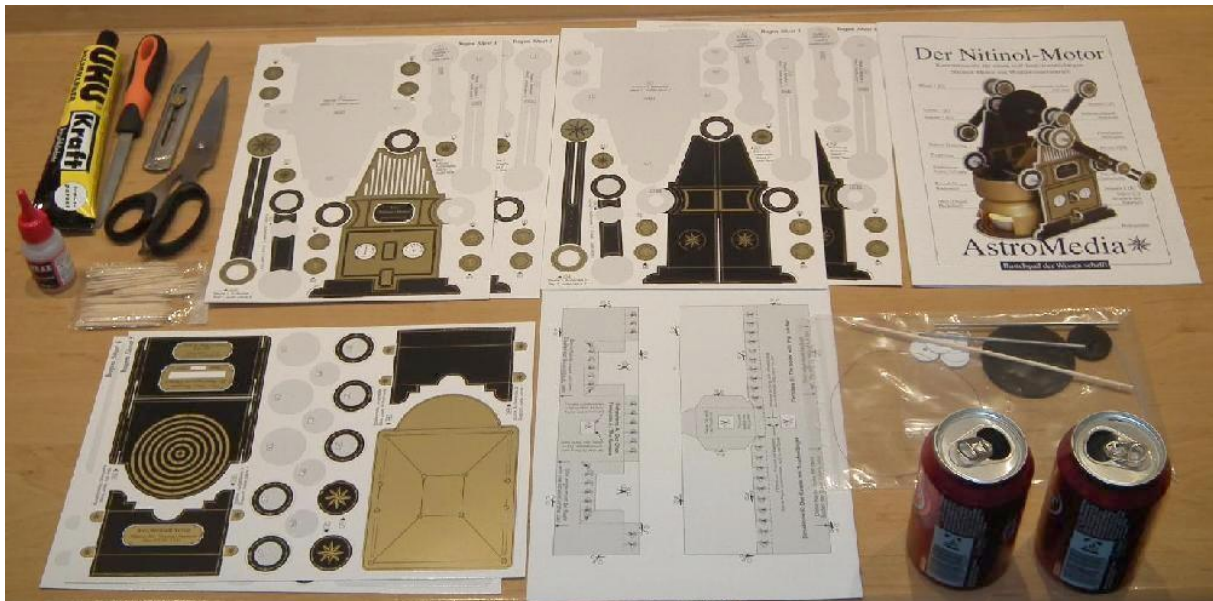


## Illustrated construction manual: The Nitinol Engine

© Michael Monscheuer

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



Freshly unpacked and the necessary equipment and tools at hand.



Other useful tools, the use of which is shown or described below.



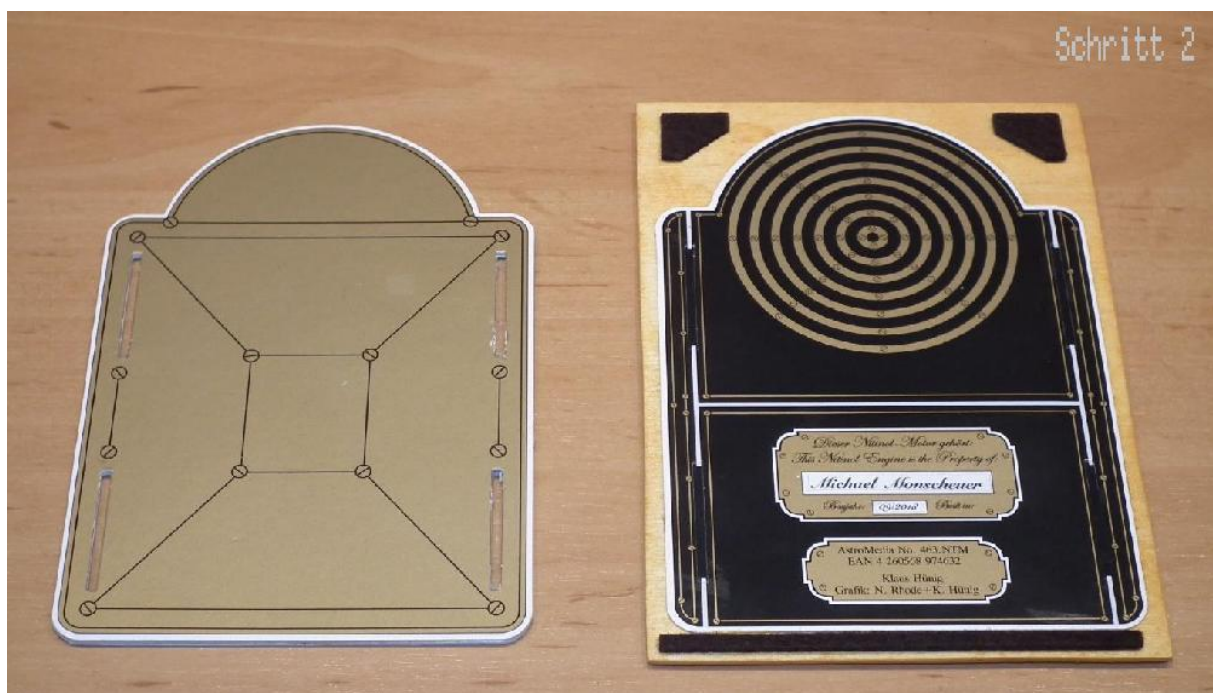
The picture shows the assemblies to be joined together from the cardboard parts during the creation of the model and illustrates which parts will be created.



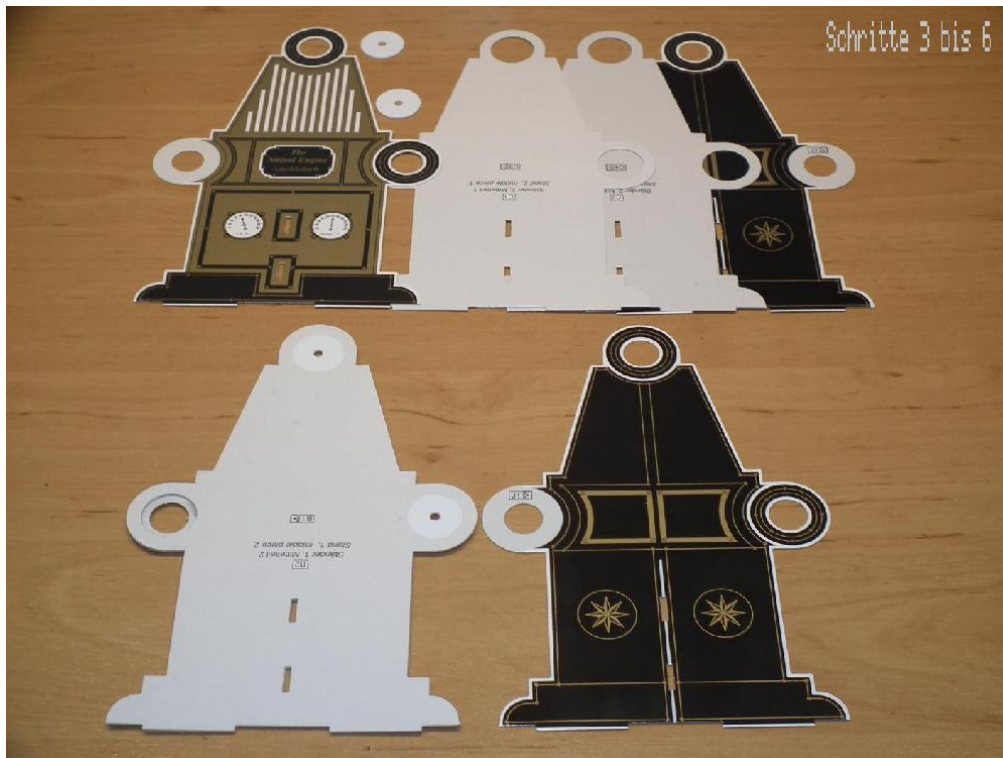
The parts needed for **steps 1 and 2**. In step 1 the two middle parts at the bottom right are glued together. The two parts at the top right were made by yourself and are not included in the delivery - see step 2 for more information.



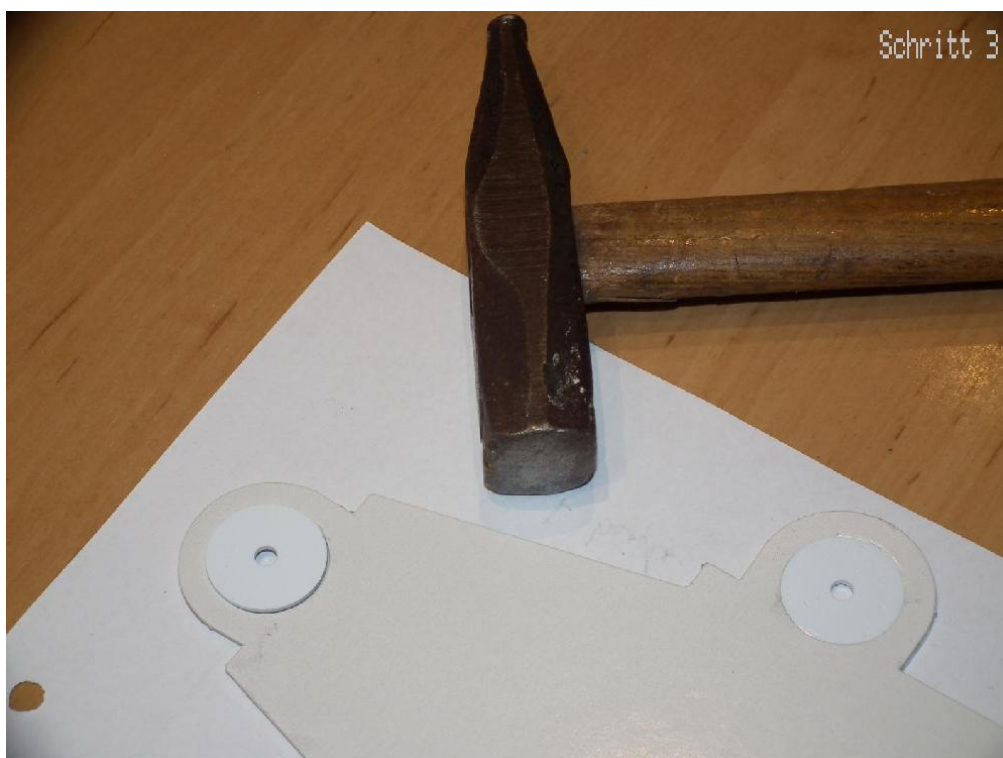
In **step 2** we deviated from the assembly instructions. First, the middle parts of the base plate and the underside are glued together under pressure in order to achieve an absolutely flat part.



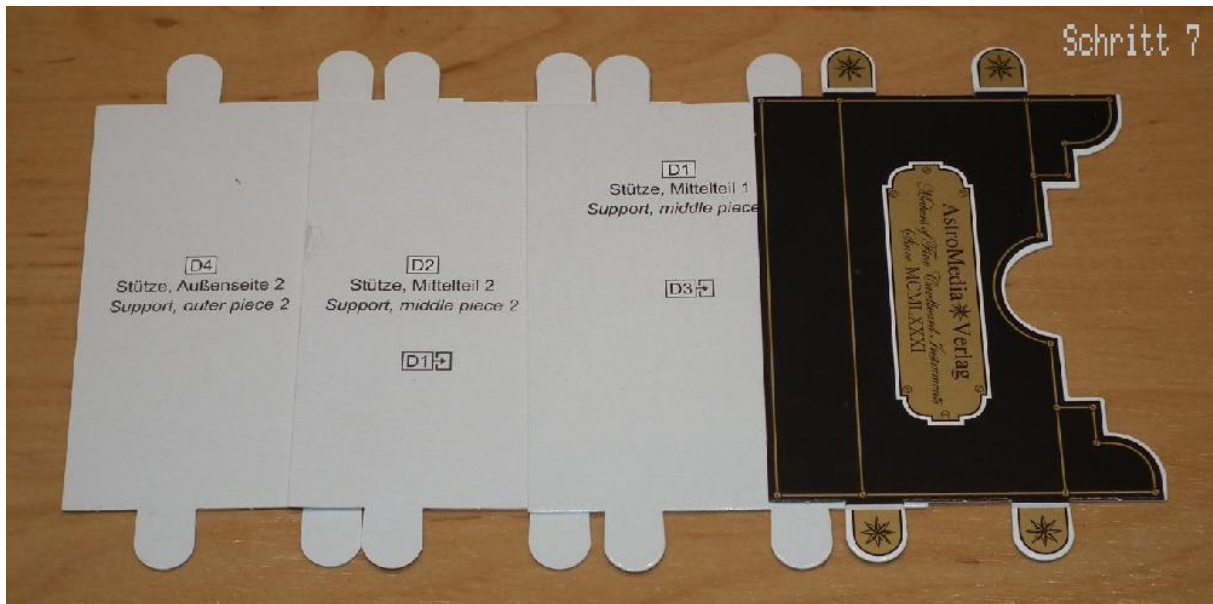
**Step 2:** For stability reasons, the base plate was extended by a plywood plate treated with shellac and painted black on the chamfered edges. The bottom of the wooden plate was provided with "feet" made of felt cuttings. The builder only realised later that he had mixed up the bottom and the top...



The parts for **steps 3 to 6**. In the lower part of the picture you can see the almost finished first stand, on which only the inside needs to be glued.



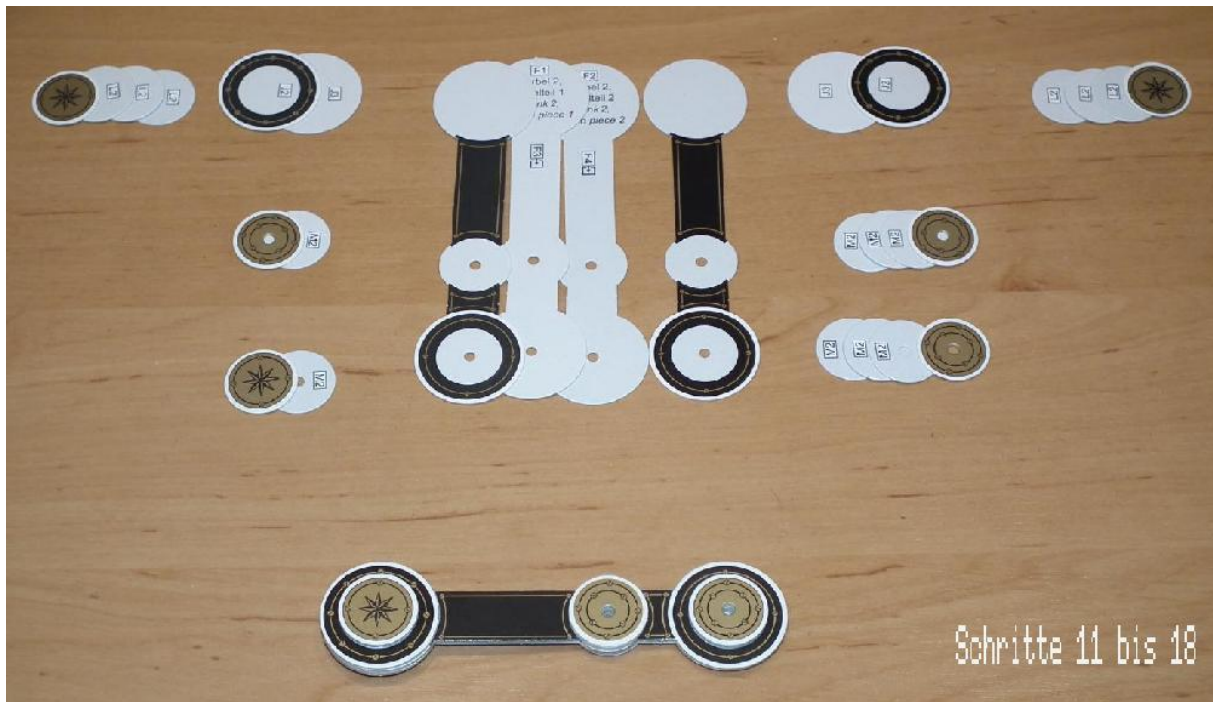
**Step 3:** A well-aimed and powerful blow with a hammer facilitates the insertion of the bearing washers.



**Step 7:** The parts of the supports, ready for gluing.



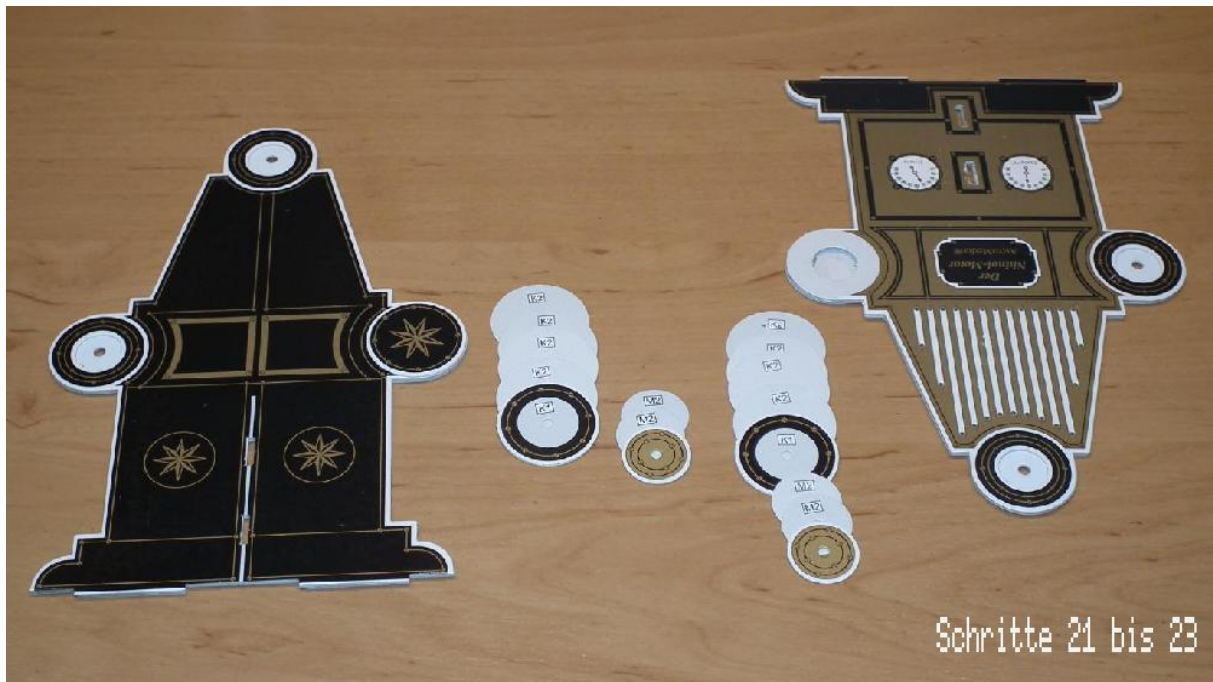
Assemble the stands and supports according to **steps 7 to 10**. In deviation from the assembly instructions, steps 21-23 (see below) have already been carried out, which facilitates the assembly of the connecting rod guides.



**Steps 11 – 18:** The parts of a crank ready for gluing and a crank already finished except for the connecting rod axle.



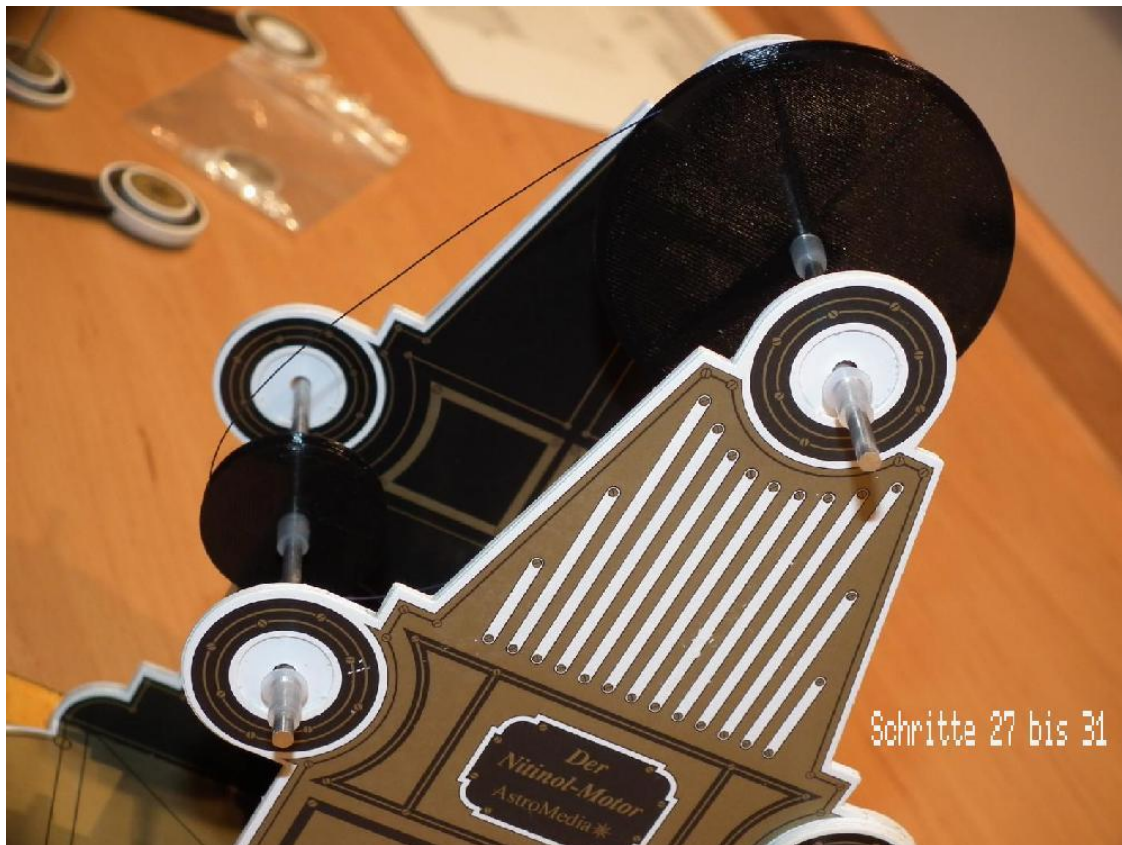
**Steps 19 – 20:** The parts of a connecting rod ready for gluing as well as an already finished connecting rod.



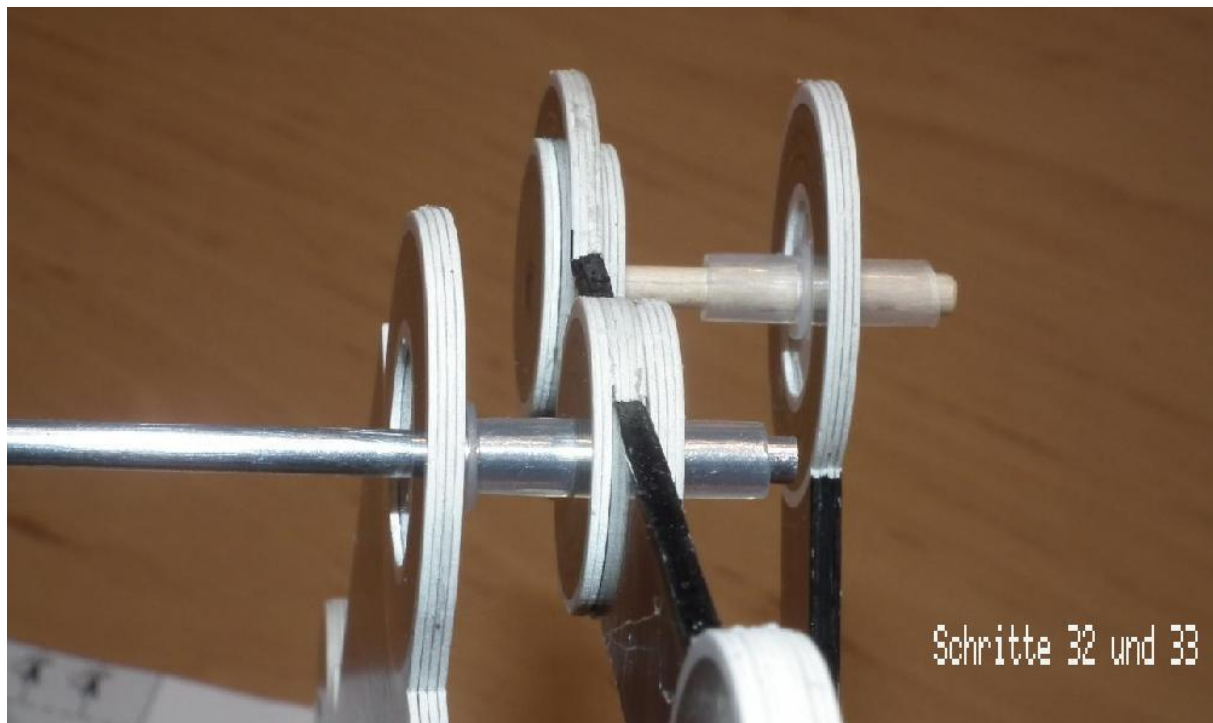
Steps 21 to 25 describe how to make the connecting rod guides, the parts of which can be seen here in the picture for **steps 21 to 23** (and 25) with the stators. In deviation from the instructions, the parts of the connecting rod guides have already been attached before mounting the stators - which is easier lying horizontally and flat on the work surface. The guide pin is inserted later, when the connecting rods are mounted.



**Step 26:** Creation of the hose sections for the fixations on the axles.

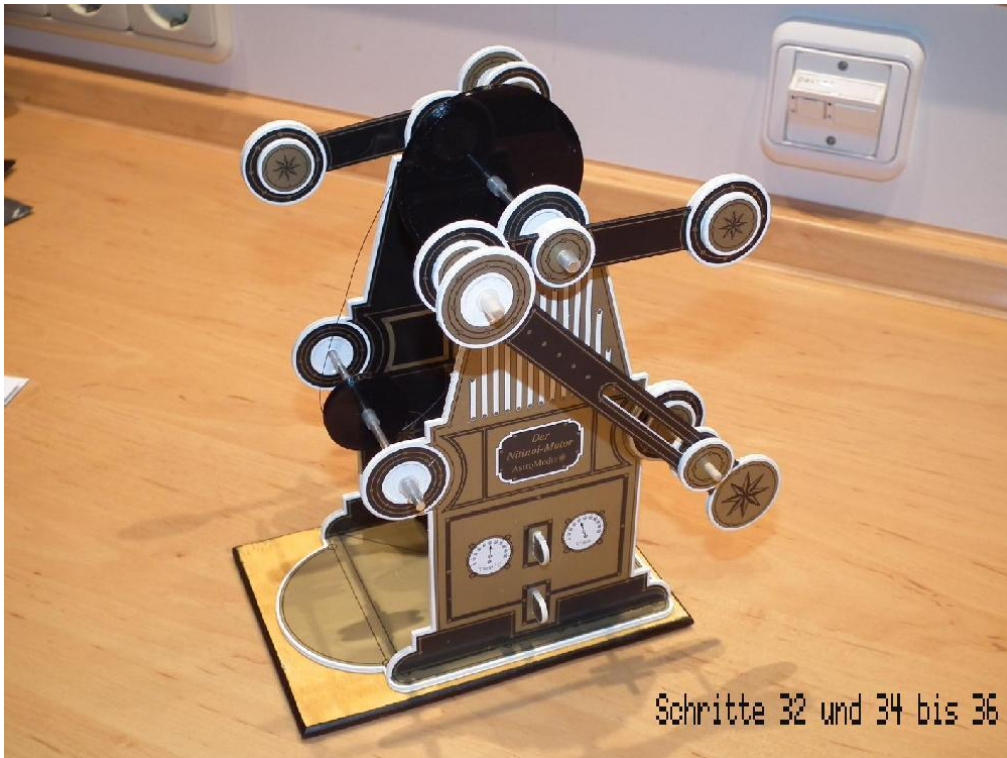


The running and driving wheels assembled according to **steps 27 to 31** with the nitinol wire.

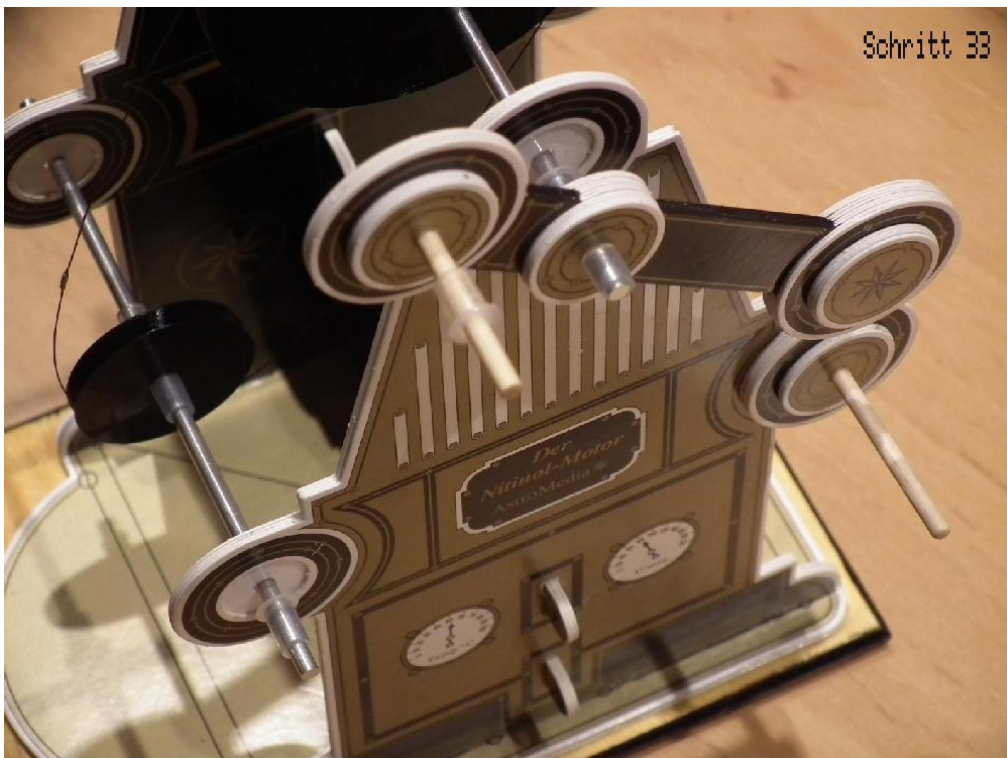


The picture shows the crank mounted on the running axle and the connecting rod mounted on its wooden axle after carrying out **steps 32 and 33**. The wooden axles were fixed in their holders with superglue.





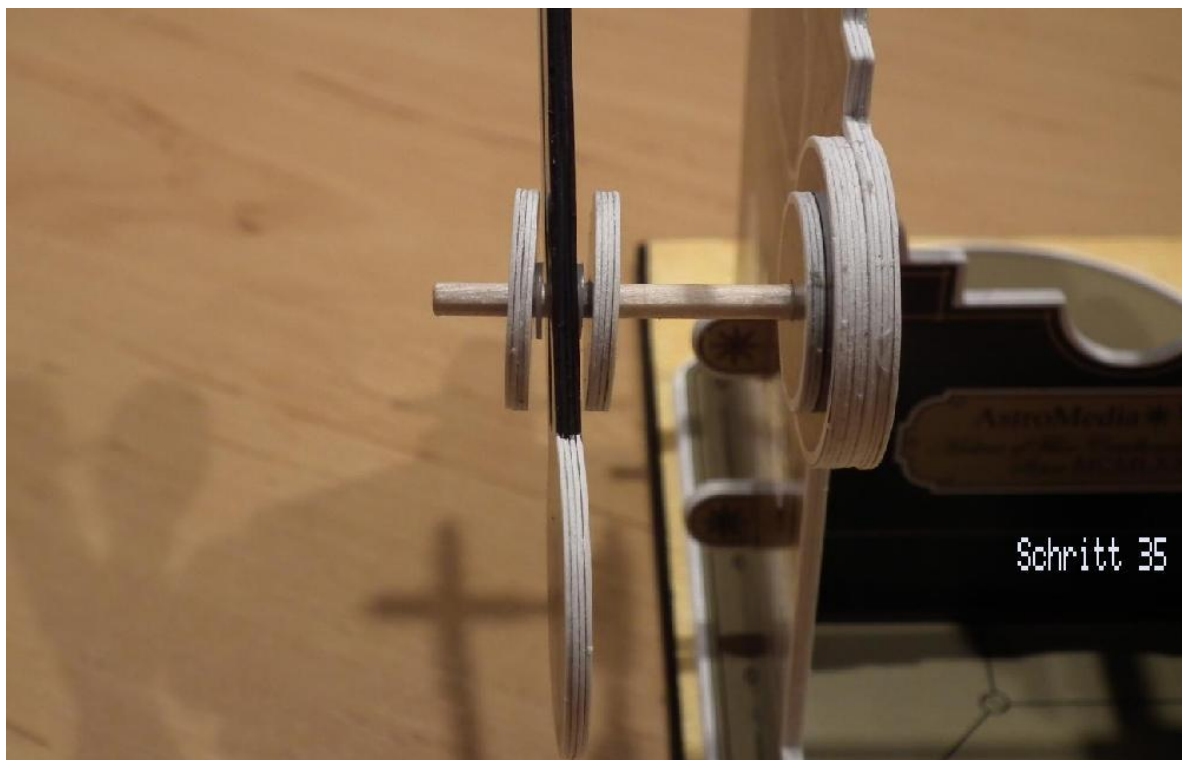
The condition after completion of step 36 after cranks and connecting rods have been assembled according to steps 32 to 36.



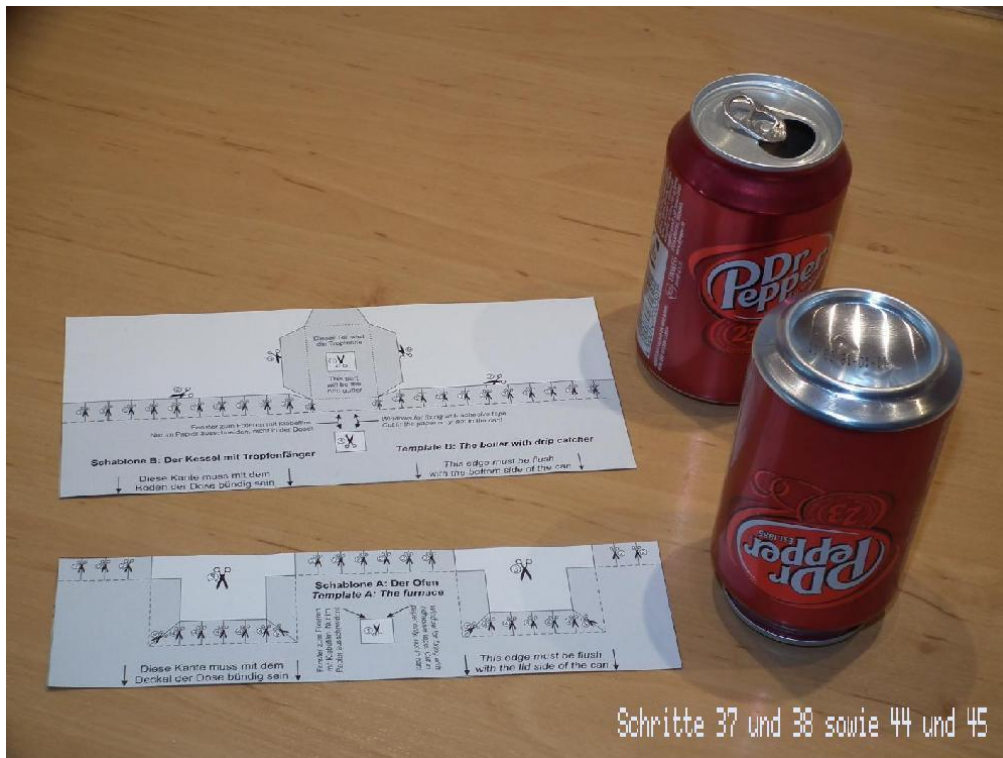
**Step 33:** Mounting a crank on the wheel axle.



Creation of the connecting rod guide discs according to **step 34**. One part of the support seems to be missing two parts M2 - therefore there are four M1 too many. Two of the excess M1s were used to replace the missing M2s.



**Step 35:** Connecting rod guide axle and discs in detail.



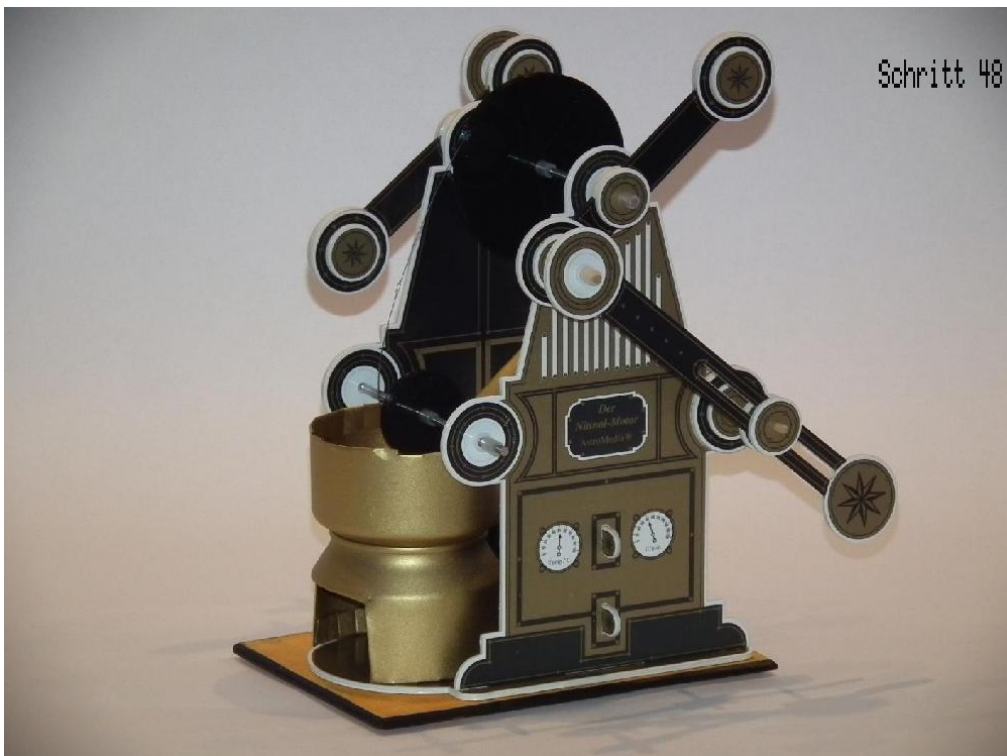
**Steps 37 & 38 as well as 44 & 45:** Stencils and beverage cans for the stove and the kettle.



**Steps 39 – 43 + 46 and 47:** The finished cut-to-size and folded stove (on the left in the picture) and the boiler still being worked on.



After the kettle was finished according to **step 47**, the stove and kettle were coated with golden spray varnish.



**Step 48:** Stove and boiler inserted in the engine - ready for commissioning.