

Template Cutter

In 2010/2011 school year, a group of students of the 4 WM class decided to produce a cutting tool for the workshop of the Lebenshilfe organization in Hard, Austria, as part of their professional training.

This tool should ease the hard work of cutting by hand various decorations, such as stars, Easter bunnies and angels for the caregivers and the patients. This was a great challenge for the students, since they had no experience with stamping of felt. But they wanted to master this task as a team.

The goal

At the start of the project, the following goals were set:

- simplify the work of the caregivers and patients
- production of a working knife cutting tool
- discipline
- teamwork
- safety
- put the studied material to use
- recycling

How the project began...

At the start of the project, everyone in the team was assigned an area of responsibility. Next, the students started collecting ideas and drafting initial sketches. But the beginning is always hard. Before this project, the students had learned a lot about stamping- and forming tools in their workplaces, but working with felt was new for all of them, and this was, therefore, a challenge the students had to overcome.

Once the first sketches were drafted, it became clear that the initial ideas were not doable, simply due to strength issues. The strength that would have been necessary to push down the lever was 4000 N (approximately 400 kg). Of course, this wasn't possible, and therefore, a new solution for the problem had to be found. The solution turned out to be a cam shaft, which is operated with a lever. With the help of this camshaft, only 400 N (approximately 40 kg) were necessary. Hence, the problem was solved.

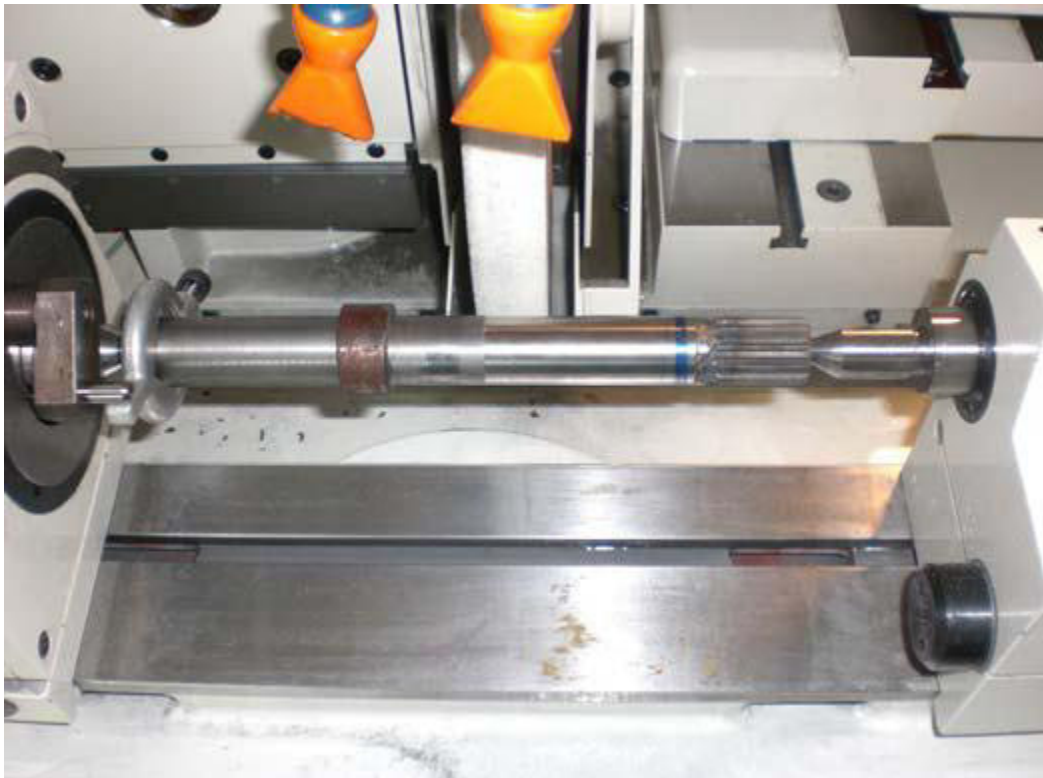


Figure 1: Tightening the cam shaft onto the cylindrical grinding machine.



Figure 2: Milling the stamp-fastening plate.



Figure 3: Initial stamp trials with the cutting stamp.

The tool

Knife cutter:

Since the final product has to be stamped out of a strip of felt, a special stamping procedure – knife cutting – is necessary. Knife cutting is the cutting of a material with a wedge edge, which is pressed against a plating. After the cutting, the knife penetrates a little further into the soft underlay, such as plastic, synthetic resin, or hardwood. Knife cutting tools are predominantly used to cut leather, paper, cardboard, textiles, or rubber.

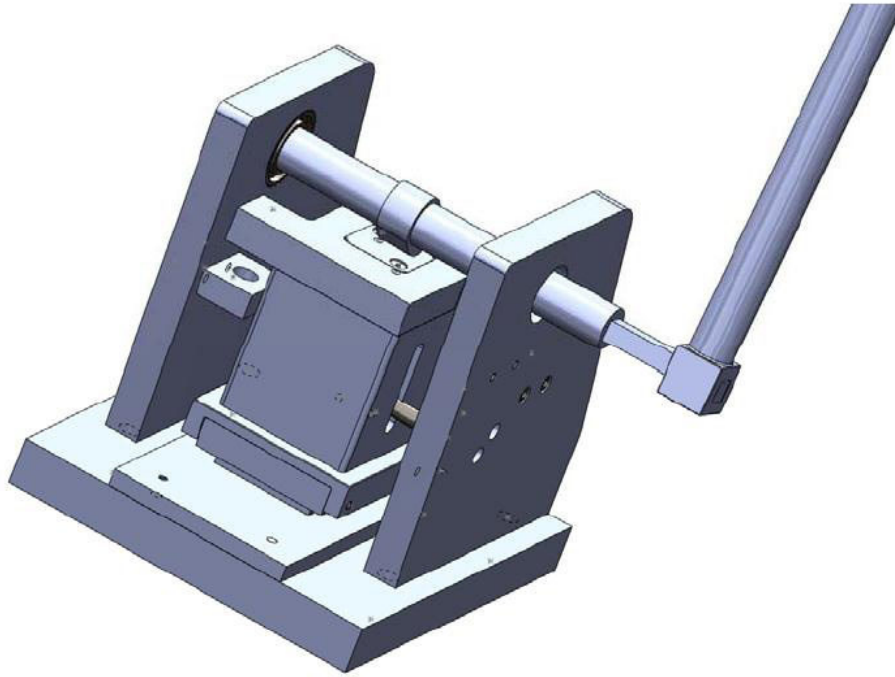


Figure 4: Assembly drawing

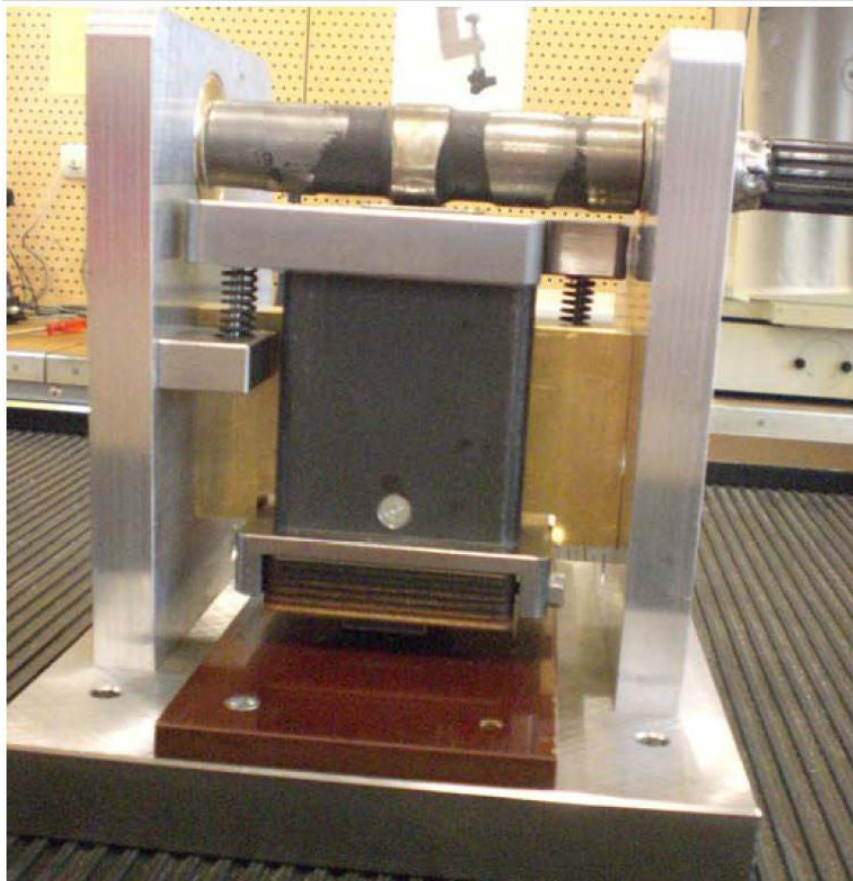


Figure 5: The ready-made tool.

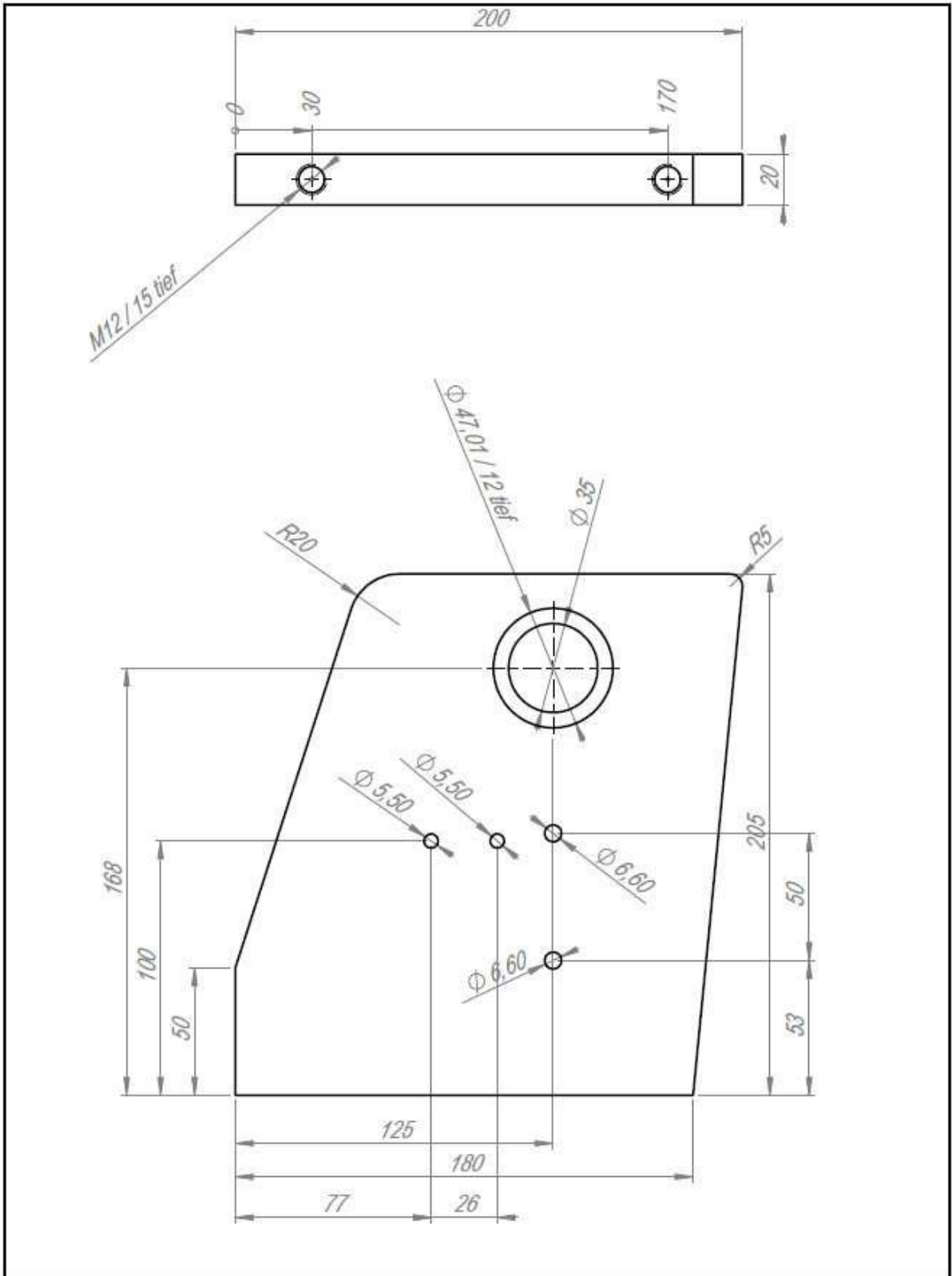
The final product:



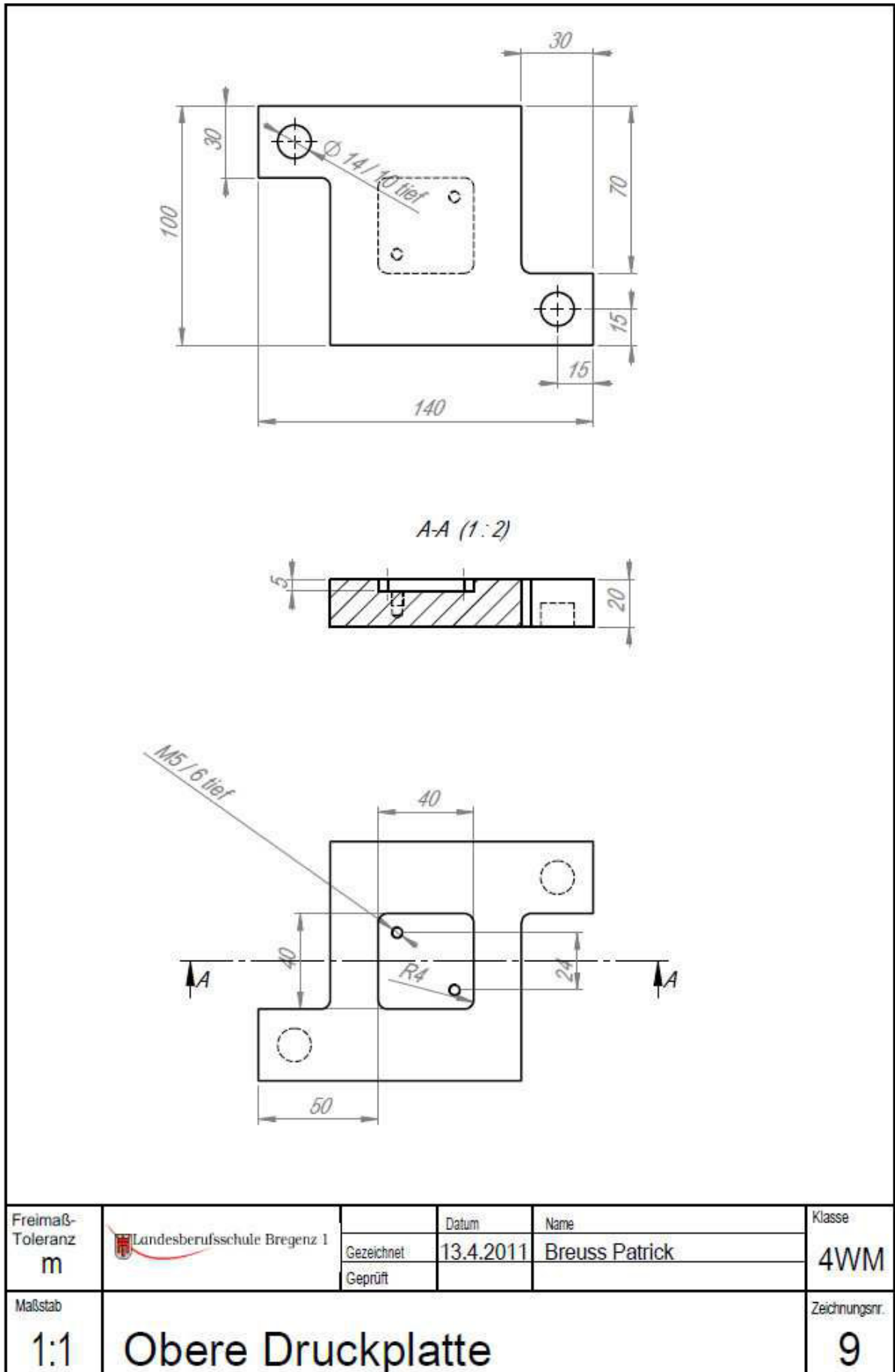
Figure 6: final product



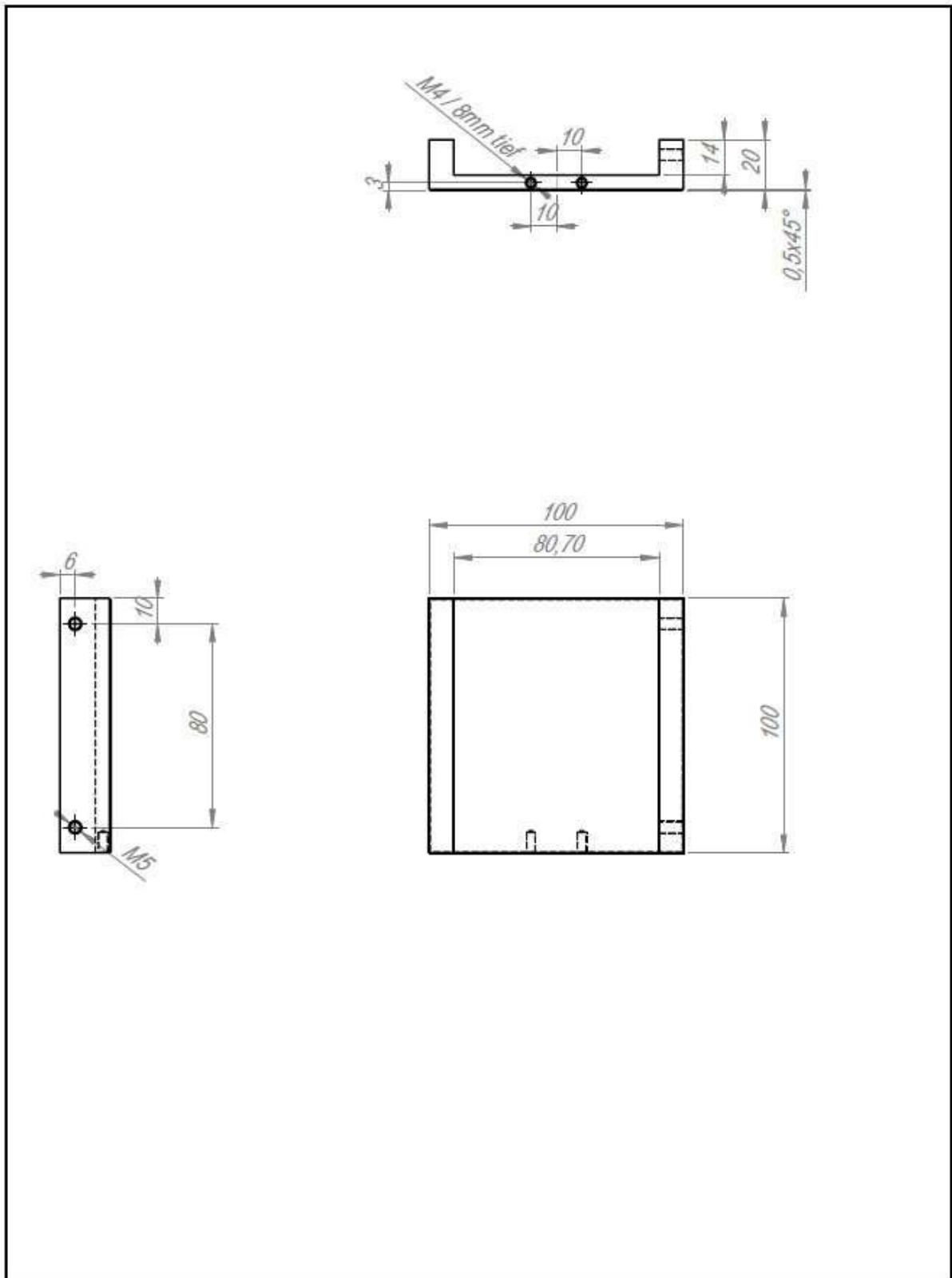
Figure 7: The first stamped felt trees



Freimaß-Toleranz m	 Landesberufsschule Bregenz 1	Datum	Name	Klasse
		Gezeichnet	23.3.2011	Baumann Mike
Maßstab				Zeichnungsnr.
1:2	Seitenwand rechts			10



Freimaß-Toleranz m	Landesberufsschule Bregenz 1	Datum	Name	Klasse 4WM
		Gezeichnet	13.4.2011	
Maßstab 1:1	Obere Druckplatte			Zeichnungsnr. 9



Freimaß-Toleranz m	 Landesberufsschule Bregenz 1	Datum	Name	Klasse
		Gezeichnet	23.3.2011	Breuss Patrick
Maßstab				Zeichnungsnr.
1:2	Messer Druckplatte			7

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Technische Zeichnungen:

