SEGNER'S WHEEL

MED 08.11

Material

Item-no.	Qty.	Description
DM340-1A	1	Segner's wheel
DM340-2W	1	Tank, round, with outlet-tube
DG110-1B	1	Measuring beaker, plastic, 1000 ml

Recommended:

	1	Overhead - Projector

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Purpose
To demonstrate that the propulsion principle serves to operate a rotating „machine“.

Preparation
Place the round tank centrally on an Overhead-projector.
Make sure that the outflow screw is closed and thus sealed.

The needle base of the Segner's wheel is placed in the center of the tank;
afterwards place the Segner's wheel on the tip of the needle base.

The smooth running of the Segner's wheel is controlled by moving the acrylic glass cylinder slowly by hand.

Pour 500 – 700 ml of water into the measuring beaker.

Experiment
Turn the Overhead-projector on; a sharp image of the outlet pipes is set on the optics of the projector.

Pour water into the cylinder of the Segner's wheel.

Result
The Segner's wheel starts to rotate; the speed of rotation increases with the liquid height.

Note
At higher liquid level both the outflow rate and the mass flowing out every second increases.
The corresponding steam-powered device - the Herons ball - was the first heat engine in antiquity.

Many water sprinklers use the propulsion principle for automatic rotation.

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If there is no overhead projector available the experiment can of course also be performed without a projector:

Simply place the tank and water wheel on a table;
next pour water into the cylinder – this is it.