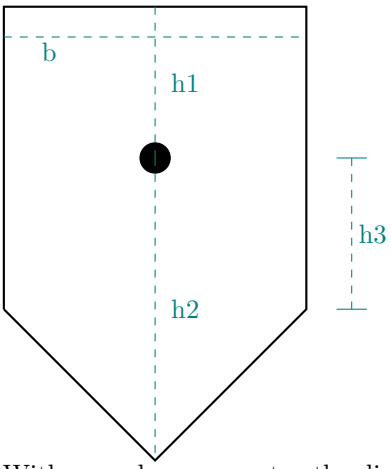
Just a short explanation how the calculations for the graver sharpening jig works. Normally, there are three 5 parameters that define the form of the base plate:

α	Angle of the cutting face
β	Angle of the v-shape
θ	Angle of the heel
d	Elevation of the sharpening stone over the plane the jig is running on
s	Stick out, the length the graver is protruding from the front face of the jig

In order to print a jig with a given width b, three main dimensions are calculated:



$h1$	Distance between the axis of the graver and the edge of the jig (for face sharpening)
$h2$	Distance between the axis of the graver and the tip of the jig (for the heels)
$h3$	Height from graver axis to the lower corners (for the heels)

With some base geometry the dimensions can be found to be:

$$h_1 = \frac{s \cdot \sin\alpha + d}{\cos\alpha}$$

$$h_2 = \frac{s \cdot \sin\theta + d}{\cos\theta \cdot \sin\frac{\beta}{2}}$$

$$h_3 = h_2 - \frac{b}{2\tan\frac{\beta}{2}}$$

Example (distances in mm, angles in °):

given:
$b = 50, d = 20, s = 30$
$\alpha = 45, \beta = 105, \theta = 8$

$$h_1 = \frac{30 \cdot \sin 45 + 20}{\cos 45} \approx \frac{41.2}{0.71} \approx 49.5$$

$$h_2 = \frac{30 \cdot \sin 8 + 20}{\cos 8 \cdot \sin 52.5} \approx \frac{24.2}{0.8} \approx 30.8$$

$$h_3 = 30.8 - \frac{25}{\tan 52.5} \approx 11.6$$