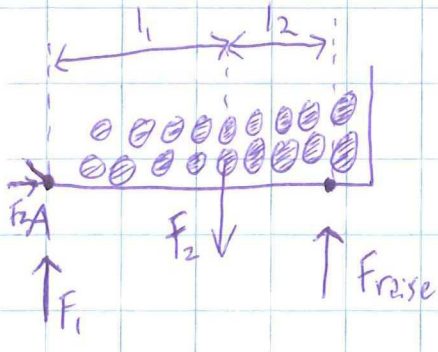
Proof of concept calculations

TRuck



$l_1 \approx 0{,}15$ m, $L_2 \approx 0{,}1$ m

A = tipping point $m \approx 500$ gr.

$F_2 = m \cdot g = 0{,}5 \cdot 9{,}81 \approx 5$ N

F_{raise}, F_1, F_2 onbekend

$$\Sigma F_y = 0 \rightarrow F_{raise} + F_1 - F_2 = 0$$

$$\downarrow$$

$$F_{raise} + F_1 = 5$$

$$\Sigma F_x = 0 \rightarrow F_2 = 0$$

$$\Sigma M_A = 0 \rightarrow -F_2 \cdot l_1 + F_{raise} \cdot (l_1 + l_2) = 0$$

$$\downarrow$$

$$F_{raise} \cdot 0{,}25 = 5 \cdot 0{,}15 = 0{,}75$$

$$\downarrow$$

$$F_{raise} \approx 3\,N$$

$$F_1 \approx 2N$$

Lifting 3N is no problem with 2 screw spindle and small motor.