

Illustrated Construction Manual: The Stirling Engine

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<https://michelswunderland.de/solderiron/stirling.html>



Individual parts of the kit as well as necessary tools and other material.



Steps 1 – 3: You start with the flywheel...



Step 4: ... prepare the surface of the heat exchange plates and...



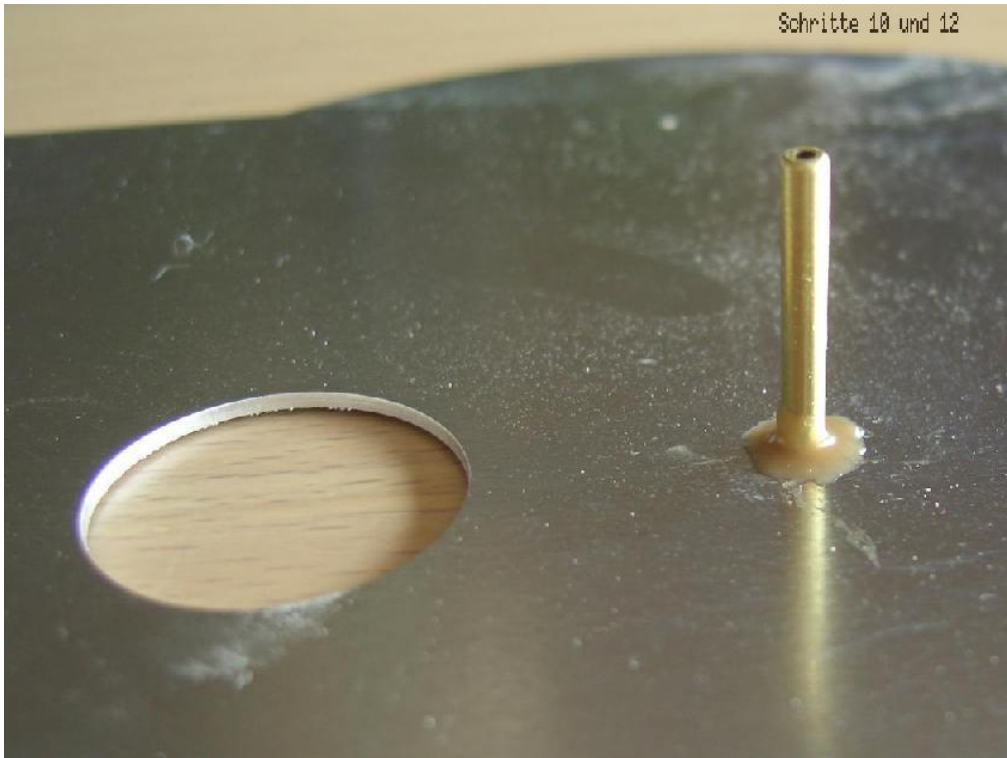
Steps 5 & 6: ... the walls of the main cylinder before...



Steps 7 – 9: ... you put them together and...



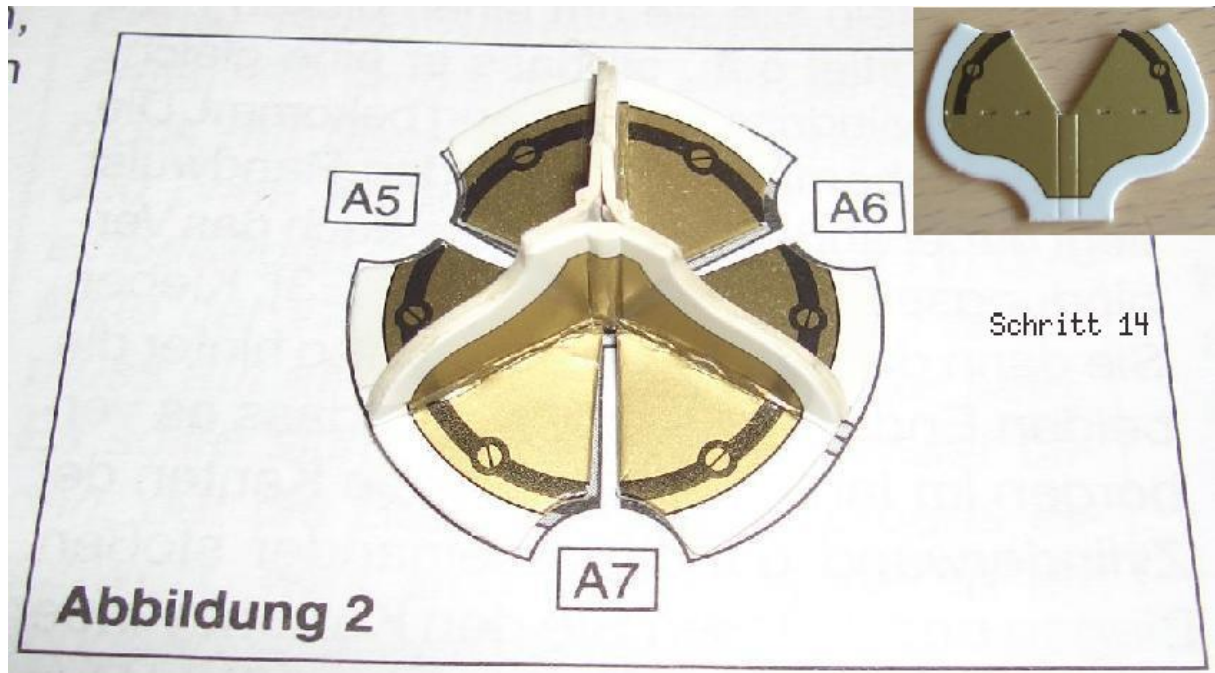
Step 9: ...glue the wall to the base plate using the flywheel as a centring device.



Steps 10 & 12: Brass tube as guide for the compressor piston shaft.



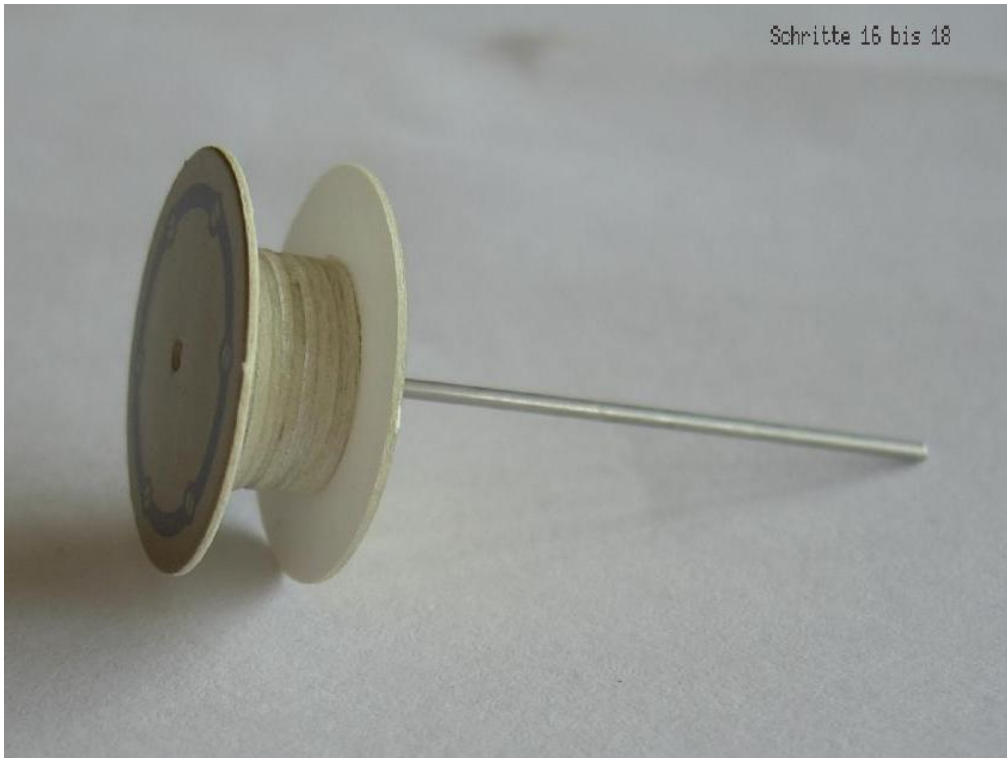
Steps 11 & 13: Wall of the master cylinder bonded to the base plate.



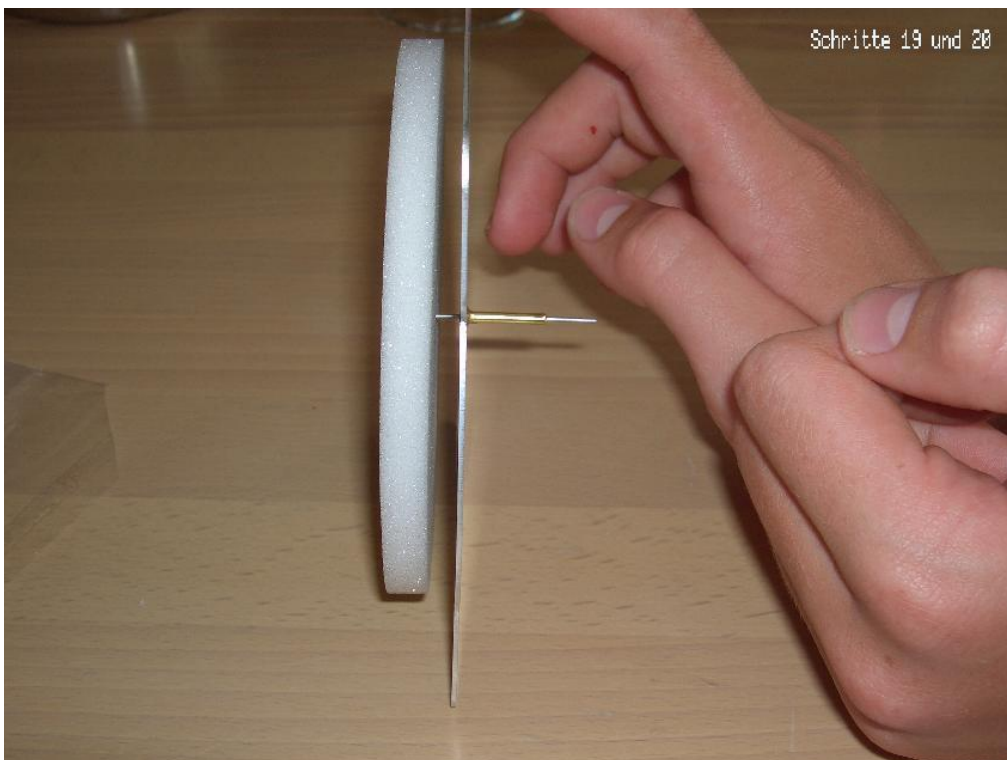
Step 14: The axle holder of the flywheel.



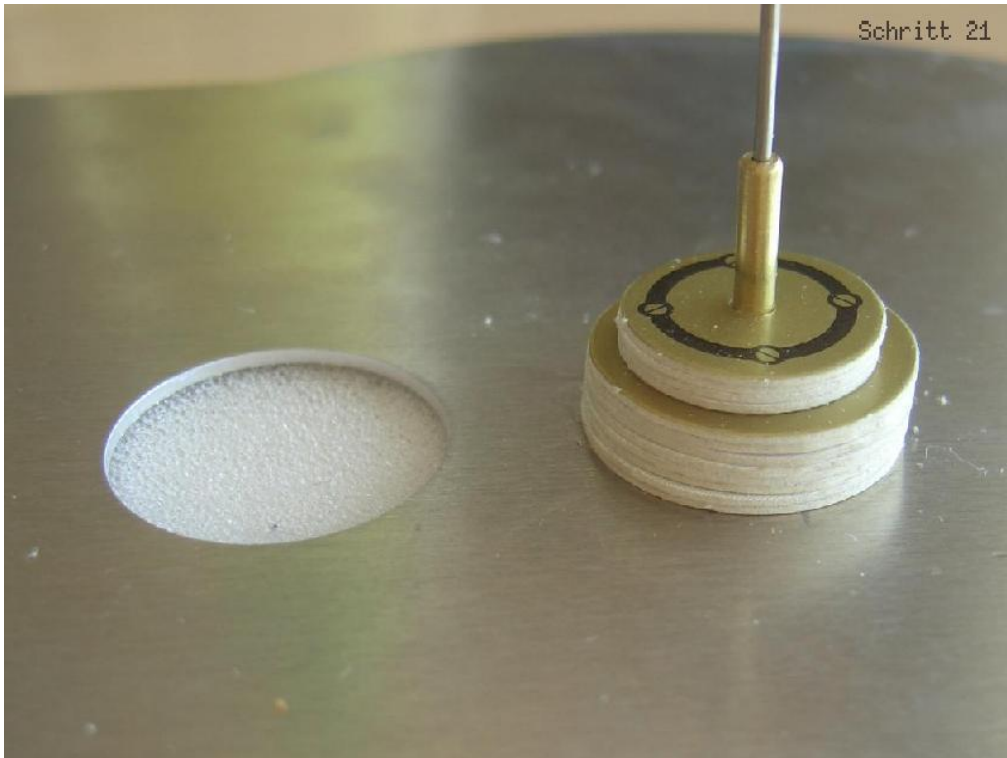
Step 15: Flywheel with axle and its holder.



Steps 16 – 18: Holder for the compressor piston made of cardboard discs.



Steps 19 & 20: Compressor piston mounted on the cardboard holder, the surfaces of the piston and the cover plate must be parallel.



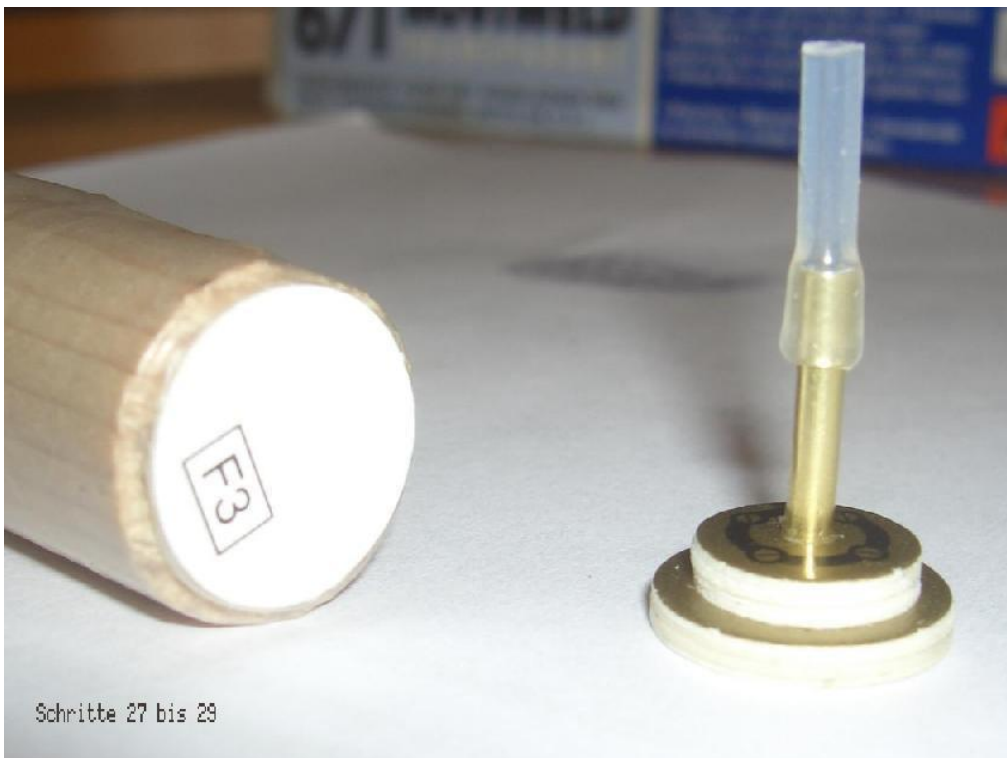
Step 21: Stabilisation of the compressor piston axis guidance.



Steps 22 – 24: Individual parts and assembly of the working cylinder.



Steps 25 & 26: Pointer finger of a vinyl glove as a seal, cardboard disc glued to it as the base plate of the working piston.



Steps 27 – 29: Manufacture of the working piston.



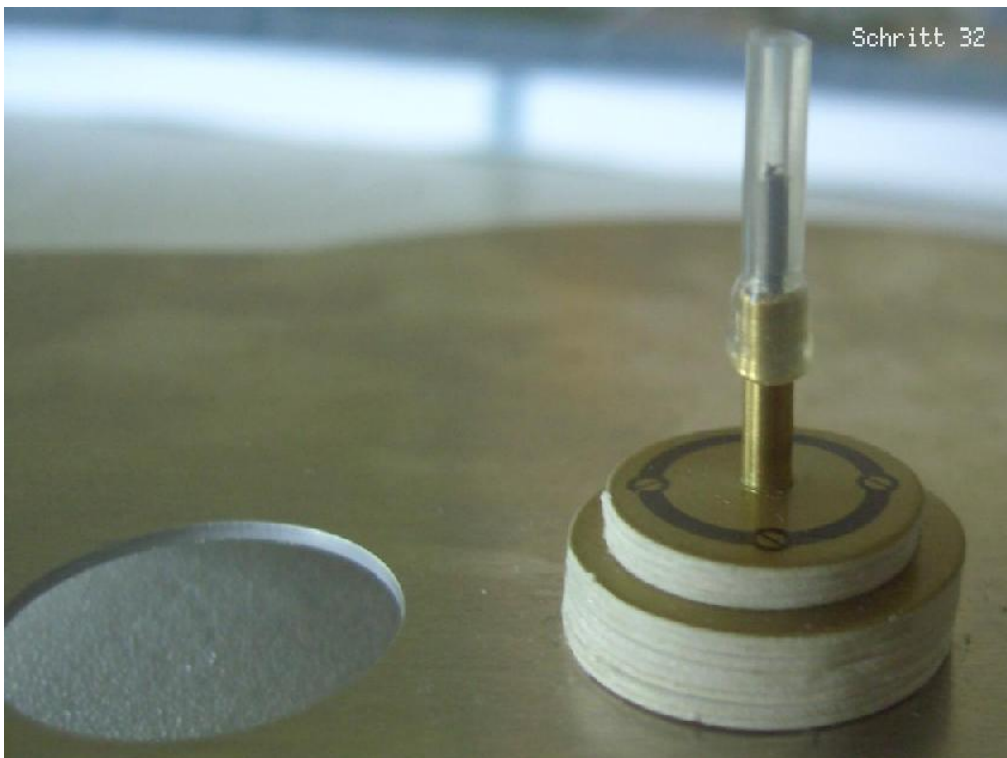
Step 29: Finished working piston



Step 30: Connection of working cylinder and piston.



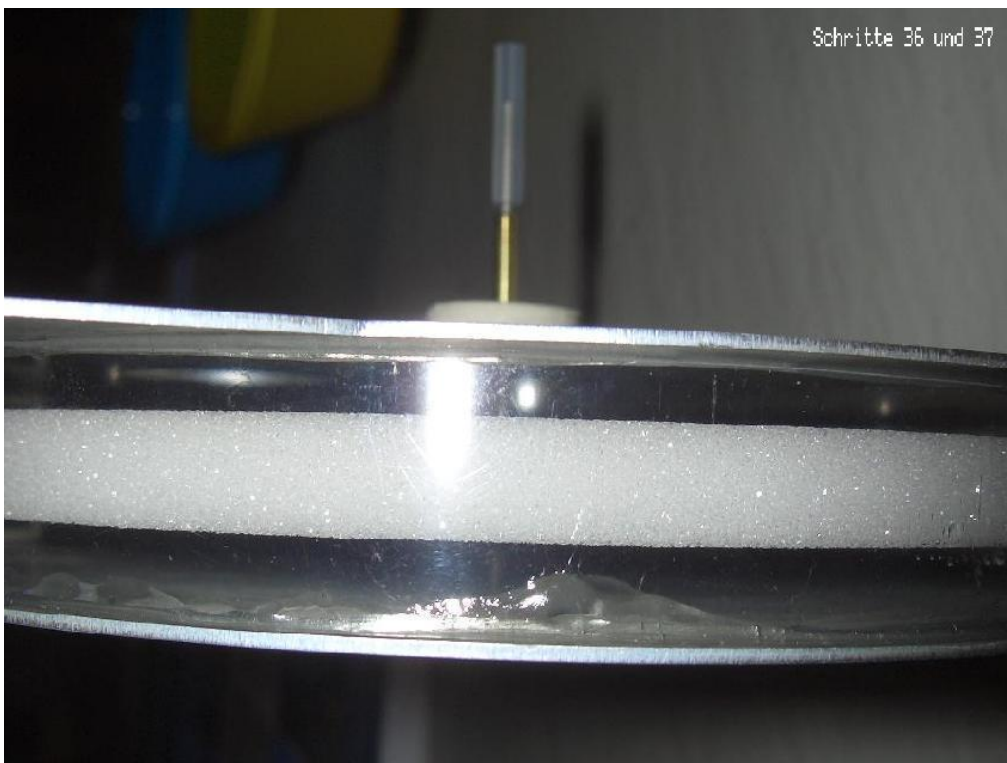
Step 31: Fixing the seal to the working cylinder, the knot of the yarn was fixed with superglue.



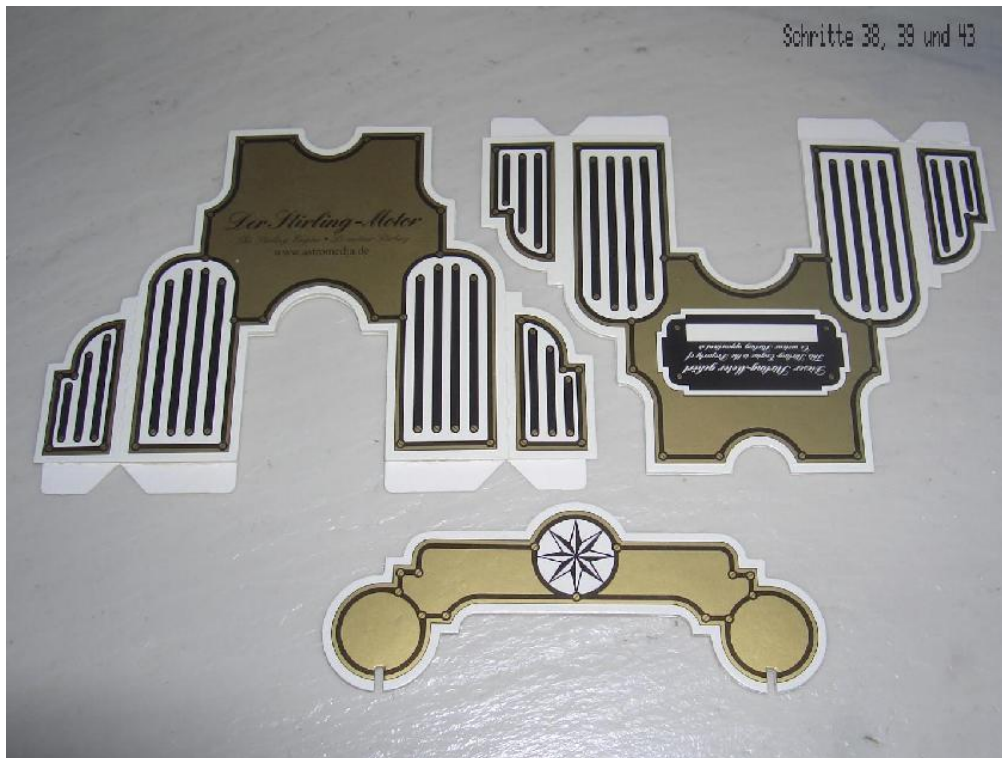
Step 32: Silicone tube on the axis of the compressor piston, initially used as an assembly aid for the next work step.



Steps 33 – 35: Gluing the cylinder cover to the cylinder wall.



Steps 36 & 37: Position of the compressor piston during bonding and silicone hose already adjusted for operation on the piston axis.



Steps 38, 39 & 43: The stand and the handle are glued together in 4 layers of cardboard.



Steps 39 – 42: Stand with angled supports and view into the mounting holes for the bearing holders.



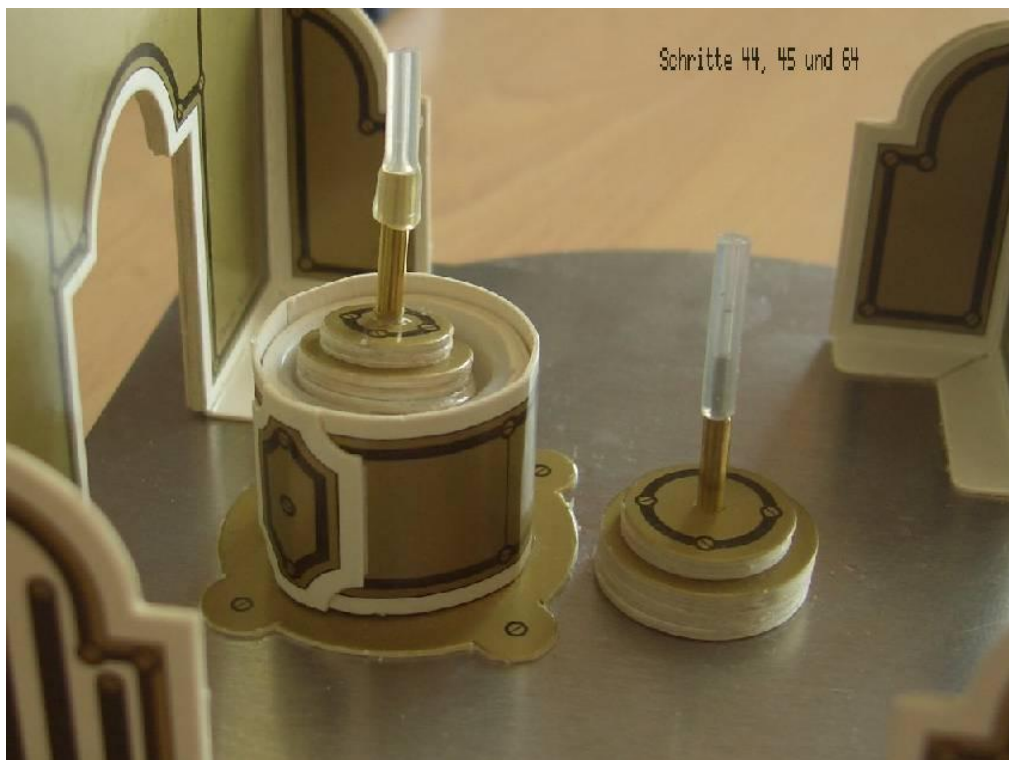
Step 46: Individual parts and assembly of the connecting rods.



Steps 47 – 50: Pre-assembled connecting rods and axle bearing brackets. The open cardboard surfaces can be easily adapted to the printed surfaces.



Steps 51 – 57: The parts needed to assemble the crankshaft.



Steps 44, 45 & 64: Working cylinder with outer wall guide element of the compressor piston.



Lacquering of the open carton surfaces for visual refinement.



Completed model.



A look at the mechanics.



Ready for the functional test.