

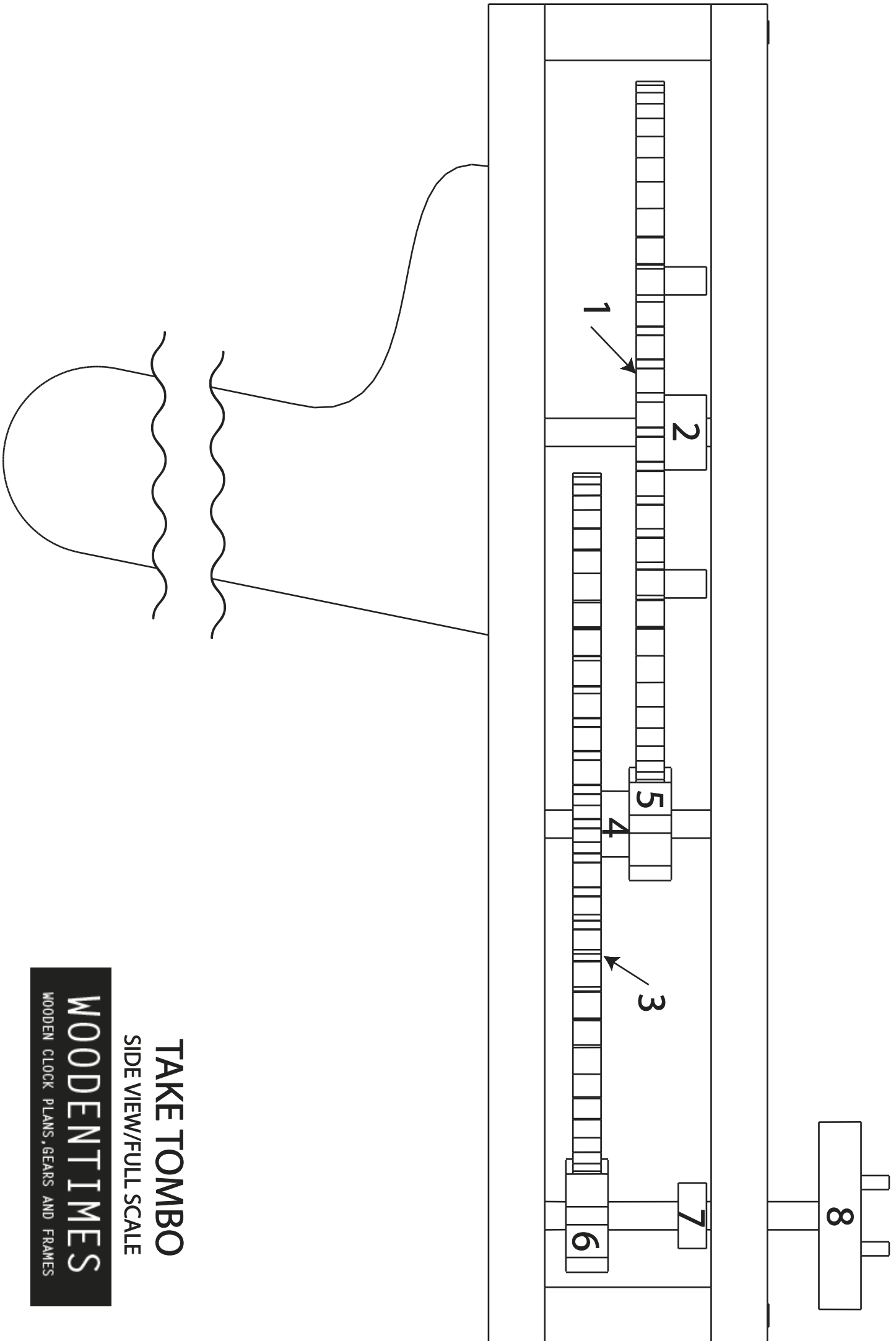
TAKE TOMBO



WOODENTIMES

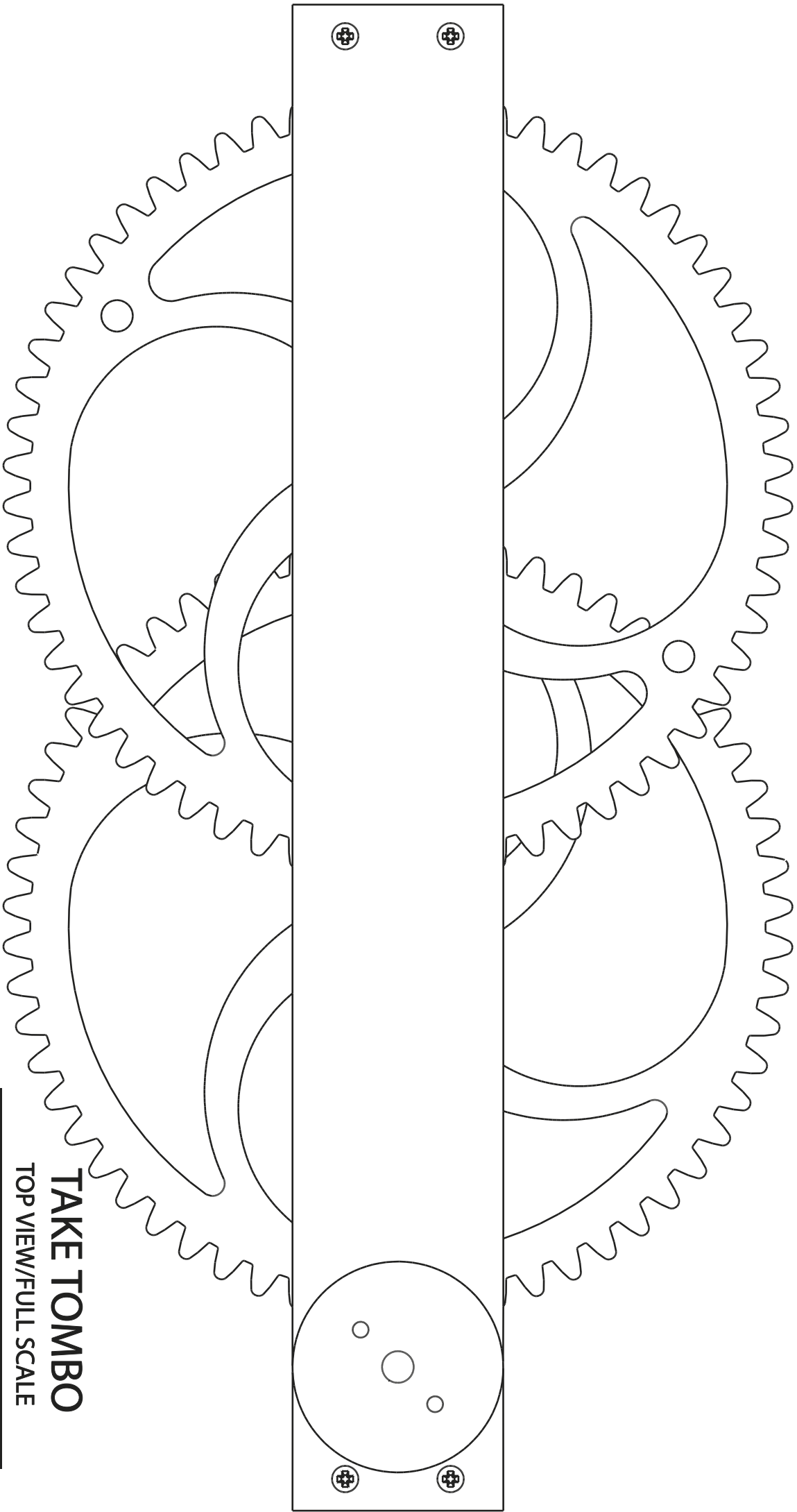
WOODEN CLOCK PLANS, GEARS AND FRAMES

Use this sheet to control the accuracy of your printer the square is 7"/7" or 177.8 mm/177.8 mm. The difference should not be greater than 0.7 mm (0.0276") in any direction. If the difference is equal in both directions you can still use your printer it just means the Take Tombo will be slightly bigger or smaller



TAKE TOMBO
SIDE VIEW//FULL SCALE

WOODENTIMES
WOODEN CLOCK PLANS, GEARS AND FRAMES

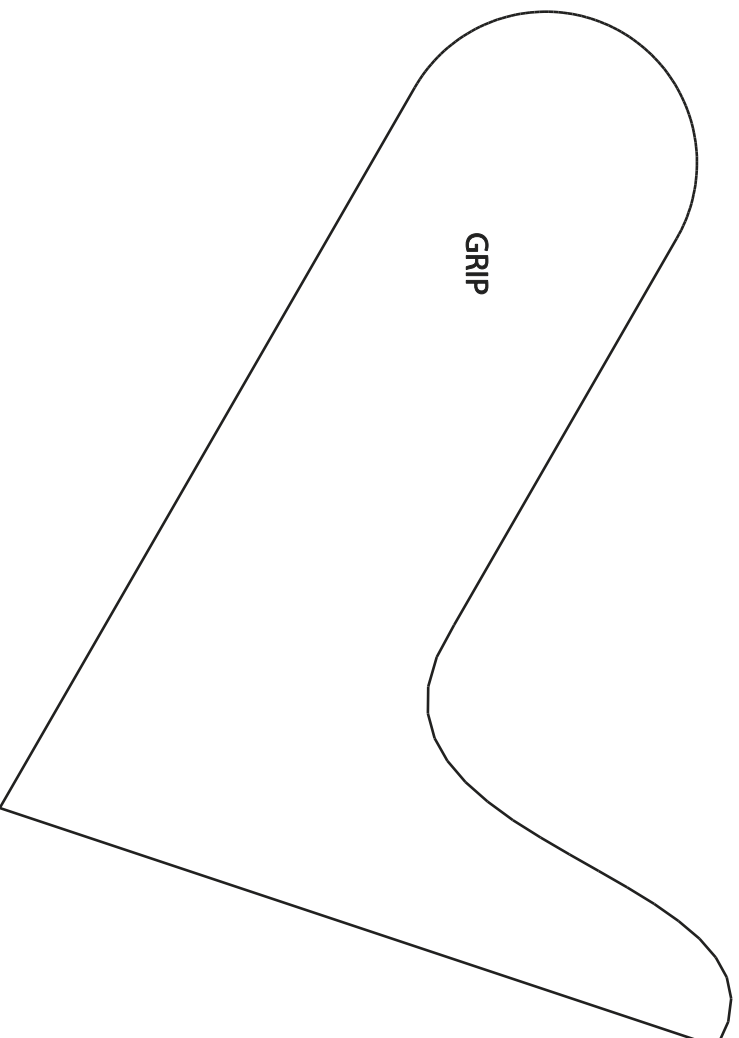


TAKE TOMBO
TOP VIEW/FULL SCALE

WOODENTIMES
WOODEN CLOCK PLANS, GEARS AND FRAMES



END PIECE
NEEDED 2X



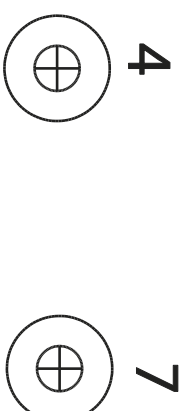
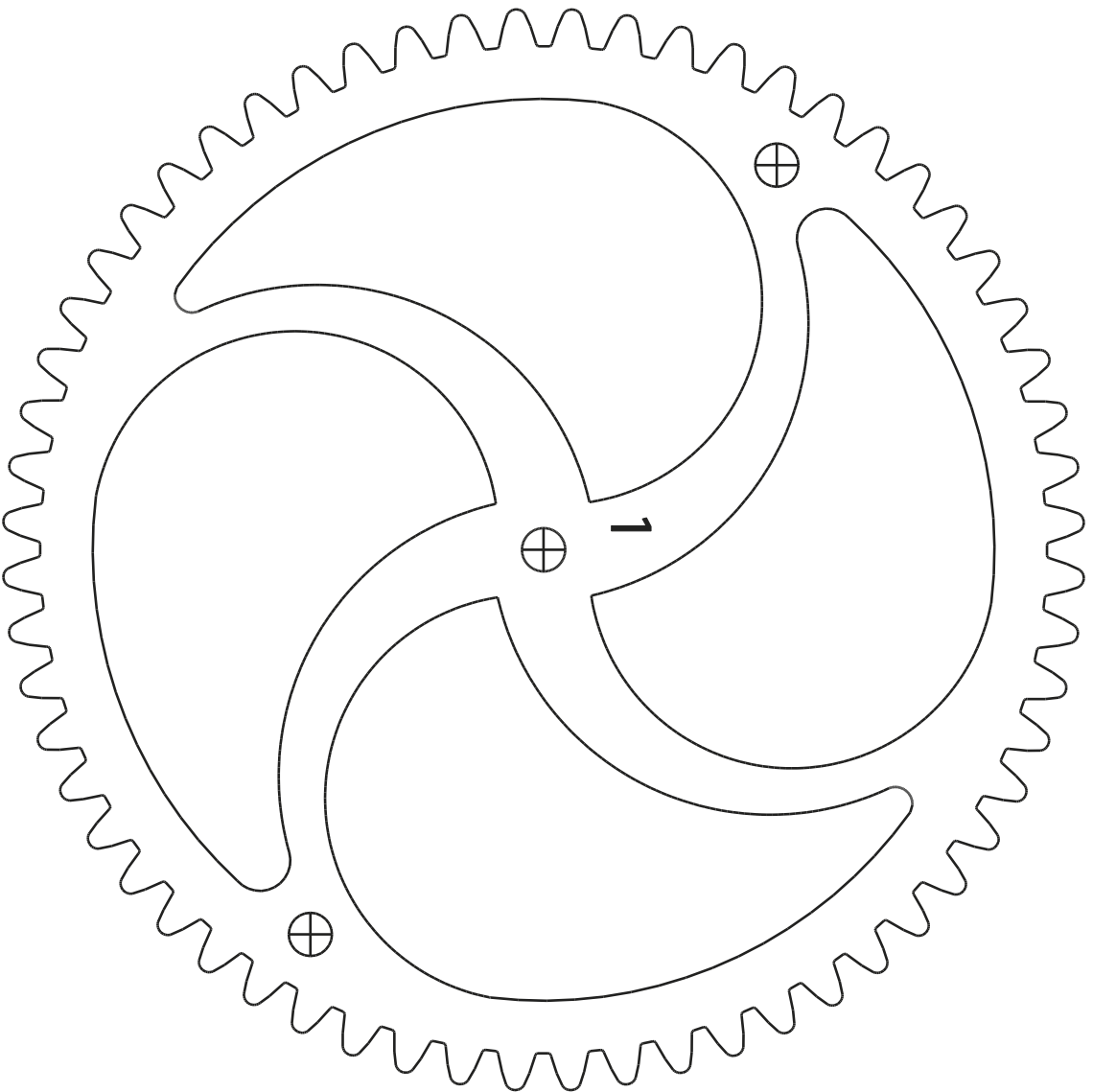
- ALL ARBOR HOLES Ø 6.2 MM (17/64")
- THROUGH HOLES FOR SCREWS

TAKE TOMBO

FRAME 12mm(1/2")/FULL SCALE

WOODENTIMES

WOODEN CLOCK PLANS, GEARS AND FRAMES



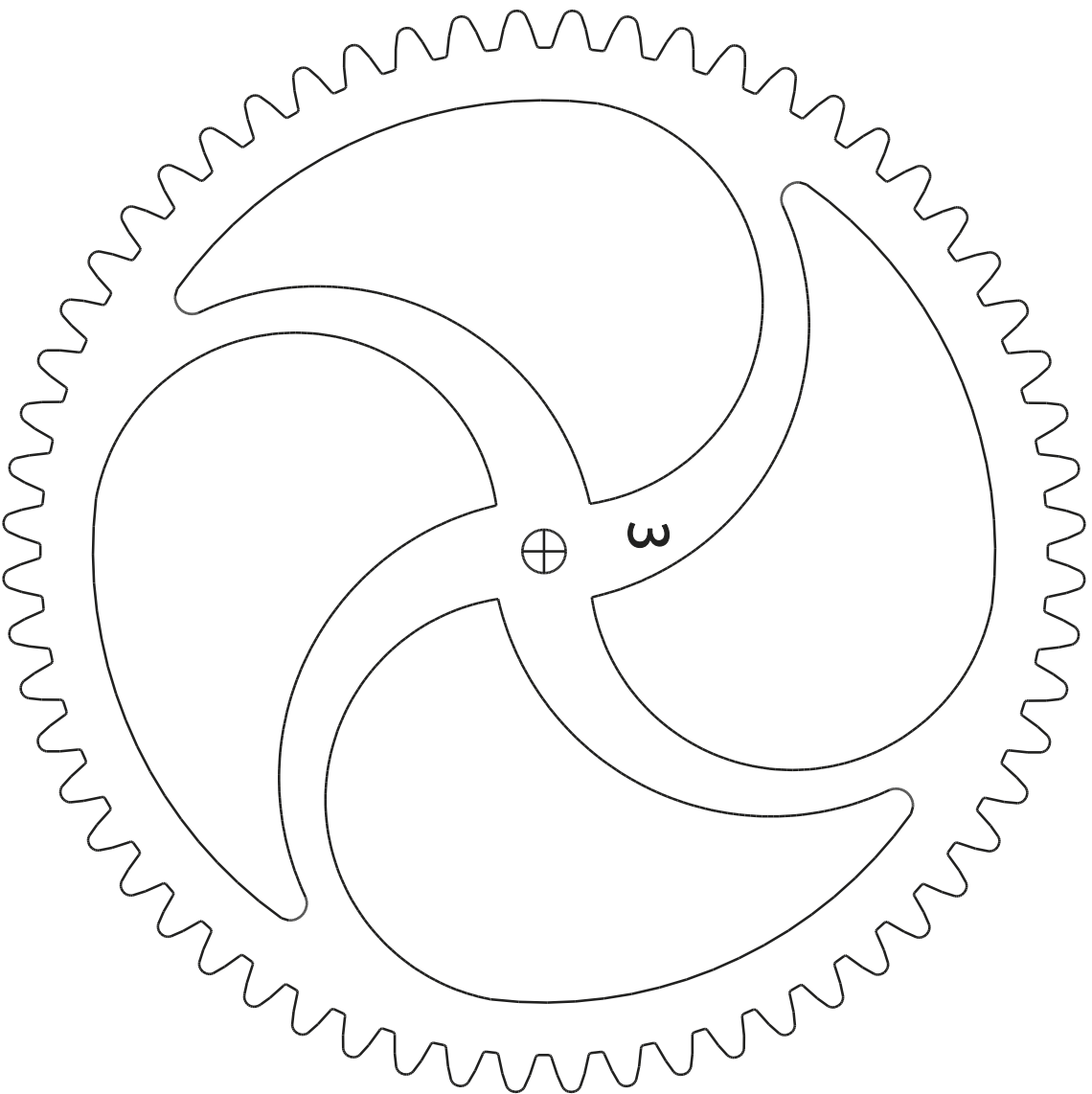
ALL HOLES Ø 6MM (1/4")

TAKE TOMBO

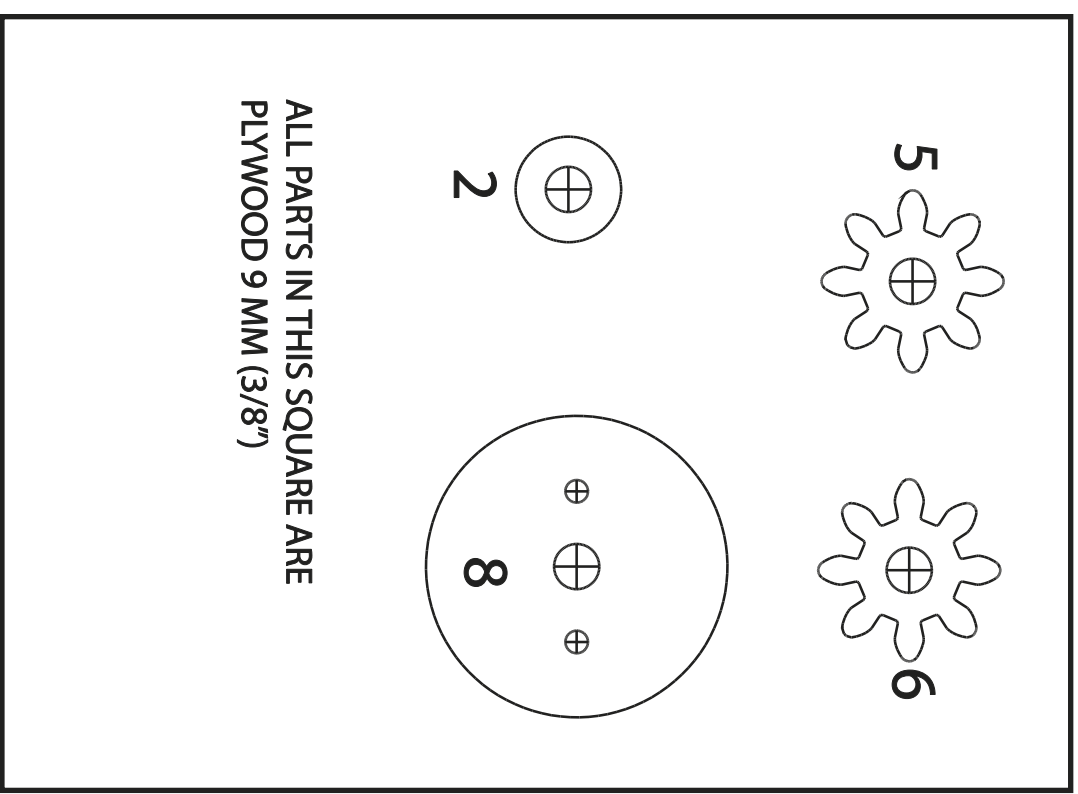
PLYWOOD 6MM(1/4")/FULL SCALE

WOODENTIMES

WOODEN CLOCK PLANS, GEARS AND FRAMES



ALL HOLES Ø 6MM (1/4")



ALL PARTS IN THIS SQUARE ARE
PLYWOOD 9 MM (3/8")

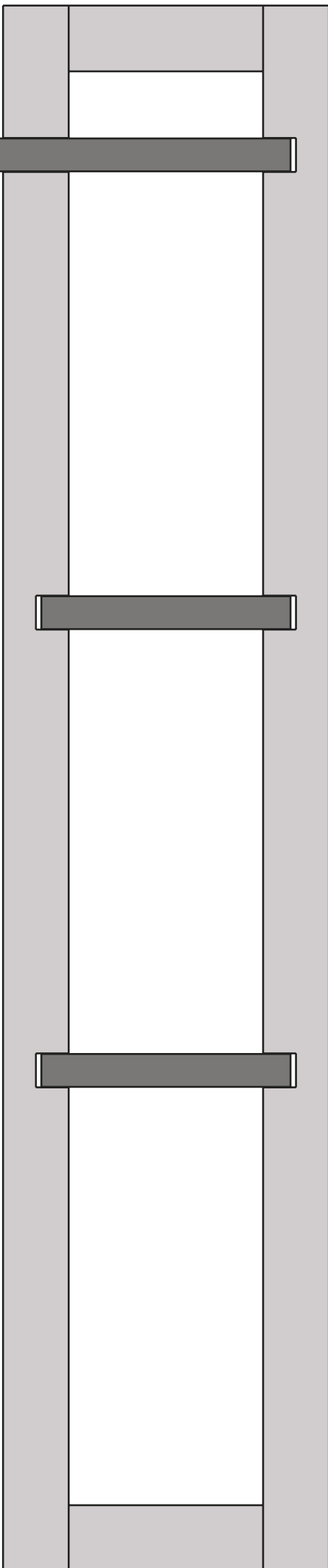
TAKE TOMBO

PLYWOOD 6MM(1/4")/FULL SCALE

WOODENTIMES

WOODEN CLOCK PLANS, GEARS AND FRAMES

You can directly measure the axle length from the drawing, note that the holes are 1mm deeper on each side. The holes should be wide enough to allow the axles to turn easily without too much play, if they are a bit tight sand the ends of the axles until you get a loose fit.

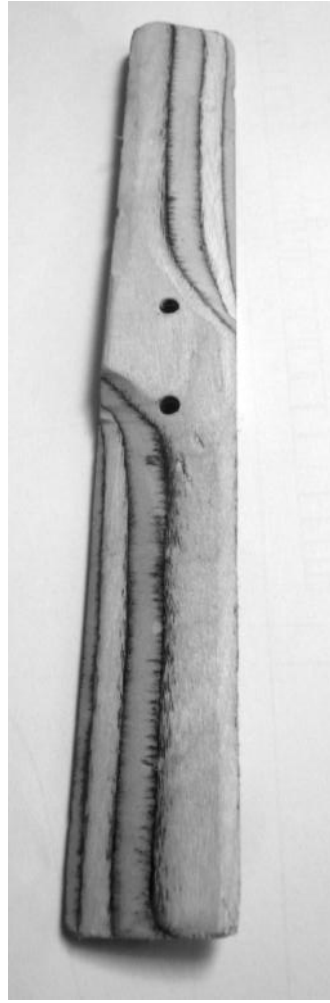
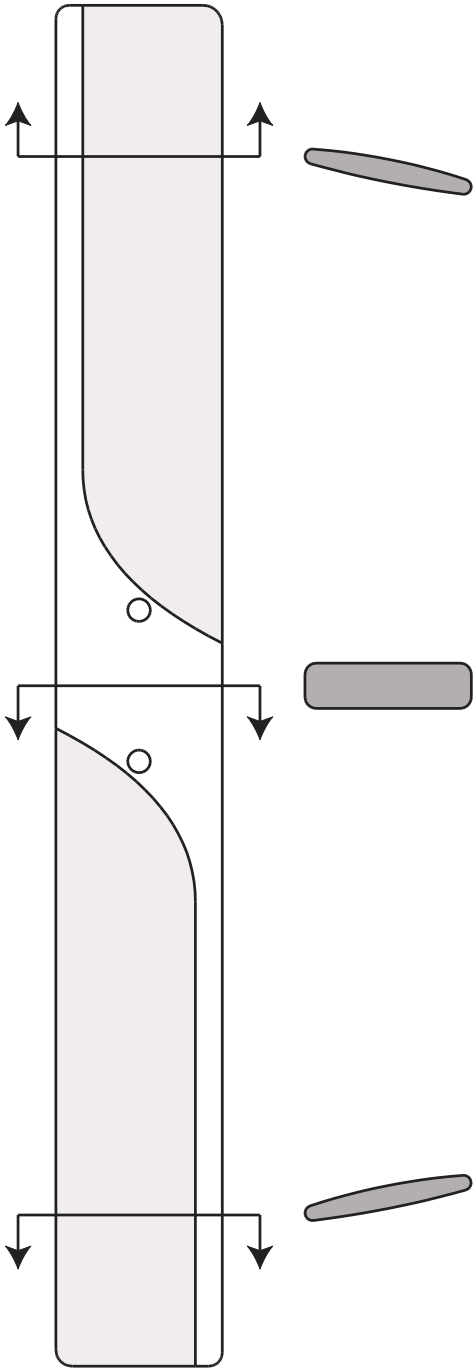


TAKE TOMBO

AXLES /FULL SCALE

WOODENTIMES

WOODEN CLOCK PLANS, GEARS AND FRAMES



Make the propeller from 6mm (1/4") plywood.

To give the propeller lift form the blades as shown, I use an angel grinder with a sanding disc, which makes a lot of dust but is very quick. The 2 holding holes should be loose enough to allow the propeller to lift off.

TAKE TOMBO
 PROPELLER/FULL SCALE

TAKE TOMBO

INTRODUCTION

The Take Tombo is an old Japanese toy, and means bamboo dragonfly. Traditionally they are made entirely from bamboo and stuck on a thin stick, which is clasped between both open palms and when the right hand is moved sharply back this causes the propeller to turn and when released will take off.

I have designed this project to be fun, and easy to build. But principally to show how easy it is to make cogs, if you can make this project you can make a clock.

<http://www.woodentimes.com/>

A WORD OF CAUTION

Please be aware that when the propeller launches you can not always predict its path, and should be used with caution. The propeller turns very fast and can cause damage to persons or objects on contact. I can and will not take any responsibility for damages caused because of miss use.

LEGAL NOTICE

You may copy and distribute these plans as often and in what ever form you wish. You may not use either the plans or the end product for commercial profit, or alter them in any way.

TAKE TOMBO

MATERIALS

The plans are drawn in metric, but obviously being full scale can also be measured in imperial. If you use imperial plywood you will have to make adjustments to allow for the difference in thickness. The plywood used is Baltic birch throughout, which is a good quality plywood, and should be used for the cogs, for frame and grip you could use solid wood. For the axles use a hardwood dowel. The plywood amounts are approximate and do not allow for any miss cut cogs or parts.

Material	Metric	Imperial
Plywood (cogs and spacers)	6 mm 20cm/40cm	1/4" 8"/16"
Plywood (propeller)	6mm 2.5cm/18cm	1/4" 1"/7"
Plywood (pinions and spacers)	9 mm 10cm/10cm	3/8" 4"/4"
Plywood (frame)	12 mm 20cm/30cm	1/2" 8"/12"
Axles	∅ 6mm 25 cm	∅ 1/4" 10"

You will also need screws and a wood glue

TAKE TOMBO

CUTTING THE COGS

Use a low tack spray adhesive to attach the desired part to the plywood, if you have a narrow band sander cut over the lines and sand down to line middle. Be as accurate as possible. You could leave the big cogs solid as the spokes are purely decorative.

ASSEMBLY

Before you glue anything, first do a dry run to make sure everything runs smoothly without any notable resistance. One common problem is binding, this is when a tooth or teeth mesh so tightly that the cog can not turn, mark the tooth and sand accordingly, also pay attention to the axles, you should have a small amount of axial movement and they should turn freely.

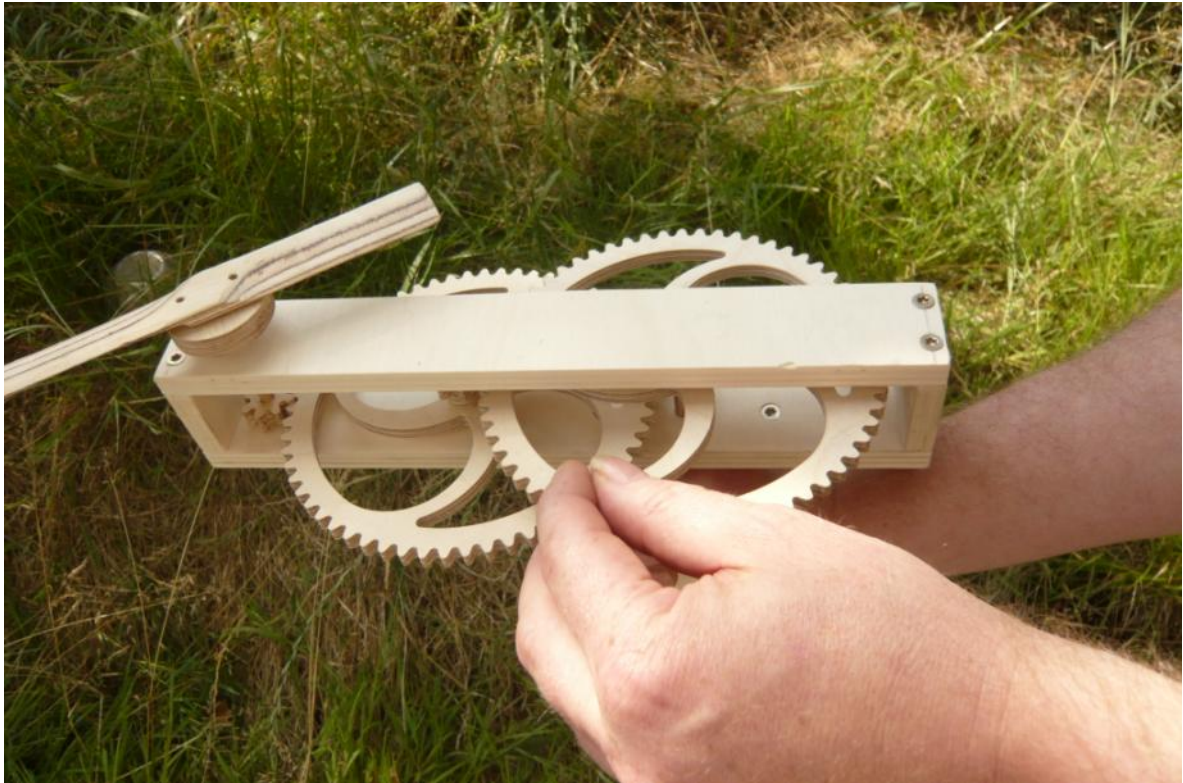
LAUNCHING PAD

The 2 holding pins can be made of any metal rod you have, I have used \varnothing 3mm brass rod, you could however use a nail or similar. The propeller holes should be slightly bigger than the rod diameter used.



TAKE TOMBO

HOW TO USE



Make sure you have plenty of room, preferably outdoors. Angle the Take Tombo so that it is pointing away from you, grip the dowel handle between thumb and index finger and pull backwards with enough force to launch the propeller. With practice you can get it to fly 10m (32 ft) wide or if held straight 4m (13 ft) high. I experimented with several propellers but got the best results from the one here, but if you can beat my distances with a better propeller I would like to know.

info@woodentimes.com