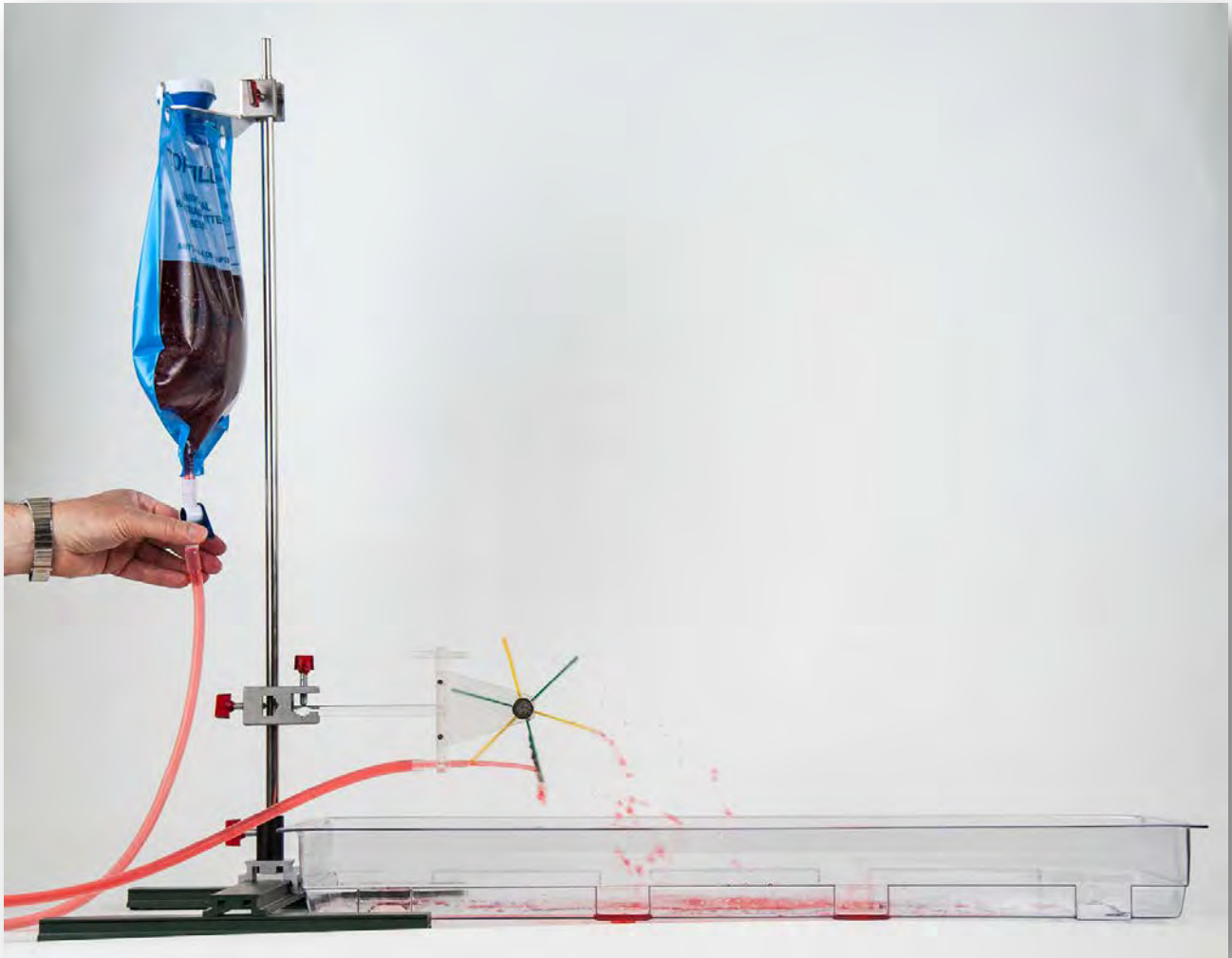




Material

Item-no.	Qty.	Description
DS101-1G	1	Support base, large, L=500 mm
DS093-04	1	Sliding saddle "Sepp", H=40 mm
DS201-75	1	Support rod, round, L=750 mm, D=12 mm
DS095-3K	1	Bosshead cross-pattern, demo 03
DM461-1B	1	Discharge bag 3000 ml, with stopcock and holder
DT730-1W	1	Waterwheel
DM682-1B	1	Water basin, long

Purpose

Use of energy conversion using the example of the waterwheel machine.

Preparation

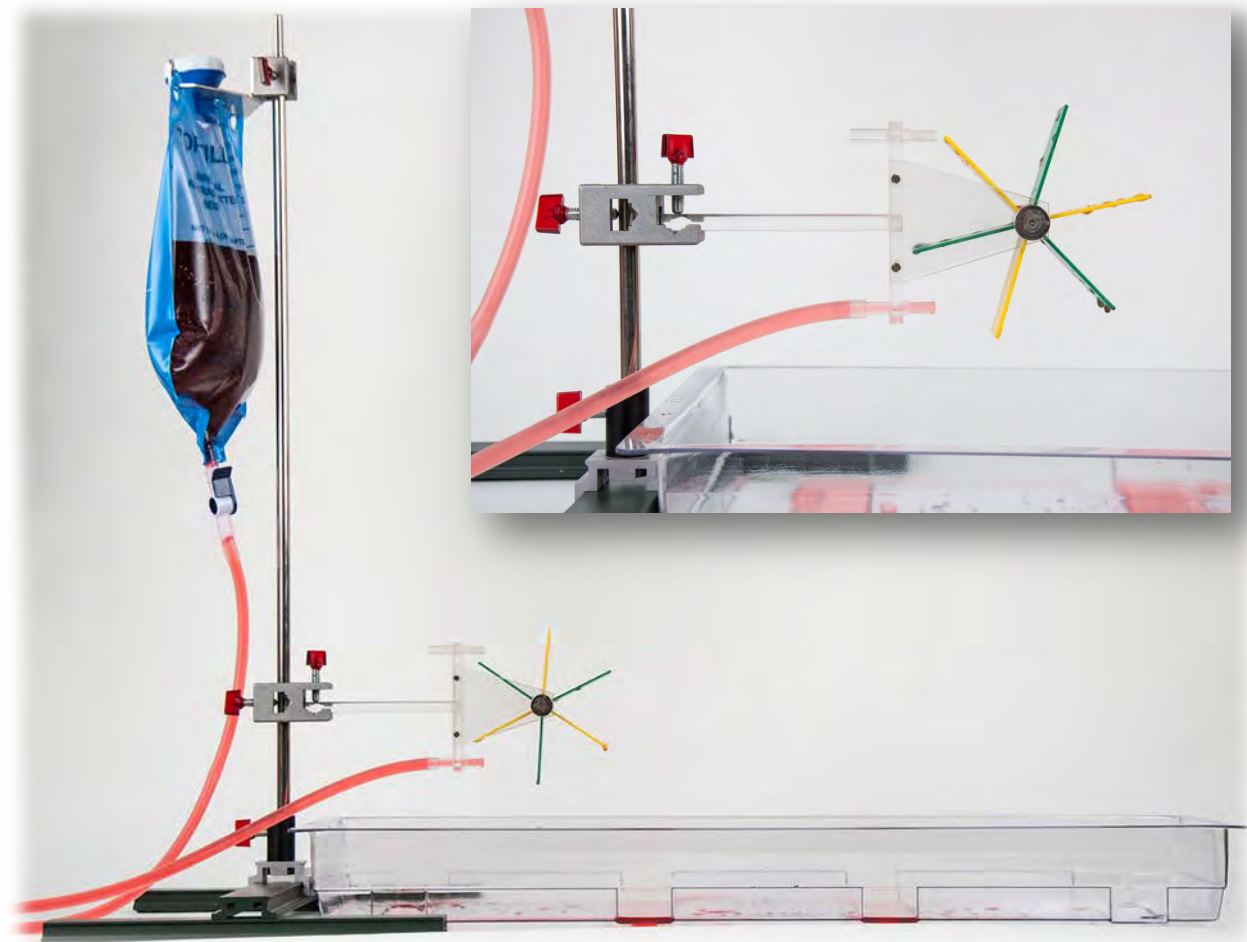
Mount the sliding saddle in the centre of the support base; afterwards insert the 1000 mm support rod into this sliding saddle.

Fix the bosshead at a height of approximately 20 cm on the support rod; the water wheel is mounted in this bosshead.

Hang the discharge bag on its suspension to the upper end of the support rod. Next place the water basin as close as possible to the support base.

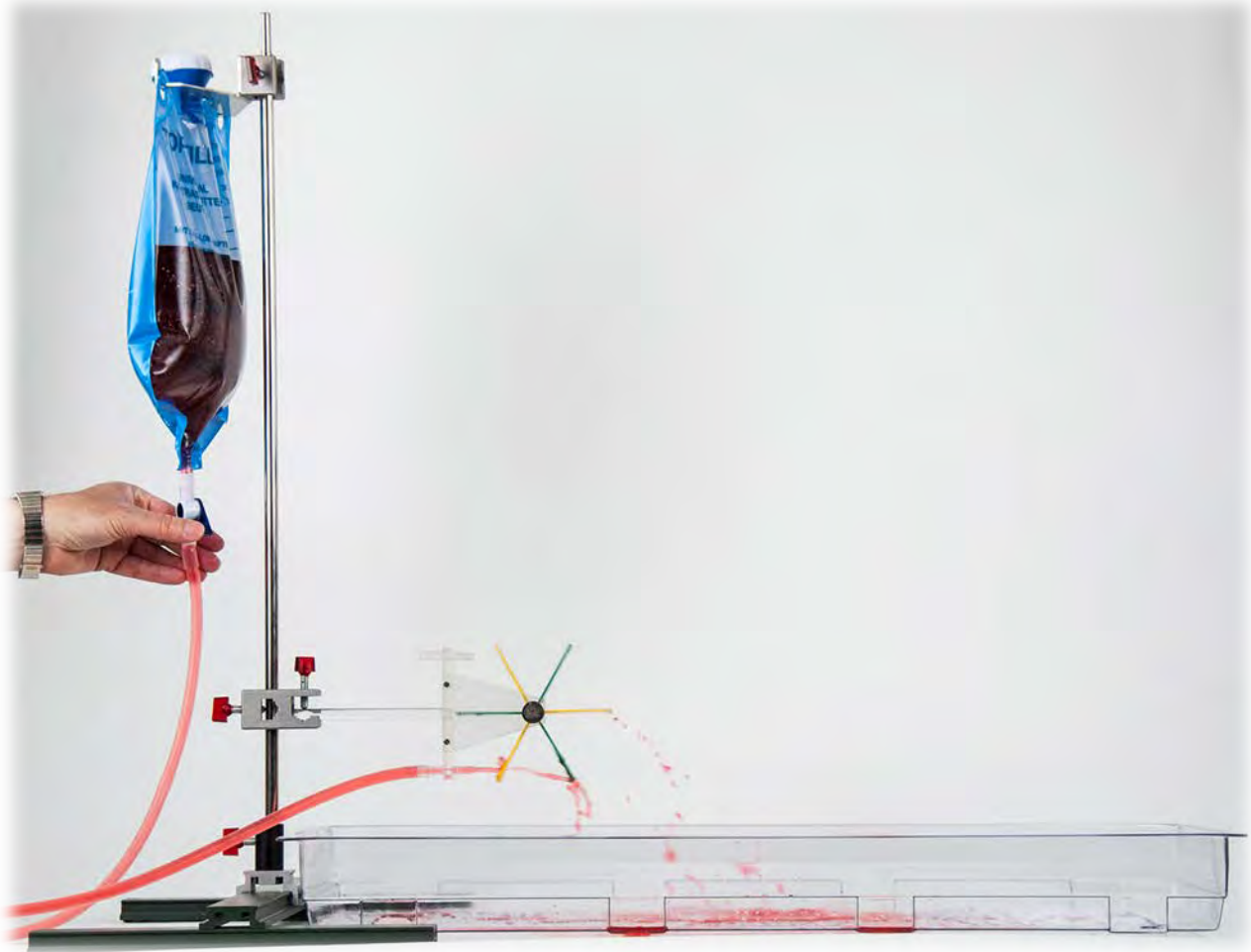
Close the tap of the discharge bag, afterwards open the inlet of the discharge bag and pour approximately 2.5 litres of coloured water into it.

The end of the hose of the discharge bag is put on the lower jet pipe of the water wheel. It is advisable to moisten the end of this tube before so that the hose can be easily removed from it again.



Experiment 1

Open the tap of the discharge bag.



Loosen the suspension of the discharge bag and move the whole unit further down; observe the rotational speed on the water wheel.

Result

Once the water jet hits the wings of the water wheel it begins to turn.

The higher the discharge bag is positioned the higher the outflow speed and the number of revolutions of the water wheel.

If a waterwheel is driven below the axis it is called "undershot".

The kinetic energy of the water is used for energy conversion at such water wheels.

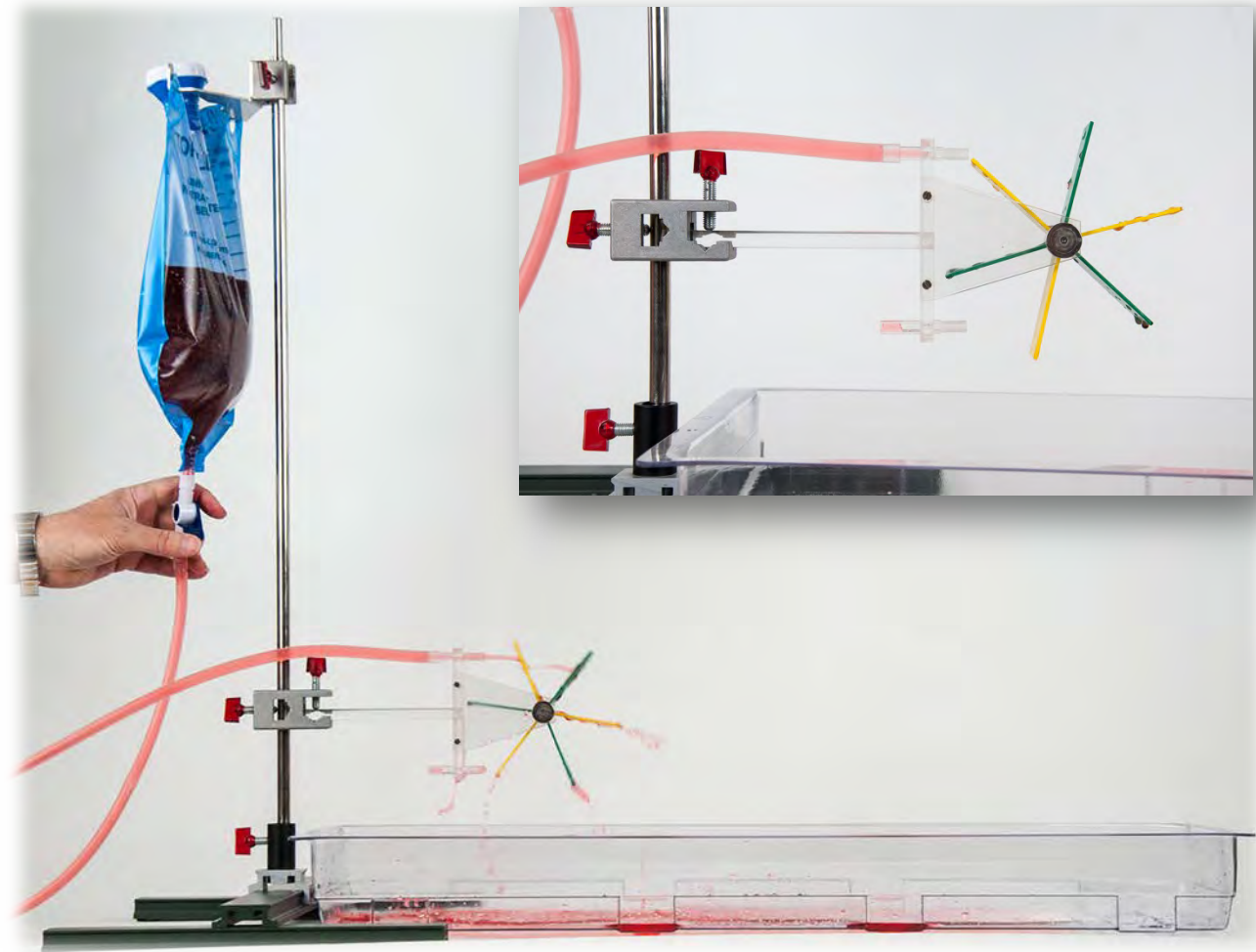
Note

If we put a little load on the water wheel (e.g. lightly with your hand) then the incoming water drops vertically downwards. The kinetic energy was dispensed.

Experiment 2

The end of the hose of the discharge bag is now placed on the upper jet pipe of the water wheel. It is advisable to moisten the end of this tube before so that the hose can be easily removed from it again.

Now open the tap on the discharge bag.



Result

Once the water jet hits the wings of the water wheel it begins to turn. The higher the discharge bag is positioned the higher the outflow speed and the number of revolutions of the water wheel.

If a water wheel is driven above the axis it is called "overshot".

If the wings of such water wheels have a shape that allows the water to collect in/at the wings, the weight of the water also acts in addition to the kinetic energy.