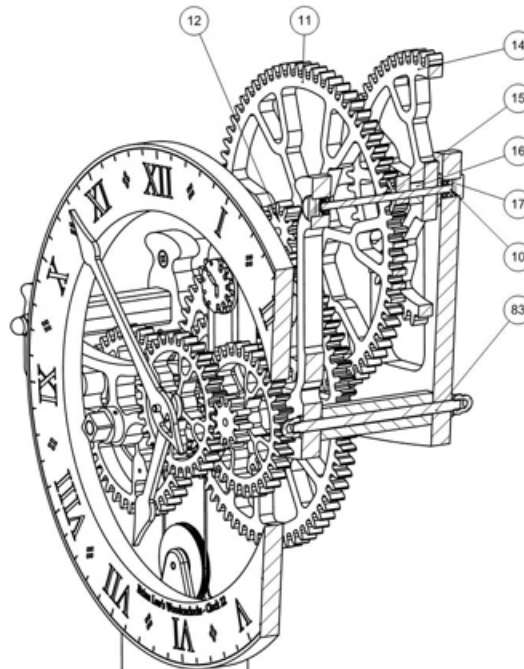
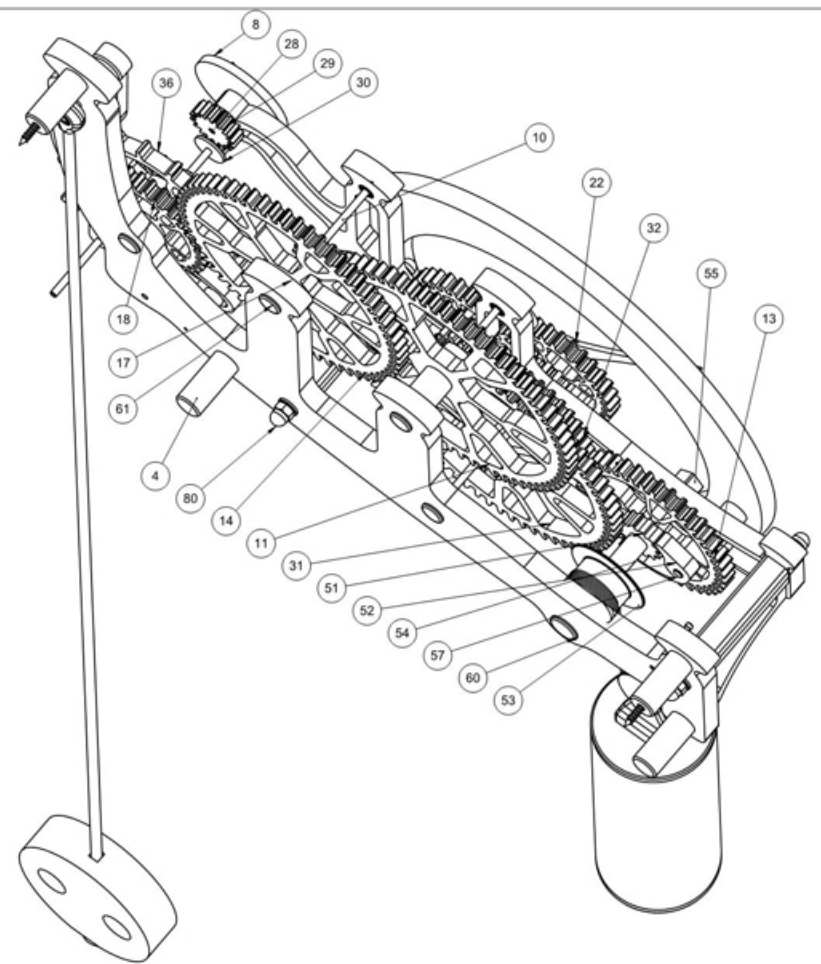
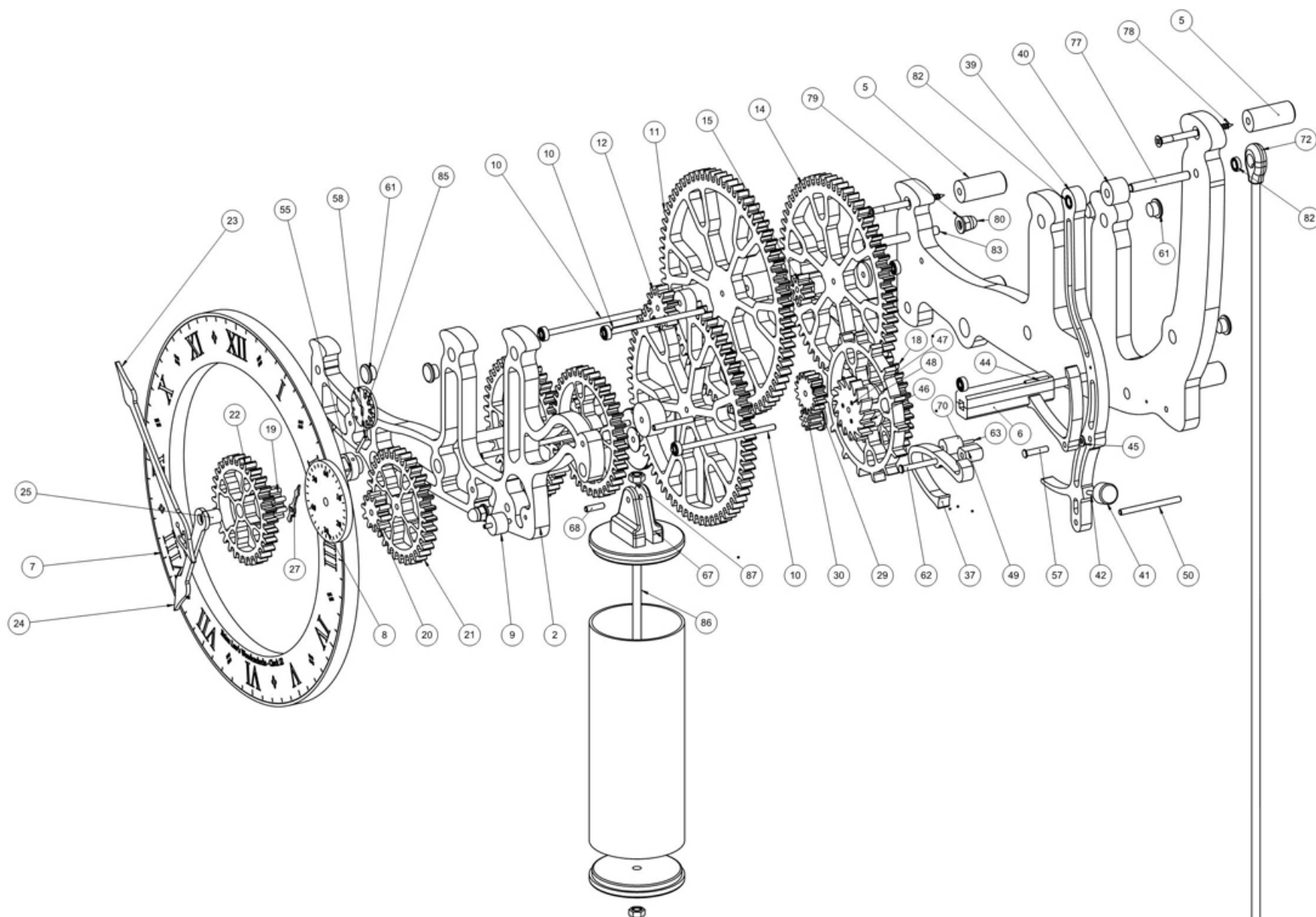
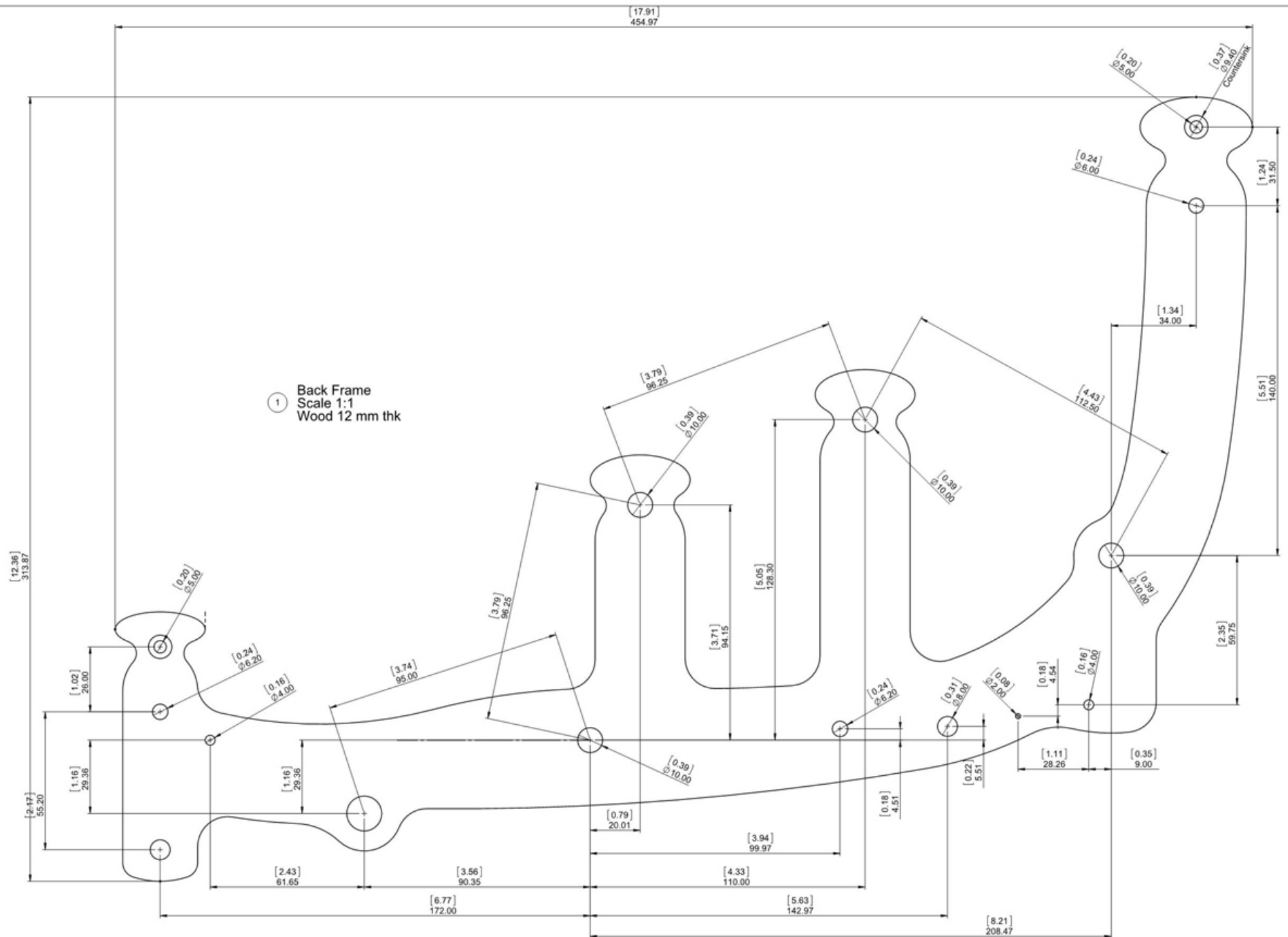


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. | ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|--------------------------------|-------------------|------|----------|---------------------------------|--------------------|------|
| 1 | Clock 22-Back Frame | Wood 12mm thk | 1 | 58 | Clock 22-Drive shaft pin | Silver Steel Ø2 | 3 |
| 2 | Clock 22-Front Frame | Wood 12mm thk | 1 | 59 | Clock 22-Shaft-2 | Silver Steel Ø4 | 1 |
| 3 | Clock 22-Brace | Wood 12mm thk | 1 | 60 | Clock 22-Bearing Plugs-Large | Wood | 1 |
| 4 | Clock 22-Wall Stand-off | Wood 19mm Dowel | 2 | 61 | Clock 22-Bearing Plugs | Wood | 6 |
| 5 | Clock 22-Wall Stand-off-Screw | Wood 19mm Dowel | 2 | 62 | Clock 22-Headed Pin-2 | Steel Ø6xØ4 | 1 |
| 6 | Clock 22-Frame Spacer | Wood 9mm Thk | 2 | 63 | Clock 22-Stop pin | Silver Steel Ø2 | 1 |
| 7 | Clock 22-Dial-2 | Wood 12mm Thk | 1 | 64 | Weight - End Plug | Wood 9mm thk | 2 |
| 8 | Clock 22-Seconds Dial | Wood 6mm Thk | 1 | 65 | Weight Tube | Plastic Tube Ø68x2 | 1 |
| 9 | Clock 22-Dial Offset | Wood | 2 | 66 | Clock 22-Weight Pulley | Wood 6mm Thk | 1 |
| 10 | Clock 22-Shaft-1 | Silver Steel 4mm | 3 | 67 | Weight Pulley support | Wood 9mm thk | 2 |
| 11 | Clock 22-Gears-70 Teeth | Wood 9mm thk | 1 | 68 | Clock 22-Weight Pin | Silver Steel Ø4 | 1 |
| 12 | Clock 22-Gear-11 Teeth | Wood 9mm thk | 1 | 69 | Clock 22-Weight Cord Pin | Silver Steel Ø4 | 1 |
| 13 | Clock 22-Gears-40 Teeth | Wood 9mm thk | 1 | 70 | Clock 22-Stop Spacer | Wood | 1 |
| 14 | Clock 22-Gears-60 Teeth | Wood 9mm thk | 1 | 71 | Clock 22-Weight Cord | Blind Cord Ø1mm | 1 |
| 15 | Clock 22-Gear-7 Teeth | Wood 9mm thk | 1 | 72 | Clock 20-Pendulum Pivot Block | Wood 9mm | 1 |
| 16 | Clock 22-Gears-7 spacer | Wood | 1 | 73 | Clock 20-Pendulum Rod | Carbon Fibre Ø6xØ4 | 1 |
| 17 | Clock 22-Gear Spacer 3 | Wood | 1 | 74 | Clock 20-Pendulum Rod Insert | Brass Ø6 | 1 |
| 18 | Clock 22-Gears-30 Teeth | Wood 9mm thk | 1 | 75 | Clock 20-Pendulum Bob | Wood 12mm + Brass | 1 |
| 19 | Clock 22-Hour Gears-8 Teeth | Wood 9mm thk | 1 | 76 | Clock 20-Pendulum Bob-Nut | Brass Ø19 | 1 |
| 20 | Clock 22-Hour Gears-10 Teeth | Wood 9mm thk | 1 | 77 | Clock 22-Pendulum Pivot | Silver Steel Ø6 | 1 |
| 21 | Clock 22-Hour Gears-32 Teeth | Wood 9mm thk | 1 | 78 | Woodscrew_No4_5x60 | Brass | 2 |
| 22 | Clock 22-Hour Gears-30 Teeth | Wood 9mm thk | 1 | 79 | M6 Washer | Brass or Delrin | 4 |
| 23 | Minute Hand | 2mm Plastic | 1 | 80 | Domed nut-m6x1 | M6 Domed Nut | 4 |
| 24 | Hour Hand | 2mm Plastic | 1 | 81 | Clock 22-Bearing 8mm | Ø8mmxØ14mmx4mm | 2 |
| 25 | Clock 22-Hour tube | Wood | 1 | 82 | Clock 22-Bearing 6-10-3 | Ø6mmxØ10mmx3mm | 4 |
| 26 | Clock 22-Hour Pin 4mm | Silver Steel Ø4mm | 1 | 83 | Clock 22-Threaded rod | Stainless Steel M6 | 2 |
| 27 | Clock 22-Seconds Hand | 2mm Platic | 1 | 84 | Clock 20-Bearing Ø4mmxØ10mmx4mm | Ø4mmxØ10mmx4mm | 8 |
| 28 | Clock 22 Seconds Pivot | Silver Steel Ø4 | 1 | 85 | woodenclocksLogo-1 | Wood | 1 |
| 29 | Clock 22-Gear-16 Teeth | Wood 9mm thk | 1 | 86 | Clock 22-Threaded rod-weight | Stainless Steel M6 | 1 |
| 30 | Clock 22-Seconds Gears-8 Teeth | Wood 9mm thk | 1 | 87 | M6 nut | M6 nut | 2 |
| 31 | Clock 22-Gears-66 Teeth | Wood 9mm thk | 1 | | | | |
| 32 | Clock 22-Gears-36 Teeth | Wood 9mm thk | 1 | | | | |
| 33 | Clock 22-Gears-11 spacer | Wood | 1 | | | | |
| 34 | Clock 22-Gear Spacer 1 | Wood | 1 | | | | |
| 35 | Clock 22-Gear Spacer 2 | Wood | 1 | | | | |
| 36 | Clock 22-Escape wheel | Wood 9mm thk | 1 | | | | |
| 37 | Clock 22-Trigger | Wood 9mm thk | 1 | | | | |
| 38 | Clock 22-Lifting Gear | Wood 9mm thk | 1 | | | | |
| 39 | Clock 22-Gravity Arm | Wood 9mm thk | 1 | | | | |
| 40 | Clock 22-Gravity Arm Spacer | Wood | 1 | | | | |
| 41 | Clock 22-Gravity weight | Brass | 1 | | | | |
| 42 | Clock 22 Gravity weight pin | Silver Steel Ø3 | 1 | | | | |
| 43 | Clock 22-Lifting Lever | Wood 9mm thk | 1 | | | | |
| 44 | Clock 22-Lifting lever stop | Silver Steel Ø2 | 1 | | | | |
| 45 | Clock 22 Lifting Lever Spacer | Wood | 1 | | | | |
| 46 | Clock 22 Escapement Spacer | Plastic 1mm Thk | 1 | | | | |
| 47 | Clock 22 Escapement pin 1 | Silver Steel Ø3 | 3 | | | | |
| 48 | Clock 22 Escapement Spacer-2 | Plastic 3mm Thk | 1 | | | | |
| 49 | Clock 22-Escapement Stand off | Wood | 1 | | | | |
| 50 | Clock 22-Pendulum Drive pin | Silver Steel Ø4 | 1 | | | | |
| 51 | Clock 22-Ratchet | Wood 9mm thk | 1 | | | | |
| 52 | Clock 22-Pawl | Wood 9mm thk | 1 | | | | |
| 53 | Clock 22-Drum | Wood | 1 | | | | |
| 54 | Clock 22-Winder Spacer | Wood | 1 | | | | |
| 55 | Clock 22-Key Drive Stub | Wood | 1 | | | | |
| 56 | Clock 22-Drive Shaft | Brass Ø8 | 1 | | | | |
| 57 | Clock 22-Headed Pin-1 | Steel Ø6xØ4 | 2 | | | | |

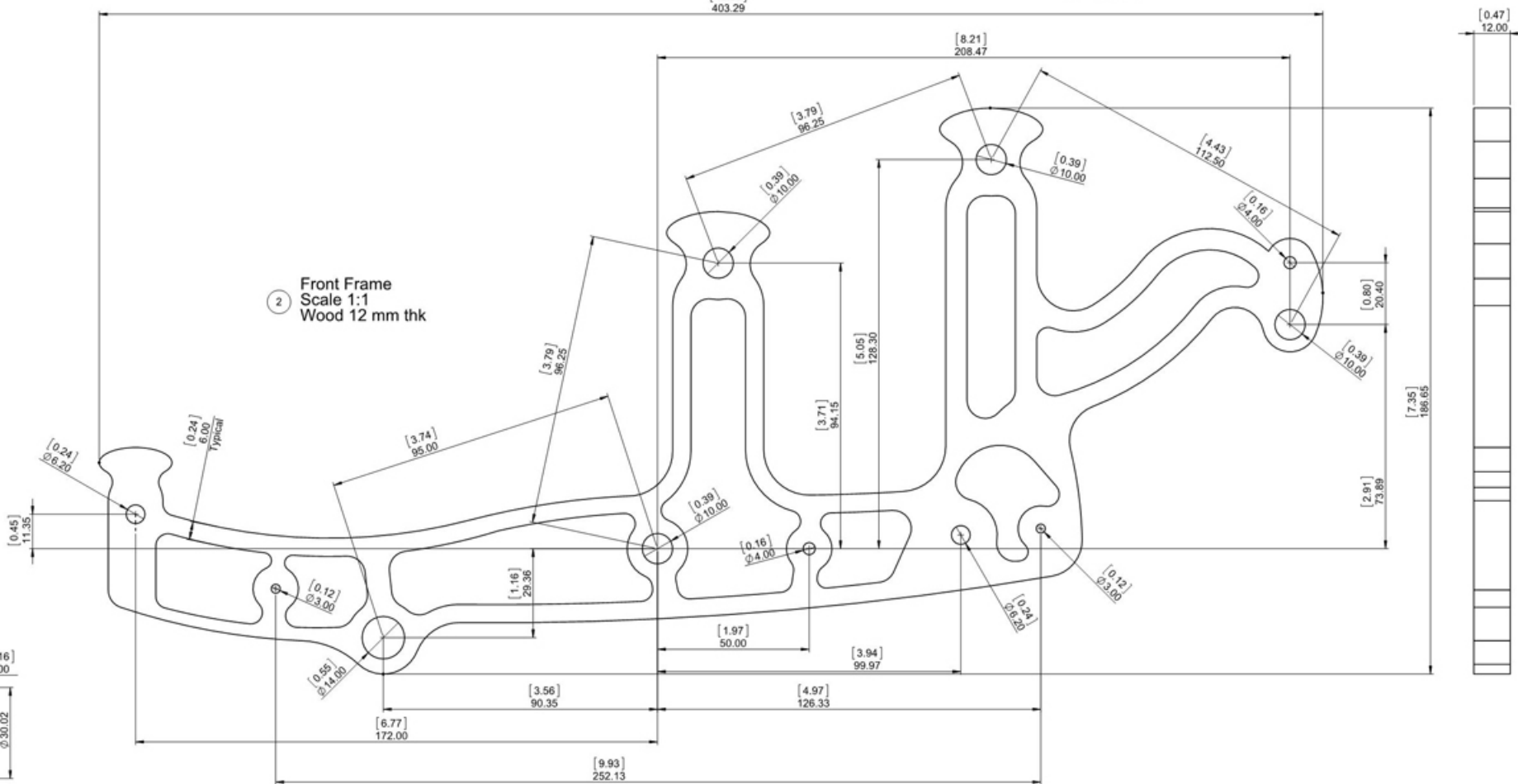
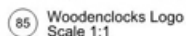
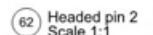
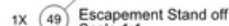
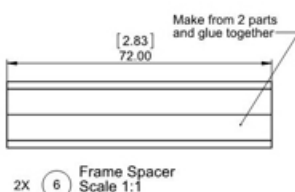




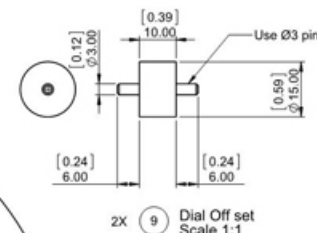
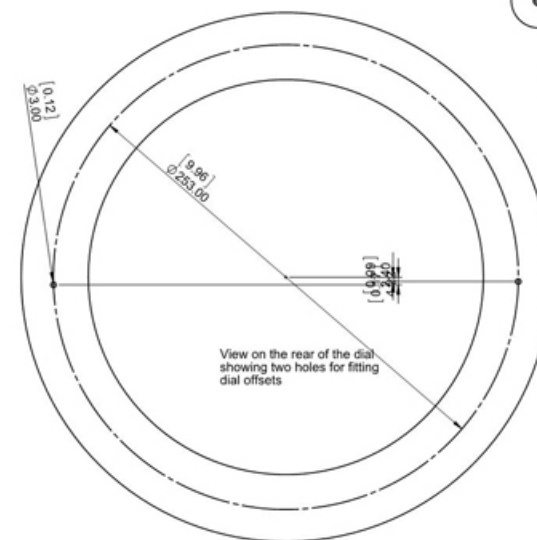
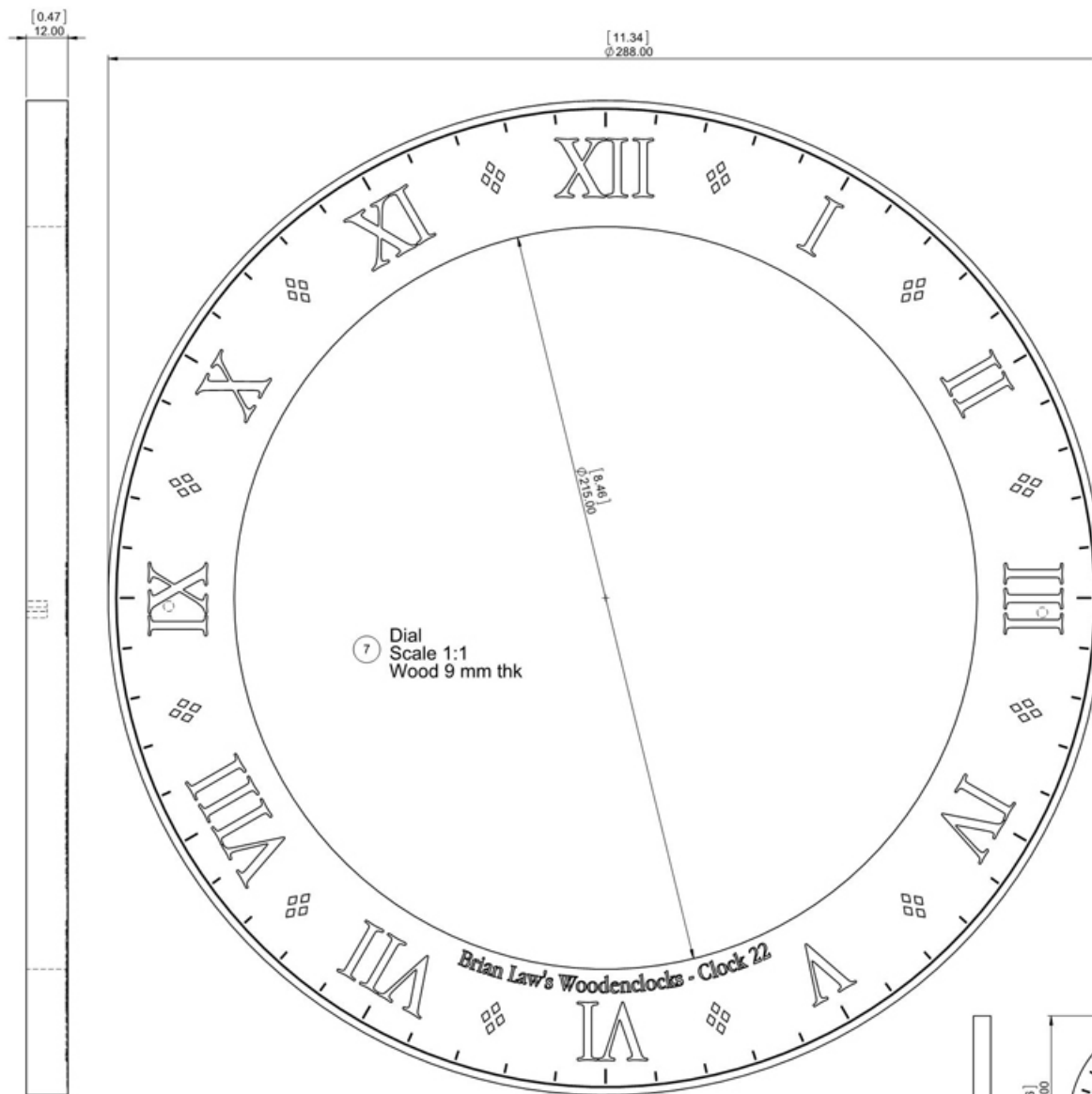
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|---|---|---|--|
| Sht 3 of 11Shts | A2 | Law Wooden Clock 22 - Gravity Escapement No.2 | |
| Not to Scale Unless otherwise stated | All dimensions in mm and (inches) 3rd Angle projection | Designed by: Brian law www.woodenclocks.co.uk October 2014 | |



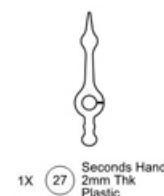
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|---|----|---|---|
| Sht 4 of 11Shts | A2 | Law Wooden Clock 22 - Gravity Escapement No.2 | |
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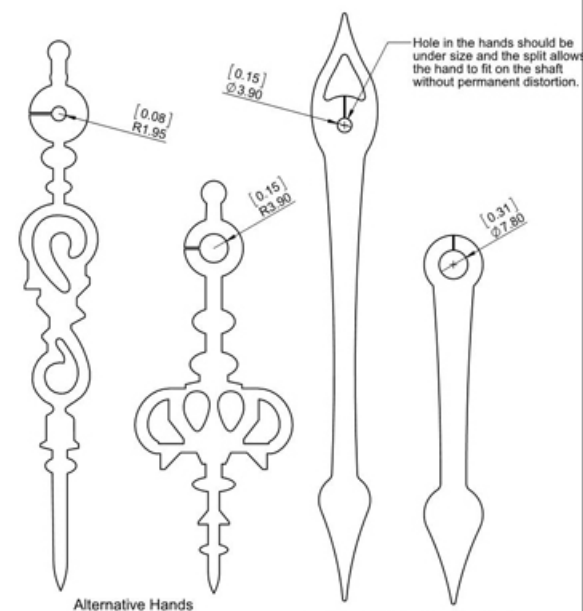
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|---|----|---|---|
| Sht 5 of 11Shts | A2 | Law Wooden Clock 22 - Gravity Escapement No.2 | |
| Not to Scale Unless otherwise stated | | All dimensions in mm and (inches) 3rd Angle projection | Designed by: Brian law www.woodenclocks.co.uk October 2014 |



2X 9 Dial Off set
Scale 1:1

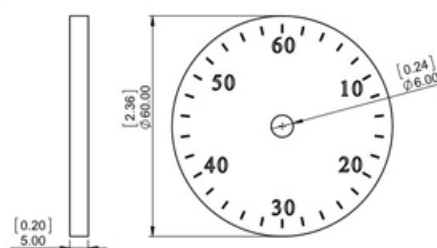


1X 27 Seconds Hand
2mm Thk
Plastic



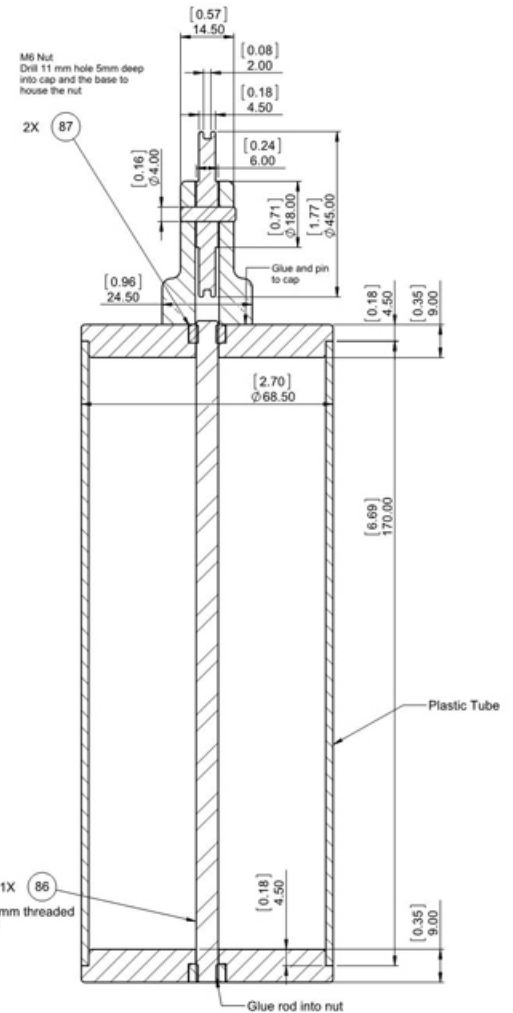
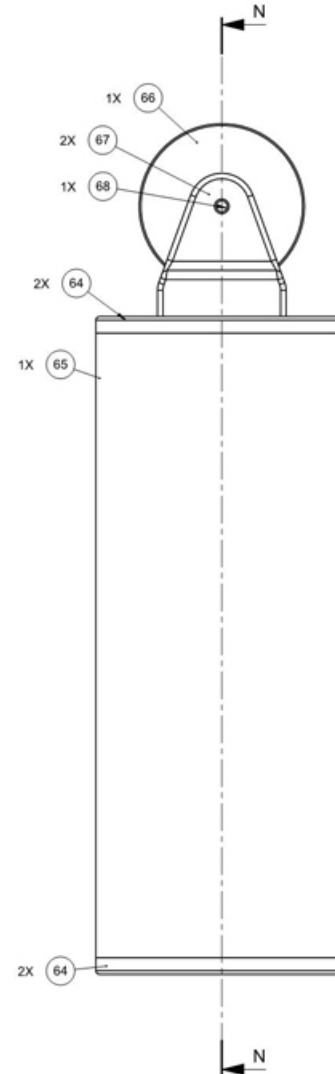
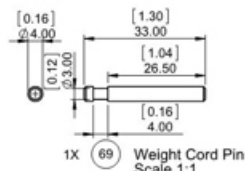
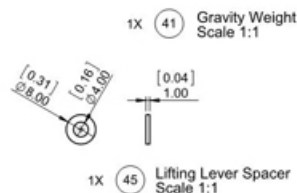
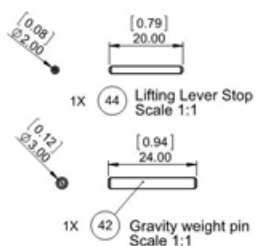
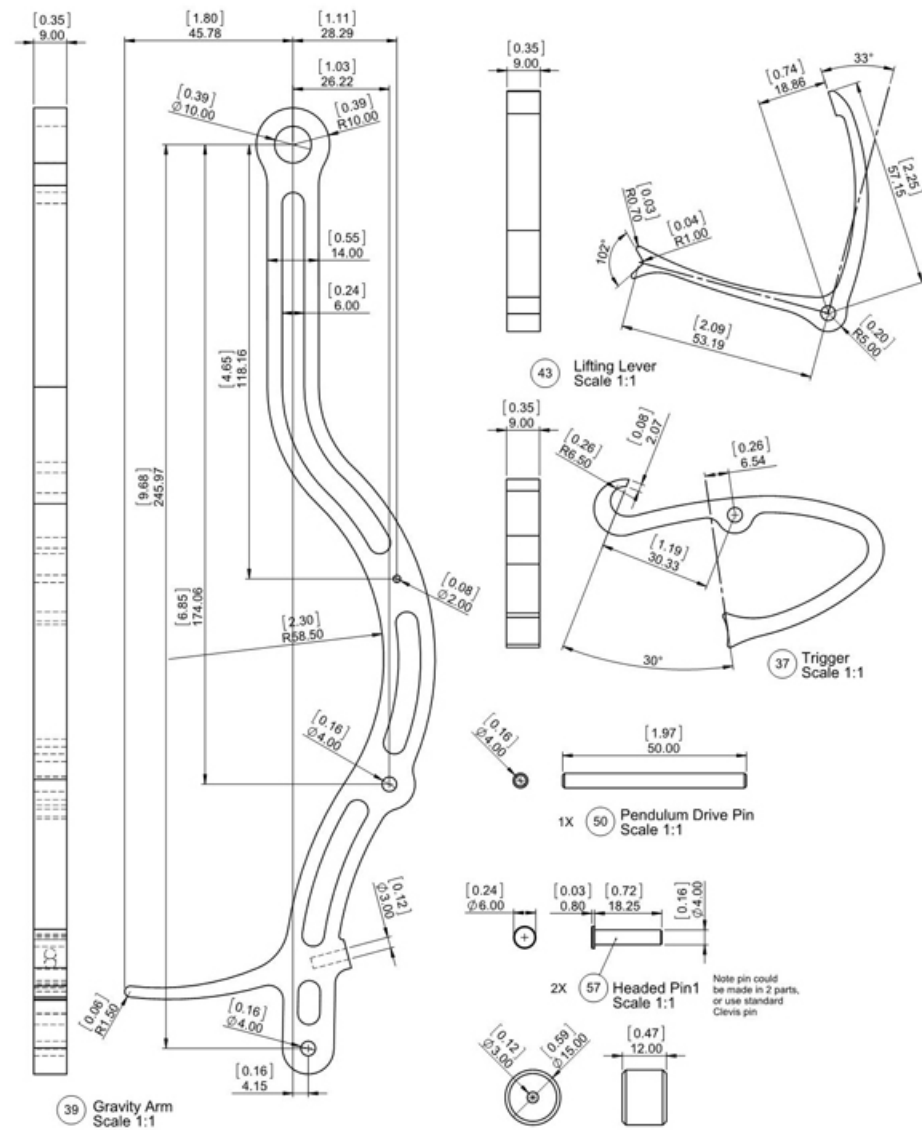
Alternative Hands

23 Minute Hand 2mm Thk Plastic
24 Hour Hand 2mm Thk Plastic



8 Seconds Dial
Scale 1:1

| | | | |
|---|----|---|---|
| Sht 6 of 11Shts | A2 | Law Wooden Clock 22 - Gravity Escapement No.2 | |
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SECTION N-N

Fill the inside of the tube with lead, either in the form of lead shot or lead from Sash weights used in windows.

Weight Assembly

| | | | |
|---|----|---|---|
| Sheet 0 of 11 Sheets | A2 | Law Wooden Clock 22 - Gravity Escapement No.2 | |
| Not to Scale Unless otherwise stated | | All dimensions in mm and (inches) 3rd Angle projection | Designed by: Brian law www.woodenclocks.co.uk October 2014 |

MATERIALS

For all the wooden Parts

The choice of material to build the clocks from is a very personal one and is really down to you to decide. I personally prefer to use actual timber, Cherry for the frames and Maple for the gears and other parts. I use timber machined to a standard size of 120mm x 9mm and 120 x 12mm, and these are fabricated into blanks for the larger components by gluing two strips together.

You can however use a quality grade of plywood (Marine Ply) this route is a lot quicker as you can layout multiple parts on a sheet and have the whole thing cut out in an day, still need to put in the time cleaning up the parts and making all the other bits, but generally speaking the whole thing can be done a lot thicker.

Generally speaking I wouldn't recommend MDF unless you are laser cutting as the parts can be easily damaged. If you use a laser however the burnt finish is actually carbon and will act as a lubricant.

You can also use Perspex with which you can create some quite colourful clocks (see clock 19). Also you can of course use Brass or Steel or even Aluminium but this latter would need some post treatment to stop the wear that can happen between two aluminium parts in rubbing contact.

Whatever you use the flat 2D parts are all laid out for you on the Profile cuts sheet, this comes as a DXF file that is 1000mm square, you can manipulate this in your own CAD program, which you will probably need to do to be able to feed the files into your CAM program.

For all the other parts

Ø4 Silver Steel for all the shafts and numerous pins - 3 rods 13" Long

Ø3 Silver Steel for pins 1 rod 13" long

Ø2 Silver Steel for pins 1 rod 13" long

Ø6 mm Stainless steel threaded rod

Carbon Fibre tube Ø6 x Ø4 bore x 10mm for Pendulum.

Ball Bearing Ø8 2 required

Ball Bearing Ø6 4 required

Ball Bearing Ø4 8 required

Ø6 Dome nuts Brass 4 required

Ø6 Locknuts 2 required

Woodscrews Ø4.5x60mm 2 required

Clevis Pins Ø4x 20 4 required(saves you making the headed pins)

Lead 3kg (either Lead shot or Sash weights)

Note these are the minimum amounts of material necessary to build the clock I used more in the prototype and you may well be advised to by extra to cover those accidental losses that occur.

If I have missed anything here you will find them in the parts list for the clock anyway.

Equipment

The following equipment is desirable :-

CNC Router or Laser or Waterjet and if not one of these then a Scrollsaw or a Bandsaw.

Small Lathe, this is not absolutely essential but it would make making the clock a lot easier for all of the round parts that are needed.

Small Milling machine or **Pedestal Drill** with work holding vice. There are a lot of holes to be drilled and cleaned up after CNC machining and fabrication so the drill is pretty much essential. It may be possible to get away with an ordinary electric drill in a stand but a work holding vice is still necessary.

Drill Bits in the following sizes, Ø2, Ø3, Ø3.1, Ø4, Ø4.1, Ø8, Ø10.

Router Cutters Ø2, Ø3 and possibly Ø6 for cutting out the larger frames.

Reamer Ø10 for reaming out the holes in the frame for the bearings.

Hand tools all the normal things that are used in the workshop, Files, screwdrivers hammers pliers etc.

If you want to save a lot of time then look at a **Sanding disk** and a **Drum sander** but these are really nice to have.

Consumables

Sand paper in various grades from rough to fine

Danish oil for finishing.

Gorilla Glue

PVA

Dry Film Lubricant in a spray can for the gears after everything is finished.