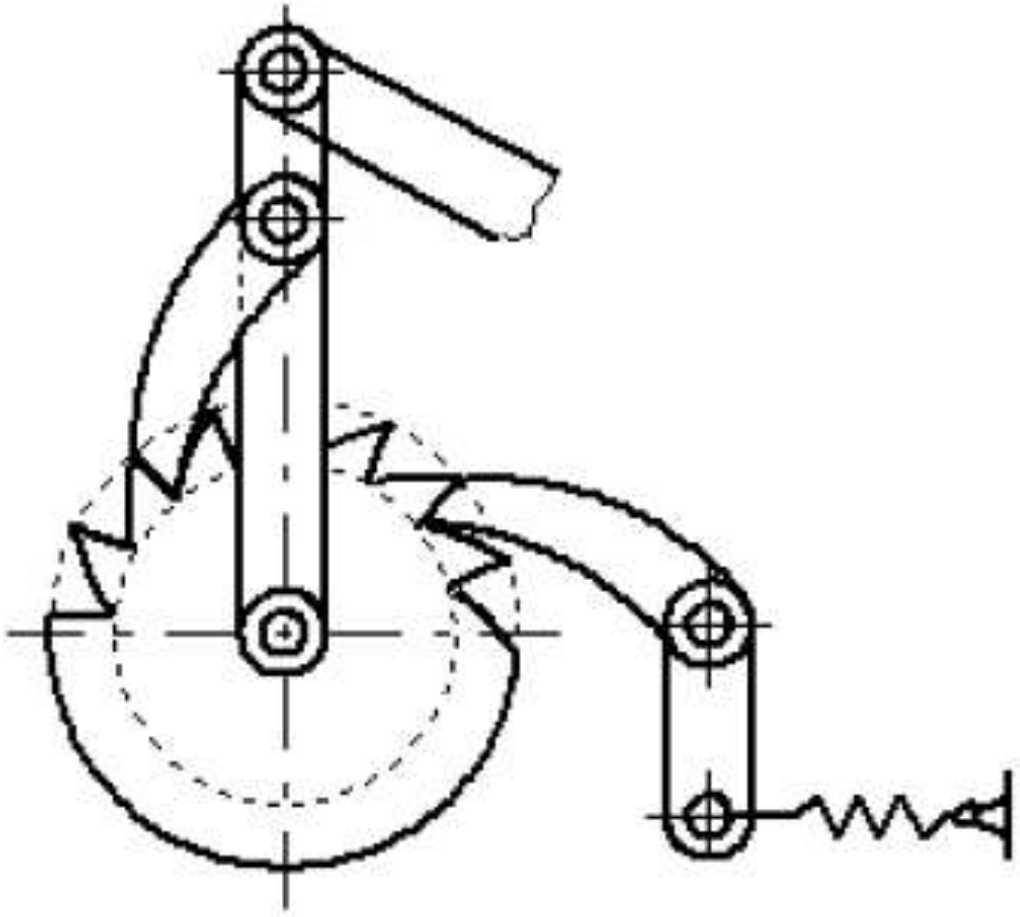
Mechanisms for intermittent motion

Ratchet and pawl



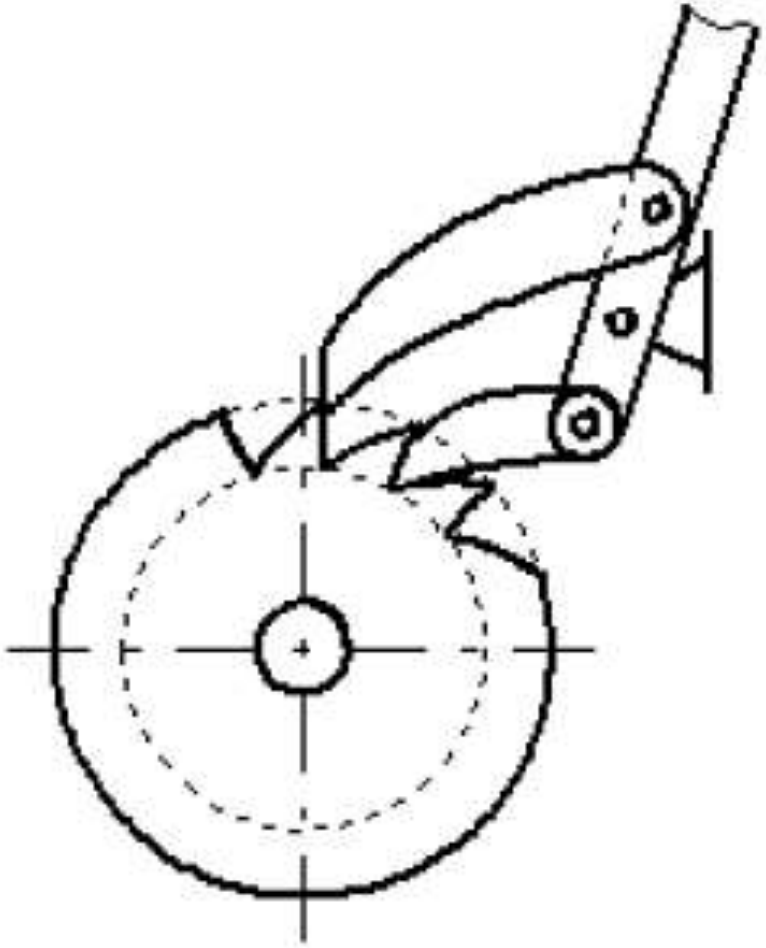
Mechanisms for intermittent motion

Ratchet and pawl with retention pawl



Mechanisms for intermittent motion

Ratchet and pawl for smoother steps

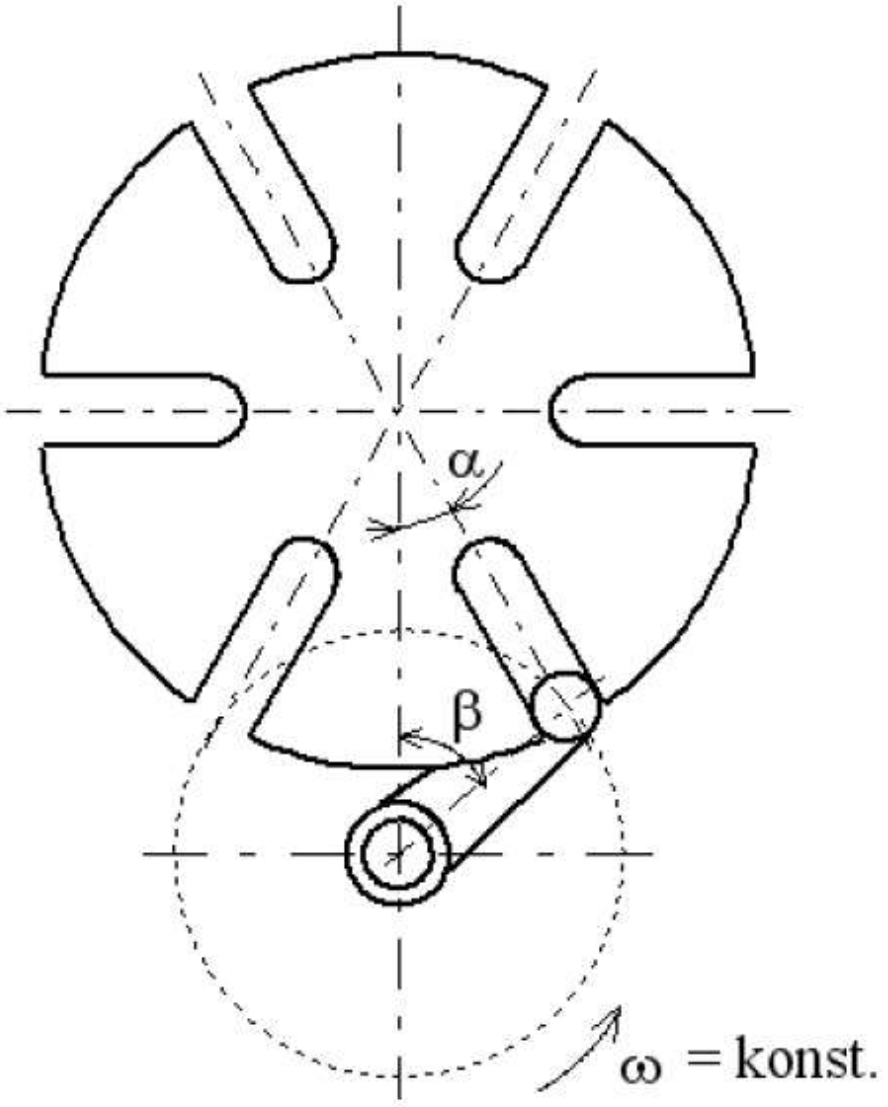


Mechanisms for intermittent motion

Geneva drive or **Maltese cross**

external

The smaller the number of grooves,
Thereby the smaller is the ratio between the time rotation and in time rest.
(This is greater productivity.)



Mechanisms for intermittent motion

Geneva drive or **Maltese cross**

internal

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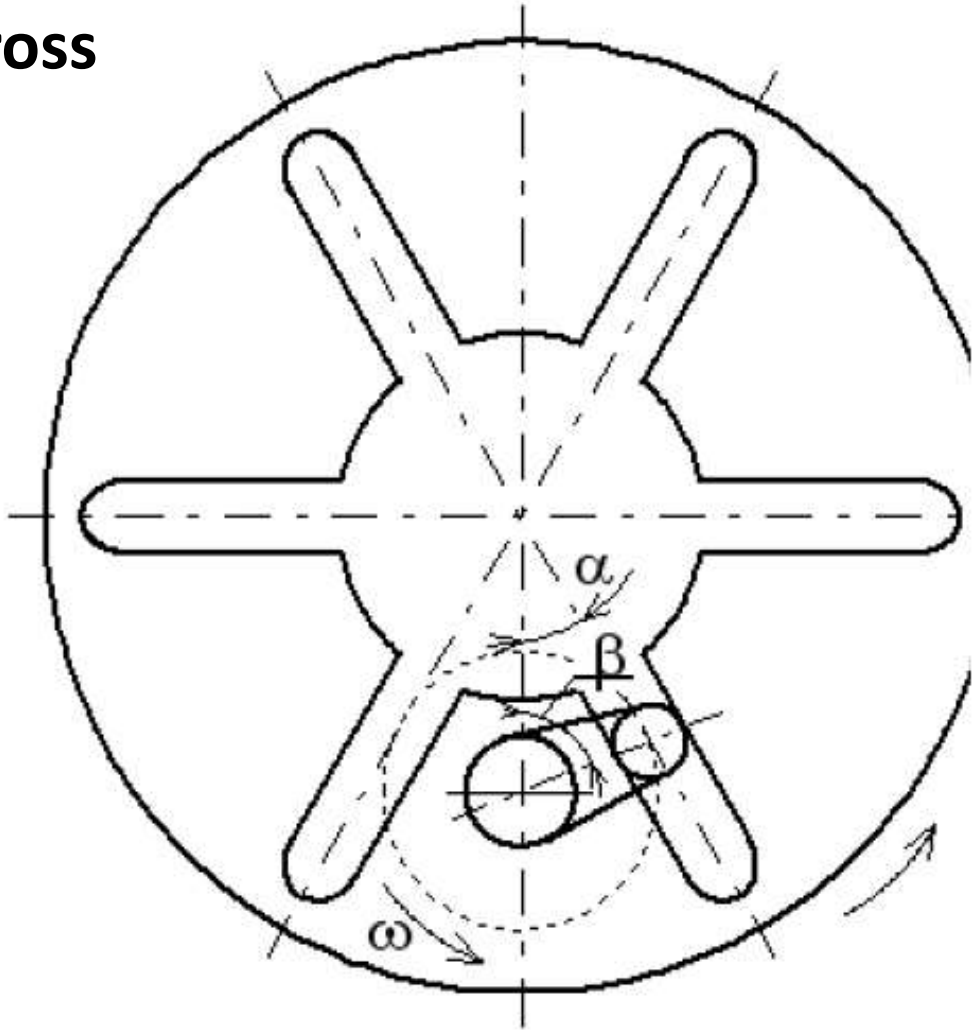
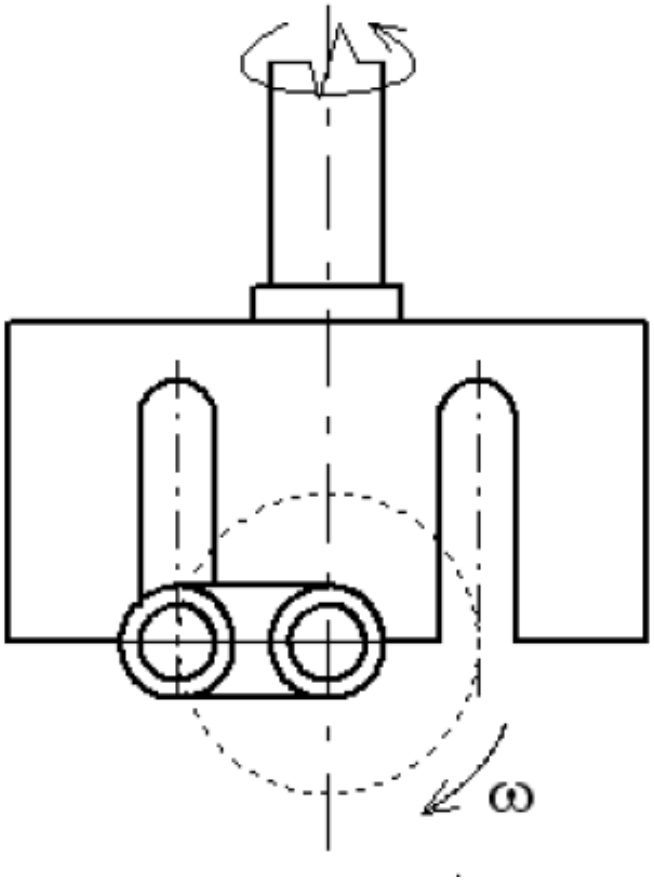
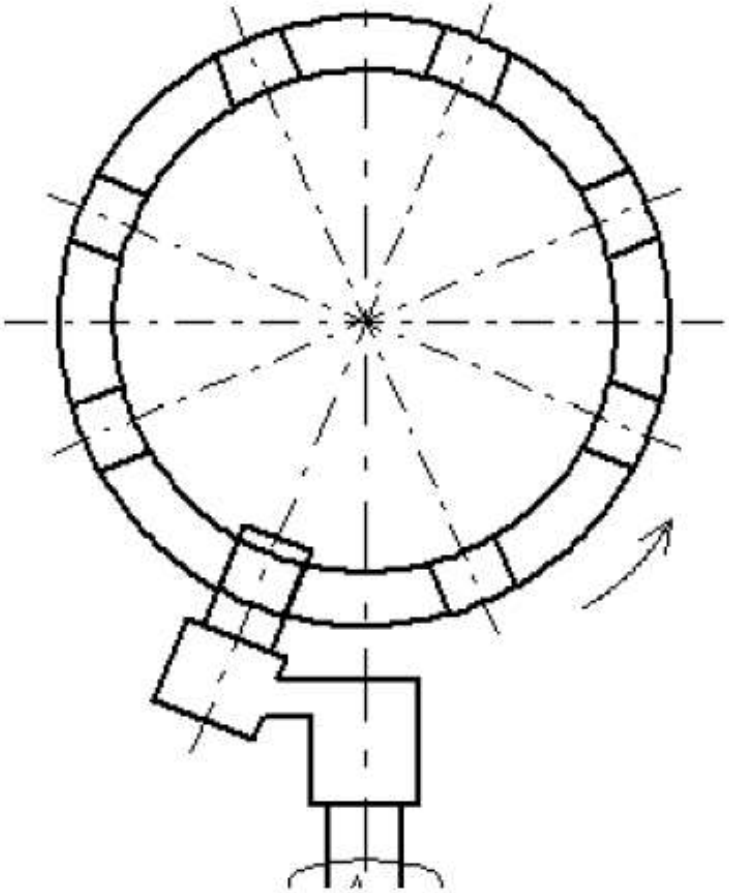


Mechanisms for intermittent motion

Geneva drive or Maltese cross

spherical

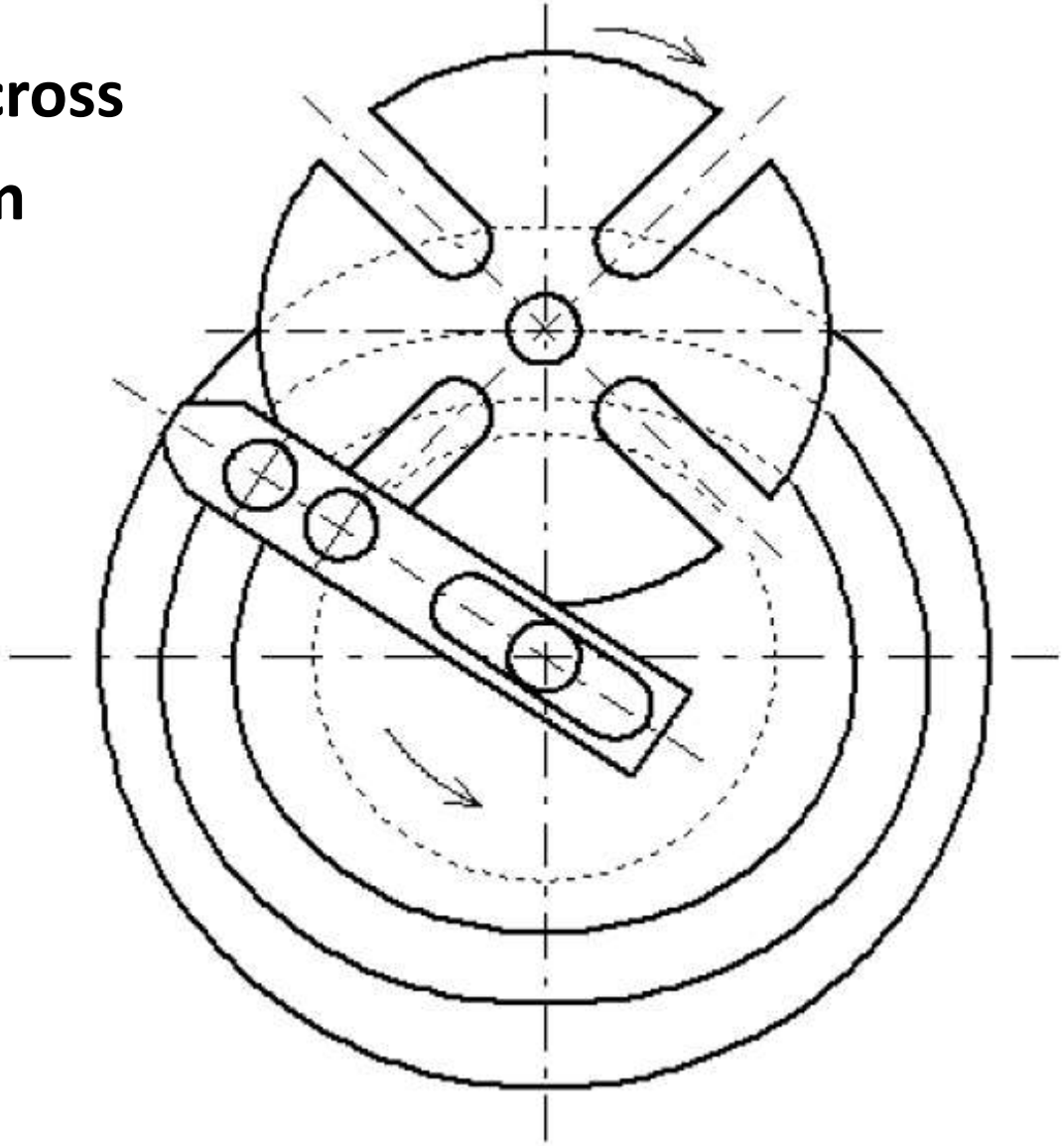




Mechanisms for intermittent motion

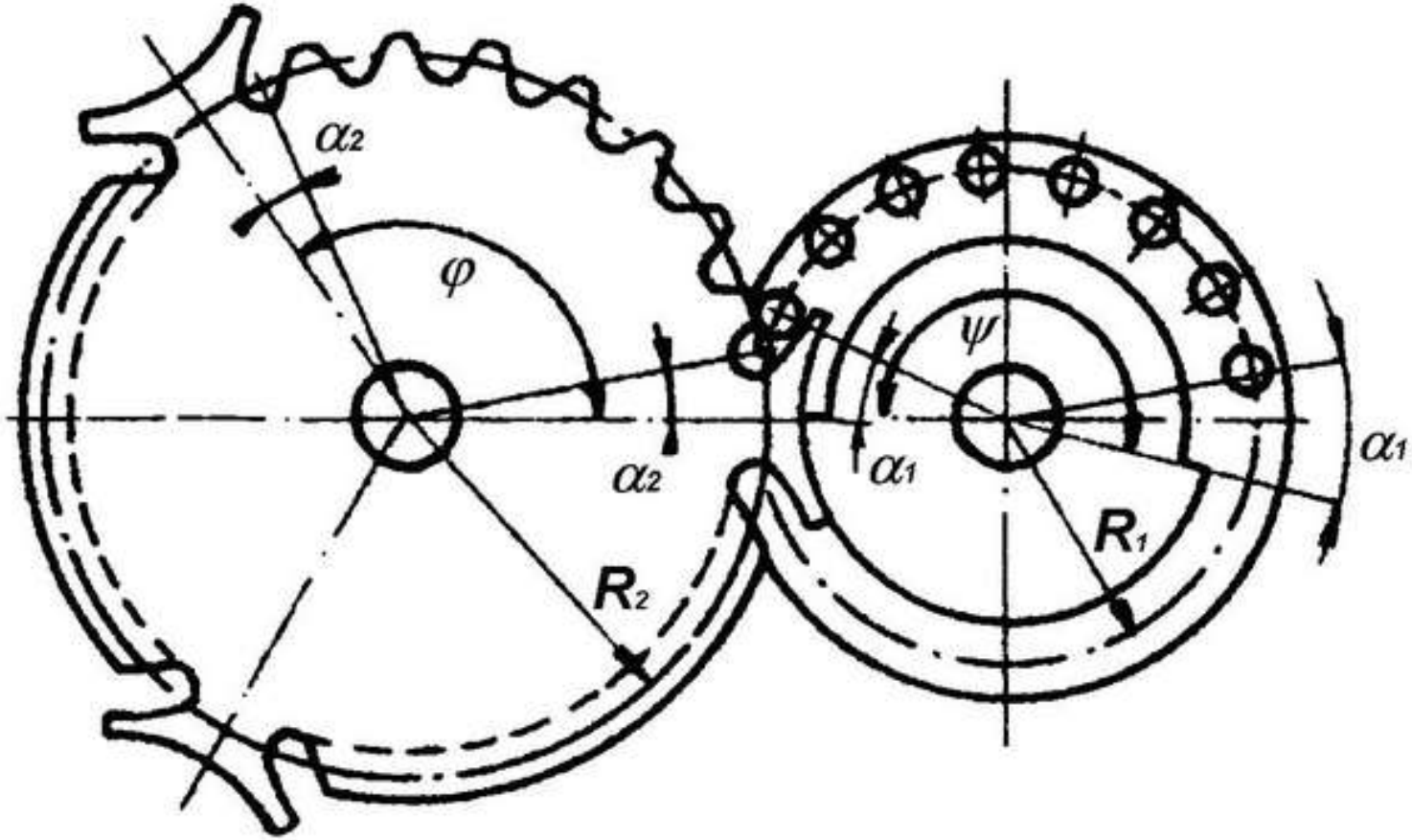
Geneva drive or **Maltese cross**

with link of controlled cam



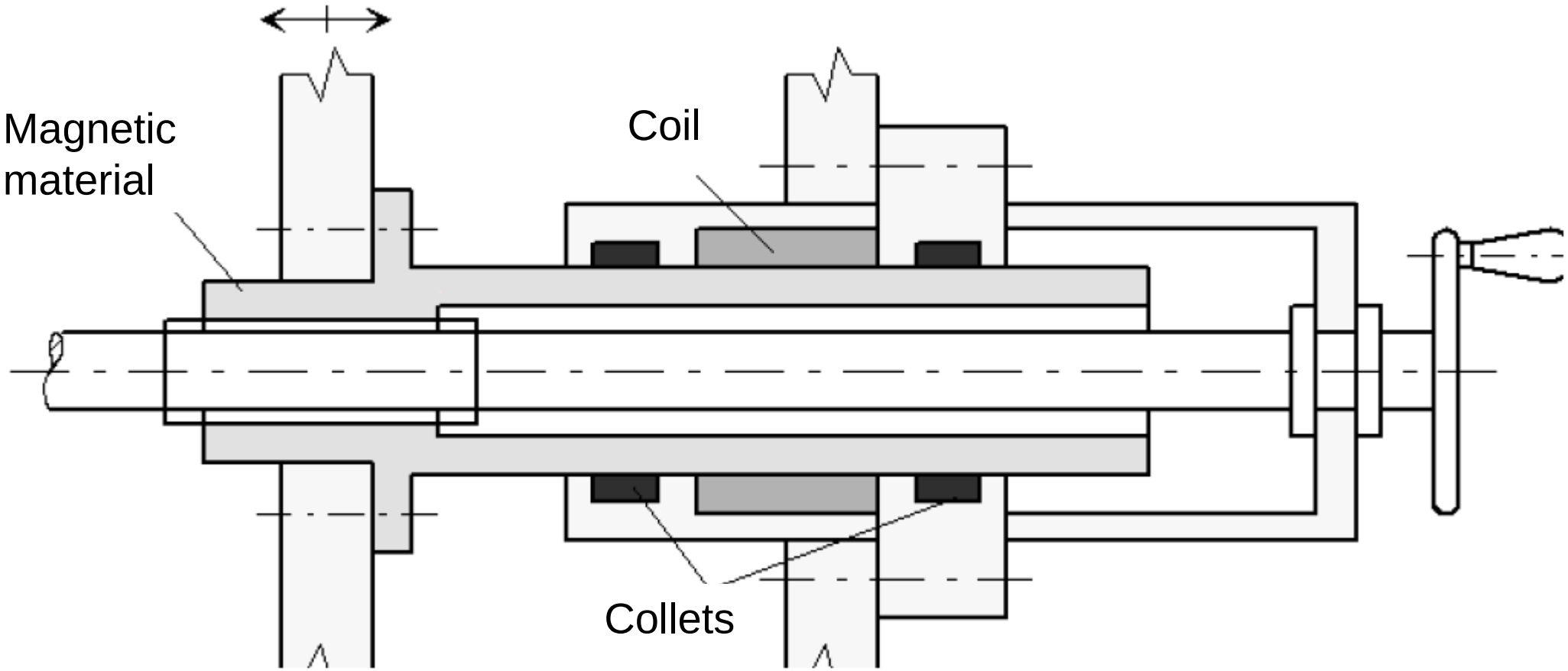
Mechanisms for intermittent motion

Star-mechanism



Mechanisms for intermittent motion

Magnetostrictive device



Mechanisms for intermittent motion

Magnetostrictive device

Principle:

Under the influence of the magnetic field, the magnetic material slightly shortened (1 μm). After switching on the one collet is activated by switching on the magnetic field coil, and thereby to reduce the magnetic material. Then it closes the second collet and after switching off the coil and release of the first collet mechanism will move a step the shrinkage of the magnetic material by magnetising before.

Motion is achieved without the transfer, without clearance and with high precision.

Magnetostrictive device is used for example for fine infeed grinding spindle.