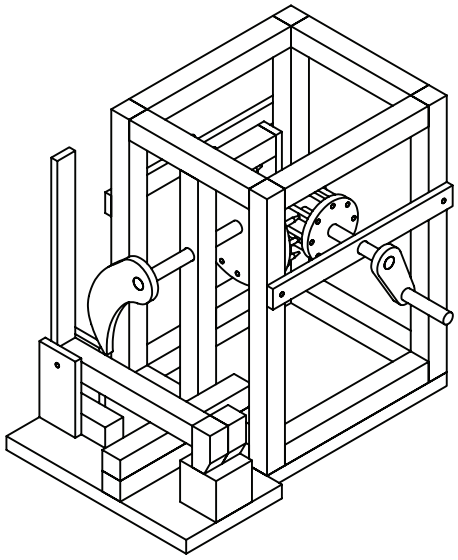
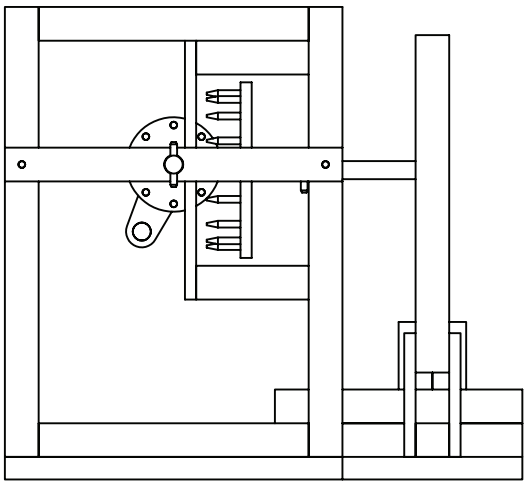
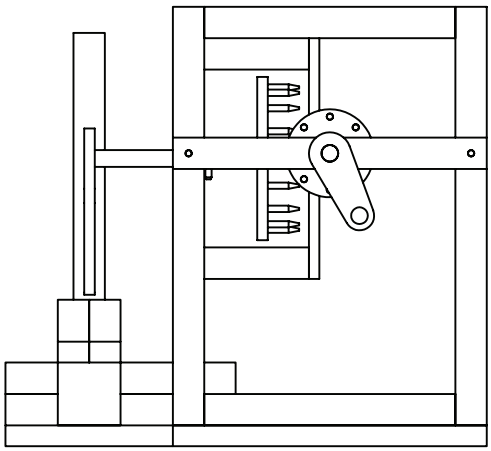
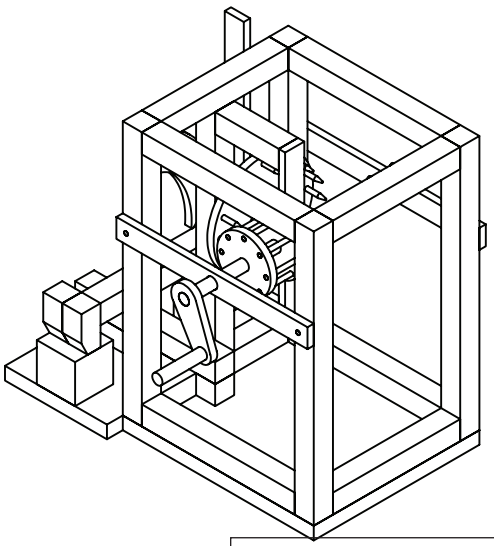
OPITEC Hobbyfix

Leonardo da Vinci II
100.850



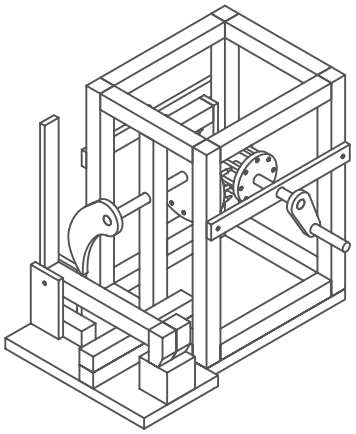




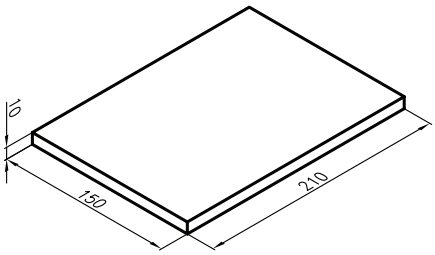
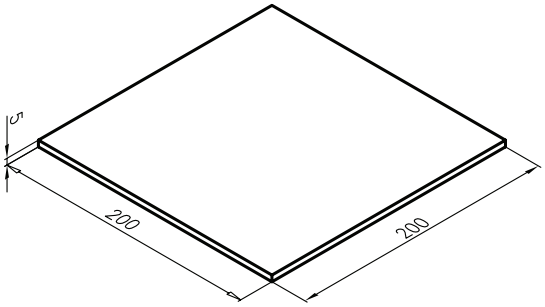
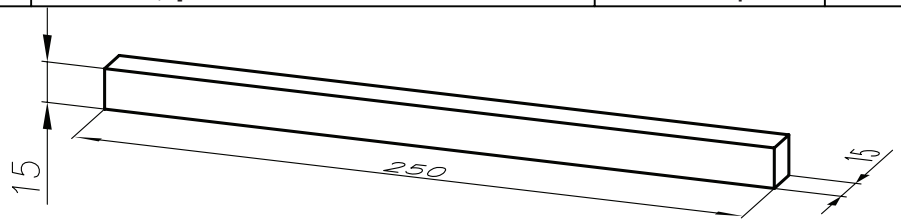
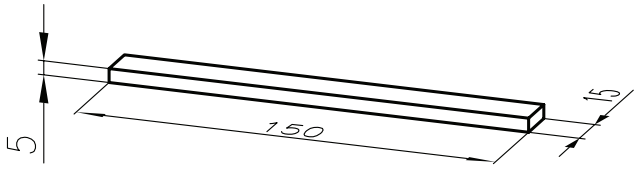
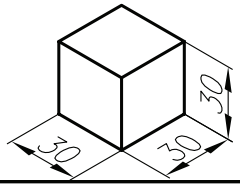


Please Note

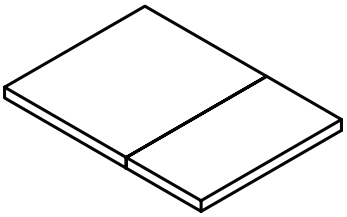
The OPITEC range of projects is not intended as play toys for young children.They are teaching aids for young people learning the skills of Craft, Design and Technology.These projects should only be undertaken and tested with the guidance of a fully qualified adult. The finished projects are not suitable to give to children under 3 years old. Some parts can be swallowed. Dan- ger of suffocation!



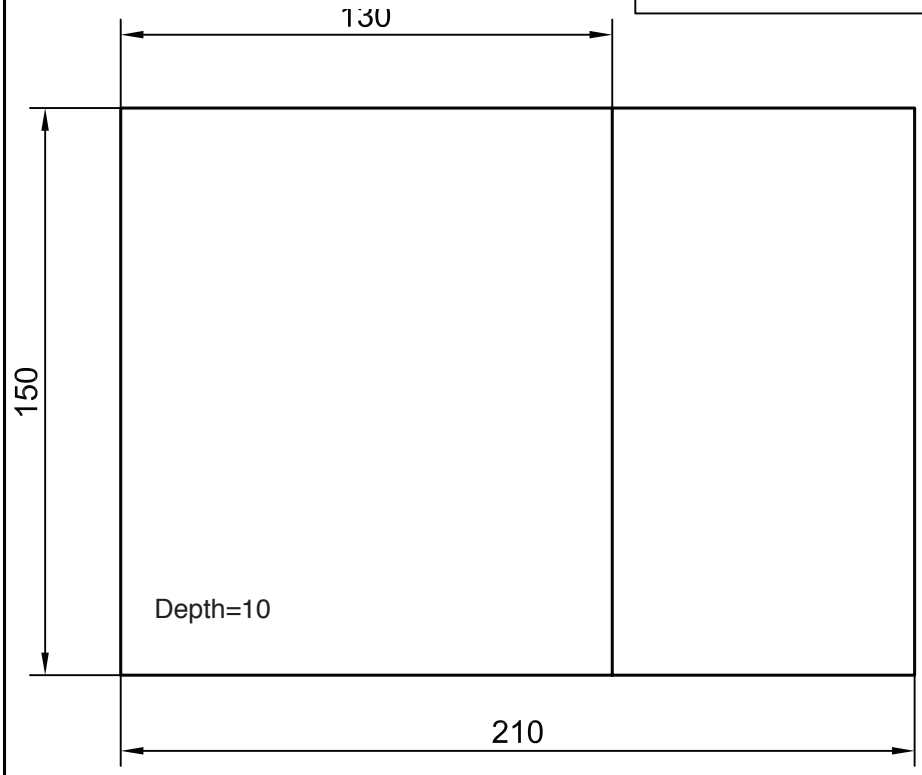
Leonardo da Vinci II
100.850

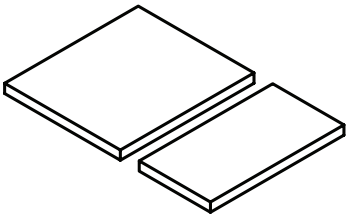
Pos	Cantidad	Descripción	Material	Medidas en mm
		Base	contrachapado	
		Ruedas motrices, manivela	contrachapado	
		 		
		Marco, pilares	listón de pino	
				
		Soporte, conexión	listón de pino	
				
		Ejes	varilla de madera	
				
		Ejes, clavijas, engranaje,	varilla, listón	
				
		Yunque	dado de pino	
				

Lista de piezas. Pos 1

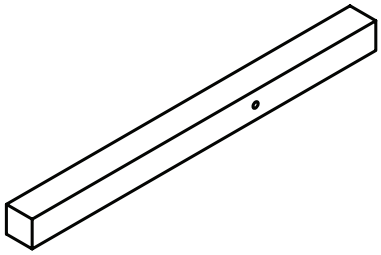


1. - Serrar la base (contrachapado)

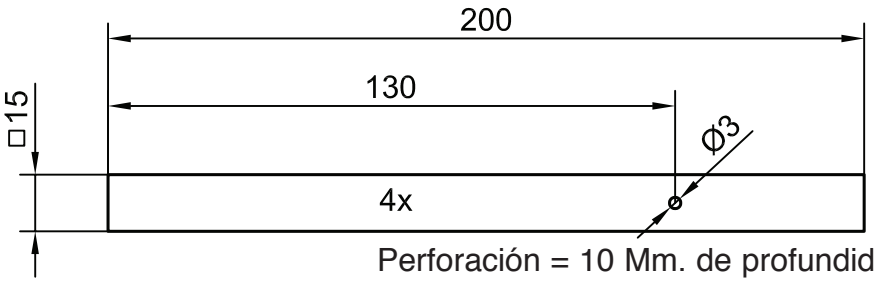




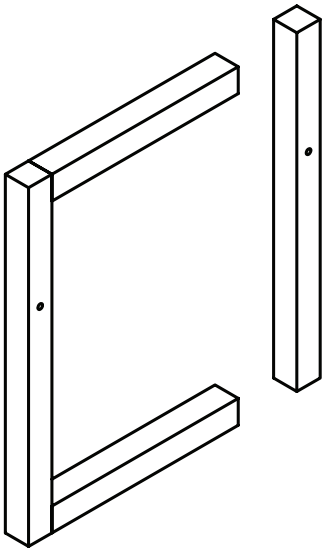
Lista de piezas. Pos 2



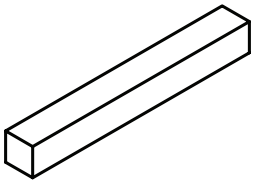
2. - Serrar el listón grande del marco, perforar



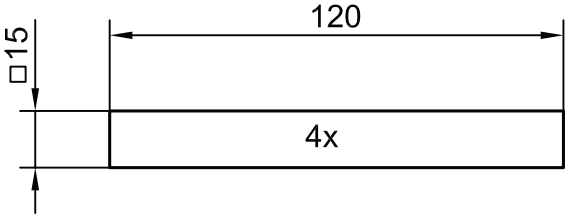
Perforación = 10 Mm. de profundidad



Lista de piezas. Pos 3



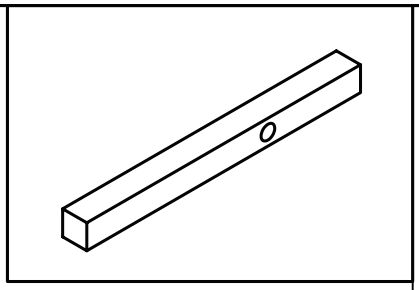
3. Serrar el listón pequeño del marco

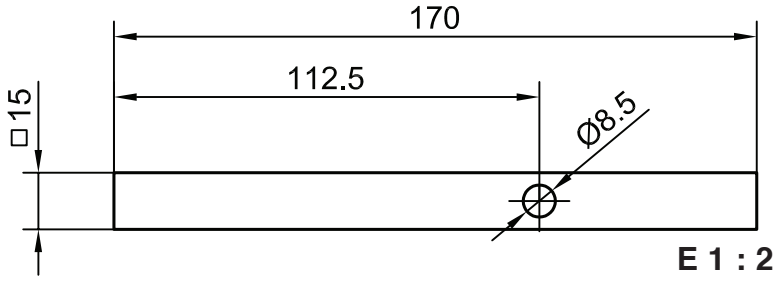


Montar el marco pegando 2 X

Lista de piezas. Pos 3

4. - Serrar el soporte del eje, perforar

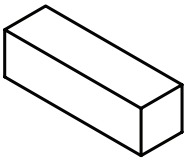


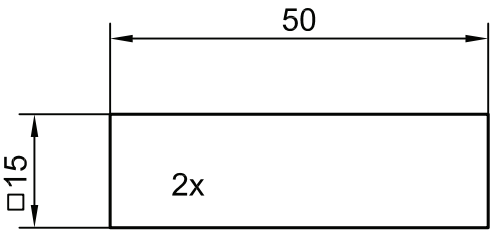


E 1 : 2

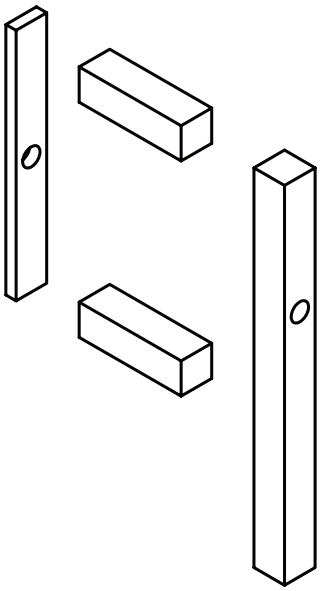
Lista de piezas. Pos 3

5. - Serrar el listón





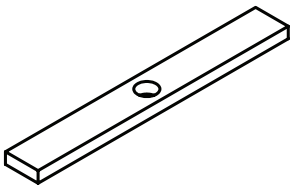
E 1 : 1

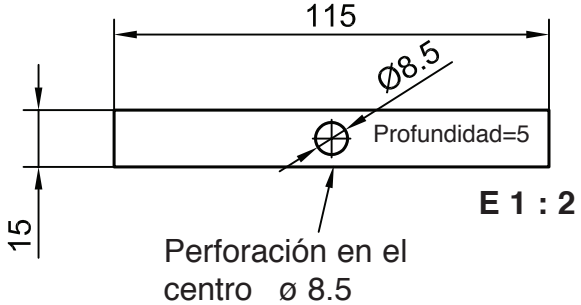


Montar el soporte pegándolo

Lista de piezas. Pos 4

6. - Serrar el soporte del eje, perforar

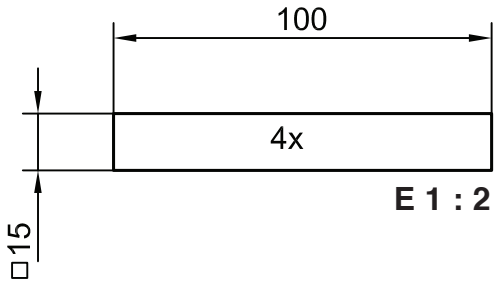


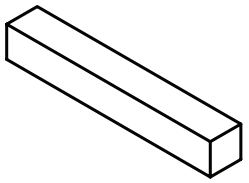


E 1 : 2

Lista de piezas. Pos 3

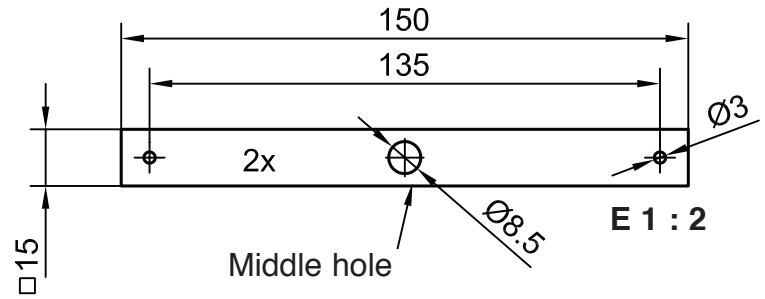
7. - Serrar los soportes, perforar

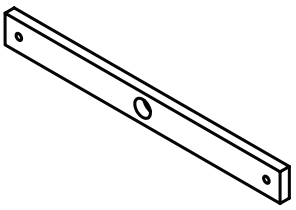




Part no 3

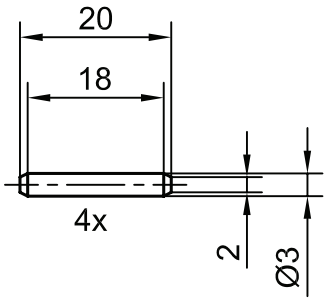
8. Construction braces, sawing and drilling

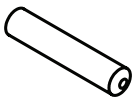




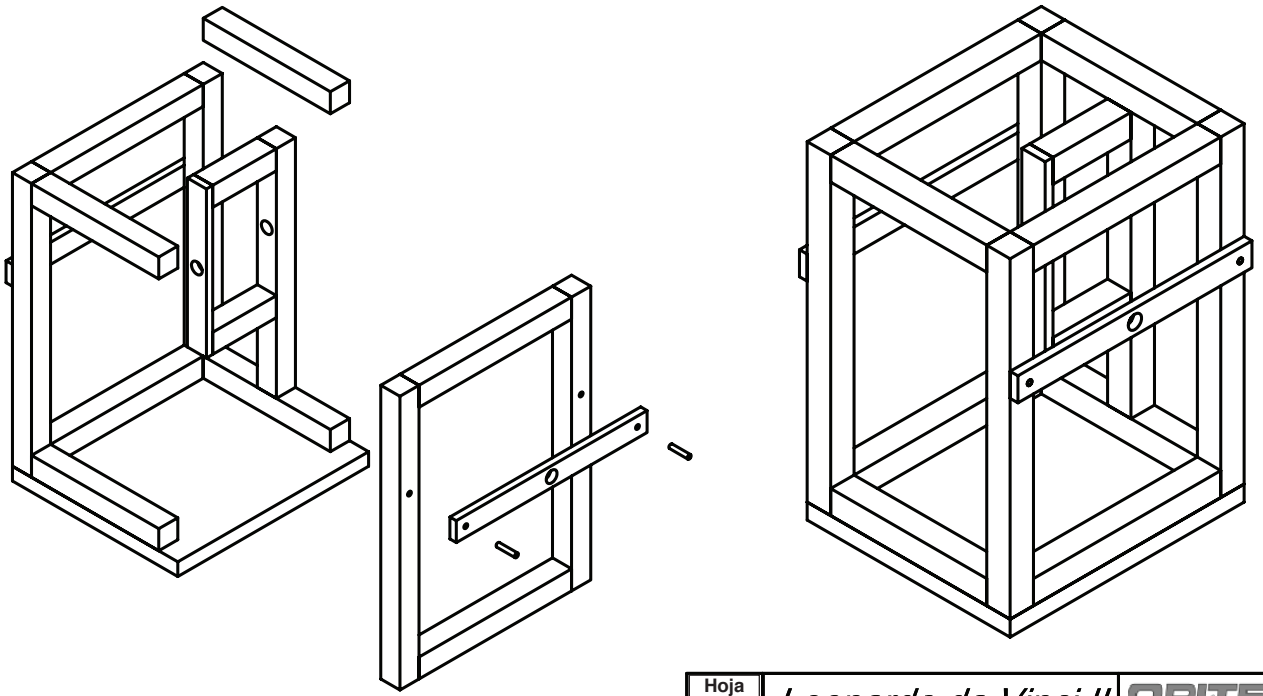
Part no.6

9. Sawing and sanding the pins

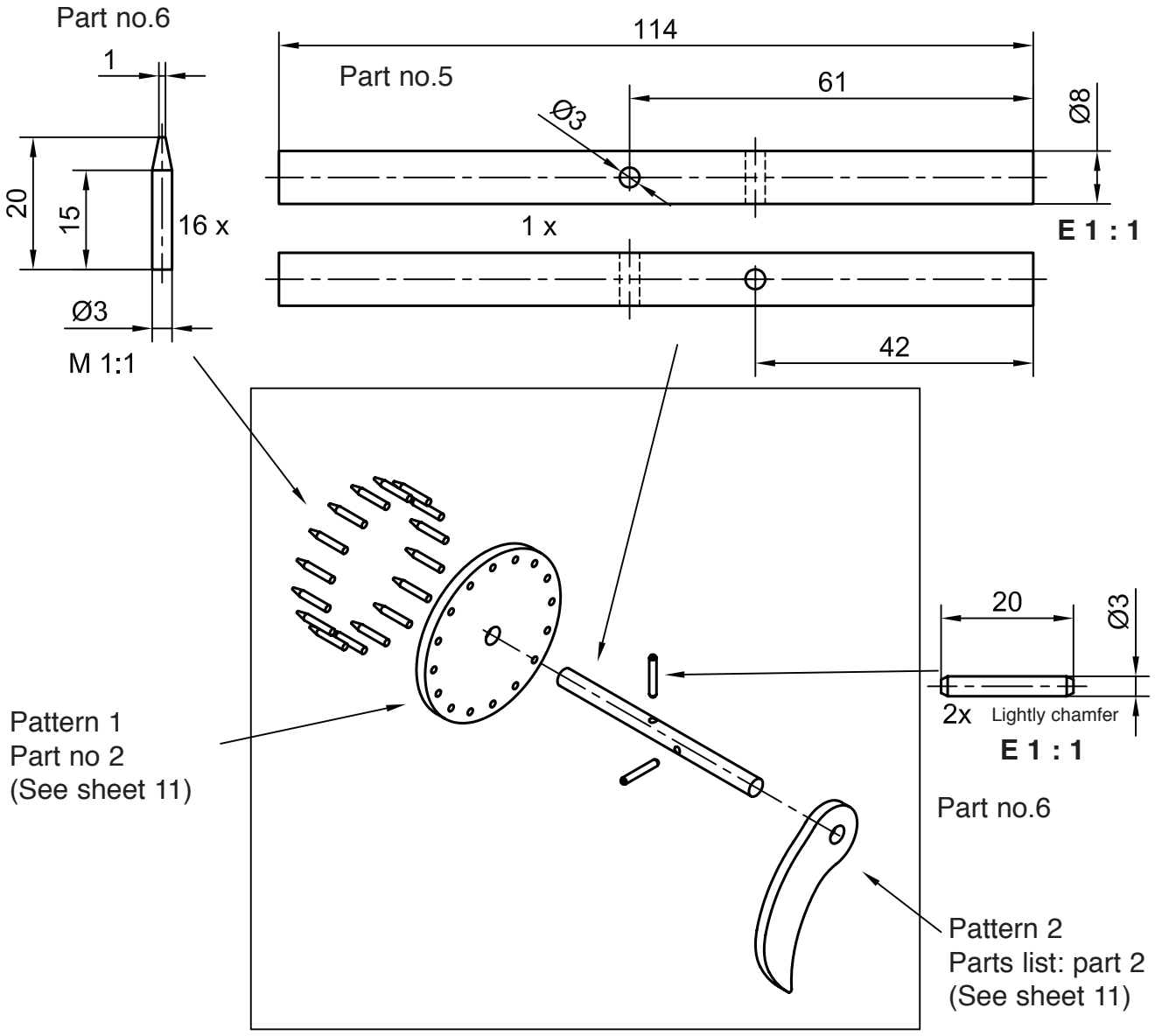


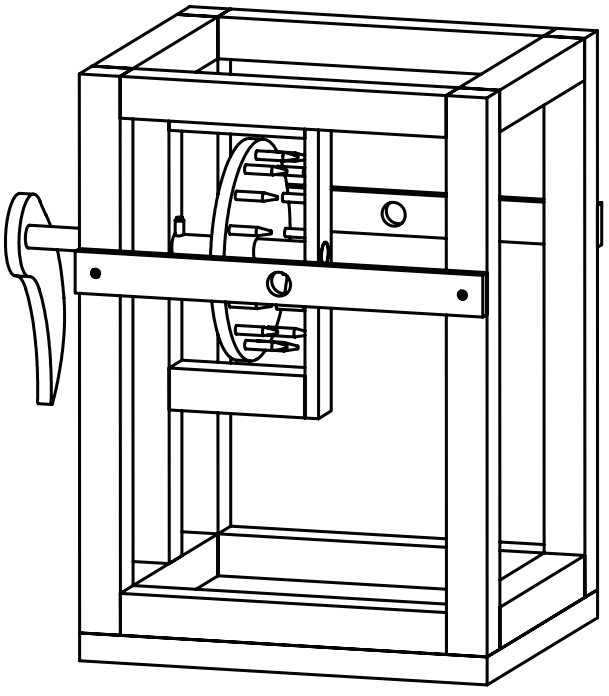


10.Glue and assemble the frame, cross members and bearing (Middle)



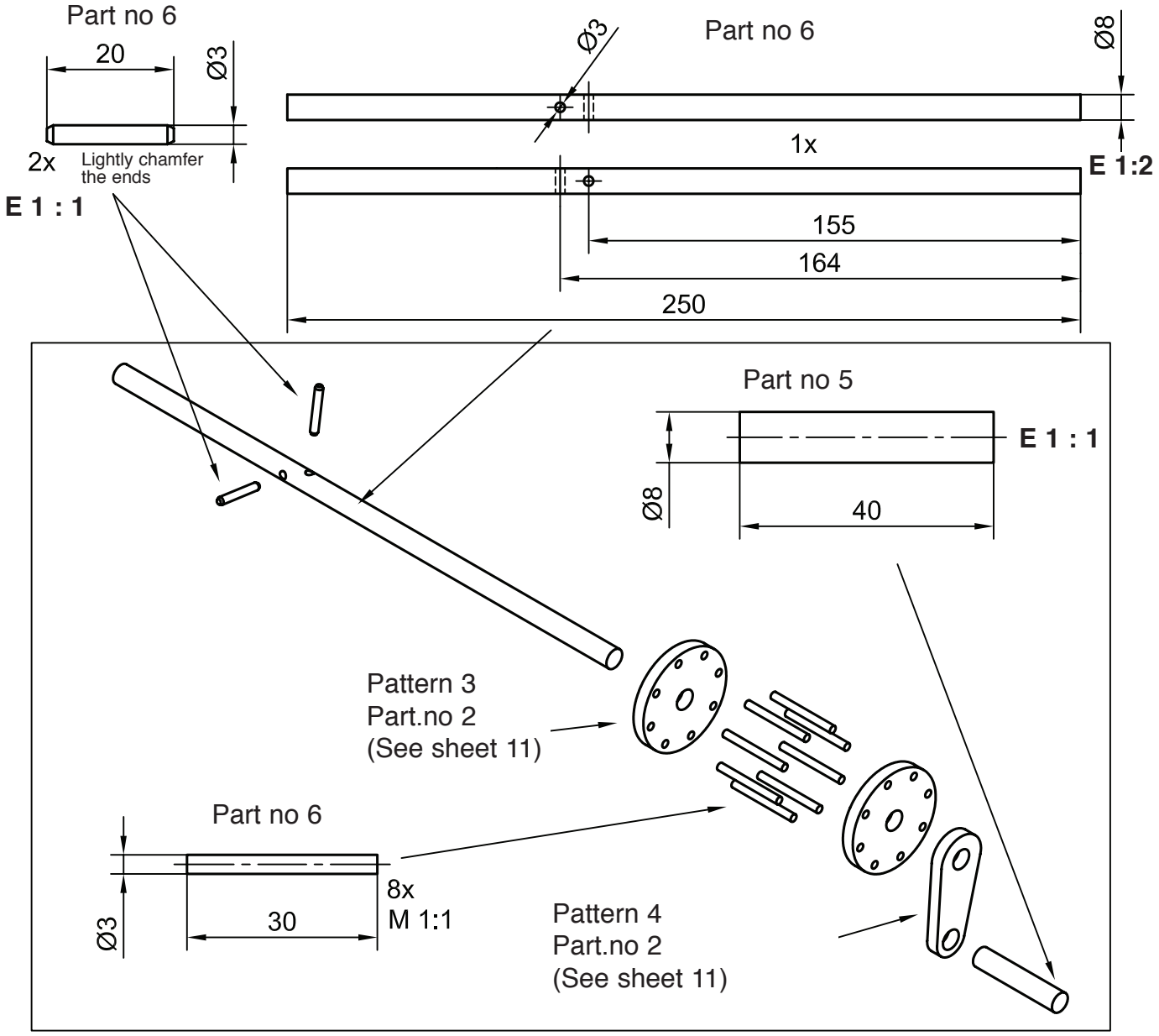
11. Making the main drive and cam claw system

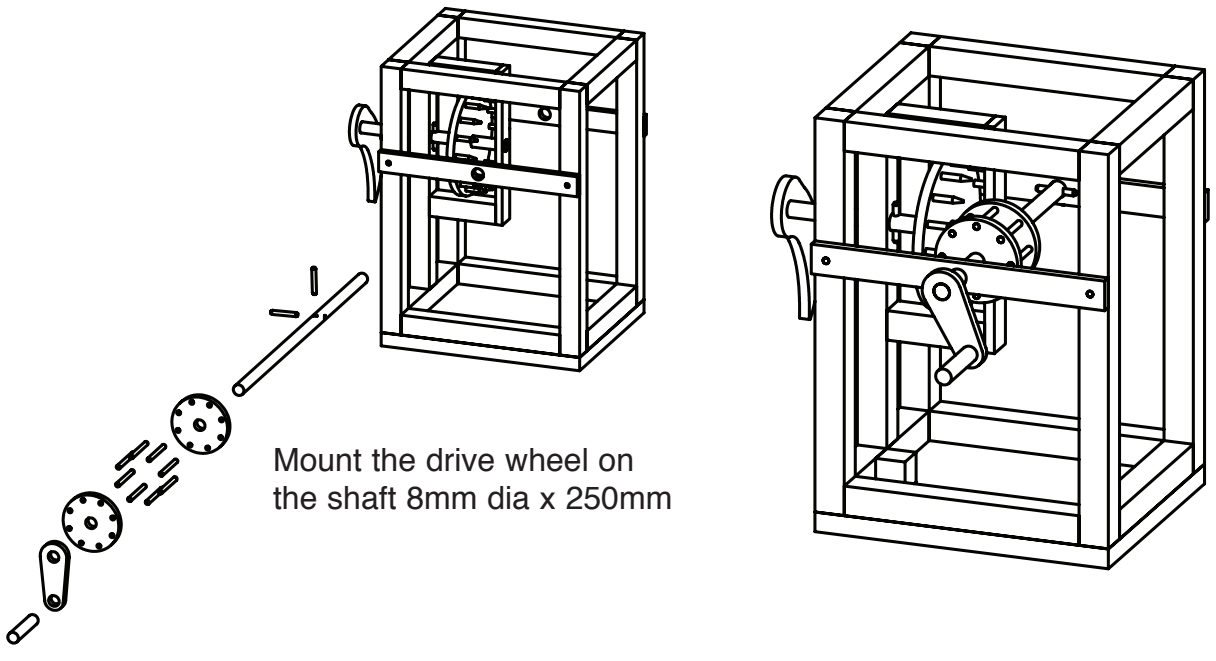




Do not glue the drive wheel at this stage !!

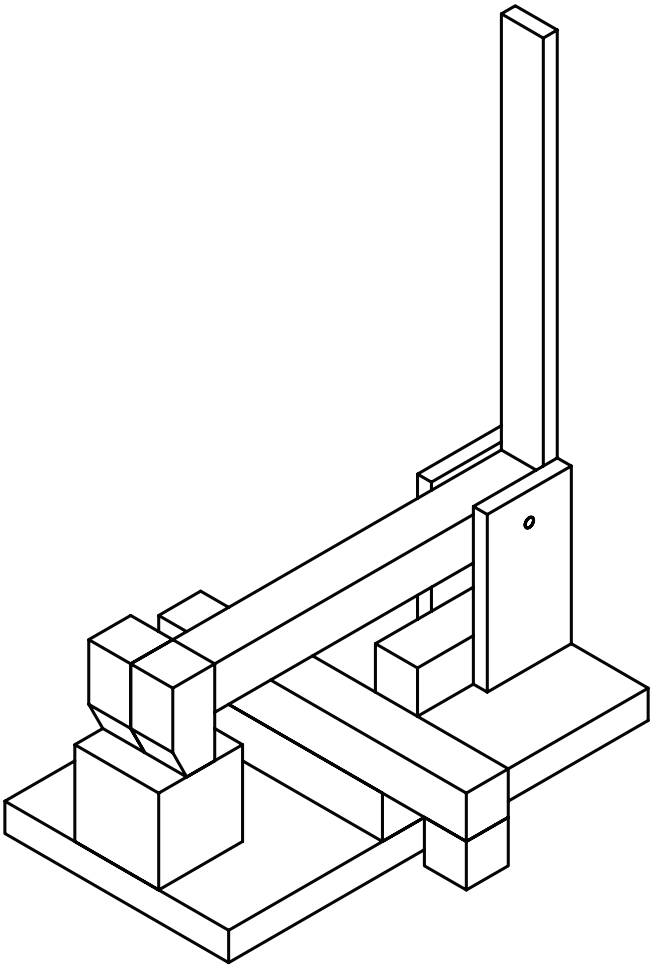
12. Fabriquer la petite roue motrice avec la manivelle

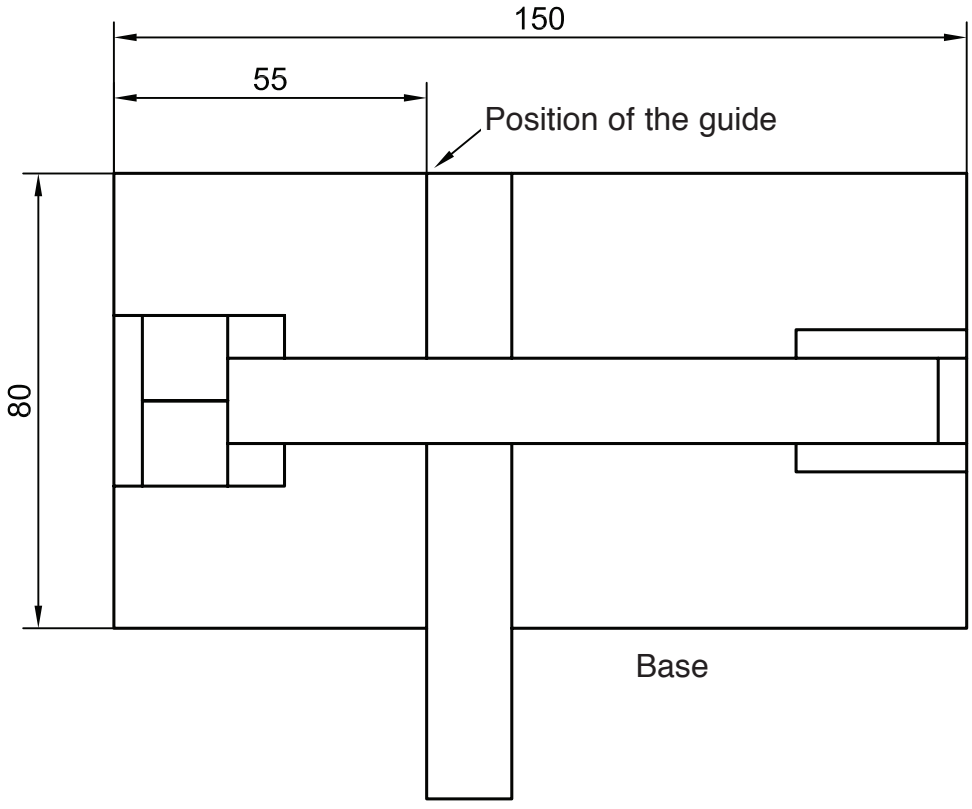




Mount the drive wheel on
the shaft 8mm dia x 250mm

Mechanical hammer

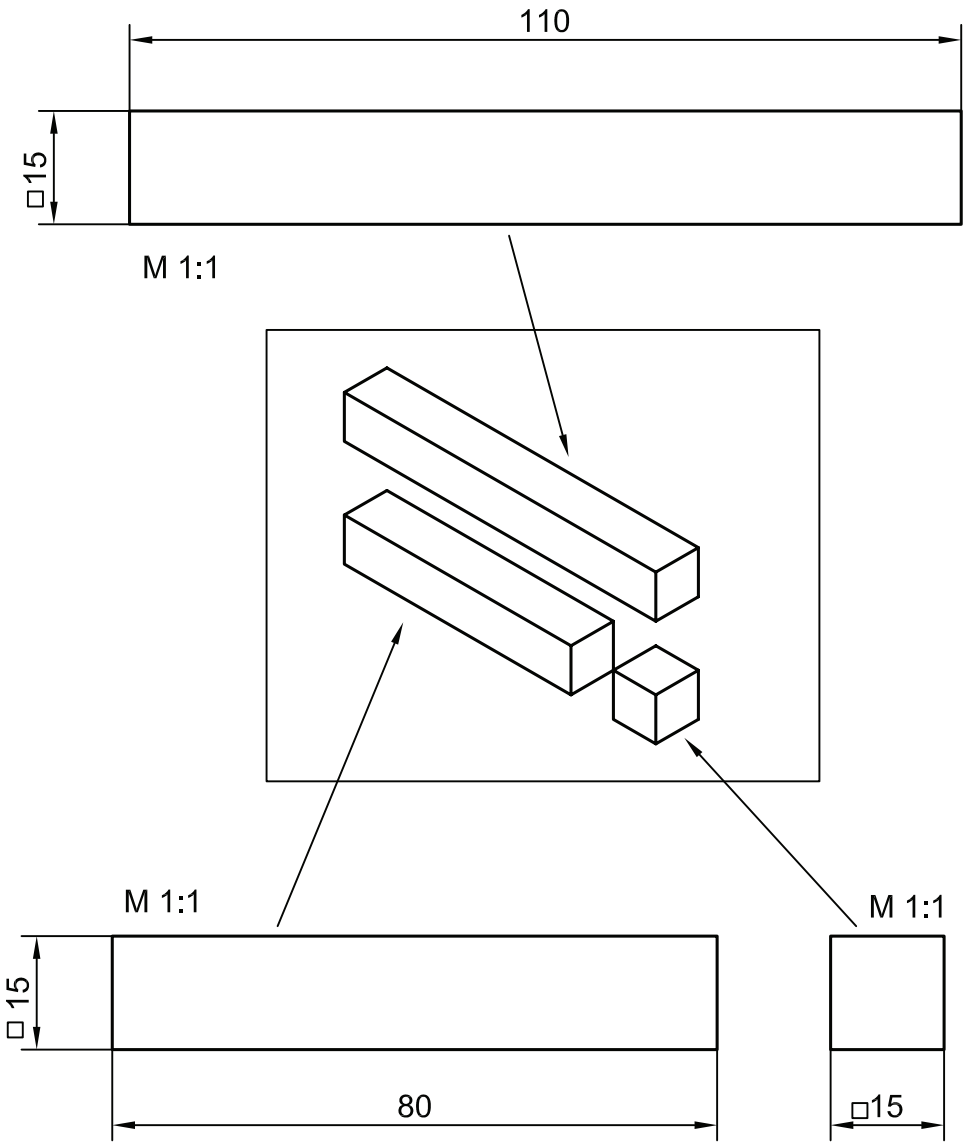


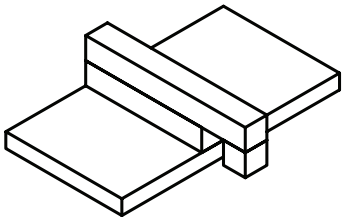


Plan view

Part no. 3

13. Hammer guide

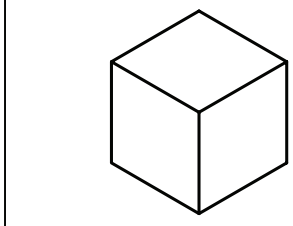


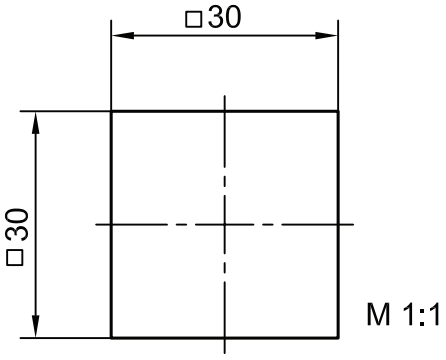


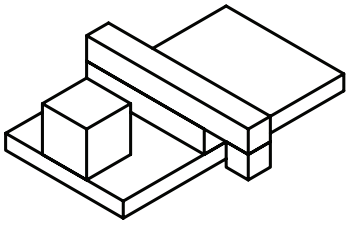
Part no.6

Part no. 7

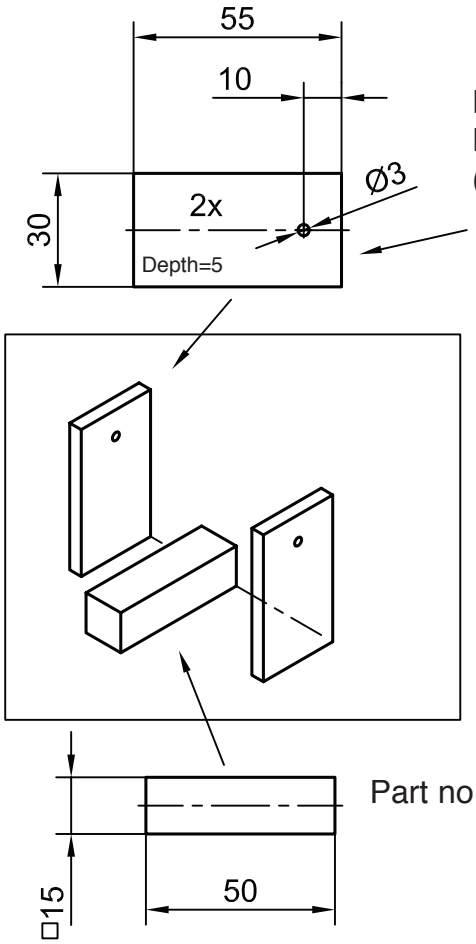
14. Glue the anvil in the middle

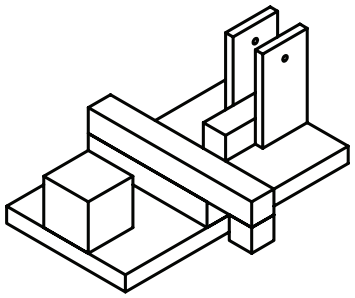




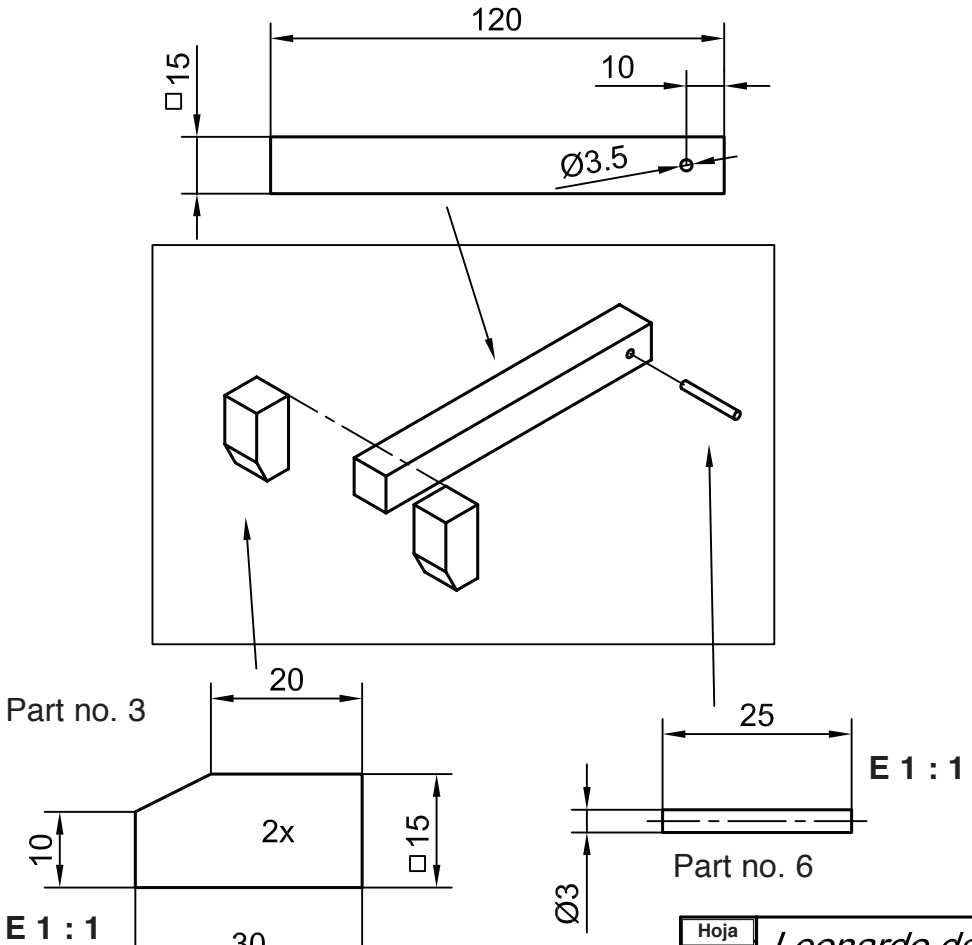


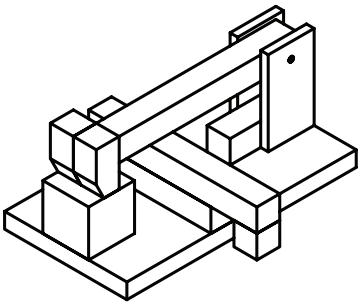
15. Hammer shaft bearing, sawing and drilling





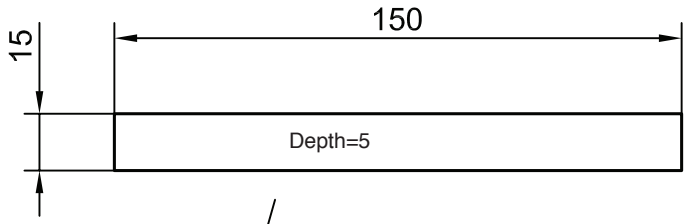
16. Hammer parts , drilling and sawing



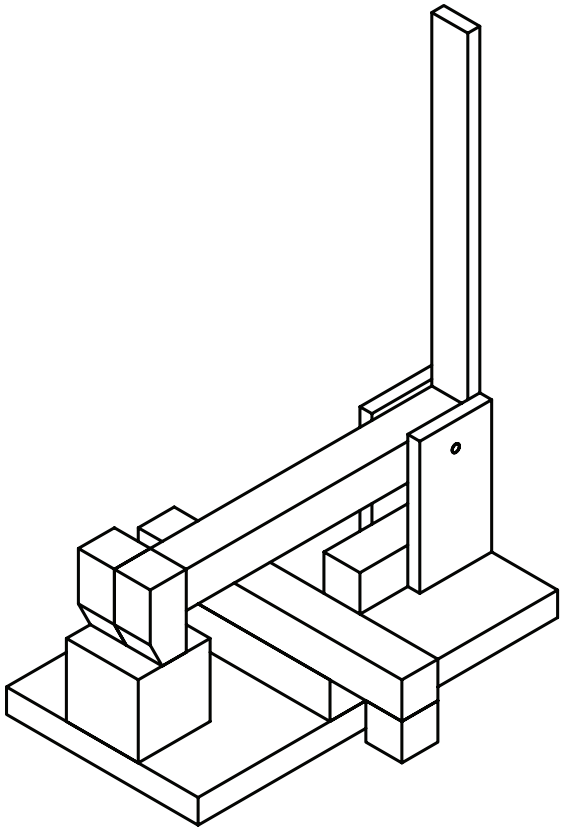


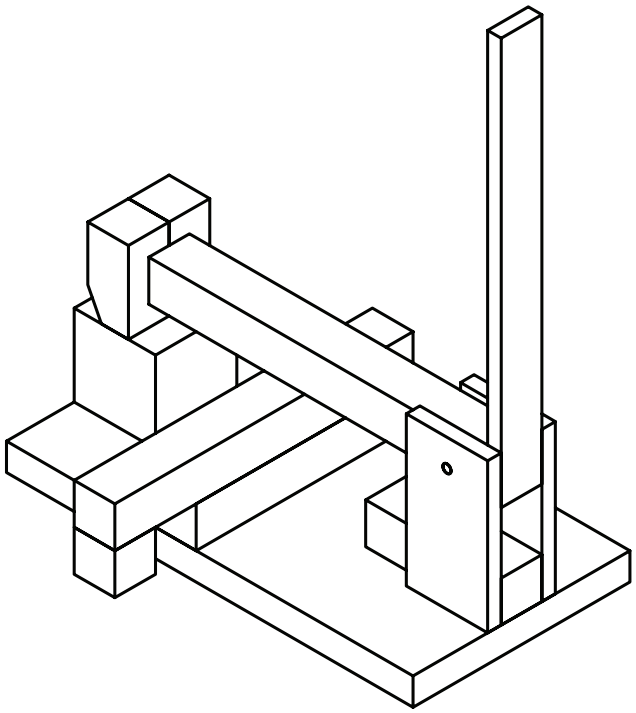
Part no.4

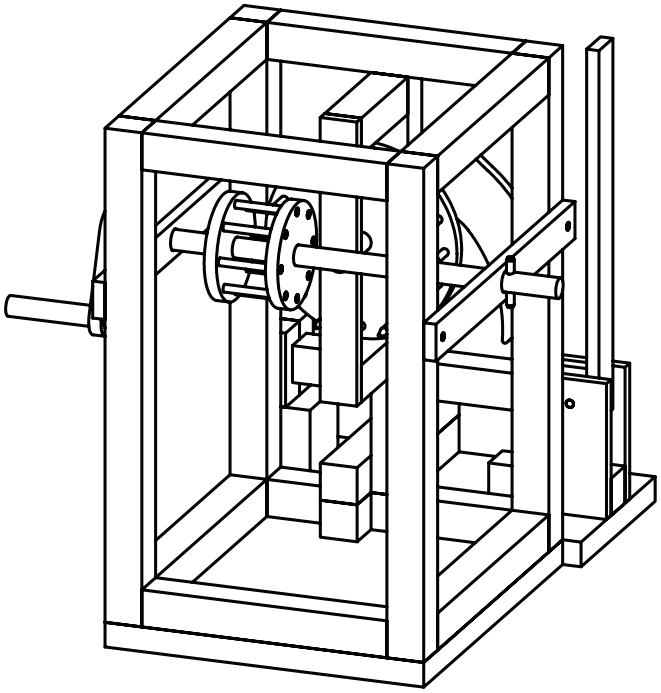
17. Assembling and gluing the hammer parts

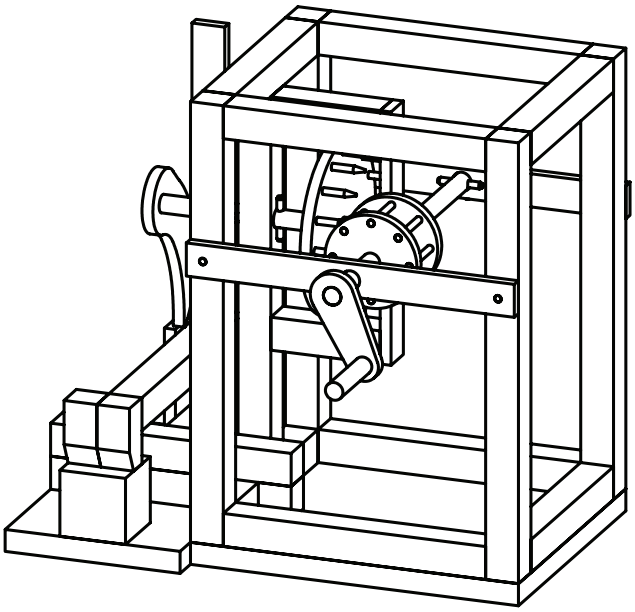


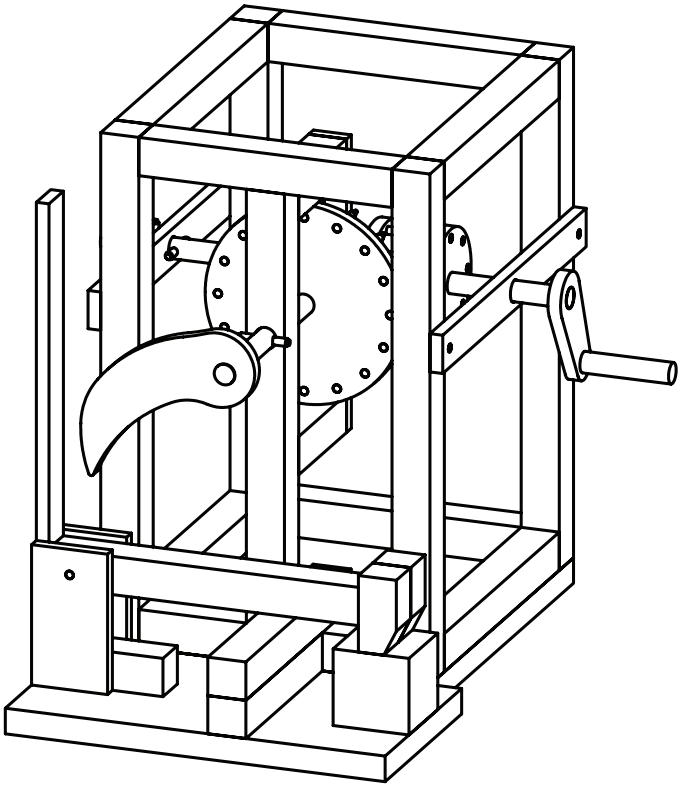
E 1 : 2

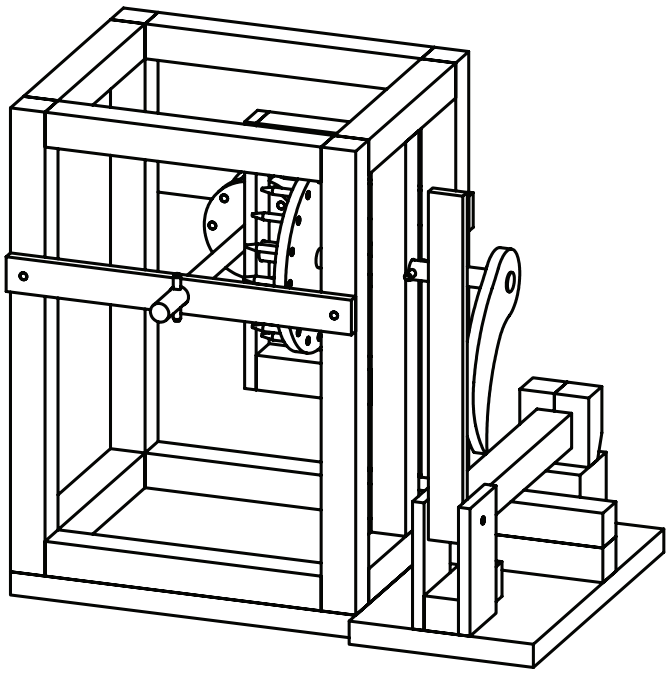




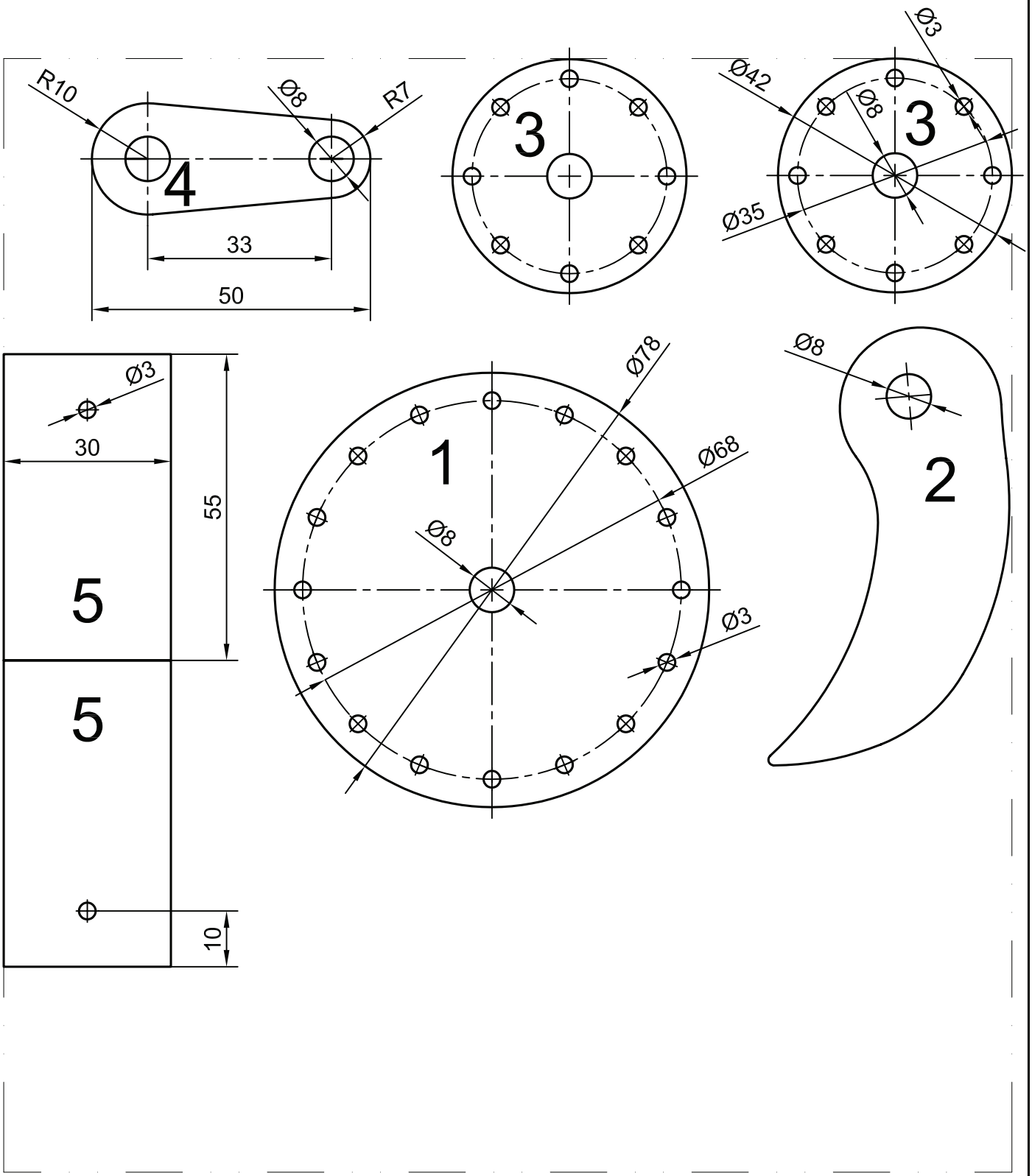








Patterns for the plywood sheet. Scale 1:1



Hoja		
11	*Leonardo da Vinci II* 100.850	OPITEC Hobbyfix

Instructions Hoja

1. Sawing the chipboard base

1.1 Mark out the base on the chipboard using a Try square etc. Saw out the parts and sand the edges.

2 Long frame spar pieces, sawing and drilling

2,1 Saw the 4 pine strips 15 x 15 x 250mm to 200mm long. Drill them 3mm dia x10mm deep as shown. Sand the ends. Keep any remaining pine strip for a later use.

3 Sawing the smaller frame pieces

3.1 From the two strips 15 x 15 x 250mm saw 4 pieces 120mm long and sand the ends.

3.2 Glue together the large and small pine frame spars. Note all the holes are the same height and face the same direction.

4 Sawing and drilling the bearing blocks

4.1 Shorten the pine strip 15 x 15 250mm to a length of 170mm and drill a 8.5mmdia hole in the middle. Sand the ends

5. Axle bearing block members

5.1 Saw 2 pieces 50mm long from the remaining pine strip. Sand the ends square.

6. Axle bearing block, small part

6.2 Saw the strip 5 x 15 x 150mm to 115mm. a drill a 8,5mm in the middle as shown

6.3 Glue the axle holder to the bearing block as shown

7. Frame cross members

7.1 Saw from the 2 lengths of pine strip 15 x15 x250mm, 4 pieces each 100mm long and sand the ends.

8 Frame members, sawing and drilling

8.1 Drill the 3mm dia and 8.5mm holes in the 2 pine strips 5 x 15 x 150mm

9 Sawing and sanding the pins

9.1 Saw 4x20mm pins from the dowel 3mmdia x 245mm and lightly sand the ends.

10. Glue together the frame, bearing block, cross members and pins

10.1 Glue the construction frame pieces with the 3mm dia holes so that the holes line up And secure with 2 pins

11. Making the drive wheel and cam peg system

11.1 Trace the pattern (page 11) on the plywood sheet and saw out the parts, sand all the edges

11.2 Drill the holes in the drive wheel 3mm diameter and 8mm diameter

11.3 Saw from the two dowels 3 x 245mm, 16 parts each 20mm long and sharpen one end. (Use a pencil sharpener for the point and then saw to length)

11.4 Glue the dowels in the disc with the sharpened ends uppermost

11.5 Saw a length of 8mm dia dowel to 114mm long (shaft). Drill the 3mm holes in one end, set at 90 degrees (Note: Hold the dowel in a machine vice when drilling these holes)

11.6 Saw 2 security pins each 20mm long from the dowel 3dia x 245mm and lightly sand the chamfer the ends.

11.7 Mount the cam peg (pattern 2) on the shaft

11.8 Set the large drive gear and axle in the bearing. Lock the shaft with 2 pins (Do not glue)

12. Making the small drive wheel and crank handle

12.1 Trace the patterns (Page 11) on to the plywood sheet and saw them out, sand all the edges.

12.2 Try and drill the holes in both discs in one go, both the centre 8mm dia and the outer 3mm dia.

12.3 Saw from the 3mm dia 8 pieces each 30mm long

12.4 Glue the dowels between the discs as shown in the drawing

12.5 Drill two 3mm holes in the 8mm shaft as shown

12.6 Trace the handle on to the plywood sheet (Pattern 4) and saw the dowel 8dia x 40mm

12.7 Saw 2 x pins 20mm long from the dowel 3 x 245mm and lightly sand the ends.

12.8 Set the small drive wheel in the bearing block. The small wheel should now engage with the left side of the large drive gear. Secure the shaft with 2 pins

13. Hammer work system, sawing/ gluing and anvil

13.1 Use the pine strip 15 x15 x250mm and saw it according to the plan, sand and assemble all the parts as shown (See sheet 6)

14. Glue the anvil to the base

15. Hammer carrier sawing and drilling.

15.1 Mark out the sides (Pattern 5) and drill the 3mm dia holes (Note: Drill both parts in one go)

15.2 Glue the pine strip 15 x 15 x 50mm on the base as shown

16. Hammer parts, sawing and drilling

16.1 Drill the pine strip 15 x15 x120mm with a 3.5mm dia hole as shown on the plan. Make the hammer head from the remainder of pine strip 15 x15 x250mm and shape the angled face. Glue the parts together and add the 3mm dia axle and insert it in the carrier

17. Lever for hammer

17.1 Make the joiner, action lever (Part 4) from the strip 5 x15 x150mm and glue it to the hammer

Testing:

1. Check that the parts are assembled as shown in the plans- turn the handle and check that the hammer moves up and down.

2. By moving the working parts (hammer) the movement of the head can be controlled

Faults and correction

If the gears stick or jam they can be adjusted by moving them on the shaft
Cam peg not making contact with the hammer – adjust hammer
When its working correctly the drive gear and wheel can be glued to the shaft